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# Rise of the humans 3

**Shaping the workforce  
of the future**

KPMG International



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# Introduction

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**E**xtraordinary advances in technology are poised to dramatically transform the 'traditional workforce'. As the pace and scope of change escalate, today's forward-looking business leaders must address a critical question: **What will my workforce – and business – look like as skilled employees and smart machines begin working together?**

The convergence of artificial intelligence (AI), robotic process automation, machine learning and cognitive platforms is at the forefront of the Fourth Industrial Revolution and organizations in every industry need to explore and understand the advancing integration of humans and machines in the workplace. AI will create a new division of labor between bots and bosses – and success will demand the transformation of traditional workforce management and skills acquisition. According to KPMG's 2018 Future of HR Survey, 70 percent of HR executives agree the need for the workforce to be transformed.<sup>1</sup>

As business leaders grapple with today's pressing – and unprecedented – challenges, we provide key insights and learnings that consider aspects of the current environment and intelligent solutions for success, including:

- exploring the emerging impact of AI and related digital technology on the workforce and what it means for leadership and workforce management
- defining a strategic roadmap for organizations seeking clarity on the dramatic impact that AI deployment is likely to exert throughout their workforces
- sharing revealing lessons we've witnessed firsthand during workforce-shaping initiatives involving clients, KPMG and our recent Workforce of the Future projects.

**"It's hard to make predictions, especially about the future."**

Niels Bohr, Nobel Prize-winning physicist

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**In KPMG’s 2017 report *Rise of the Humans 2: Practical advice for shaping a workforce of bots and their bosses*,<sup>2</sup>, we introduced workforce shaping, a new discipline designed for organizations seeking intelligent and strategic responses to pressing questions such as “What should our workforce look like by the middle of the next decade – and which key skills and capabilities will be critical to our survival and success?”**

As *Rise of the Humans 2* noted, the need for accurate workforce forecasting and planning has never been more critical amid the onset of AI and robotics. Tried and true ‘strategic workforce planning’ can no longer provide answers in a world where AI and related advancements are disrupting workforces and rewriting the rules for success. HR leaders will still need to recruit the appropriate talent and skills – while understanding how the size and shape of their workforce will need to evolve to incorporate intelligent automation. Thus, the previous certainties of supply-and-demand forecasting under strategic workforce planning are giving way to *workforce shaping*.

Workforce shaping is an approach that looks at what the workforce needs to be to successfully deliver on defined strategic scenarios for an organization that are 5 to 10 years ahead. The approach emphasizes working from the future scenario and comparing that vision to today’s workforce shape, size, composition and organization. It also keeps more than one scenario ‘in play’ because doing so allows for a greater perspective on possible disruption and ideas for agility. This future-first aspect distinguishes workforce shaping from traditional workforce planning.

**Workforce shaping:**  
looks at what the workforce needs to be to successfully deliver on defined strategic scenarios for an organization 5 to 10 years into the future.

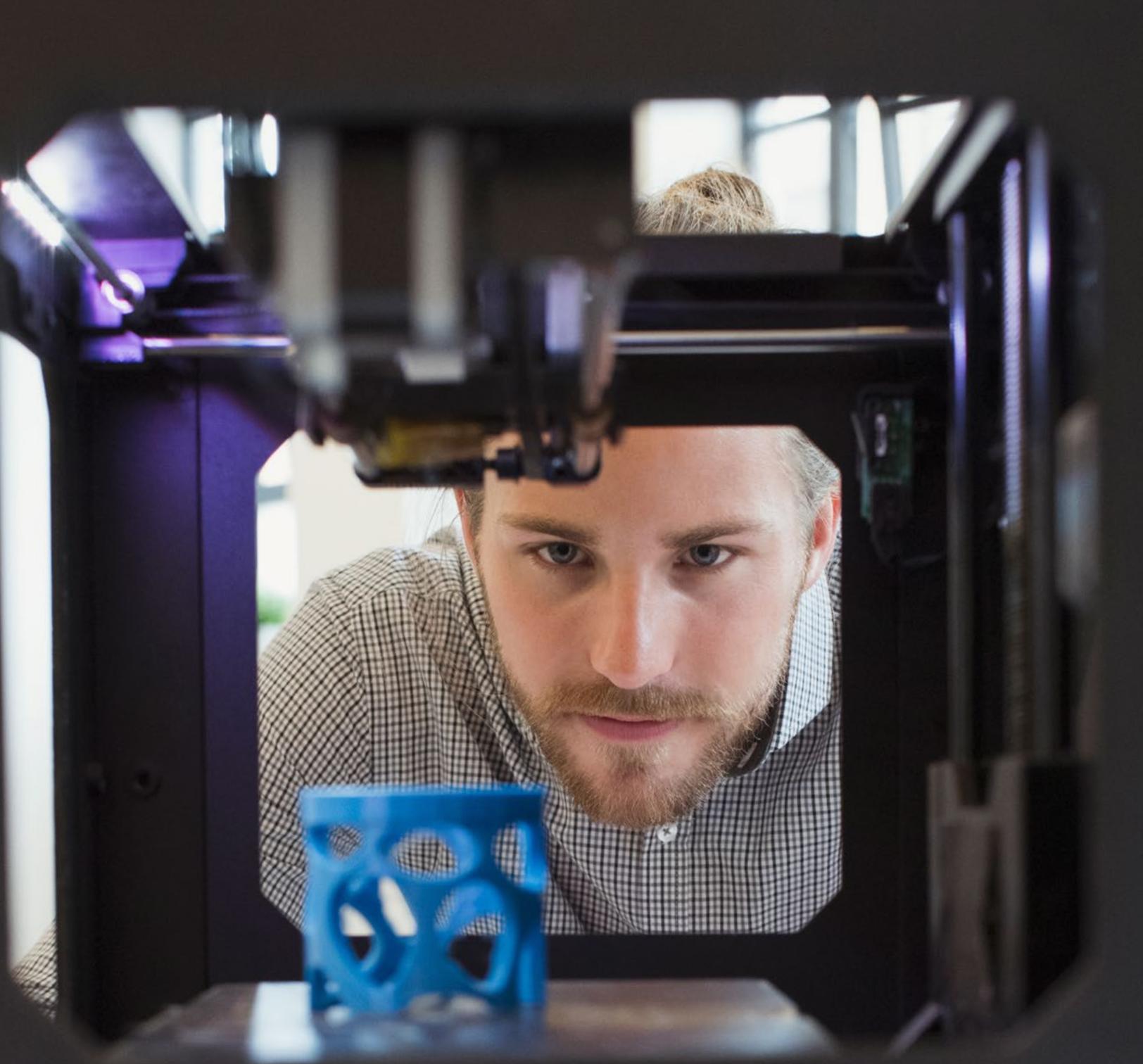
In any sector you care to name – retailing, professional services, insurance, banking, healthcare, life sciences and beyond – predictable planning horizons are collapsing with alarming speed and as they do, even the experts cannot agree on AI’s ultimate workforce impact. Some predict jobs will multiply following a disruptive transition period. Others foresee a net loss of jobs to the economy and warn of the need to explore policy solutions such as a universal basic income or a reduced working week.

