



# Forces of change: The Future of Work

The workforce and technology are changing. They are more digital, more technological, and more global. At the same time, business expectations, needs, and demands are evolving faster than ever before. Deloitte is leading our clients into a contingent, crowdsourced, automated, and cognitive-enabled future where the workforce will become increasingly augmented. The Future of Work program is developing and incubating solutions hand in hand with clients around the world, reimagining the future of talent acquisition, workforce planning, professions, and more.

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The future of work signifies the opportunity to evolve our workforces and workplaces. This evolution is being shaped by two powerful forces: the growing adoption of artificial intelligence in the workplace, and the expansion of the workforce to include both on- and off-balance-sheet talent, often referred to as the open talent continuum. These shifts could lead us to reconsider the roles of individuals, organizations, and societies at work. From the individual nine-to-five workday to how entire industries function, work seems to be changing faster than ever. Big shifts threaten to create massive societal and economic disruption unless we look seriously at making the future of work productive and rewarding for everyone. Within this article, we will unpack how technology could transform the workforce and the way people work in the future, while also showing how individuals, organizations, and societies can come together to thrive in the new realities at work.

## What is our view of the future of work?

**T**ECHNOLOGICAL advances, demographic shifts, and consumer pulls seem to be fundamentally changing the way people work and the way organizations design jobs and environments. Some see this as a challenge, but it can be an opportunity to reimagine talent models, organizational practices, and business models.

It can be an opportunity to evolve.

Successfully navigating the coming transformation of work likely requires a refreshed and holistic conversation. We should ask, what will the future workforce look like? How will we redesign jobs and work? Where will work happen? How will businesses operate under the new realities of work? Addressing these questions should start with understanding how these future of work forces—technology, shift-

ing demographics, and empowered global customers—interact, not as separate threads, but as part of an integrated fabric. We should bring together the agendas of individuals, organizations, and societal ecosystems to redefine our workforces and workplaces in ways that not only enhance productivity, but also allow people to thrive in the new realities of work (see figure 1).

