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The Future of the Workforce

Critical drivers and challenges

July, 2016

Introduction

The future of work and the workforce is facing dramatic change driven by technology, globalization, demographics, social values, and the changing personal expectations of workforce participants, in particular Millennials.

The intersection of these forces has already had an effusive impact on the talent landscape, disrupting business models and radically changing the workplace—who, where, when, and how work is done. It is also challenging the institutions that support the workforce. Data from two of the world's leading economies are indicative of the change underway. According to Deloitte research:

- Over the last 15 years, the United Kingdom has benefited from a technology-driven shift from low-skill, routine jobs to higher-skill, non-routine occupations.[1]
- 800,000 jobs have been lost, but nearly 3.5 million new ones have been created.[2]
- On average, each job created is paid approximately £10,000 per annum more than the lower-skilled, routine jobs they replace, resulting in a £140 billion net boost to the economy.[3]
- In the United States, technology can be attributed to a loss of more than 6 million jobs in the manufacturing sector in the last decade, while 600,000 unfilled vacancies exist because of a lack of skills.[4]

Demographic upheavals have made the workforce both younger and older, as well as more diverse. 77 million Millennials[5] now make up more than half the workforce. They expect a mobile work environment, are fueling the new "freelance economy," and will spend no longer than 16 months with any employer on average. This "loyalty challenge" is driven by a variety of factors. Millennials feel underutilized and believe they are not being developed as leaders. They bring high expectations for a rewarding, purposeful work experience, constant learning and development opportunities, and dynamic career progression.[6]

At the same time, baby boomers are working into their 70s and 80s, which in the main driven by financial necessity and improved health. Nearly one-third of working Americans intend on working into their 80s,[7] and a quarter of Australians (baby boomers).[8] We have also seen a comparative increase in women's participation in the labor force. The average gender participation gap—which is the difference between male and female

Four main drivers of workforce disruption:

1. Demographic upheaval
2. Ever-present and changing digital technology
3. Accelerated rate of change and business-model innovation
4. The rise of a new social contract

1. Deloitte UK, "From Brawn to brains: the impact of technology on jobs in the UK," 2015, http://www2.deloitte.com/uk/en/pages/growth/articles/from-brawn-to-brains--the-impact-of-technology-on-jobs-in-the-u.html#
2. Ibid
3. Ibid
4. Deloitte University Press, "Brawn from brains - talent policy and the future of American competitiveness," 2015, http://public.deloitte.com/media/0654/img/us_fed_elections_talent_skills-of-the-future.pdf
5. Pew Research Center, "The Millennial Count," 2010, http://www.pewresearch.org/daily-number/the-millennial-count/
6. Deloitte Global, The 2016 Deloitte Millennial Survey: Winning over the next generation of leaders, http://www2.deloitte.com/global/en/pages/about-deloitte/articles/millennialsurvey.html
7. Blake Ellis, "More Americans delaying retirement until their 80s," CNN Money, Oct 2012 http://money.cnn.com/2012/10/23/retirement/delaying-retirement/index.html
8. Natasha Bita, "Baby boomers to work into 80s," News.com.au, 2013, http://www.news.com.au/finance/superannuation/baby-boomers-to-work-into-80s/story-e6frfmdi-1226769073673

Technological change drives long-term economic growth, productivity and improvement in living standards. It has led to net job creation

labor force participation rates—has been declining since 1990, largely due to a worldwide fall in male labor force participation rates.[9] Nonetheless diversity has increased.

Digital technology is now everywhere. Technologies such as smart mobile devices, 3D printing, sensors, cognitive computing, and the "Internet of Things" are changing the way companies design, manufacture, and deliver almost every product and service. In parallel, digital disruption and social networking have changed the way organizations hire, manage, and support people. Further, the rise of social networking tools and apps leave companies more transparent—whether they like it or not.

The rate of change has accelerated, requiring companies to be more agile. Rapid business-model innovation from companies such as Uber and Airbnb is forcing organizations to respond and reposition themselves quickly to meet new challenges. In our highly connected, fast-changing world, "black swan" events (those of low probability and high impact) also seem to be more significant, reinforcing the need for agility.

Lastly a new social contract is developing between companies and workers, driving major changes in the employer-employee relationship. The days when a majority of workers could expect to spend a career moving up or across the corporate ladder at one company are over. Young people anticipate working for many employers and demand an enriching experience at every stage. This leads to expectations for rapid career growth, a compelling and flexible workplace, and a sense of mission and purpose at work. In addition, contingent, contract, and part-time workers make up almost one-third of the workforce,[10] although it is worth noting that many companies lack the human resource/talent practices, culture, or leadership support to manage this new workforce.