In KPMG’s 2018 *Global CEO Outlook Study*, for example, 62 percent of business leaders said they believe AI will create more jobs than it eliminates.<sup>3</sup> Meanwhile, HR executives surveyed in 2018’s *Future of HR Study*<sup>1</sup> said they believe the opposite – with 60 percent saying AI will eliminate more jobs than it creates.

Added to other global studies, the jury appears to be out as far as predicting AI’s macro-economic impact on the workforce. However, as the future of AI unfolds and its workforce impact becomes clear, the immediate and pressing concern for business leaders will be understanding how AI is poised to transform their organizations – and how they should respond today to ensure future survival and success. We believe the indicators suggest that business leaders should focus first on AI’s microeconomic impact on their businesses – acting now to prepare for the changes that are likely to be both needed from within and unleashed from beyond.

**60%** of HR executives say AI will eliminate more jobs than it creates.<sup>1</sup>

**62%** of CEOs said they believe AI will create more jobs than it eliminates.<sup>3</sup>



**“The conventional view serves to protect us from the painful job of thinking.”**

John Kenneth Galbraith, economist

# AI's impact in reshaping organizations and workforces

**Rise of the Humans 2** observed that AI will initially reshape jobs by automating, reorganizing and dramatically redefining work at the task level rather than automating entire jobs. Indeed, it's already happening.

According to one senior HR leader at a large global bank: "The HR function is moving from a world where it used to match people to jobs to a world where it matches skills to work."

This atomization of jobs – an unprecedented division of labor between bots and employees as AI takes on not only tedious, repetitive, low-value job functions but also increasingly cognitive tasks such as medical diagnosis or financial loan approval – holds significant implications for organizations and their workforces, among them:

## 1 The emergence of 'boundary-less' functions and, in time, functionless enterprises

AI affects tasks not jobs. Job atomization opens the possibility of reconfiguring organizations and radically transforming their job functions and processes. If organizations want to achieve productivity gains from deploying AI, they need to reorganize work at the task level, otherwise it will have a fractional 'arms and legs' impact from AI which likely won't deliver productivity gains. Our work with businesses in today's insurance sector, for example, illustrates this fast-emerging fluidity in work structures and the way tasks are performed as AI technology enters the workplace. Traditional insurance underwriting can be highly automated by AI but, as one multinational insurer observed, any reduction in traditional underwriting work has coincided with the emergence of a new role embracing both underwriting and adjacent disciplines such as risk consulting and product development.

Similarly, an engineering firm described an emerging discipline that's focused on engineering information integration. This new role draws on a systems-thinking mindset and disciplines and connects traditional engineering disciplines underpinned by such technologies as 'digital twins.'<sup>\*</sup> They also commented on the fact that these skills and capabilities are not adequately covered in the training and education of engineers, which was seen as too narrow and not oriented toward a systems-thinking mindset and capability.

We will witness similar changes affecting jobs in all sectors and industries in the future – from HR, IT and finance managers to professionals in journalism, medicine, engineering, law, accountancy and beyond. Business leaders all describe similar dynamics at play amid the adoption of AI and related technologies. They can be summarized as follows, based on the conclusions of a major global bank that explored the impact of AI on their work structures and organization:

- the belief that there will be a reduction in the number of people employed for any particular role
- bigger, more systemic and integrating roles for those who remain
- roles evolving to embrace adjacent job functions
- the need for organizations to be increasingly agile and networked to deliver greater cross-boundary connections and collaboration among job roles and tasks
- decision makers having access to 'one source of the truth' as decision-making becomes cognitively enabled by AI and new data-based insights.

<sup>\*</sup> Digital twin is a virtual copy of a process, people, places, systems, devices or object.

