

## THE FUTURE OF JOBS, WORK AND WORKING

“We cannot recruit our way out of the workforce crisis and automation is not going to save us.”

Julia Howes, Principal, Multinational Client Group, Mercer

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## FOREWORD

There are three little words today that are almost guaranteed to set hearts aflutter, “future of work”. We hear a familiar refrain from many of our clients: they want to be nimble and on the front foot to capitalise on growth, but are challenged with investing in tomorrow, while managing the demands of today. The dilemma is compounded by the disruptions outlined in this paper that frequently dominate headlines – from the technologies of the Fourth Industrial Revolution, to non-standard work patterns – and which are reshaping value chains and thus impacting the jobs and skills needed. This leads to concerns about the future, in terms of how to ensure both businesses and workforces thrive. In turn, individuals are getting nervous, as each of us starts to question what the future holds for us personally.

We know that when people are anxious about the future – when they fear their jobs are under threat or they believe their skillset might expire – this crimps creativity and risk taking and we don’t get the type of innovation that helps carry us through times of change. There is no doubt that today’s business environment is dynamic, but it’s not enough for companies to survive to tomorrow, they must thrive.

A fundamental mindset shift is required to navigate these disruptions and truly succeed. People make digital work, and the technology-enabled workforce for the future will be human-led. Putting people at the heart of the transformation is vital. It’s the human side of work – the people, the place, the work environment, the culture – that really differentiates companies. When you see it, you know this is true. Walk inside a thriving organisation and one thing is clear: people are excited to be there. These organisations have a palpable buzz – a sense of energy and vitality that is attractive, enlivening and stimulating.

What distinguishes these exceptional organisations from the rest? Mercer’s research of over 1,700 workers found that employees are more likely to feel confident and committed to their organisation when six critical factors are in place: authentic leaders; meaningful work; organisational agility; clear career paths; a culture of trust; and a company ethos that emphasises a positive impact on society.

These findings confirmed and expanded our understanding of how to create a thriving work environment:

- Thriving organisations redefine success, moving beyond the pure-profit principle to inspire individuals with a sense of purpose and transform work into a compelling experience. They embrace digital and connected ways of working and redesign organisational structures and networks to ensure they can pivot quickly. And they continually review and adapt human capital practices in response.
- A thriving workforce for the future is one that is diverse and adaptable. Managers and teams work together to help everyone feel comfortable bringing their true self to work and unite in their collective growth ambitions. They have thought carefully about how to create a deal that meets the full range of their employees’ needs.
- Thriving individuals feel that they are growing and contributing. They find their work challenging and engaging, and believe the skills and exposure they are gaining will tangibly benefit their career. They are connected and empowered, and they feel healthy and energised with support for their physical, financial, and emotional well-being.

We welcome CRF’s timely research into this important and complex topic, and look forward to the continued discussion on how we make the future of work human and ensure individuals, workforces, organisations and societies thrive.

**Julia Howes**, Principal, Multinational Client Group, Mercer  
**Christopher Johnson**, Mercer Senior Partner, Career, Mercer



## FOREWORD

Prediction is a risky business, especially political and economic forecasting. Think how few correctly predicted the Great Recession, the UK's vote to leave the European Union, the election of Donald Trump to President of the United States, or the slowing of productivity growth, stagnation of per capita GDP, and fall in real wages in advanced economies over the past decade.

Yet despite ever-present ambiguity and uncertainty, it is imperative to organisations' survival that their leaders read the social, political, economic, and technological environments around them and make educated guesses as to what the future holds.

In this new report, CRF does just that. Bearing in mind the difficulty of accurate prediction, the report examines some of the forces shaping the future of work. As populations rapidly age in advanced and developing economies, what are the implications for recruitment, public finances, and economic growth? Has technological innovation led us to the cusp of industrial revolution, or will the changes be slower and less dramatic than we thought? What are the implications of technological change for productivity and for the content of jobs themselves? As the nature of jobs and work change, can we expect knock-on effects for socioeconomic inequality and the political volatility it gives rise to? How is the shape of the workforce changing, and what does that mean for the way we manage people?

The report makes a few cautious predictions. The closest thing we have to a safe bet is that the ability to form, lead, and maintain effective organisations will be key to successfully navigating the future. HR's role in building effective organisations and managing the people within them is likely to remain critical, and so HR leaders will need to continue to sharpen their strategic and predictive skills.

Other predictions are that more diverse workforces, and more diverse working patterns, are here to stay. HR leaders will want to think carefully about how to attract and retain talent in an increasingly diverse landscape. This task is complicated by the likelihood of a continuing competitive labour market. Buying instead of building talent is likely to have its limits, and organisations will want to think increasingly about reskilling to improve productivity, share prosperity, and avoid social unrest.

Ultimately, we can probably expect that the future has more shocks – and disruption – in store. Given the slow recovery from the Great Recession, fiscal pressures, technology-driven changes to the labour market that favour the highly-skilled, and the likelihood that some workers will be left behind by the pace of change, future political shocks may be especially likely.

Having good knowledge of your organisation's strengths and weaknesses and a robust understanding of the external environment, particularly its threats and opportunities, is key to prospering in the future landscape of jobs, work, and working. This report offers readers the chance to strengthen their knowledge and understanding of the relevant political, social, economic, and technological changes that will determine tomorrow.

**Steven Van Hoorebeke**, CEO, SD Worx Group



## ABOUT THE AUTHOR

### Steven Toft

Steven Toft is a writer and business consultant. Before starting his own business he worked in the OD consulting practice of PricewaterhouseCoopers and in HR roles for NatWest, British Gas and RAC Motoring Services.

His blog about employment and the labour market won the Editorial Intelligence Independent Blogger Award in 2013. He has written for *The Guardian*, *The New Statesman* and *Prospect*, and featured on *People Management's* list of the Top 20 social media influencers.

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## ABOUT CRF

Our purpose is to increase the effectiveness of the HR function, in order to drive sustained organisational performance, through developing the capability of HR professionals. With a network of over 210 leading organisations, we continue to grow as the respected focal point and knowledge source for improving corporate and individual performance.

We inform, discuss and guide our members on how to enhance their personal capability, those of their colleagues and, in turn, the effectiveness of the function.

We explore topics through an evidence-based lens. This leads us to critique existing practices with an ambition and desire to progress the influence and impact the function delivers to the business. Our approach is professionally and informally rooted in the principle that adults learn through doing, discussion, reflection and the interaction with others.

### What CRF stands for

- We are alert to the political, economic, technological and social environment in which businesses operate, the continuous uncertainty and potential for game changing-events.
- We understand organisations, the imperatives of robust strategy, agility in implementation and persistence in seeking operational excellence.
- We are acutely aware of the role of people in organisations, the relationship between them, and the systems and processes which bind them together.

**For more details on how your organisation can benefit from CRF membership please contact Richard Hargreaves, Commercial Director, on +44 (0) 20 3457 2640 or at [richard@crforum.co.uk](mailto:richard@crforum.co.uk). Alternatively, please visit our website at [www.crforum.co.uk](http://www.crforum.co.uk).**

# 01

## INTRODUCTION

*The only function of economic forecasting is to make astrology look respectable.*

Ezra Solomon, American economist, 1984.

This famous quote hasn't deterred people from making predictions about the future of work and employment. One thing we can say about the future of work with reasonable confidence is that there are now more articles, programmes, reports and books about it than ever before. Hardly a week goes by without a consultancy, think tank or university serving up an imaginative version of the future.

It's interesting, and sometimes amusing, to look at predictions made about the present day. There were a number towards the end of the last decade which took the year 2020 as the context for their brave new worlds. As that is now only 14 months away we can make a reasonable assessment of how close these predictions were to what we see today. The degree of accuracy is patchy, to put it politely.

To be fair, most didn't foresee the impact of a global crash that almost no-one saw coming and even those that were written afterwards had little idea of how long the effects would last. Projections of things like M&A activity, which is only now getting back to its pre-recession level, were therefore way off beam. The technology predictions, almost inevitably, assumed progress would be much faster than it turned out

to be. In one report, wireless networks, possibly embedded in human bodies, would mean the disappearance of the workplace and a nomadic work pattern. Sure, we see elements of that as 2020 approaches but for most people, work is still a place we go to. Another said that sophisticated software would have solved the data overload problem by now. One even contained the prediction that we would reach gender pay parity by 2020, which will no doubt give rise to a hollow laugh among some readers. What almost nobody foresaw was the big labour market story of the last decade, the slowing down of productivity growth, the stagnation of per capita GDP and the fall in real wages in the advanced economies.

Forecasting is difficult. There are simply too many moving parts to make predictions with any degree of certainty. Social, economic, political and technological change are interdependent. Every so often, something unforeseen, like the 2007-08 crash, the election of Donald Trump and the UK's Brexit vote, renders previous predictions void. How far these events alter the course of history, or are simply symptoms of forces shaping it that no one understood, will be endlessly debated.

Given the poor record of attempts to predict the future, once might expect those attempting it to do so with a bit more humility, yet forthright and confident predictions about the future still abound. After all, that's what sells

books, lecture tours and consultancy services. Maybe this time more of them will be right. What we can say, though, is that, as 2020 approaches, it doesn't look quite as futuristic and revolutionary as the forecasters of the mid-2000s said it would.

As we turn to look at the next couple of decades, then, it is worth bearing in mind that predicting the future is fraught with difficulty. A good place to start is to consider what we know and then make some assessment of the likely developments. We therefore start with the known knowns, the things about which we can be reasonably certain. We know the world's population is ageing and that this will change the make-up of the workforce. We also know that the advanced economies are currently in a period of unprecedented growth stagnation and that this looks to be set in for the near future. From developments in the workforce, in terms of employment type, gender and occupations, we can make a reasonable guess about what the future shape of the labour market might look like. Beyond that, things become less clear.