The ramifications of these impacts remain somewhat unclear—in particular the technological impact. What is becoming clear though, is that some workers and economies have fared well and others are struggling with these new forces. The Organization for Economic Co-operation and Development (OECD) reports technological change drives long-term economic growth, productivity, and improvement in living standards. It has led to net job creation, as new industries replace old ones and workers adapt their skills to changing and expanding demand.[11] A report[12] by the World Economic Forum (WEF) suggests information and communications technology (ICT) is not only one of the fastest growing industries—directly creating millions of jobs—but it is also an important enabler of innovation and development. According to the report, "findings from various countries confirm the positive effect of ICT on growth. For example, a 10 percent increase in broadband penetration is associated with a 1.4 percent increase in GDP growth in emerging markets. In China, this number can reach 2.5 percent. The doubling of mobile data use caused by the increase in 3G connections boosts GDP per capita growth rate by 0.5 percent globally. The Internet accounts for 3.4 percent of overall GDP in some economies."[13]

A recent Deloitte UK report shows a more local perspective. Over the past 150 years, while the United Kingdom has been able to adapt to new technology with new jobs that offset jobs losses, the positive impact has been mainly felt in London. In aggregate, across the rest of country, there has been a 'hollowing out' of the labor market. Overall this is leading to a growing inequality in both skills and earnings.[14]

9. Katrin Elborgh-Woytek et al, Women, Work and the Economy, IMF, 2013, http://www.imf.org/external/pubs/ft/sdn/2013/sdn1310.pdf
10. Elaine Pofeldt, "Shocker: 40% of workers now have 'contingent' jobs, says U.S. government," Forbes, May 25, 2015, www.forbes.com/sites/elainepofeldt/2015/05/25/shocker-40-of-workers-now-have-contingent-jobs-says-u-s-government/
11. Organization for Economic Cooperation and Development, OECD Jobs Strategy, http://www.keepeek.com/Digital-Asset-Management/oecd/industry-and-services/technology-productivity-and-job-creation_9789264163416-en#.V8ll1nnr2M8#page1
12. Elena Kvochko, "Five ways technology can help the economy," World Economic Forum, 2013, https://www.weforum.org/agenda/2013/04/five-ways-technology-can-help-the-economy/
13. Ibid
14. Deloitte UK, Transformers: how machines are changing every sector of the UK economy, 2016,

The critical issues

Understanding the impact of the gig economy, robotics, and cognitive technologies and their impact on education, skills, and career development will be crucial to ensuring countries are able to manage risks and opportunities presented by workforce dynamics for inclusive economic growth. Businesses will need to focus on and articulate the capabilities and skills they will need, now and into the next five to ten years. Government, business, and society need to work together to support a dynamic workforce that is able to constantly reskill and upskill. This means revisiting education, career models, and approaches to life-long learning and work, regardless of geography, and innovating public-private partnerships. Policies that underpin the basic fundamentals of the workforce, such as regulation of the gig economy, need revising in a way that provides for inclusive growth and facilitates innovation and long-term unemployment solutions. The following sections take a closer look at these two issues.

The gig economy and robotics and cognitive technologies—the new workforce

The structure of how labor is accessed by organizations is moving to include channels beyond the balance sheet—the gig economy and crowdsourcing are two prevalent examples. The nature of jobs and work itself is changing at the same time. Robotics and cognitive technologies are creating a world where many employees will work and collaborate with robots and learning machines. And yes, some will be replaced. Efficiencies are increasing in some areas as people with common, low-level skills compete for work in a more efficient marketplace as a result of the gig economy.

These changes are being felt across all organizations, industries, and geographies. According to the recent Deloitte Human Capital Trends report 2016,[15] within the next three years, 42 percent of executives surveyed expect to increase the use of robotics and cognitive technologies. However, contrary to some news headlines, most organizations do not expect workers to be replaced by machines. In fact, 20 percent expect automation to increase hiring levels, while 38 percent see no impact. Three out of four executives (76 percent) surveyed expect automation will require new skills in the workforce in the next one to three years.

http://www2.deloitte.com/uk/en/pages/technology-media-and-telecommunications/articles/transformers.html

42 percent of executives expect to increase or significantly increase the use of contingent workers in the next three to five years – 71 percent believe their company is "somewhat" or "very" able to manage contingent workers.

One significant change being seen as a result of the "internet of everything" is the increased number and use of contingent freelance workers (people who make a living working without any formal employment agreement). We are seeing almost half of the executives surveyed by Deloitte[16] (42 percent) expect to increase or significantly increase the use of contingent workers in the next three to five years, while only 16 percent expect a decrease. Today, more than one in three US workers are freelancers—a figure expected to grow to 40 percent by 2020.[17]

One of the drivers for this is cost (with some companies opting to pay purchase orders instead of salaries), and another is talent supply, with people not wanting to relocate or travel for work or simply preferring to be engaged remotely or temporarily. There is also a generational shift taking shape as the concept of once looking for the career ladder or career trajectory is fast giving way to the Millennial's desire for the "career experience." Loyalty to one long-term employer is a long gone concept.