**Job atomization:**  
the decomposition of jobs  
into their component tasks.

## 2 The need to reinvent the way work gets done in order to realize productivity gains

The unfolding reinvention of work is a historic opportunity. Yes, AI will have both a disruptive and a disturbing effect on workers, especially in the short term. But it will also deliver remarkable new opportunities for skilled employees to play to their strengths, while unleashing new levels of productivity and value to employers. This is particularly significant when you consider that business productivity has not boomed in proportion to the untold billions of dollars invested in technology in the last 10 years, notably in non-manufacturing sectors.

Research by the KPMG Data Observatory and the Data Science Institute at London's Imperial College<sup>4</sup> suggests that the productivity puzzle will continue even amid AI's introduction unless we inherently rethink work. Why? Because AI will, at least initially, affect tasks *within* jobs, not *whole* jobs. Therefore, potentially significant productivity gains will be realized only if work, processes and organizations are reinvented to assign, integrate and optimize the roles performed by machines, humans with machines, and humans alone.

The gig economy offers a perfect example of how work will be transformed in the future, how the global workforce will be impacted, and why workforce shaping is vital for the future. More skilled professionals are rejecting the 9-to-5 working life and choosing the gig economy as a long-term career and lifestyle choice. Some 54 percent of independent workers have embraced flexible work by choice to meet their personal needs and goals, according to research by Adecco and LinkedIn.<sup>5</sup> 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 temporary solution.

This phenomenon poses a new 'innovation imperative' for modern organizations and there are early signs that forward-looking leaders are finally waking up to this reality. The Economist <sup>6</sup> magazine recently suggested that perhaps the lingering 'productivity paradox' is slowly becoming extinct. Whether there will be less work for humans to do in the future is the subject of much debate – but not the point of our discussion. What we do know for now, however, is that if business leaders embrace the need to strategically reinvent their organizations via AI investment, the impact on how efficiently, productively and profitably tomorrow's workforces can operate will be unprecedented.

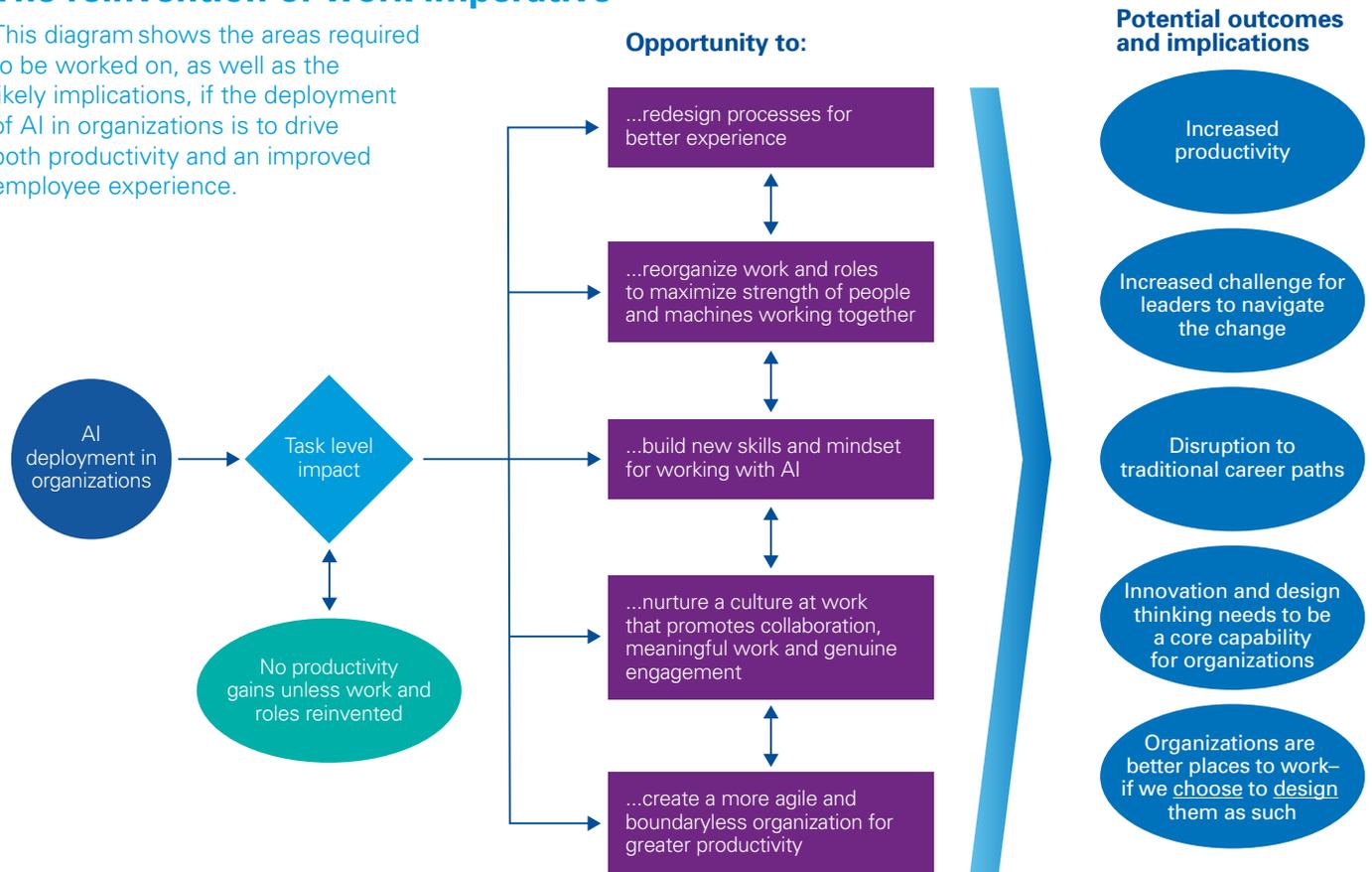
In just about any industry, the use of AI will affect how humans in evolving roles interact with each other. Consider healthcare around the world, which is under intense strain. Productivity gains arising from AI and new technologies can bridge the current productivity gap and help the sector meet soaring future demand for health services as the global population ages.