# 02

## FORCES SHAPING THE FUTURE

There are some things about which we can be reasonably sure, if not about the numbers then at least about the broad direction of travel.

- The population is ageing. One eighth of the world's people are over 60. According to UN projections, that will have risen to one fifth by 2050.
- The geopolitical and economic balance of power is shifting from North America and Europe to Asia.
- The advanced economies have experienced a decade of extraordinary stagnation in productivity, GDP and wages. This is likely to continue at least into the early part of the next decade.

Then there are factors which we know will influence the world economy but where the trends are less clear.

- **Globalisation.** The last three decades saw a rapid integration of economies and supply chains across the world. Is this process slowing and could it even be reversed?
- **Political volatility.** Are the recent political shocks a blip in the world order or do they signal a change of direction?
- **Technology.** Are we on the cusp of the next industrial revolution? Even if we are, will it yield the necessary leap in productivity? Or is the rate of innovation actually slowing down?
- **Climate change.** That the world is warming up is clear but the speed,

scale and impact are difficult to foresee.

Political volatility and the changing balance of power in the world will be the subject of a forthcoming CRF report and space prevents us going into too much detail about it here. Suffice to say, after several decades of relative stability in the advanced economies, politics returned to give the business world some sharp shocks in 2016. With the rise of populism and social tensions in a number of countries, there are good reasons to believe we will see more political developments that impact on business over the next decade.

Likewise, the process of globalisation is likely to be affected by politics and by technological developments. As labour costs in China and other Far Eastern countries rise, it may become both cheaper and more politically expedient to 'bring jobs back home'. Some believe that the period of hyper-globalisation that began in the 1990s may be drawing to a close.

This report will look in more depth at the impact of the ageing population, ongoing economic stagnation, the rapid development (or otherwise) of technology and the shape of the workforce. We start by looking at the thing about which we can be most sure, that the global population is ageing and is doing so at a startling rate.

# 03

## GLOBAL GREYING

For most of human history, population profiles have been pyramid-shaped. A lot of babies were born, many didn't survive beyond their fifth birthdays and, as time went on, famine, disease, accidents, war and over-work killed off more and more so that each year-cohort had fewer people in it than the one before. Only a tiny number of very rich or very lucky people lived beyond eighty. This pattern persisted until relatively recently. Not so now. Population profiles in the advanced economies are now beehive shaped, bulging at the top and narrower at the bottom. Based on an analysis of UK national statistics data, Mercer's Workforce Monitor found that the UK-born workforce peaked in the mid-2010s and is now falling. This raises the prospect of the country's workforce shrinking for the first time in peacetime. The story is similar in most advanced economies.

But this isn't only a story of the Western world. Just as the emerging economies industrialised at a much faster rate, they are ageing at a much faster rate too. As countries become richer, people live longer and they have fewer children. In the emerging economies, birth rates are falling and life expectancy is rising at speed. Consequently, according to UN projections, by the middle of the century the median age in the upper middle-income economies will be almost as high as that of the rich countries.

For some countries, the rate of change is such that it is likely to have a transformational impact on their societies. If the UN projections are

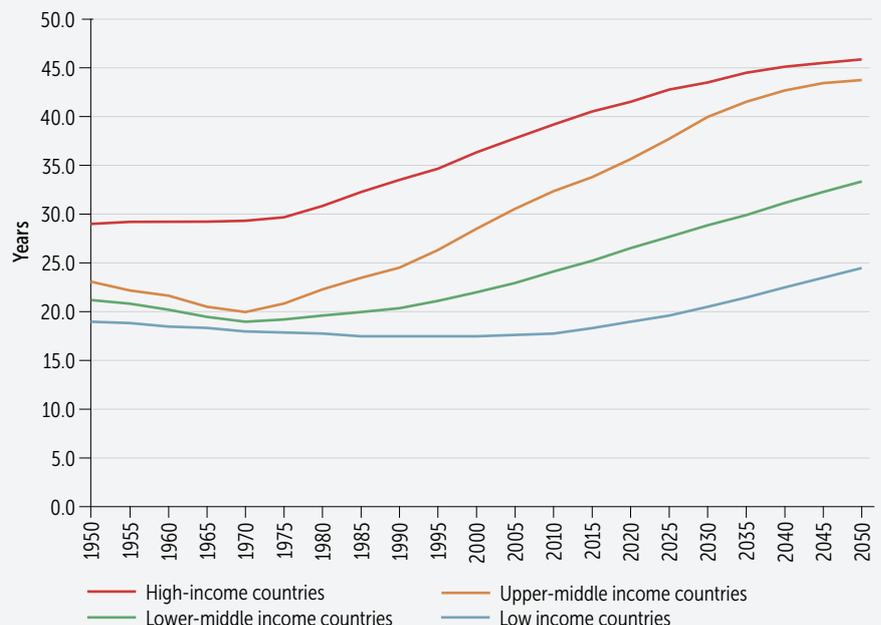
anywhere near correct, places that we think of today as young countries will have a higher median age than many European countries by the middle of the century. Of the larger economies, China, Iran, Thailand and South Korea currently have lower median ages than the UK and the USA but will have overtaken both by 2050. Others, such as Turkey, will be coming close.

The fiscal implications of this are significant, with all countries facing increasing pension and healthcare costs. According to the OECD, China, Turkey

and Brazil are likely to see significant increases in retirement costs over the next three decades.

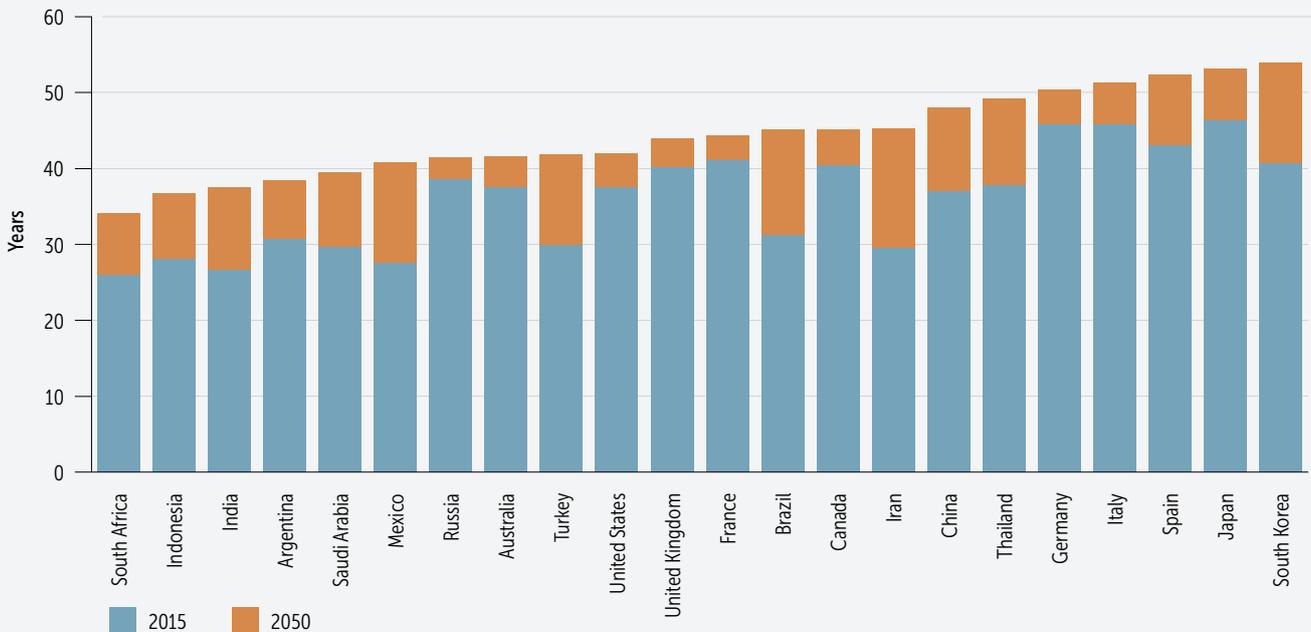
Most countries, then, will face increased pressure on public finances and a shrinking proportion of their population in the range we currently consider to be working age. Governments may come under pressure to reduce welfare support, shrink public sector payrolls and raise retirement ages. At the same time, employers will find themselves recruiting from a smaller proportion of working-age people.

**Figure 1: Median age of the total population. 1950 to 2015 and project to 2050**



Source: UN Department of Economic and Social Affairs, *World Population Prospects: The 2017 Revision*

Figure 2: Median age of the total population, 2015 and projection to 2050



Source: UN Department of Economic and Social Affairs, *World Population Prospects: The 2017 Revision*

Just as significantly, many economists believe that an ageing population will act as a drag on growth in the coming decades. As the world comes out of its demographic sweet spot, that period when the working population was at its greatest relative to the dependent population, it is likely that economic growth will slow down. A report in 2015 by McKinsey Global Institute estimated that, to sustain the per capita GDP growth rates of the last fifty years, productivity growth would need to accelerate by 22 percent.