Deloitte's Millennial Survey[18] suggests the expectations of Millennials who make up the majority of the workforce are major contributors to this generational shift. According to the survey, Millennials have little loyalty to their current employers and many are planning near-term exits. This "loyalty challenge" is driven by a variety of factors. Millennials feel underutilized and believe they're not being developed as leaders. They continue to express positive views of businesses' role in society; they have softened their negative perceptions of corporate motivation and ethics and cite a strong alignment of values. However, Millennials feel that most businesses have no ambition beyond profit, and there are distinct differences in what they believe the purpose of business should be and what they perceive it to currently be. Often they put their personal values ahead of organizational goals, and several have shunned assignments (and potential employers) that conflict with their beliefs. Further, during the next year, if given the choice, one in four Millennials would quit his or her current employer to join a new organization or to do something different. That figure increases to 44 percent when the time frame is expanded to two years. By the end of 2020, two of every three respondents hope to have moved on, while only 16 percent of Millennials see themselves with their current employers a decade from now.

Business implications

Companies are struggling to understand of whom (and what) their workforces are composed and how to manage today's incredibly diverse combination of worker types, including workers on and off the balance sheet as well as part-time, contingent, and virtual workers. Across all organizations, industries, and geographies, a new work and social contract is emerging.

New regulations that mandate pay for overtime, increase the minimum wage, and tighten rules for part-time status are becoming more important than ever, with a growing public policy debate over how to regulate and measure new labor models.[19]

Many human resource teams struggle to translate these new realities into attractive and cost-effective workforce practices that comply with government regulations. According to Deloitte's Human Capital Trends Report 2016, 71 percent of executives believe their companies are "somewhat" or "very" able to manage contingent workers. The top three challenges cited include legal or regulatory uncertainty (20 percent), a corporate culture unreceptive to part-time and

15. Deloitte University Press, Deloitte Global Human Capital Trends Report 2016 http://www2.deloitte.com/global/en/pages/human-capital/articles/introduction-human-capital-trends.html
16. Ibid
17. Lauren Weber, "One in three U.S. workers is a freelancer," Wall Street Journal, September 4, 2014, http://blogs.wsj.com/atwork/2014/09/04/one-in-three-u-s-workers-is-a-freelancer/
18. The 2016 Deloitte Millennial Survey:Winning over the next generation of leaders

contingent staff (18 percent), and a lack of understanding among leadership (18 percent).

The move toward automation, robotics, and cognitive technology in the workforce also poses other significant challenges. As stated earlier, three out of four executives (in Deloitte's Human Capital Trends Report 2016) believe automation will require new skills over the next several years. When asked about their organization's capabilities to redesign work done by computers to complement talent, only 13 percent of executives rated them "excellent"— 34 percent (1 out of 3) described them as "weak." One example cited in the report is that of a major telecom company. The question is how does it measure its workforce as it could be either 18,000 (payroll), 30,000 (including contractual workers), or 57,000 (including those who are building out its network). This is a huge variance. Uber has three million drivers under contracts that offer the company tremendous flexibility.

Broader societal impact

Looking beyond business we will see broader societal implications. While the full spectrum in this regard is also not readily visible, we are seeing how relationships, networking, and community building have changed as a result of technology and the information access it facilitates. Other changes will include broad cultural developments, urbanization, and socialization just to name a few. Some see technology resulting in a shifting of the balance from work time to leisure time. In an article in The Atlantic, A world without work, Derek Thompson states that "disappearance of work would usher in social transformation unlike any we've seen," [20] reminding us that, "In the midst of the Great Depression, the economist John Maynard Keynes forecast that technological progress might allow a 15-hour workweek, and abundant leisure, by 2030." [21]

In that same article Benjamin Hunnicutt, historian at the University of Iowa, talks about a "post-work society" and a move from the "labor force to the leisure force," where people might spend more time caring for their families and neighbors;

19. Dennis M. Mulgrew, Jr., "DOL announces proposed revisions to FLSA regulations doubling the minimum salary requirement for exempt employees," National Law Review, July 2, 2015, http://www.natlawreview.com/article/dol-announces-proposed-revisions-to-flsa-regulations-doubling-minimum-salary-require

where pride could come from relationships rather than from careers; and colleges could re-emerge as cultural centers rather than job preparation institutions.[22]