In this scenario, more people will be needed in healthcare. But as Mark Britnell, Global Chairman of Infrastructure, Government and Health at KPMG points out in his forthcoming book *Human: Solving the Global Workforce Crisis in Healthcare*,<sup>7</sup> health-sector workers will need different skills within redefined roles that relate to each other in diverse new ways. Pharmacists will operate wellness centers, treatment and consultation will move to virtual interaction supported by AI, and care pathways will be completely redesigned via cognitive AI augmentation.

**In just about any industry, the use of AI will affect how humans in evolving roles interact with each other.**

## The reinvention of work imperative<sup>8</sup>

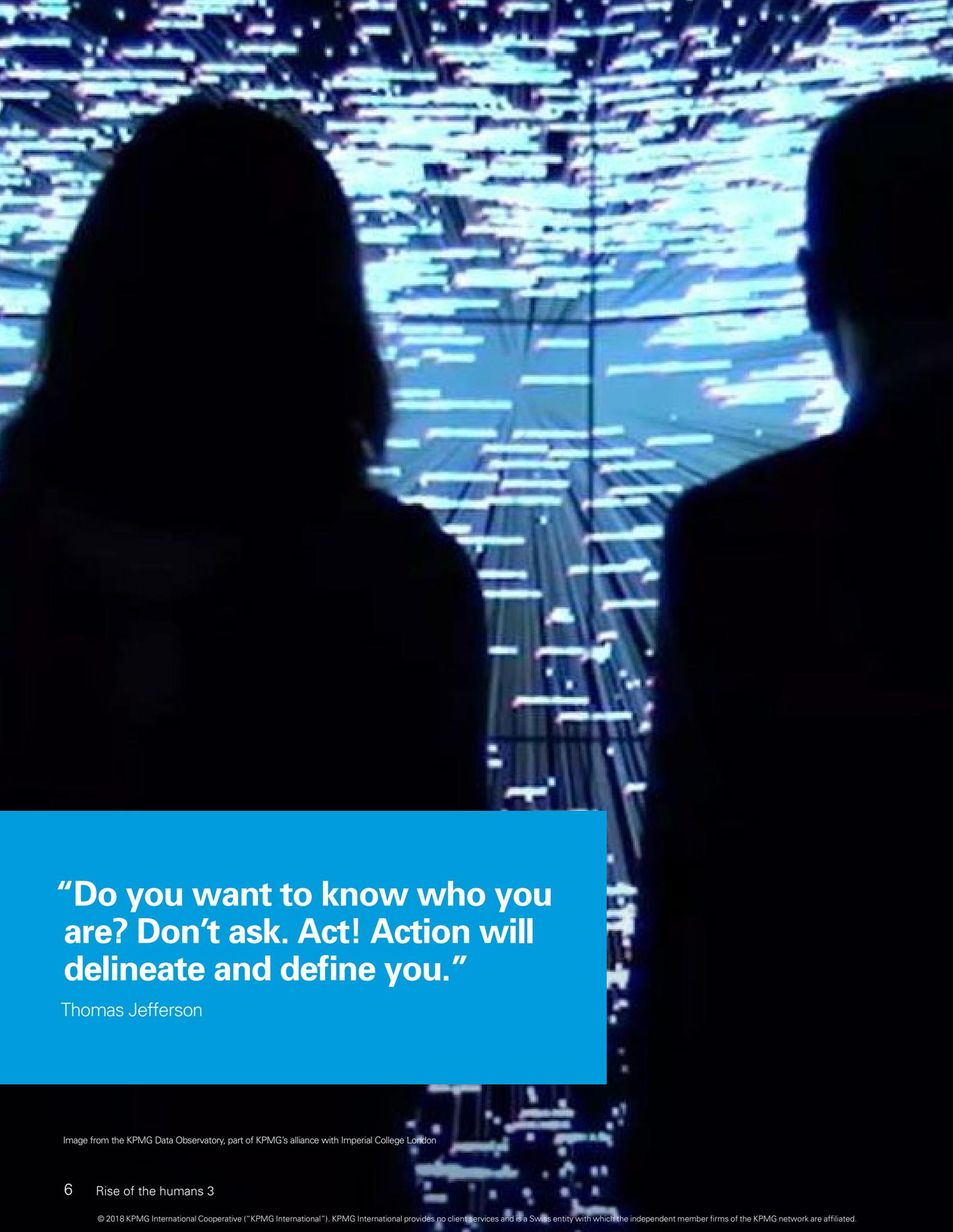
This diagram shows the areas required to be worked on, as well as the likely implications, if the deployment of AI in organizations is to drive both productivity and an improved employee experience.



What does this all mean for future skills requirements in health? In a world with new clinical pathways, AI enablement and evolving roles, diverse – and diversified – new skills will be in demand. As the OECD report *Health Employment and Economic Growth: An Evidence Base* (World Health Organization, 2017)<sup>9</sup> notes: “A large proportion of doctors and nurses reported being over-skilled or under-skilled for some of the tasks they need to perform. Around 70 percent of doctors and 80 percent of nurses reported being over-skilled for some aspects of their work, while about 50 percent of doctors and 40 percent of nurses reported being under-skilled for other tasks.”