The same year, a paper for Morgan Stanley, by former Bank of England Monetary Policy Committee member Charles Goodhart, concluded that there is little chance of completely offsetting this demographic headwind and that it is therefore likely that growth will be lower over the next two decades than it was in the half century after the Second World War. Raising retirement ages, immigration and the rise of the countries with younger workforces might help mitigate the effects of global greying but they will not cancel it out completely. The entry of Eastern Europe and China into world markets helped to prolong the

demographic sweet-spot but that may well turn out to be a one-off, say the report's authors:

*There won't be another 'China' for a long time, if ever:*

*The starting point for these economies could also allow rapid growth for sure, but the ability of these economies to transform themselves into the next China is questionable. The rapid progress of China was in no small measure possible because the US consumer played an important part in driving up demand for China to cater to. With overall growth in [developed economies] slowing, India, Africa and Latin America will provide a buffer for the global demographic headwinds, but will not be able to offset them fully, in our view.*

While raising retirement ages might help, it is unlikely to completely offset the effects of demographic change. Mercer's research found that, even allowing for the most generous assumptions about labour participation, most countries will see their workforces falling as a percentage of their population over the

next decade. As we might expect from their demographic profile, the scale of this shift will be greatest in some Asian economies, such as China, South Korea and Thailand. As Julia Howes of Mercer commented:

*We are not just looking at a war for talent, our research indicates that there will be a labour shortage – quite simply a shortage of people available to do the work.*

In trying to predict the future of work, the demographic trend is the nearest thing we have to a known known. Even if the speed and numbers in the forecasts turn out to be wrong, we can be reasonably sure that the world's population will age and that this will have a significant impact on the world's economy. The human race is at the start of a great experiment. For most of our history, only a tiny proportion of people survived beyond their 60s. By the middle of this century, the over-60s will be more than 20 percent of the world's population. We can't predict the full implications of this but we can be reasonably sure that the next half-century will be very different from the last.

# 04

## STAGNATION

The other known known is that our future of work begins in a period of stagnation. This will make offsetting the demographic headwinds even harder. The low economic growth of the last decade has been extraordinary. As *The Economist* remarked in September 2018:

*The world is still in recovery mode fully ten years after the financial crisis of 2008-09.*

Productivity has slowed down markedly in the developed economies and with it, per-capita GDP growth and wages. The financial crisis and the subsequent stagnation have left the developed economies with high levels of public debt, reduced tax revenues and high welfare costs just at the point when population ageing is likely to put more pressure on public spending through pension and healthcare costs. According to the IMF, healthcare spending will outstrip economic growth in all advanced economies over the next three decades, creating more pressure on public spending. This is likely to have an impact on employment as governments will need to increase taxes or reduce public sector employment and working-age welfare payments. It is likely that retirement ages will rise too.

The IMF and OECD expect the stagnation to last well into the next decade. In its April 2018 World Economic Outlook, the IMF cited

*aging populations and lacklustre productivity*

as reasons why it does not believe GDP growth in the advanced economies will reach pre-crisis levels over the next five years. In the autumn of 2018 both the IMF and the OECD downgraded their economic forecasts yet again. The OECD accompanied its economic outlook with the announcement that post-crisis economic growth may have peaked, an astonishing suggestion given that many advanced economies are still nowhere near their pre-recession growth rates.

Economists have differing views on the cause of this stagnation. Some believe it is simply the aftershock of a massive recession. Others suspect it may be an early sign of the slowdown we might expect with an ageing workforce. The most pessimistic think that the period since the Second World War may turn out to be a historical blip and we may now be in a period of permanently lower growth.

Whatever the cause(s), we will be starting the next decade with a lot of ground to make up and many challenges to meet. Whatever solutions we come up with, be they organisational or technological, they will have to do a lot of heavy lifting.

# 05

## THE RISE OF THE ROBOTS?

Into this mix, then, comes the wild card of technology. The effect of technological developments on the economy and work is the subject of almost daily predictions. The sheer range of these projections, even by those who have studied the subject in depth, shows how little we know about the technology and its likely impact on the workforce.

There is no shortage of visionary books and articles predicting an automated future. Some are optimistic about its social and economic impact, others less so. Klaus Schwab, chairman of the World Economic Forum and author of *The Fourth Industrial Revolution*, believes that a number of emerging breakthroughs in areas such as artificial intelligence and robotics will create a fusion of technology that will disrupt all major industries at a scale and rate much faster than anything we have seen before. Erik Brynjolfsson and Andrew McAfee have written prolifically on the subject. Books like *Race Against the Machine* and *The Second Machine Age* paint a picture of massive transformational change in which some jobs will be completely replaced by computers and robots. Daniel Susskind goes even further, arguing that technology will displace rather than complement labour, driving labour out of the economy and leading to mass unemployment. His conclusion is bleak:

*That the consequences of this 'task encroachment' are so pessimistic for labor – a remorseless displacement*

*of labor, a continual fall in absolute wages, and technological unemployment – suggests the traditional literature may have already created a false sense of optimism about the prospects for labor.*

If these predictions are anywhere near right, the 'robots taking our jobs' headlines don't seem too far-fetched. As Bank of England governor Mark Carney said in a speech in September 2018, there is reason to suppose that this industrial revolution might be different from the ones that preceded it because the jobs at risk of automation lie across the entire spectrum. The Fourth Industrial Revolution, he says, will replace heads not hands. Whereas automation in the past has replaced routine physical tasks, artificial intelligence is likely to replace routine mental tasks.

Estimates of the scale and speed of job automation vary. Most often quoted is a 2013 paper by Oxford academics Carl Frey and Michael Osborne, which found that 47 percent of US jobs are at high risk of automation over the next decade or so.

A paper by OECD economists in 2016 put the figure a lot lower, at 9 percent. As the Resolution Foundation's Gavin Kelly explained, the reason their estimate was so much lower was that they focused on tasks rather than entire jobs.

*Rather than assessing the risk that a whole occupation will be replaced by*

*smart-machines the OECD authors instead take a more granular look at the underlying bundle of tasks that make up different jobs, considering how automatable each of them are. The point being that even within occupations that appear ripe for technological upheaval – say, bookkeeping or retail sales – there is much non-routine work that will prove very hard to mechanise in the near future.*

*This more forensic approach results in a collapse in the estimate of the proportion of US jobs at risk from 47% to just 9% (9% is also the OECD average). Still significant, but a massive down-grade.*

Earlier this year, another OECD study put the figures slightly higher at 10 percent for the US and 14 percent across the OECD. What the same study also found, however, was that a further 32 percent of jobs across the OECD are at risk of significant change. Add these figures together and it comes much closer to Frey and Osborne's estimate.

As you would expect, Frey and Osborne defended their findings in a recent article and questioned those of the OECD papers. No doubt these arguments will run for some time. The picture that seems to be emerging from this debate, though, is one of the automation of tasks rather than entire jobs. So, while some jobs will undoubtedly disappear, others will still exist but will change radically as some of

## “A TASK-BASED ANALYSIS OF LABOUR AND AUTOMATION SUGGESTS THAT JOBS THEMSELVES AREN'T GOING AWAY ANY TIME SOON – AND THAT DISTINCTIVELY HUMAN SKILLS WILL BE AT A PREMIUM.”

Tim Harford, author of *The Undercover Economist*

the more routine tasks are automated. Commenting on the US labour market in 2017, McKinsey Global Institute estimated that less than five percent of jobs could be fully automated but that 60 percent could see over 30% of their tasks replaced by technology.

Looking at tasks, rather than entire jobs, gives a different picture, as Tim Harford, author of *The Undercover Economist*, commented.

*One clarifying idea has been proposed by economists Daron Acemoglu and David Autor. They argue that when we study the impact of technology on the workplace, we should view work in bite-sized chunks – tasks rather than jobs.*

*A task-based analysis of labour and automation suggests that jobs themselves aren't going away any time soon – and that distinctively human skills will be at a premium. When humans and computers work together, says Autor, the computers handle the 'routine, codifiable tasks' while amplifying the capabilities of the humans, such as 'problem-solving skills, adaptability and creativity'.*

In its UK Economic Outlook in 2018, PwC said it expected the impact of AI on jobs to be neutral over the next twenty years, as it would create as many jobs as it destroyed. The balance of jobs, between sectors and occupations, however, will be significantly altered.

*AI and related technologies such as robotics, drones and driverless vehicles could displace many jobs formerly done by humans, but will also create many additional jobs as productivity and real incomes rise and new and better products are developed.*

*We estimate that these countervailing displacement and income effects are likely to broadly balance each other out over the next 20 years, with the*

*share of existing jobs displaced by AI (c.20%) likely to be approximately equal to the additional jobs that are created.*

*Although the overall effect on UK jobs is estimated to be broadly neutral in our central projections, there will inevitably be 'winners' and 'losers' by industry sector.*

While there is, then, no clear consensus about the impact of technology over the next two decades, there does seem to be a shift in the zeitgeist about the way economists and people in business are talking about it. Julia Howes of Mercer remarked on the way the conversation has shifted in the last twelve months.

*Despite automation, people will still be at the heart of work. Automation will not necessarily mean fewer jobs, just different jobs. It will impact on tasks so it will change the make-up of jobs but not necessarily the number of people needed to do those jobs. We don't see a widespread decline in employment.*

Tom Standage, Deputy Editor of *The Economist* and head of its digital strategy, takes a similar view.

*A third of skills will probably be replaced by automation but that doesn't mean a third of jobs will go. The change will be in the make-up of jobs and the pace at which people have to learn new skills.*

*It is more difficult to imagine the new jobs that will be created than to see how the old jobs might disappear.*

*The past is a good place to look for clues about the future. People have been predicting that machines would put people out of work for decades.*

The story may not be one of the robots taking our jobs but of technology changing the way we work by taking over a lot of routine tasks. The difference this time is that a lot of those will be routine thinking tasks rather

than routine manual tasks. In 2016, Sarah O'Connor at *The Financial Times* pitched herself against an AI programme to write an article on the latest labour market data. The programme extracted the data and wrote a commentary on it faster than Sarah could but what it couldn't do was make the wider connections to put the story in context and explain its implications. It lacked her insight and judgement. As Sarah pointed out, the machine isn't going to take her job but it could save her a lot of time. By pulling out the relevant data and creating a starter commentary, it would free her up to add the creative insights that make an article informative and thought provoking. Machines, then, might take over the more routine and tedious bits of people's jobs and leave them time to do something more interesting.