Lawrence Katz, a labor economist at Harvard, sees the next wave of automation "returning us to an age of craftsmanship and artistry... a future of creativity, as technology returns the tools of the assembly line to individuals, democratizing the means of mass production."[23]

Cultural considerations must evolve alongside the technological disruption. This is discussed in Jain, Supriya's article, "The machines are taking over! Or are they?" [24] This article suggests that newer technologies, such as social media and mobility have made the world more accessible, transparent, and accountable, and points to the fact that "... culture has had to evolve with the technology. And therefore, for our next leap of technological progress, we need to work on the cultural leap as well." As the article suggests, technology grows exponentially, culture grows logarithmically and therefore takes time to evolve. Issues discussed include education and the need for young people to spend less time in education and to continue learning through their entire lives; schooling to be "more about ethics, culture, community, quality of life and appreciation of "being human" than about trigonometry," and that society will have to be more honest and transparent. "We are already witnessing the rise of the sharing economy, which will become the cornerstone of a society where equal access is granted to all resources."

Policy considerations

The shifts in social engagement are evident: relationships are being reconstructed, virtual communities are stealing time from face-to-face communities; social stimulation and engagement is moving virtual, and more and stronger connectivity is leading to different social dialogues and emotional developments.

For policy makers as the gig economy strengthens, this means consideration of both the economic/business and societal elements. These include, but are not limited to, education, taxation, pensions, social protections, mobility, labor supply management, income, data flows, privacy, security, health care, consumer protection, labor laws; the list could go on. Inequality

20. Derek Thompson, "A world without work," The Atlantic, July/August 2015, http://www.theatlantic.com/magazine/archive/2015/07/world-without-work/395294/
21. Ibid
22. Ibid
23. Ibid

will remain a stubborn phenomenon even as technology advances society and helps grow economies creating other long-term policy outcome considerations such as income guarantees, wealth distribution, and re-enabling social engagement (beyond tradition employment).

Learning and career development

There is no doubt that education and skills development will be even more critical to enabling economic growth. Underpinning this will be the need for new learning models and reimagined institutions, many of which are catching up with technology. Public policy and supportive institutions have a new role to play.

Skills shortages have been a constant challenge across our workforce—every industry and almost every geography—with a specific call for more STEM capabilities, particularly in recent years. Yet new needs continue to emerge. Nearly every CEO and Chief Human Resource Officer (CHRO) report that their companies are not developing skills fast enough or leaders deeply enough. Further, three out of four executives believe automation will require new skills over the next several years.[25] Looking ahead, future businesses will need more skills, including digital know-how, management capability, creativity, entrepreneurship, and complex problem solving.[26]

According to the WEF,[27] these complex skills will blend the very best of social skills (influencing, persuasion, emotional intelligence, and teaching others) with processing skills (active listening and critical thinking) as well as cognitive skills (creativity and mathematical reasoning). Indeed the WEF predicts that these will become "core" skills with some (like social skills) generating higher demand than technical skills. It is a prediction anchored in legacy trends. An analysis of employment and wage data in the United States since the 1980s found growth has been strongest for employees with both high cognitive and social skills.[28]

This is not to say that we do not and will not need a larger stock of technical skills in the workforce; we do. It is about balance: technical skills are not sufficient by themselves. Problems are much more likely to be solved in teams, meaning that employers will require a range of other cognitive skills and abilities from their workers, such as complex problem solving, reasoning, comprehension, and social. These skills lend themselves to the application of technical skills, which have arguably been in demand for many years, but again are growing in importance. The effects of this are already evident in the United Kingdom and Australia, where official statistics show that graduates of STEM subjects have, in some cases, significantly higher unemployment rates than graduates of non-STEM subjects like the humanities.

In markets where there has been such a focus on STEM skills development, it is easy to lose sight of the importance of these broader skills and therefore overlook providing quality education in this area, which incidentally, are skills not yet easily replicated by machines.

Future businesses will need more skills, including: digital know-how, management capability, creativity, entrepreneurship and complex problem solving.

24. Supriya Jain, "The machines are taking over! Or are they?," World Economic Forum, 23 January 2015, https://www.weforum.org/agenda/2015/01/the-machines-are-taking-over-or-are-they/
25. Deloitte Global Human Capital Trends Report 2016
26. Deloitte UK, From Brawn to brains
27. World Economic Forum (2016) The future of jobs. Employment, skills and workforce strategy for the Fourth Industrial Revolution. Global Challenge Insight Report, World Economic Forum http://www3.weforum.org/docs/WEF_Future_of_ Jobs.pdf

Technology can make learning available anywhere, anytime to anyone. Millennials expect it as part of their working norm and will move on if not provided.