As Britnell points out: “A more sober analysis of the tasks needed to care for patients over the next decade would strongly suggest a greater need for generalists and peripatetic community workers, supported by cognitive assistance, artificial intelligence and robotics. The tribal demarcations between health and social care (in the National Health Service (NHS) there are over 300 job types) must give way as clear pathway management will standardize many tasks that will enable new sources of labour to be employed and drawn from local communities.”

This technology-driven dynamic in health will be repeated in insurance, accountancy, legal, retailing and pretty much any sector you can name, making the reinvention of work to integrate AI critical and the transition to *workforce shaping* inevitable.



**“Do you want to know who you are? Don’t ask. Act! Action will delineate and define you.”**

Thomas Jefferson

Image from the KPMG Data Observatory, part of KPMG’s alliance with Imperial College London



# Roadmap to action

**One of the most-powerful tools we've developed to support workforce shaping engagements is the Future of Organization Caster (foo.castr) at the KPMG Data Observatory, a collaboration with the Data Science Institute at London's Imperial College. This innovation allows us to combine powerful visualization, data analytics and machine learning in ways that illustrate to business leaders the impact of AI on their workforce.**

The Data Observatory is used with both HR leadership and C-suite teams to reveal how their workforces can be dramatically transformed over the next decade. This helps to inform decision-making involving which capabilities to invest in and the workforce priorities and actions they need to address in the short and long term.

We have taken banks, insurance companies, utilities, hospitals, pharma companies, legal firms and, of course, our own organization to the observatory to examine the exciting and unprecedented future possibilities that exist for workforces.

This is producing timely and instructive insights for all employers concerning the future of work:

- AI will affect how organizations perform tasks and apply skills, rather than replace entire jobs. We will probably have to wait for general AI before we see wide-scale reshaping of jobs. Currently, AI is narrow in scope but will affect various aspects and tasks within countless jobs in our economies and, in doing so, will exert a wide social impact.
- AI's task-level impacts will, as noted, require the organization of work to be reinvented in order to realize productivity gains and this represents an unprecedented opportunity to make work more human and engaging as machines take on repetitive, lower-value tasks. The future is not solely digital and AI-based but a genuine reconciliation of all that is human and all that is digital, giving business leaders, policy makers and politicians an extraordinary opportunity to truly transform the world of work as we know it.

Managing the workforce of the future in ways that productively integrate AI into the enterprise raises big questions and places significant demands on leaders and HR practitioners. We see the areas that need to be explored, designed and developed for future success as follows: skills for the future; sources of talent; structure and organization of the workforce; services to enable the workforce; culture of the organization; leadership of change and transformation.

## Skills for the future

Leaders should be asking themselves and their organization today: 'What critical skills and capabilities do we need for the future and how do we begin developing them?' As organizations pursue workforce shaping, the skills agenda can crystallize very quickly to reveal how the current learning and development function becomes inadequate amid the scale of retraining that's anticipated. For example, AT&T is undertaking a significant re-skilling of 100,000 employees in order to thrive in the next decade as an organization that is capable of delivering "software-defined networking."<sup>10</sup>

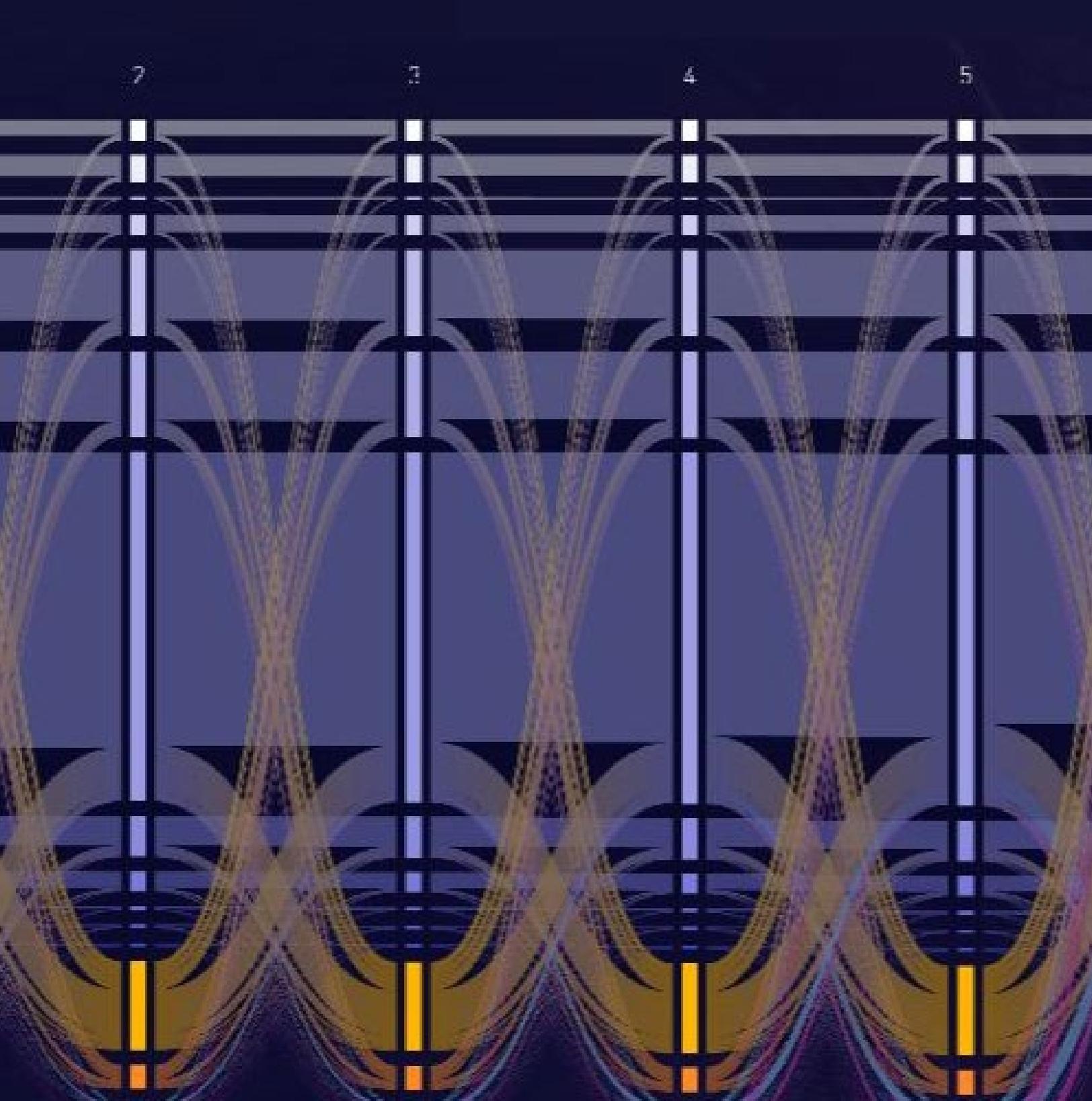
We see that strategic workforce re-skilling is the number one priority among industry sectors experiencing digital disruption. Such re-skilling needs to consider the new tasks, processes and business models that are possible for the organization, rather than simply managing the need to 'live with' and accommodate existing technology investments. This is as much about future innovation and skill building as it is about current operational needs.