The IMF, though, sounded a word of caution earlier this year in a paper ominously entitled *Should We Fear the Robot Revolution? (The Correct Answer is Yes)*. It concluded that the beneficiaries of technology are most likely to be highly-skilled workers and the owners of capital and that the rest of the labour force will struggle to re-skill quickly enough. Because of the speed of change, education can mitigate these effects but it can't offset them completely. The robot revolution will therefore be very good for output but very bad for distribution. This is likely to exacerbate economic inequality and with it, potential political instability. While the highly skilled may greet the prospect of removing the routine aspects of their jobs with enthusiasm, others may not be so keen. If most of your job is made up of routine tasks, the idea loses much of its appeal.

# 06

## TECH TO THE RESCUE?

The other side of the discussion on technology is whether or not it will offset the declining working age population and the economic stagnation, which are likely to be features of the advanced economies and many of the emerging ones too over the next two decades.

Here we find a rather strange paradox. Despite the advances in technology we have seen in the first part of this century, we have experienced an unprecedented productivity slowdown. As US economist Noah Smith put it:

*It's important to note that machine learning hasn't yet made its mark on the economy – to paraphrase economist Robert Solow, you can see the machine learning age everywhere but in the economic statistics.*

As the Resolution Group's chief economist Duncan Weldon remarked, if we are relying on technology to deliver a productivity boost, we should be worried about the robots not taking our jobs.

*We are debating a problem we don't have, rather than facing a real crisis that is the polar opposite. Productivity growth has slowed to a crawl over the last 15 or so years, business investment has fallen and wage growth has been weak. If the robot revolution truly was underway, we would see surging capital expenditure and soaring productivity. Right now, that would be a nice 'problem' to have. Instead we have the reality of*

*weak growth and stagnant pay. The real and pressing concern when it comes to the jobs market and automation is that the robots aren't taking our jobs fast enough.*

Some economists are sceptical about the Fourth Industrial Revolution. US economist Robert Gordon believes the world has hit a technological plateau in which the rate of innovation has slowed down. He says that the US economy will struggle to reach an average growth rate of one percent over the 15 years after 2007. In an interview with the *Wall Street Journal*, he said:

*The rapid progress made over the past 250 years could well turn out to be a unique episode in human history.*

His comments were echoed by British investor Jeremy Grantham who warned his clients:

*The U.S. GDP growth rate is not just hiding behind temporary setbacks. It is gone forever.*

Professor Gordon pointed out that the issuing of a record number of new patents in the US actually coincided with a slowdown in productivity growth. Furthermore, he doesn't believe that recent inventions will have the same effect on productivity as those of earlier generations.

*The computer and Internet revolution (IR #3) began around 1960 and reached its climax in the dot.com era of the late 1990s, but its main impact on productivity has withered away*

*in the past eight years. Many of the inventions that replaced tedious and repetitive clerical labor by computers happened a long time ago, in the 1970s and 1980s. Invention since 2000 has centered on entertainment and communication devices that are smaller, smarter, and more capable, but do not fundamentally change labor productivity or the standard of living in the way that electric light, motor cars, or indoor plumbing changed it.*

All this is very much at odds with the excitement in the business press about the coming technological revolution but, even if Robert Gordon and Jeremy Grantham are being overly pessimistic, there are some reasons to treat predictions of rapid technological progress with scepticism.

A paper by Stanford and MIT economists in March of this year found that productivity in research and development has fallen. Entitled *Are Ideas Getting Harder to Find?* it concluded that it takes a lot more researchers to make technological advances now than it did forty years ago.

*A good example is Moore's Law. The number of researchers required today to achieve the famous doubling every two years of the density of computer chips is more than 18 times larger than the number required in the early 1970s. Across a broad range of case studies at*

**“IF THE ROBOT REVOLUTION TRULY WAS UNDERWAY, WE WOULD SEE SURGING CAPITAL EXPENDITURE AND SOARING PRODUCTIVITY. RIGHT NOW, THAT WOULD BE A NICE ‘PROBLEM’ TO HAVE.”**

Duncan Weldon, Chief Economist, Resolution Group

*various levels of (dis)aggregation, we find that ideas – and in particular the exponential growth they imply – are getting harder and harder to find.*

*Put differently, just to sustain constant growth in GDP per person, the U.S. must double the amount of research effort searching for new ideas every 13 years to offset the increased difficulty of finding new ideas.*

A report by the McKinsey Global Institute in May 2018 found that the high productivity growth sectors form a much lower proportion of Western economies than they did in previous decades. Across the Western economies, firms with rapidly accelerating productivity growth account for less than five percent of the economy. In short, these companies form too small a part of the economy to have an impact on aggregate productivity growth.

A Bank of England report in the same month found that even the UK’s leading-edge firms are not as leading edge as they used to be. The most productive firms across all sectors are not improving their productivity at the rate they did before the financial crisis. Much of the post-recession productivity slowdown can be accounted for by sluggish productivity growth in the UK’s high productivity firms. As *The Financial Times’* Chris Giles put it:

*Britain’s productivity crisis is rooted in a lack of fizz in our best sectors and companies.*

So far, then, there isn’t much evidence of technology having an impact on the overall productivity of advanced economies.

Furthermore, says MGI, it may take some time for the impact of new technology to work its way through.

*The broad and transformative nature of digitization means that seeing the benefit in the numbers may*

*take time as companies transform business processes and business models, acquire new organizational and management skills, and work through a period of transition marked by duplicative cost structures and revenue losses for incumbents.*

*The distinct lack of jumping sectors we have found across countries is consistent with an environment in which companies are allocating substantial time and resources to changes and innovations that do not yet have a direct and immediate impact on output and productivity growth.*

Some of the predictions about technology may be jumping way ahead of what is possible in the near future or, indeed, what may ever be possible at all. Artificial Intelligence and Machine Learning are anthropomorphic terms applied to what is actually an agglomeration of massive computing power, vast amounts of digital data and algorithms which enable machines to test and refine that data. They are therefore able to do things for which human beings need to apply intelligence and the ability to learn. This will enable them to perform increasingly complex tasks at incredible speed but it may never make them intelligent in the way we usually understand the term. As Nigel Shadbolt, professor of Artificial Intelligence at Southampton University, says:

*Brilliant scientists and entrepreneurs talk about this as if it’s only two decades away. You really have to be taken on a tour of the algorithms inside these systems to realise how much they are not doing.*

*We have no clue how to endow these systems with overarching general intelligence. DeepMind, a British company acquired by Google, has programs that learn to play old arcade games to superhuman levels. All of this shows*

*what can be achieved with massive computer power, torrents of data and AI learning algorithms. But our programs are not about to become self-aware. I don’t believe we have anything like a comprehensive idea of how to build general intelligence – let alone self-aware reflective machines.*

Professor Andrew Ng, formerly Baidu’s deep learning expert, is similarly sanguine:

*Those of us on the frontline shipping code, we’re excited by AI, but we don’t see a realistic path for our software to become sentient.*

*There’s a big difference between intelligence and sentience. There could be a race of killer robots in the far future, but I don’t work on not turning AI evil today for the same reason I don’t worry about the problem of overpopulation on the planet Mars.*

As Tom Standage puts it:

*The closer you get to working with AI, the less likely you are to worry about killer robots, or AI turning evil. Those working at the coal-face of the technology are the most sceptical of all.*

None of which is to say that developments in technology will not have significant impact. As Professor Shadbolt says, even without real intelligence these machines will still have tremendous power:

*There are lots of ways of being smart that aren’t smart like us, and there is the danger that arises from a world full of dull, pedestrian dumb-smart programs.*

*We might also want to question the extent and nature of the great processing and algorithmic power that can be applied to human affairs, from financial trading to surveillance, to managing our critical*

*infrastructure. What are those tasks that we should give over entirely to our machines?*

Recent headline stories illustrate the potential problems. Amazon recently scrapped an AI recruitment tool when it was found to be favouring male candidates over female ones. The system had been trained to identify good candidates using data from applicants over ten years. Most of the successful candidates had been men so the system began to discriminate on that basis. A similar problem occurred with a machine designed to judge beauty contests which selected mostly white contestants. It did so for the same reason; that is the conclusion it drew from the data it had been given.

Machine learning works on algorithms based on mathematical probability. A machine will therefore learn what is good based on what has been deemed to be good in the past. AI programmes may be highly sophisticated but the 'garbage in, garbage out' principle still applies. Such systems need vast amounts of data to train them to carry out their tasks. We therefore run the risk of embedding and amplifying the mistakes and biases of the past. There is no doubt that AI will change much about the way we work but it might also enable us to make spurious decisions more rapidly than ever before.

Opinion is divided, then, about the extent to which machines can take over tasks that can currently be done by humans and the speed at which it is likely to happen. As with any discussion of technology, it is almost impossible to make predictions about the future with any degree of certainty. The pessimists like Robert Gordon who argue that we have hit a technological plateau may eventually be proved wrong but there are good reasons to be cautious about the impact of new technology over the next two decades. There is evidence to suggest that the development and deployment of these

innovations may happen a lot less rapidly than the enthusiasts predict. There may be a technology-enabled leap in productivity ahead but it may not come soon enough to offset the economic pressures caused by the ageing population and the aftershock of the financial crisis.

Charles Goodhart's paper for Morgan Stanley concluded that a labour shortage and rising wages caused by a declining working-age population is the likely prognosis for the next two to three decades, rather than mass unemployment caused by technology. Amidst all the excitement about the robots taking our jobs, this possibility is one we should at least consider.

## CHANGING SHAPE OF THE WORKFORCE

In recent decades, the shape of the workforce has changed significantly in terms of occupation, gender mix, employment status and hours worked. In its final report in 2016, the UK Commission for Employment and Skills forecast that these trends would continue in the UK over the next decade. As similar trends are taking place in other advanced economies, it is reasonable to assume that this tells us something about the general direction of travel of the labour market.