Another development of note is the shrinking "half-life" of knowledge, pointing to the fact that valuable knowledge-work is becoming increasingly specialized. Deloitte UK research (soon to be released) suggests that employment in occupations for which domain knowledge is deemed "very important," not just "important," is growing. Although it is possible that such knowledge work could theoretically be done by machines, it does not always make economic sense where the knowledge requirements are so specialized. Therefore, not only is knowledge increasing in importance, but the knowledge needed for human workers to avoid being substituted by mechanical workers will become increasingly specialized.

Evidence is also emerging that specialization can be a means to increase productivity where, according to one study on team dynamics, workers "trade tasks" to exploit their comparative advantage. In the model analyzed, social skills reduce coordination costs, allowing workers to specialize and trade more efficiently, thereby generating predictions about sorting and the relative returns to skill across occupations.[29]

Looking at the supply side, we know that learning and development has been made easier by the gig economy. The ubiquity of always-connected mobile devices makes learning potentially available everywhere and accessible to everyone at any time. Workers can now take a course on nearly any subject online, search for an expert video or podcast to learn a quickly needed skill, and even earn a college degree in a new topic like data science without leaving their desk—or a couch or coffee shop. This new world of consumer-centric learning puts employees—workers, not learning and development departments or institutions—in charge.

28. David J. Deming, "The Growing Importance of Social Skills in the Labor Market," NBER Working Paper No. 21473, August 2015,

Employees at all levels are demanding access to dynamic learning opportunities that fit their individual needs and schedules.[30] Millennials and other young employees have grown up in this self-directed learning environment. They expect it as part of their working lives and careers—and they will move elsewhere if employers fail to provide it. Already, 30 percent of executives[31] see learning as the primary driver of employee development.

"Once done and done" education and career models are dead.

How are the stakeholders responding?

Lifelong learning and serial careers, while not yet the norm, are taking off. Many organizations are struggling to adapt to these challenges, although high-performing companies are seizing the opportunity to promote a new culture of learning, upending traditional models and transforming how employees learn.

These organizations are adopting new mind-sets, fundamentally rethinking what "learning" and "development" mean in the context of their business. They place the employee at the center of a new architecture and new vision that treats learning as a continuous process, not an episodic event, and as a company-wide responsibility, not one confined to human resource departments.[32]

At the same time, careers are being and will continue to be reimagined. Workers are, and will continue to take "tours of duty"—a portfolio of assignments involving different skills, often in different organizations.[33] They will effectively morph their careers and change and reinvent themselves to have multiple careers, including "sliding" moving into adjacent fields.[34] What this tells us is that the education and career models of "once and done" are dead for companies and individuals.

Learning and development organizations are supporting the new reality by adopting new and expanded learning architectures.[35] They see their role as not simply to push out content they have developed, but to enable employees to access content from a wide range of internal and external sources to create individual learning programs. To facilitate the effort to help employees "learn how to learn," learning and development (L&D) teams are building internal knowledge-sharing programs, developing easy-to-use portals and video sharing systems, and promoting collaborative experiences at work that help people constantly learn and share knowledge.

These efforts seek to leverage the profound shifts taking place in the learning industry. Traditional learning management system companies are rapidly evolving in their ability to deliver modern, compelling experiences for learners. Now, a new breed of disruptive platforms is starting to arrive.

New money and ideas are pouring into this sector. CB Insights, which tracks venture investments, estimates that more than $3 billion was invested in new learning and educational start-ups in the first six months of 2015. Almost $1 billion of this went into tools to harness video, new mobile learning apps, content development, and companies that focus on the corporate market.[36]

Today, countless employees and workers are browsing through content from Coursera, Udemy, Udacity, or a dozen other providers and instantly accessing lectures, courses, or workshops on a needed skill. Such platforms offer learning opportunities at little or no cost and even allow employees / workers to interact online with experts in the field—learning exactly what they need, when they need it, at a time that fits their schedules.

This kind of technologically enabled, on-demand learning experience rarely exists within a corporation, and it is a world away from the traditional learning programs still used by most L&D organizations. In particular, many companies are still struggling to ride the

http://www.nber.org/papers/w21473.pdf downloaded 13 June 2016

29. Ibid
30. Josh Bersin, "Spending on corporate training soars: Employee capabilities now a priority," Forbes, February 2014, http://www.forbes.com/sites/joshbersin/2014/02/04/the-recovery-arrives-corporate-training-spend-skyrockets/#6c1b7094ab74
31. Deloitte Global Human Capital Trends Report 2016
32. David Mallon and Dani Johnson, "The learning architecture: Defining development and enabling continuous learning," Bersin by Deloitte, 2014, http://bersinone.bersin.com/resources/research/?docid=17435
33. Reid Hoffman, Ben Casnocha, and Chris Yeh, The Alliance (Boston: HBR Press, 2014)
34. Linda Gratton, The Shift: The future of work is already here (London: Harper Collins Business 2011)
35. Bersin by Deloitte defines a learning architecture as an organization's unique map of agreed upon learning needs, learning strategies, and delivery strategies for all of its talent. This provides both the L&D function and the business a clear view of what types of problems the organization will solve, how they will solve them, what tools they need, and which approaches the organization will take. It deliberately limits the organization's options by deciding how and where the L&D