## Sources of talent

It is critical to understand where the organization will source highly skilled workers needed for the future.

- In particular, what is the optimum mix of worker types required in the short, medium and long term?
- For example, which parts of the workforce will employ direct or core employees, versus contingent and gig workers?
- Also, what aspect of the enterprise value chain might be more cost-effective using third-party organizations such as supply-chain partners or professional services?

This three-part workforce structure is what management thinker Charles Handy described 30 years ago as the Shamrock Organization.<sup>11</sup> Now, it's becoming the prevailing reality. For a global UK bank, for example, workforce-shaping analysis identified the need to change from a 60:40 ratio of employees-to-contingent workers to a 40:60 ratio, plus a 30 percent staff reduction by the middle of the next decade, owing to the disintermediation of their enterprise value chain.



# 100,000 employees

**AT&T is undertaking a re-skilling of 100,000 employees — as an organization that is capable of delivering “software-defined networking.”<sup>10</sup>**

Image of an example output of foo.castr workforce modeling, highlighting the task level impacts of AI on jobs and roles

**If traditional job structures and careers are less prominent, there is a greater need to focus on collaboration, engagement with strategy and the ability to build new skills amid emerging task requirements.**

### **Structure and organization of the workforce**

The challenge here is to address key questions on how best to organize the workforce. This will be particularly important for organizations dispatching increasingly agile project teams that are rapidly composed around various themes, projects and initiatives demanding the smart alignment of key skills to specific project challenges. This area also addresses the fact that in a world where the jobs are being atomized into tasks, it becomes important to reimagine the organization's internal structure based upon the atomized tasks and skills. Otherwise, the opportunities and potential benefits from AI will not be realized. Equally, just like workforce shaping, this organization shaping is not a 'once and done' activity. It requires continuous discipline for reorganization in a fluid and agile way. As the CHRO of a global bank told us: "Building an organization and work design CoE within our HR function has been a critical success factor for us in the last 2 years. Through this CoE, we have ensured best practice principles are applied when we seem to be constantly revising and updating how we organize work, processes and people. We don't see this stopping any time soon."

### **Services to enable the workforce**

An atomized and agile workforce also places a premium on ensuring that workers are connected with each other and with the enterprise. If traditional job structures and careers are less prominent, there is a greater need to focus on collaboration, engagement with strategy and the ability to build new skills amid emerging task requirements. Technology applications are already providing solutions to this need for an alternative anchor in the organization and this need will grow as the atomization of work continues to increase.

KPMG is working with Profinda and its software tool for this purpose. It also facilitates and enables communities of practice, and supports collaboration and knowledge sharing. Such tools will become increasingly crucial for success in the changing workforce ecosystem. Additionally, 'services to enable the workforce' involve designing an employee experience that also contributes to the customer experience. To that end, design thinking within applications that can support employees during 'moments that matter' is a growing trend. An increasingly popular example includes apps designed to support new employees. As the CHRO of a life sciences company told us: "This trend for the 'application' of the employee experience will only continue in a world where the job that you do is less of an anchor than the skills that you can deploy in a more fluid way. In this kind of world, the experience that we create for our workers can be a competitive advantage – it creates both a reason to be engaged as well as an enabler to performance when done well."

### **Culture of the organization**

In the future, the old adage that 'culture eats strategy for breakfast' becomes a little more symbiotic – with strategy determining culture and the right culture determining the degree to which a strategy is successful. As we begin to shape and redefine workforces, we also see shaping and nurturing organizational culture becoming an increasingly important enabler of digital transformation. For example, the difference between an organization's strategy being purely about on-demand and online platforms – versus a very different focus on building out adjacent solutions, maybe through acquisitions – translates to entirely different cultures. One is about an ethos of 'rockstar' software engineers and characteristics of accuracy, simplicity and innovation, versus a need to foster end-to-end solution and merger-and-acquisition behaviors.