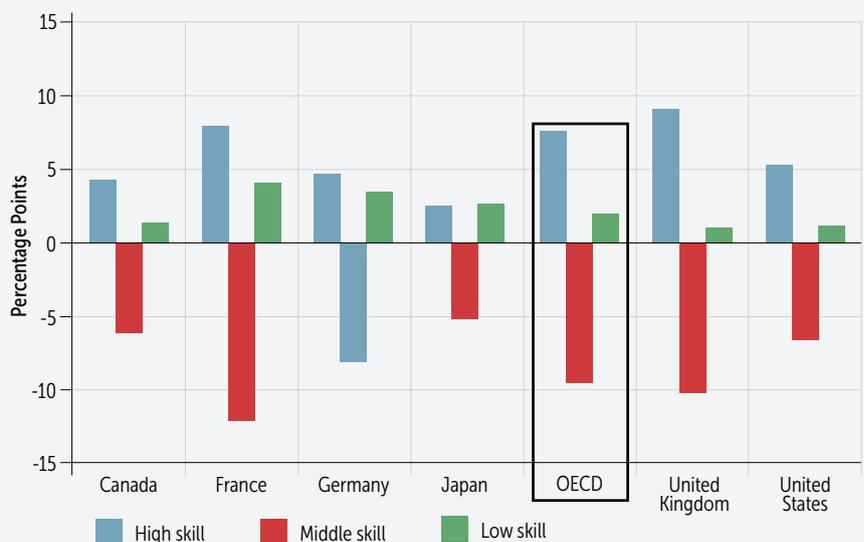
### 7.1 JOB POLARISATION

The past two decades have seen changes in the profile of the workforce in advanced economies. De-industrialisation, the shift to service economies, offshoring and globalisation have changed the occupational mix. The loss of routine jobs has led to occupational polarisation, often

described as the hollowing out of the labour market. In the UK, for example, the biggest decline has been in skilled trades, process and machine operatives and administration and secretarial occupations.

At the same time, there has been a growth in high skill managerial,

**Figure 3: Job polarisation by country. Change in share of total employment by skill level, 1995-2015**



Source: OECD Employment Outlook 2017; European Union Labour Force Survey; Labour force surveys for Canada, Japan and the United States; and OECD calculations

professional and technical roles and a smaller growth in caring, leisure and service occupations, defined as low skill. (The term 'low skill' is contentious here. Care work, for example, requires a mix of skills many of us probably lack. Nevertheless, these are the categories used by statistical authorities for international comparisons).

The importance of technology in the disappearance of mid-level jobs is the subject of ongoing debate but the OECD Economic Outlook tentatively concluded that it is probably the most significant single factor. Not only does technology reduce the need for some roles, it enables the upskilling of others, so machines now do some of the tasks that once formed part of manual jobs but others are now part of more specialised technical roles. In other words, due to the changing complexity and mix of tasks, some jobs move up or down the occupational hierarchy. This supports the view discussed in the previous section that technology automates tasks rather than entire jobs. This means that some jobs disappear while the content and task mix in others becomes more skilled.

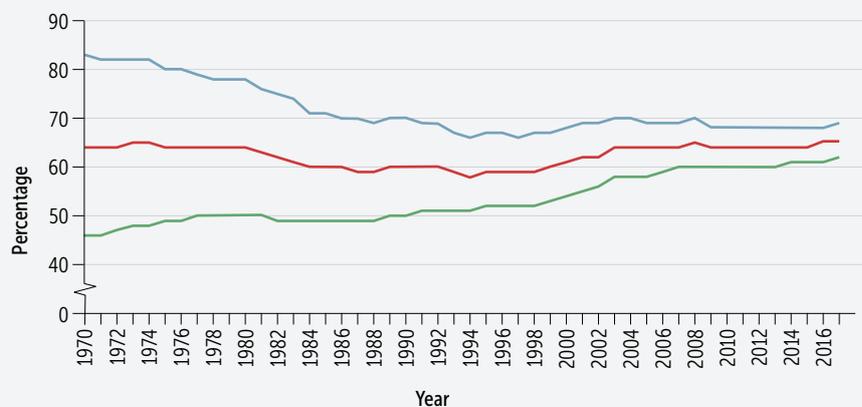
## 7.2 GENDER MIX

The shift in the gender mix is every bit as dramatic. In most developed economies, the male employment rate has declined while the female employment rate has risen. For example, two economies with very different levels of employment regulation, France and the USA, show similar trends over time.

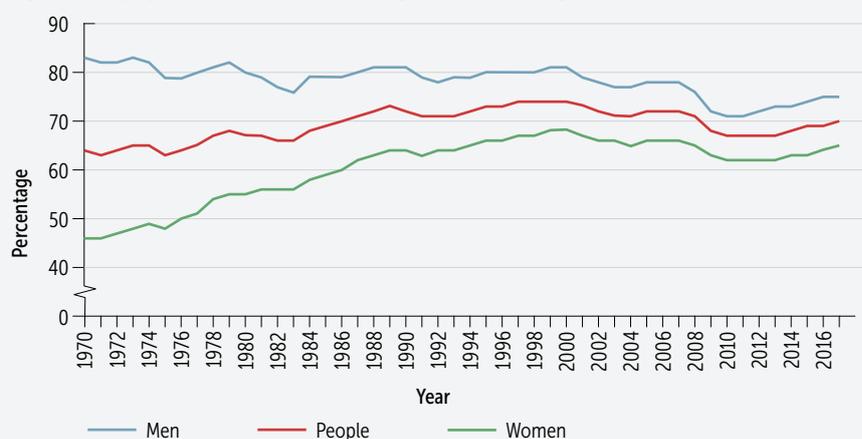
Although the numbers differ, this trident-shaped pattern is found in most

of the developed economies. Record or near-record rates of employment have been driven, for the most part, by rising female participation, which has more than offset the declining male employment rate. According to the UK Commission for Employment and Skills, in 2014 the UK had fewer men in full-time employee jobs, in absolute numbers, than there were in 1981, despite there being three million more

**Figure 4: Employment Rate – France. Percentage of population aged 15-64**



**Figure 5: Employment Rate – USA. Percentage of population aged 15-64**



Source: OECD Labour Force Statistics

men in the 16-64 age group. In the US, the falling male labour participation rate has prompted articles about America's missing men – those of prime working age who have simply dropped out of the labour force. It has been cited as one of the factors behind the rise in support for populist political parties in a number of countries.

A combination of social and economic factors has changed the gender mix of the workforce. De-industrialisation and the shift to more service-based economies has seen female employment rise and male employment fall. In some countries, such as Sweden, male and female employment rates are almost the same.

The recession exacerbated this trend. Across Europe, female employment bounced back quickly after the 2008 crash, while male employment rates took much longer to recover. It is reasonable, therefore, to assume that this pattern will continue for some time. If the ageing population brings about a labour shortage it may be that male employment rates will eventually return to their 1970s levels but there seems to be little sign of that happening yet.

## 7.3 NON-STANDARD WORK

'Non-standard work' is a term the OECD uses for those that are not working under full-time employee conditions, which it defines as 30 hours a week or more. Anyone who is self-employed or working part-time would fit this definition.

As with technology, the rise in non-standard work has been the subject of media focus since the recession. The increase in self-employment, zero hours contracts and temporary work has even given rise to new terms – the 'precariat' and the 'gig economy'. In 2017, the CIPD's magazine *People Management* declared on its front cover that 50 percent of the UK's working population would be freelancers by 2050. Similar predictions are made for the US, with one annually published survey insisting that a third of Americans are already freelancers and that half will be so by the end of this decade.

Look closely, though, and the numbers are far less dramatic. If you include in your survey people who supplement their income through Airbnb, for example, it is possible to reach a figure of 35 percent. However, many of these people are also working full-time. The proportion of US workers in full-time employee jobs is relatively high among the developed economies. As *Bloomberg's* Justin Fox commented, even a broad definition of freelancers to include temporary, on-call and agency workers would only get to around 20 percent of the US workforce and even that is now falling. The US Bureau of Labor Statistics published a report in July 2018 which put the proportion of independent contractors and on call workers at 10.1 percent, slightly lower than its previous survey in 2005. A further survey published in September 2018 concluded that only one percent

**Figure 6: Proportion of workers who are full-time employees**



Source: Office for National Statistics, UK labour market: October 2018

of US workers rely on electronic platforms to find work. By including people's secondary jobs, economists Lawrence Katz and Alan Krueger reached a figure of 15.8 percent of all workers working as freelance, agency or on-call workers. In recent months a number of US commentators have suggested that the gig economy may have been overhyped.

Likewise, in the UK, while the rise in the number of people in self-employment and on zero hours contracts has made headlines, the majority of those in employment are still in full-time employee jobs. Over the last twenty years, the proportion of the workforce in standard employment has fallen from 65 to 63 percent. That is an interesting development but hardly a dramatic revolution in the shape of the workforce.