wave and integrate external platforms as part of their employee learning. Deloitte's Human Capital Trends Report survey respondents cited a wide range of external learning opportunities that could impact internal development, including external certificates (32 percent), Massive Open On line Content (MOOCS) (18 percent), and external, self-directed learning powered by social media (14 percent). Yet, despite this robust array of choices, 61 percent of executives report challenges in moving their organizations toward external self-directed learning.[37]

Corporate training departments must become "learning experience architects," building a compelling and dynamic experience for employees and helping employees learn how to learn.

Policy implications

Skills development is an economic imperative, and creating the right policy mix to facilitate needed development and learning is not going to be easy. Due to differences across markets it is difficult to generalize what is needed but some basic principles are fundamental. We need a skills development infrastructure; one that broadens the base of skills and abilities, focusing especially on cognitive and social skills; that provides basic technical/STEM skills; and enables a process of continually deepening knowledge. We cannot afford to get caught up in the STEM hype to the detriment of humanities. It also means reducing the cost of institution-based education in those markets where education is prohibitive for many, increasing professional development and teacher quality, improving technological infrastructure so that education platforms can be available to all, and having technologically enabled classrooms, which even in some large developed economies like Japan, remains an issue.

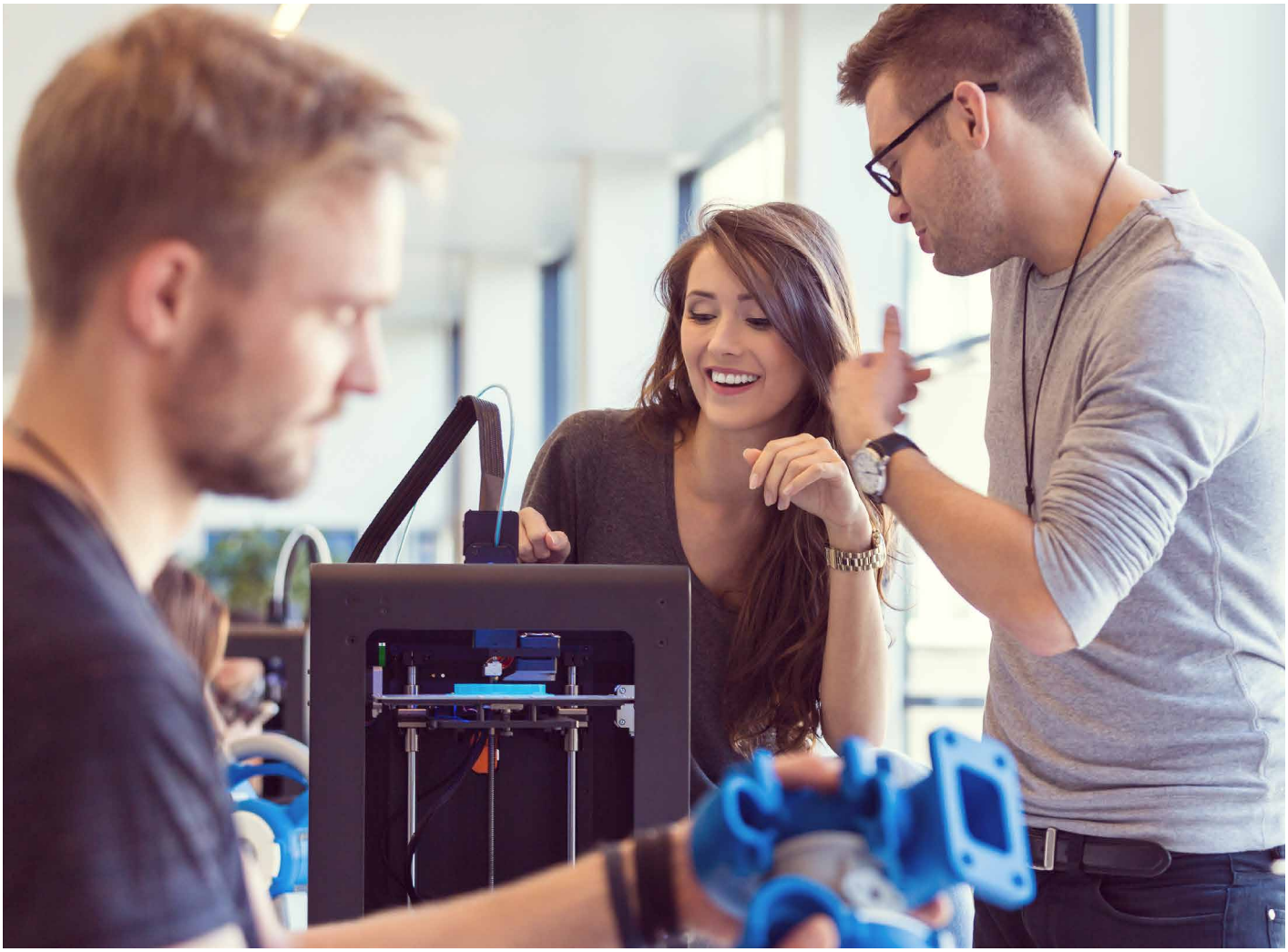
In many markets this requires a fundamental shift in approach and delivery. For example, in the United Kingdom, the education system is focused more on the acquisition of knowledge than of skills, but it will be subjects that focus on the application of knowledge that will fare best in the new world. In many markets, academic-type learning will need to be married with opportunities to apply new knowledge and skills. The latter will avoid skills atrophy, which is what actually drives down economic growth, as opposed to the rhetoric we hear of the gig economy being the culprit. In many cases educational institutions will require a major overhaul. They have to shift from being content driven to problem solving and leverage more flexible (on-line, blended, MOOCs) learning concepts to connect people with knowledge more quickly and at an earlier age. In some markets there is a need to integrate basic technology into learning facilities. They must also provide for on-time upskilling and portability and recognition of skills learned on the job.