**As we begin to truly shape and redefine workforces, we see cultural DNA becoming an increasingly important factor.**

### **Leadership of change and transformation**

Because we are already seeing the need for organizations to operate in more fluid and agile ways, with workers operating in more virtual and fluid structures, traditional command-and-control leadership has become redundant. Effective leadership today is about setting direction, providing meaning and purpose, reducing ambiguity and architecting new systems and environments for workers to excel in. The development of new leadership capabilities will be critical as organizations simultaneously transition to redefined workforces while remaining agile in the face of continuing digital disruption.

This agenda for shaping the workforce of the future is both exciting and daunting. It will also be increasingly mission critical for increasing numbers of organizations in all industry sectors. This is not an agenda that can be put off until one sees the first sign of workforce and organization disruption – by then it's too late to act. So what might a roadmap look like for people leaders?

## Organizations have ensured that they have the right capabilities, in the right place, at the right time by focusing on these four steps:

**1**  **Truly understand what the data is telling you:** To bring the data to life, it becomes vital to understand the possible business futures of the organization and its associated business levers (e.g. partner relationships that will be needed, channels to market that will be used, product offerings, etc.); the extent to which they will be pursued (e.g. as an insurance business that currently uses intermediaries as a channel, will you keep all, some or none of them?); and the time frame for this to happen.

**2**  **Build a strategy for your workforce of the future (WFOTF):** This is about understanding future workforce needs and executing a plan of action to achieve overall, long-term aims. It seeks to avoid looking at today and instead works backwards from a future vision to include skills/capabilities, technology/AI, leadership, and work structure, labor supply, people practices and organizational principles.

**3**  **Define a plan to achieve your strategy:** The immediate activity involves understanding the attrition, retention, recruitment and training plans for capabilities identified as 'no regrets bets' or as a common skill for the future. This process should produce a set of initiatives that support the workforce strategy and ensure that workforce change is evenly balanced between short- and medium-term operational focus and longer-term strategic ambitions.

**4**  **Build a compelling story to help the workforce engage with change:** Without the story, Shakespeare's famous tragedy Romeo and Juliet is a set of data that can be graphically plotted on two axes such as 'love' and 'tragedy.' The real art is the story that's told with the data. It inspires, it excites, it saddens – it's a journey told with data. Workforce data in and of itself is interesting but weaving a compelling story that inspires action also requires the skill of storytelling and artistry. Given the uncertainties of the future – and today's need for immediate, short-term results – it's this part of the journey that engages the future workforce audience.

Road to success



Define possible business futures (scenarios)



Map the impacts of AI on tasks



Understand workforce impacts and get a sense of when these changes may happen

A robust set of WF data



Spot common capabilities and skills needed in possible business futures

Understand what your data is telling you



Work out sources of talent and structures and organization of the workforce



Look at what kind of culture, people practices and employee experiences are needed for the future



Rethink services needed to support the organization

# Roadmap for shaping the workforce of the future

Build a strategy for your WFOTF



Understand leadership challenges and how the leadership role needs to be rethought

Clear WFOTF strategy

Define a plan

Determine how learning and development capability needs to be invested in



Design experience for different workforce types



Gather data on common capabilities and skills that exist in the organization today that are relevant for the future or can be adapted and evolved



Structure a set of activities and programs to deliver the skills, structures, services and culture needed for the future



Build a plan and agree how to measure progress

Compelling story to take people on a journey

Develop a compelling story



Develop a compelling story to help people understand the path to the future: visual, inspiring, exciting

Robust plan in place

Outcomes

- Upgraded workforce shaping capability and a new way of engaging with and interrogating people data.
- Workforce change more evenly balanced between short- and medium-term operational focus and achieving longer-term strategic ambitions.
- Strengthened common capabilities.



# Workforce shaping: A view from the front lines

**“Education is what remains after one has forgotten what one has learned in school.”**

Albert Einstein

**Our workforce shaping projects in the insurance, banking, professional services and healthcare sectors have provided the following key learnings.**

**Diversity of perspectives is key:** The success of future workforce strategies will require a sustained focus on gaining diverse perspectives from across the entire organization – the C-suite, operations, procurement, the customer experience, the people function and more. An enterprise-wide perspective ensures that all angles, options and opportunities are considered and understood as the organization reshapes its workforce.

**Future-to-present, not present-to-future:** Workforce shaping demands a different lens compared to strategic workforce planning. Workforce shaping is probabilistic – it depends on the importance of future-based scenarios, while traditional workforce planning tends to start with the current workforce and model it forward in time. Workforce shaping starts with multiple future scenarios and works back to the present day, attaching probabilities and assumptions to potential futures. Probabilities are regularly updated amid ongoing information gathering and horizon scanning. As probabilities change, so do the workforce implications. Reliance on ‘possible business futures’ underpins workforce shaping.

**Achieving the art of the possible, not accuracy:** The objective of workforce shaping is not a definitive answer or 100 percent accuracy regarding future needs. It’s about considering all future options in order to identify preferable, probable, predictable and possible business scenarios that the organization may pursue, along with their workforce implications.

**There will always be ‘no regrets bets’:** Regardless of stark differences between various future scenarios that emerge, there will always be some ‘no regrets’ decisions to make today – workforce actions and new capabilities that your organization can and should implement now, regardless of automation opportunities being pursued. In the insurance sector, for example, we are already seeing the evolving role of underwriting to also embrace risk consulting and product development. A similar redefining of roles will continue to unfold in all industries to increase future capabilities and drive success amid emerging data science tools and machine learning.