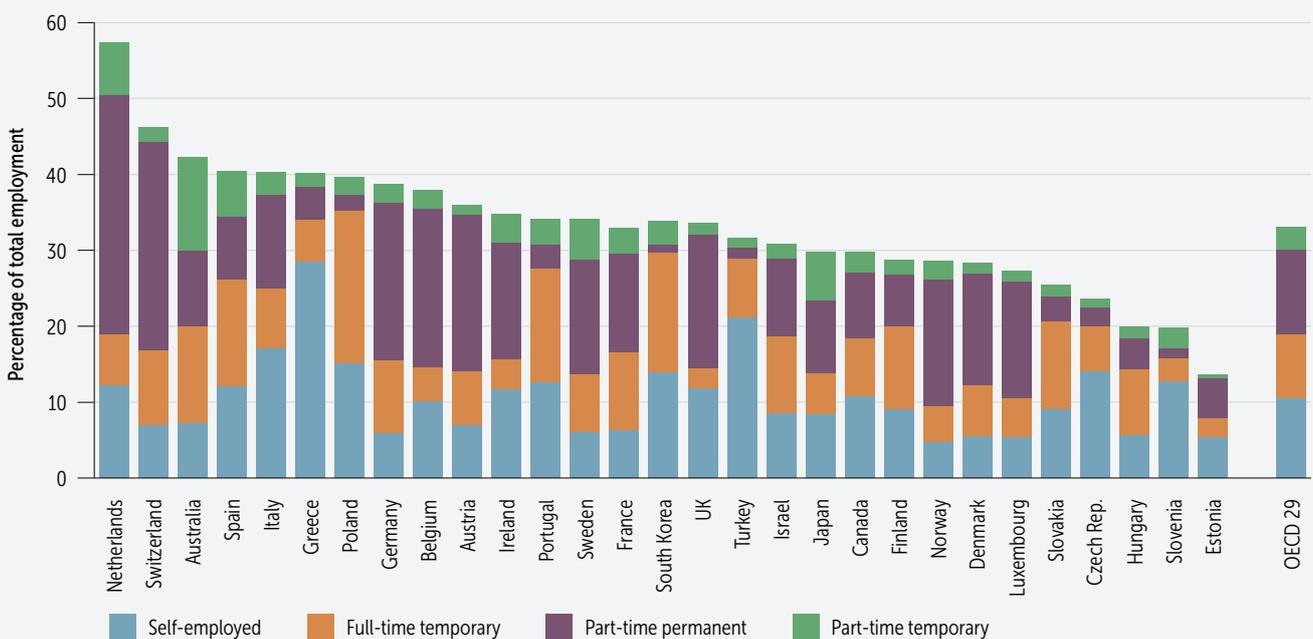
Since the middle of 2017 the growth in self-employment and zero hours contracts seems to have levelled off,

suggesting that the strengthening economy and increased demand for labour is encouraging more employers to return to using full-time labour.

Figures from the OECD suggest that the UK's experience is not untypical. Non-standard employment accounts for around one third of total employment in the OECD, a slightly higher proportion than two decades ago. There are some outliers, such as the significant rise in part-time permanent employment in the Netherlands and less than 20 percent non-standard employment in Estonia. In most OECD countries, though, part-time, temporary and self-employment account for 30 to 40 percent of the workforce. According to the OECD, around 40 percent of the employment increase since 1995 has been non-standard employment, so what we are most probably seeing here is a gradual trend rather than the dramatic shift depicted in some reports.

That said, technology now means that it is a lot easier to be self-employed and for employers to source temporary labour from a pool of freelancers and those on zero hours contracts. It is therefore reasonable to assume that, in most advanced economies, the proportion of non-standard workers will remain higher than it was in the early 2000s. While the predictions of a freelance economy by the end of the next decade are almost certainly fanciful, it is likely that the proportion of people working in part-time, self-employed and temporary roles will remain higher than it was in the mid-2000s.

Figure 7: Share of non-standard employment by type 2013. Non-standard forms of employment as a percentage of total employment



Source: OECD, In It Together: Why Less Inequality Benefits All, May 2015

# 08

## IMPLICATIONS

As we noted in the introduction, there is a vast amount of academic literature and commentary on the future of work and trying to make sense of it all can be a daunting task. However, there are, in our view, some conclusions that we can draw from the subject matter we have discussed.

### 8.1 THE IMPORTANCE OF ORGANISATION

Whatever the scale, speed and reach of the technological change, be it a revolution or an ongoing process of change, it will require organisation to make it happen. Technology does not deploy itself. It is therefore reasonably safe to assume that there will be workplaces needing considerable numbers of people for the foreseeable future. Crucial to managing the forthcoming changes and exploiting their opportunities will be the building of strong organisations.

As McKinsey Global Institute pointed out in its 2018 report on productivity, there will be considerable challenges in the implementation of new technology and in developing the business models and supporting organisations to enable it. Investment in technology alone is unlikely to be enough. The lesson from the 1990s is that not everyone that invested in ICT realised the productivity gains.

*Productivity gains were not automatic and did not occur in all industries that invested heavily in ICT. Instead, real productivity gains required significant changes in business process, as well as managerial and technical innovation.*

Time and again it has proved that if businesses hope that technology on its

own will improve their performance and competitiveness, they are likely to be disappointed.

*There is no guarantee that the productivity-growth potential we identify will be realized. This has always been the case with productivity opportunities, as it takes time and effort for business owners, managers, and workers to change established ways of doing things, and enabling change often requires competitive pressure, a healthy business environment, and access to infrastructure and talent.*

Much of the debate on innovation seems to focus on lone inventors and great leaps in technology but innovation is as much an organisational as an individual capability. As economist Ha-Joon Chang says, it is the ability to organise that determines the prosperity of nations:

*If effective entrepreneurship ever was a purely individual thing, it has stopped being so at least for the last century. The collective ability to build and manage effective organizations and institutions is now far more important than the drives or even the talents of a nation's individual members in determining its prosperity.*

## **“WE CANNOT RECRUIT OUR WAY OUT OF THE WORKFORCE CRISIS AND AUTOMATION IS NOT GOING TO SAVE US.”**

Julia Howes, Principal, Multinational Client Group, Mercer

Creativity and innovation require not only ideas but also the organisational ability to deploy them.

Wharton’s Ethan Mollick in his study of product development in 400 computer game companies, found that managers are key to turning innovations from ideas into reality:

*Variation among middle managers has a particularly large impact on firm performance, much larger than that of those individuals who are assigned innovative roles.*

*It is the individuals who fill the role of middle managers – the “suits” – rather than the creative innovators that best explain variation in firm performance.*

*Middle managers are necessary to facilitate firm performance in creative, innovative, and knowledge-intensive industries.*

A 15-year research programme by the World Management Survey found that 30 percent of the variation in productivity between countries can be explained by the quality of management practices in those countries. Countries with weak management skills are already at a disadvantage.

It is likely, then, that the ability to form, lead and maintain effective organisations will be as important as ever in the next few decades. In this, the managers will be as important as the creatives. The likelihood of a skills shortage and even a general labour shortage brought about by falling working age populations is a serious possibility.

Anyone predicting the imminent demise of Human Resources as a profession is likely to be wrong, at least in the short to medium term. The building of organisations and the management of people within them is likely to be as important as ever. Recently, the CIPD, the UK’s HR professional body, adopted the strap line *The Future of Work is Human*. In all probability, it will be.

## **8.2** **A COMPETITIVE LABOUR MARKET**

It is likely that the process of occupational polarisation discussed above will continue as technology replaces more routine tasks. Demand for high-skill roles will increase just at the point when stagnating or falling working-age populations mean that employers will be recruiting from a dwindling labour pool.

UN demographic data and the modelling done by Mercer strongly suggest that none of the countervailing forces will be strong enough to offset the effects of global ageing. Automation, migration and increased workforce participation by older workers and others might mitigate some of the effects but labour shortages still look likely. As Mercer’s Julia Howes pithily put it:

*We cannot recruit our way out of the workforce crisis and automation is not going to save us.*

Competition for highly-skilled workers is likely to be fierce. For many firms, recruitment is the default reaction to a shortage of talent. However, buy-not-build may prove to be a strategy with a short life. It may, in the short term, be possible for advanced economies to continue to import skilled labour from abroad but with the populations of emerging economies ageing too, many at a faster rate, this will only ever be a short-term fix.

The advanced economies may soon face a situation in which they have both labour shortages and sections of the adult population left behind in terms of qualifications, skills, employment and development opportunities. While employers struggle to meet the demand for workers in professional and technical roles, many others may see themselves locked out of employment opportunities.

In two long reports published in 2014 and 2015, the UK Commission for Employment and Skills looked at the future of work. It came up with a number of different scenarios based on different combinations of probabilities. One thing common to all the scenarios, though, was that life is likely to be pretty grim for the poorly skilled. This echoes the conclusion of the IMF’s report discussed above, which warns that it may be difficult to re-skill people to match the pace of change. Whatever happens, re-skilling the workforce will be crucial for improving productivity, ensuring prosperity is shared and avoiding social unrest.

This is likely to pose a significant challenge. The large corporate and government employers that grew up during the twentieth century provided secure learning and development opportunities in a way that had not previously existed. It was possible, even with relatively few qualifications, to get a start in a large organisation and then progress through it. The company provided the training and the career ladder, which enabled people to develop their skills and their earning potential simultaneously.

Such opportunities are not as common nowadays. One consequence of workforce polarisation is that the mid-level jobs that used to offer career progression are disappearing. It is therefore more difficult for people who leave education with few qualifications to get that second chance that was once provided by large employers.

However, if current trends continue, the demand for high skill workers is likely to grow at a faster rate than for other occupational groups. This is happening just at the point when the workforce in many countries is ageing and the

progression paths through organisations are disappearing.

Governments may not be much help. Fiscal pressures are likely to increase over the next decade and, while there might be an argument for states to invest in re-skilling their workforces, the political realities of public spending constraints are likely to make this difficult. Re-skilling the workforce will therefore be dependent on employer investment. In countries like the UK, which have seen employer training investment fall over the past two decades, it is difficult to see how the deployment of new technology and improvements in productivity can be achieved without a significant boost in employer skills investment. Business cultures that prefer to buy not build will be in for a shock when there aren't enough people around to buy.