The growing need for complex decision making points to a need for and use of greater diversity within the workforce. A recent book by Deloitte Australia's Juliet Bourke, published by the Australian Institute of Company Directors, provides evidence on how diverse teams create breakthrough ideas and make smarter decisions. So looking ahead, it will not just be about having the right cognitive skills, but the right mix of people with these skills both within the workforce and within the delivery teams.[38] If Bourke is right, increasing demographic diversity within the workforce must remain a public policy priority, but the focus will shift from visible to cognitive diversity.

Further and arguably, cognitive and social skills need to be learned through experience, meaning businesses and other places of work clearly have an important role to play. It is no longer just about having

function will focus its efforts—and it builds upon the organization's culture and history of learning. (Source: Mallon and Johnson, The learning architecture.)

36. Proprietary research by CB Insights, www.cbinsights.com
37. Deloitte Global Human Capital Trends Report 2016



business, labor, and government at the table but the tripartite system entrenched in the policy planning and delivery of skills development learning and education. Businesses also have a responsibility to facilitate and help employees "learn how to learn," providing a diverse array of knowledge sharing and on-the-job learning experiences that foster personal growth. They should be building internal knowledge-sharing programs, developing easy-to-use portals and video-sharing systems, and promoting collaborative experiences at work that help people constantly learn and share knowledge. They should be taking advantage of the profound shifts taking place in the learning industry.

A broader societal implication of the evolving workforce is the potential fueling of inequality. We are seeing that the gig economy is giving low-paid jobs to people with outdated or low-paying skills and big salaries and income growth to people with hot skills, regardless of whether or not they work full time. According to a U.S. study, since 1980, jobs with high social skill requirements have experienced greater relative growth throughout the wage distribution. Moreover, employment and wage growth has been strongest in jobs that require high levels of both cognitive skill and social skill.[39] Having said that, it cannot be assumed that just because certain skills are likely to be important in the future workforce, workers with those skills will be compensated better than those without them. Good social skills, for instance, are as important in "lousy" jobs as they are in "lovely" ones so while Millennials may see "learning curve" as the "earning curve" this may not always hold true. Instead, workers may have to upskill continually simply to stand still in financial terms, even as the economy around them becomes more efficient and productive.