**Link workforce shaping to business strategy:**

Workforce shaping must be integrated with the organization's broader business strategy in order to maximize the potential for success. As one banking executive told us, workforce shaping has prompted his organization to include – for the first time – broader and more comprehensive human-capital considerations as part of their business planning, going well beyond simple headcount planning for the next 3-year budgeting cycle.

**Equipping HR for the future:** Workforce shaping is a new discipline, requiring HR to acquire different skills and capabilities that pivot away from traditional talent-management concerns – annual categorization and assessment of employees, roles and performance, and succession planning – and toward a more-sophisticated and quicker matching of skills to tasks and projects. Intelligent workforce shaping needs to focus more on the total workforce and its future requirements. New roles within the HR function will emerge, including a 'workforce shaper' who integrates business strategy, workforce analytics, innovation and the people agenda while understanding both short- and long-term requirements for people and skills across the business.

**A 'Trojan Horse' for change:** Workforce shaping can be viewed as a Trojan Horse for change across the whole employee lifecycle. One mistake we see in workforce planning is driving to one conclusive answer – when success actually depends on sustaining a continuous process. No single aspect of the people agenda is untouched by the impact of workforce shaping. When considering your future workforce, you also need to consider the associated operating model, workplace practices and partner ecosystem that will help you achieve this future. Workforce shaping can be used as a human-capital analysis and audit that fosters the organization's fitness and readiness for the future.

## Intelligent workforce shaping needs to focus more on the total workforce and its future requirements.

**It's a marathon, not a sprint. Pace yourself!** When developing future scenarios and considering various implications amid overarching change, businesses need to consider both the time horizons in which change and innovation will occur, and the likely order in which these will unfold. Future scenarios that appear mutually exclusive can, on closer inspection, be viewed as stages within an unfolding sequence. Building realistic and flexible timelines into various change scenarios serves to strategically sequence changes amid workforce shaping. It also reminds us that workforce shaping is a continuing journey.

**Data Artistry: How you say it is as important as what you say:** Workforce shaping requires 'data artistry' – understanding and shaping 'the story' that data is telling you. Seeing data without understanding the underlying meaning is just looking at numbers. Successfully articulating the impact of workforce shaping to executive leadership means delivering data-based insights that tell a compelling and timely story. Applying data artistry to one insurance organization's data revealed how they could make rapid strides in key talent and process areas such as behavioral economics, systems thinking and the evolution of underwriting into adjacent disciplines such as risk advisory to B2B clients.



# Conclusion:

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for (j<8;j++){  
  piece = $('piece_' + i + '_' + j);  
  if (color == 'black' && piece &&  
      !Draggable(piece_' + i + '_' + j)  
      (color == 'white' && piece &&  
      !Draggable(piece_' + i + '_' + j))  
      es.add('square_' + i + '_' + j,  
            {  
              t: 'piece',  
              class: 'active',  
              data: {  
                function(piece,
```

**“Predicting rain doesn’t count.  
Building arks does.”**

Warren Buffett

# Bringing humans and machines together in tomorrow's workforce

**The future is about humans and machines working together in modern, efficient, productive workplaces that are positioned for success in the 21st century. Capabilities such as design thinking, innovation management, caring, conversing, teaching and systems thinking will be just as important as coding computer programs and creating neural networks. Success in the new workplace will hinge on striking a strategic and productive balance between digital and analog worlds.**

Today's forward-looking organizations will readily grasp the wisdom of reinventing their workplaces in order to optimize the contribution of humans and AI technologies. It's no small task, of course, presenting a challenge that involves leadership, design, imagination and creativity as much as machine deployments. The time to address the workforce of the future agenda is right now. We need to move forward today to address the dramatic and inevitable changes that will unfold in the workplace – and society – over the coming years and decades.

Smart organizations already realize that the speed at which AI will disrupt and redefine 'work' demands a tremendous sense of urgency to equip people with skills that are aligned for the future workplace. Visionary business leaders are preparing to shape their workforces in ways that enable them to adapt, evolve and succeed amid AI's ever-increasing impact.

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# References

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- 1 KPMG, *Future of HR survey*, 2018
- 2 KPMG, *Rise of the Humans 2: Practical advice for shaping a workforce of bots and their bosses*, 2017  
<https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2017/10/rise-of-the-humans-2.pdf>
- 3 KPMG, *Global CEO Outlook*, 2018
- 4 KPMG Data Observatory and the Data Science Institute at London's Imperial College
- 5 Adecco Group and LinkedIn, *Flexible working: A career and life-style pathway*, Nov. 14, 2017
- 6 The Economist, *Britain's era of abysmal productivity growth could be at an end*, April 12, 2018  
<https://www.economist.com/britain/2018/04/12/britains-era-of-abysmal-productivity-growth-could-be-at-an-end>
- 7 Britnell, Mark (2019). *Human: Solving the Global Workforce Crisis in Healthcare*, Oxford University Press
- 8 All Party Parliamentary Group on AI, Big Innovation Centre and KPMG, *Learning to learn: The future-proof skill The reinvention of Work Imperative*, 2018  
<https://www.appg-ai.org/evidence/theme-reports/learning-to-learn-the-future-proof-skill>
- 9 World Health Organization, *Health Employment and Economic Growth: An Evidence Base*, 2017
- 10 CNBC, *AT&T's \$1 billion gambit: Retraining nearly half its workforce for jobs of the future*, March 13, 2018  
<https://www.cnbc.com/2018/03/13/atts-1-billion-gambit-retraining-nearly-half-its-workforce.html>
- 11 Handy, Charles (1989). *The Age of Unreason*. Harvard Business School Press

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