### **8.3** **A MORE DIVERSE WORKFORCE**

It is likely that the trend towards more diverse workforces in terms of age and country of origin will continue. Migration is a significant feature of almost all developed economies, and this will almost certainly continue as the demand for skilled labour leads employers to look further afield for workers and technology allows the labour market to become more globalised. In many countries, though, this will come up against the countervailing political pressure to restrict immigration. Firms may also need to look at bringing hitherto hard to reach groups into their workforces. This may involve encouraging those who have been ruled out of jobs (or have ruled themselves out) for reasons of geography, culture and perceived disability. While there might be sound ethical reasons for giving people extra help to re-join the workforce, employers may find themselves forced to do so by simple market forces. Most countries have pockets of unused labour. Companies will need to go out and find them.

### **8.4** **MORE DIVERSE WORKING PATTERNS**

As we discussed in section 7.3, the gig economy has almost certainly been overhyped but there is a discernible trend away from the traditional pattern of full-time employment. This shift was underway before the financial crisis so even if there is a shift back towards full-time work as the recovery continues, it is likely that we will still see a greater use of freelancers, part-time workers and zero hours contracts than in previous decades. This may help to mitigate the labour shortage. In spite of the bad publicity around zero hours or on-call contracts, some of which is deserved, many employees find such arrangements convenient. The rise in part-time work in the Netherlands, noted above, has been encouraged by government and employer policy. As a result, part-time workers tend to enjoy better pay and conditions than that elsewhere in Europe. The Netherlands also has one of the highest employment rates in the OECD.

Technology enables people to use non-traditional work patterns and helps employers to manage and schedule their work more effectively. While it is unlikely that most of us will be freelancers by the end of the next decade, it is probable that most employers will be making greater use of such arrangements in the next decade than in the last.

## **“THE PLUTOCRATS AND POLITICIANS WHO THOUGHT THEY RULED THE WORLD HAVE BEEN GIVEN A SHOCK.”**

Ed Conway, Economics Editor, Sky News

### **8.5 BRINGING THE JOBS BACK HOME?**

Forecasts often turn out to be wrong for the simple reason that we tend to expect recent trends to continue or even speed up. However, it is possible that some may be reversed. For example, a report for the UK’s Royal Society of Arts in 2013 suggested that the movement of manufacturing to Asia might have run its course and that new technologies may make it easier and cheaper to produce goods closer to the consumer. President Trump talked of ‘bringing jobs home’ but a 2016 OECD report found some evidence that this was already starting to happen. Some manufacturing work was returning to the advanced economies. However, it concluded that, while this might lead to increased capital investment, the jobs created are likely to be very highly skilled. It will be more a re-shoring of capital than a re-shoring of jobs. Once again, the advantages of technology will most likely accrue to the owners of capital and to highly-skilled workers. The work might come back home but that doesn’t necessarily mean that the jobs will.

### **8.6 DISRUPTION**

Disruption is an over-used word and, these days, it is usually used in the context of the disruption of existing business models. As we have discussed, there are good reasons to assume that it is unlikely we will see the large scale destruction of jobs predicted by some commentators. However, the speed and impact of technology is likely to be uneven, so it is possible that some industries may find themselves disrupted by rapid change in the way that, for example, retail has been in recent years.

Equally unpredictable, but potentially just as disruptive, is sudden political upheaval. The agendas of Davos meetings in 2016 and 2017 provide an interesting comparison. 2016 is very much business as usual, finishing with predictions of more of the same. 2017, in contrast, had an air of panic. As Sky News economics editor Ed Conway put it

*The plutocrats and politicians who thought they ruled the world have been given a shock.*

Business has tended to ignore politics over that last few decades but 2016 showed that political disruption doesn’t just happen in unstable parts of the world. Previously well-behaved electorates like those in the UK and USA are capable of springing shocks. Looking back over the evidence we have presented in this report, with a slow recovery, increasing fiscal pressure, technological developments which will favour the highly skilled and a labour force unlikely to adjust quickly enough, it would be a brave person who dismissed 2016 as a one-off. It is probable that there are more political shocks to come in places we haven’t been used to seeing them. Businesses will need to develop their political antennae.

# 09

## PLANNING FOR THE FUTURE OF WORK

For those of us looking to the future and trying to work out what all this means for our organisations, the sheer scale of the subject matter and the varying expert opinions can appear daunting. However, as we have seen, there are some things about which we can be reasonably sure and at least enough indications of the direction of travel to be able to make some educated guesses.

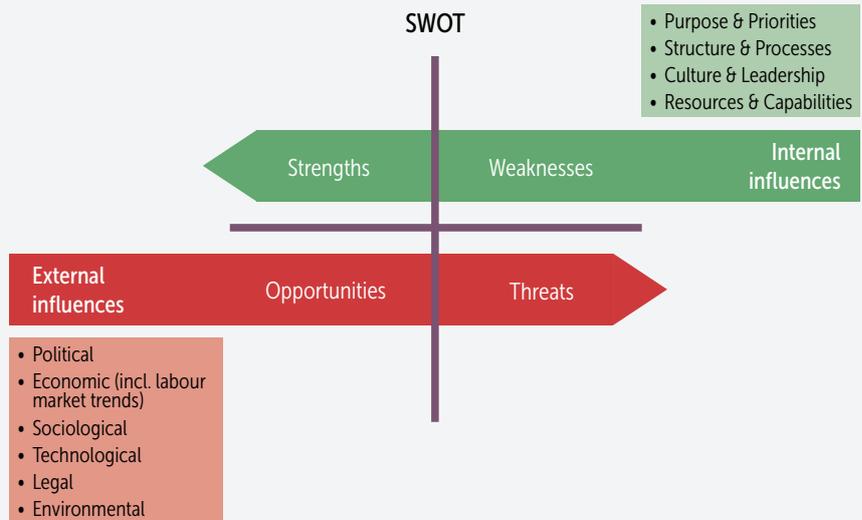
As researcher and consultant Wendy Hirsh pointed out, one of the core capabilities for senior executives is the ability to work with uncertainty and ambiguity. The fact that any prediction you make will almost certainly be only approximately right, and sometimes not even that, isn't an excuse for not planning.

*You don't have to get workforce planning exactly right; you just have to help the business make decisions on work design and resourcing that are slightly less awfully wrong.*

There are many tools and approaches to help businesses scan the future, model the various scenarios and produce strategies. Some of these can appear quite complex, and may look more intimidating than the problem people are trying to solve. In such situations, our advice would always be 'start'. Even the simplest tools will yield useful insights. There is no need to over-complicate it.

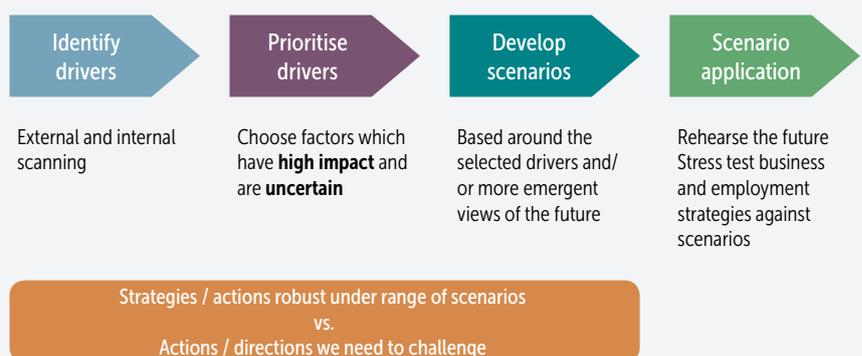
Simple SWOT and PESTLE analyses can be as good as anything. In a SWOT

**Figure 8: Drivers for change and their impact**



Source: Wendy Hirsh, 2018

**Figure 9: A typical scenario planning process**



Source: Wendy Hirsh, 2018

**“YOU DON’T HAVE TO GET WORKFORCE PLANNING EXACTLY RIGHT; YOU JUST HAVE TO HELP THE BUSINESS MAKE DECISIONS ON WORK DESIGN AND RESOURCING THAT ARE SLIGHTLY LESS AWFULLY WRONG.”**

**Wendy Hirsh**, Researcher and Consultant, Institute for Employment Studies

analysis, the S & W focus on the internal while the O and T are about scanning the factors outside the organisation. For this reason, some people prefer to run a SWOT the other way around from its acronym, looking at the opportunities and threats first.

Wendy Hirsh’s model provides a useful framework.

Much of what we have discussed in this report falls under the PESTLE headings.

As Wendy says, scenario planning is a way of testing the businesses strategy by rehearsing the future.

As will be addressed in a forthcoming report from our sister organisation, PARC, on geopolitical uncertainty, horizon scanning and scenario planning yields the best results when it is done with a diverse group. Perspectives from different parts of the world are crucial here. For example, although the Arab Spring took many people by surprise, some organisations were forewarned by listening carefully to what their staff, suppliers and customers in the affected countries were saying. Having mechanisms for involving a wide range of people in the planning process or, at least, for feeding their intelligence up the line could make all the difference in potentially volatile situations.

As John Whelan, one of our associate directors, points out, strategic planning should be a core skill for senior executives and the facilitation of the process and identifying and bringing together the relevant people is a capability all HR functions will need. To date it has not been something the HR community and business more generally has focused on. As the shocked faces at Davos in 2017 showed, that is something that will need to change.

# 10

## CONCLUSIONS

We began this report by commenting on the difficulties inherent in forecasting. It may be that, ten years from now, our predictions look as wide of the mark as those that were made about the world in 2020 over a decade ago. Nevertheless, we believe we have carried out a well-informed review of the current research and debate and that our conclusions are reasonable given the information we have.

Much of the debate on the future of work in recent years has focused on technology. There is little doubt that there will be significant technological change over the next decade or so, however we believe the speed and magnitude of this has been over-stated. Far more significant, in our view, is the impact of an ageing population. Not only can we be a lot more certain about when and where it will happen, demographic projections being generally more reliable than technological ones, but the impact is likely to be felt a lot sooner. It may be that one day machines will be able to do most of the work currently done by humans but, if that ever happens, it is some way in the future. The effects of demographic change, though, will be felt increasingly over the next decade.