38. Juliet Bourke, "Which Two Heads are better than one?," Deloitte Australia, http://www2.deloitte.com/au/en/pages/human-capital/articles/creating-high-performingleadership-teams.html
39. Deming, "The Growing Importance of Social Skills in the Labor Market" David J. Deming, NBER Working Paper No. 21473 Issued in August 2015. http://www.nber.org/papers/w21473.pdf%20downloaded%2013%20June%202016

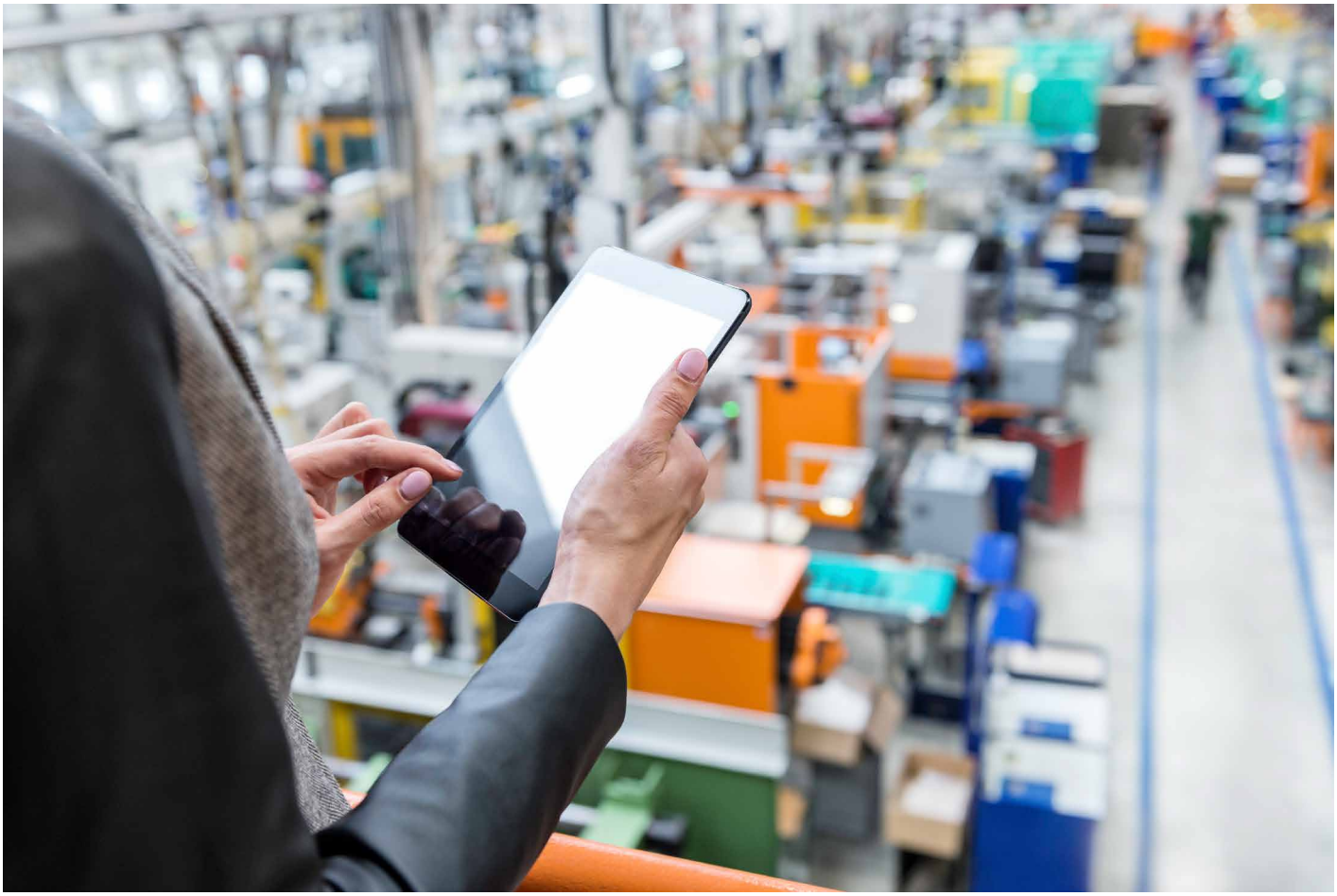
Conclusion

In concluding, we are seeing two shifts impacting the future of the workforce. The gig economy and robotics and cognitive technologies are changing the structure of how labor is accessed by companies, and organizations are moving to include sources of talent beyond those on the balance sheet. The nature of jobs and work itself is changing at the same time robotics and cognitive technology are creating a world where many employees will work with and collaborate with robots and learning machines, with some being replaced.

The major development will be the need for lifelong learning and serial careers. Key to this is the criticality of new learning models and institutions, which are catching up with technology, and the morphing and changing of careers by workers.

All the while, as economies and governments adapt to these changes, many others are upon us, including emerging geopolitical developments such as Brexit and Trump, just to name two. We are seeing a heightening of tension between globalization and protectionism, which impact the movement of people and therefore skills needed to service economies. The context for the future may be diverse, but it is far from certain.

Lastly this all leads to societal implications that extend to culture—ways of living, hours spent at work, income distribution—and we must be aware of these implications and avoid fueling greater inequality within our economies.



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Designed and produced by the Creative Studio at Deloitte, Belgium.

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