Commentators argue about whether the next technological revolution will be different from those that went before. About the demographic change, though, we can say with absolute confidence *"this time it's different"*. Nothing like this has ever happened to the human race before. For most of human history, population profiles have been pyramid-

shaped. Over the course of this century, they will become beehive-shaped, with bulges at the top as large cohorts move into old age.

As we discussed in the report, the implications of this for healthcare, government finances, productivity and the availability of labour are massive. They will hit governments whose finances are still recovering from the 2007 crash and whose economies are still relying on life-support from record low interest rates. The ageing population was always going to present a challenge but if current IMF and OECD forecasts are right, the effects of these demographic shifts will kick in while many economies are still struggling to return to the growth rates they used to think of as normal. Some may never do so. The danger of stagnating (or even falling) productivity and living standards is very real.

While technology might mitigate some of these effects it is unlikely to offset them altogether. Companies therefore face a future in which they face increased competition for skilled workers. Governments may help to re-skill their workforces and to bring previously excluded groups of workers into the labour force but this will be a colossal task. With increased pressure on their finances and heightened political tension as a result of economic and demographic change, government attention may be elsewhere. Countries may well find themselves with labour shortages alongside large sections of the population unable to re-skill

quickly enough. It doesn't take much imagination to see the potential for more 2016 – style political instability here.

Against this background, employers will need to step up. The decline in learning and development investment that has characterised a number of developed economies in recent years will need to be reversed. So too will the decline in capital investment. Above all, companies will need to be prepared and to plan. They will need to put resources into building the organisations that will enable them to evolve with these changes, mitigate the risks and exploit the opportunities. Crucially, this will mean developing their managers. There has been something of a fashion in recent years to talk about the end of management and to disparage middle management especially. We believe this to be dangerous nonsense. We know that the quality of management is a significant factor in differentiating the most productive companies from the rest. It is likely to be just as important in building and maintaining successful organisations in the next decade. The warning from Julia Howes is worth repeating here. We will not be able to recruit our way out of these problems. Companies will need to do something different and will need outward-looking managers capable of coming up with new ideas and implementing them.

While the prospect of new technology may make for exciting headlines, the future of work will be as much about the people as it ever was. The big story of the next decade will be a human one.

# 11

## RECOMMENDATIONS – 12 QUESTIONS FOR THE FUTURE

As we said at the beginning of this report, predicting the future is difficult. In this paper we have attempted to summarise and make sense of the main themes from the research and to give some insights into how we think things might evolve over the next decade or so. Ultimately, though, the impact and importance of these changes will vary from company to company.

The most important thing for most companies to do is to start talking about the themes we have discussed. We have therefore come up with 12 questions to get the conversation started and to help you prepare for the future of work – whatever it may be.

### **11.1 HOW MIGHT THE FORCES OF CHANGE AFFECT YOUR BUSINESS?**

Do you understand how the forces we have discussed in the report might impact your business? What are the implications of an ageing population for your organisation? Could technological developments radically change business models in your industry? What challenges might political instability pose? Could there be opportunities as well as threats from any of these developments? Reading some of the references in this report might help to prime your thoughts.

### **11.2 IS YOUR ORGANISATION OUTWARD- LOOKING?**

Bank of England chief economist Andy Haldane recently criticised UK businesses for being too insular. Productivity growth, he said, is being hampered by a slowdown in the flow of knowledge and ideas between organisations.

Looking outside your own company and industry is crucial for spotting trends, coming up with new ideas and gaining intelligence about wider developments. Technological and political disruption

looks probable over the next decade. Those with early intelligence will be best placed to exploit the opportunities and mitigate the risks.

Are you connecting with people who can help you navigate through the next decade? How often do you read material or attend events from outside your industry or subject expertise? How much do you learn from competitors, customers and suppliers? How well networked are you in the countries where you operate. Would an upheaval like the Arab Spring take you completely by surprise?

### **11.3 DO YOU HAVE A CLEAR PROCESS FOR SCANNING FUTURE TRENDS?**

Planning might seem like common sense but sense isn't always common! It can seem like a daunting process and, as the MGI report noted, the sheer weight of information and commentary, particularly around technology, has put many people off doing anything. Planning for the future doesn't have to be intimidating. Don't get too hung up on which models and methodologies you use. Simply starting the conversation will yield some useful insights. A simple SWOT is as good a way to start as any. The most important thing to do, though, is start.

**“GETTING RID OF THE HIERARCHY IS THE WRONG GOAL. YOUR JOB IS TO BUILD THE BEST HIERARCHY YOU CAN.”**

Bob Sutton, Professor, Author and Keynote Speaker, Stanford University

**11.4  
ARE YOU SCANNING THE PRESENT?**

What is your current data already telling you? What are you noticing about recent developments in your industry?

What didn't you do last year because you couldn't get the right people? Is a shortage of people already hampering your business?

What warning signs have you already seen? What are they telling you about the forces that might shape your industry over the next decade?

**11.5  
IS EVERYONE CLEAR ABOUT THE STRATEGY FOR THE FUTURE?**

Assuming you can answer 'Yes' to the first two questions, does everyone in the organisation understand what the future strategy is? If you asked the C-suite members to explain the strategy and business model, would they all give a similar answer? Would it be the same if you asked the middle managers?

**11.6  
ARE YOUR MIDDLE MANAGERS CAPABLE OF IMPLEMENTING YOUR STRATEGY?**

As Ethan Mollick said, when it comes to innovation, the 'suits' are as important as the 'creatives'. You can have the best strategy in the world but it's no use if you don't have the people to implement it.

In recent years, it has become fashionable to criticise (and even predict the demise of) middle management. We don't share that view.

Without a cadre of professional and capable managers, no company can hope to implement its plans for the future effectively. The falling investment in management development, which has been a feature in many economies over the last decade, needs to be reversed.

As Stanford's Bob Sutton said:

*Getting rid of the hierarchy is the wrong goal. Your job is to build the best hierarchy you can.*

Do your middle managers have the capability and resources to build the organisation for the next decade?

**11.7  
AND IS YOUR ORGANISATION CAPABLE OF DELIVERING IT?**

The ability to lead and maintain effective organisations, then, will be key to surviving and thriving in the future.

We know from the 1990s that not everyone who invested in IT reaped the benefits. Those that did also invested in people and processes. Their innovation was managerial as well as technical.

Do you have a grasp of how your organisation structure, core processes and supporting technology interact? How might this need to change in the future?

Is your current organisation fit for purpose?

**11.8  
WHAT SORT OF PEOPLE WILL YOU NEED IN THE FUTURE?**

What new roles might you need in future that you don't have now? How might existing roles change?

What will the country director or the marketing executive roles look like five years from now? What will they need to do that they are not doing now? Do you have people with those capabilities? Can they be developed?

**11.9  
AND WHERE WILL THAT TALENT COME FROM?**

Do you fully understand where your core people come from? Do you prefer to buy or build – to recruit or develop people? How dependent are you on employees from outside the UK? What is the age profile of your managers and key professionals?

What is it that makes you an attractive organisation to work for now? Will those same factors attract the people you will need in future? There is some evidence that younger workers have a less positive view of large corporations than previous generations did. What might you do to change their opinion?

We can't assume that the sources of talent we have today will still be there five years from now. Demographic change and possible restrictions on migration could change the dynamics of the labour market very quickly.

**11.10  
HOW MIGHT YOU CHANGE THE WAY YOU ORGANISE WORK?**

If, as the evidence seems to suggest, technology is likely to destroy tasks rather than entire jobs, how will that work be re-organised? This will almost inevitably lead to the re-bundling of some tasks into new roles and the use of external experts and contractors to deliver the rest.

While the ‘gig economy’ has been over-hyped, there has been a steady rise in the use of freelancers and part-time and temporary workers across the OECD economies. Technology means it will be easier for employers to mix and match project teams from workers with a range of employment terms but organisational cultures will need to change too. Tasks don’t necessarily need to be bundled into full-time permanent roles. Offering work to those who prefer not to work in a traditional full-time role might also open up new talent pools.

In some industries, the combined effects of technological and demographic change may necessitate not just the re-design of jobs but a complete re-think of the way companies organise work.

### 11.11 WHAT CAPABILITIES WILL YOUR HR TEAM NEED TO DEVELOP?

Human Resources professionals will need to build organisations with the capability to do much of the above. They will need to facilitate the discussions and help to develop the strategies that enable their organisations to thrive .

We believe the HR professionals of the future will need to be:

- Facilitators of and contributors to the process of future-scanning and strategy development
- Knowledgeable enough about wider global developments to be able to lead discussions at senior level
- Synthesisers and provocateurs – able to summarise information succinctly and use it to stimulate strategic discussions among their colleagues
- Capable of dealing with uncertainty and ambiguity

- Critical thinkers – able to understand the ever-expanding supply of data, to turn it into insights and to identify what is spurious and unimportant
- Organisation builders and developers – able to see all aspects of the company in context and to design and create the organisation fit for the future.

### 11.12 ARE YOU CHALLENGING YOUR ORGANISATION?

Are you having conversations about any of the themes covered in this report with the senior leaders in your organisation?

As Wendy Hirsh remarked:

*HR is often in the room but not asking business leaders the right questions about future work and workforce. We need to be a bit braver about not having all the answers before we stimulate and facilitate the conversation.*

*A practical manifestation of HR showing ‘business understanding’ is when we go along and have a proper conversation with senior leaders or those in other functions about their concerns or flag important issues we can work with them to address.*

Who is leading the discussions about the future of work in your organisation? Is it the HR function? And if not, why not?

# 12

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