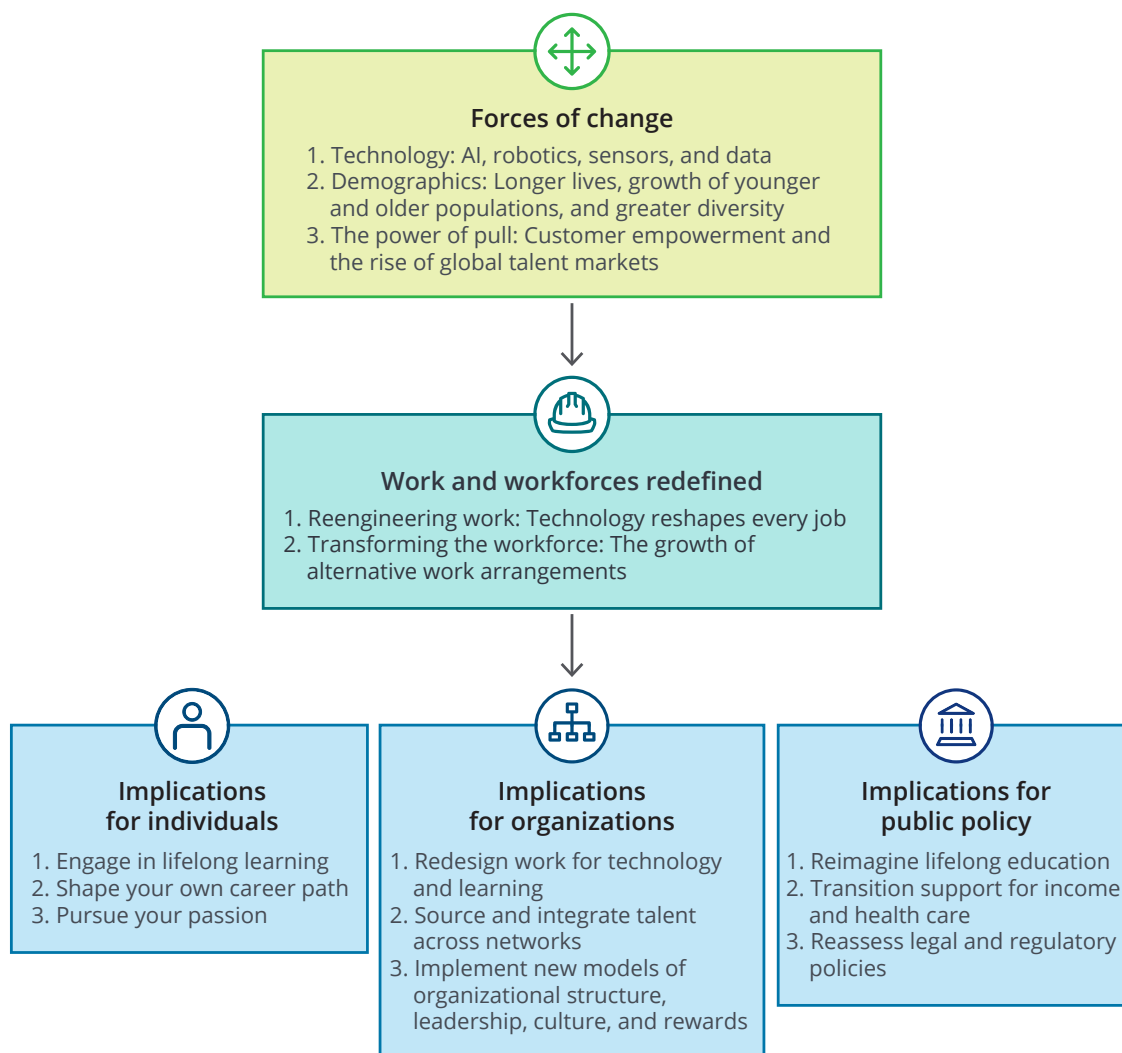
The future of work is coming. In some organizations and in parts of many businesses, it is already here. Some are painting a picture out of a science fiction movie, foreseeing doom as robots take over our workplaces. Others suggest that nearly 50 percent of jobs will be automated in the coming years, with human workers made redundant by artificial intelligence and robots.<sup>1</sup>

Will human workers be able to find jobs in the future? We believe so. But for many of us, our jobs will likely change. And in some cases, sooner rather than later.

People expect to be able to find good jobs with greater capacity for creativity and problem-solving: a future of work in which humans and machines work together to help find solutions for many of our organizations' most pressing problems. Human and machine intelligence can be considered different in complementary, rather than conflicting ways. While they might solve the same problems, they often approach these problems from different directions.<sup>2</sup> It

won't be humans vs. machines, but about finding the right combination. However, this could pose unique challenges and opportunities for the way we think through today's work and workforces. This new era will likely lead to a new set of rules and the work, workforce, and workplace of tomorrow could be very different to today's. Within this article, we explore how technology could transform the workforce and the way people work in the future, while also showing how individuals, organizations, and societies can come together to thrive in the new realities at work.

**Figure 1. A framework for understanding the future of work**



Source: Deloitte analysis.

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# Why does the future of work matter?

**T**HE future of work is all about people—the way they work, where they work, and even who is at work—and the way technology is driving change. However, there is a large relational shift occurring between people and their work. Thomas Friedman describes it:

“Work is being disconnected from jobs, and jobs and work are being disconnected from companies, which are increasingly becoming platforms. A great example of this is what’s happening in the cab business. Traditional local cab companies own cars and have employees who have a job; they drive those cars. But, now they’re competing with Uber, which owns no cars, has no employees, and just provides a platform of work that brings together ride-needers and ride-providers.”<sup>3</sup>

Technology is shifting how we think about the workforce. There are two important changes that seem to be happening in the workforce: one, the worker is moving off campus and off balance sheets, and two, the workforce is aging, more diverse, and educated. While these shifts will likely bring challenges as the workforce transitions, they could evolve workforces to create and capture more value by reinventing work through essentially human learning and discovery.

## The alternative worker: Off campus and off balance sheets

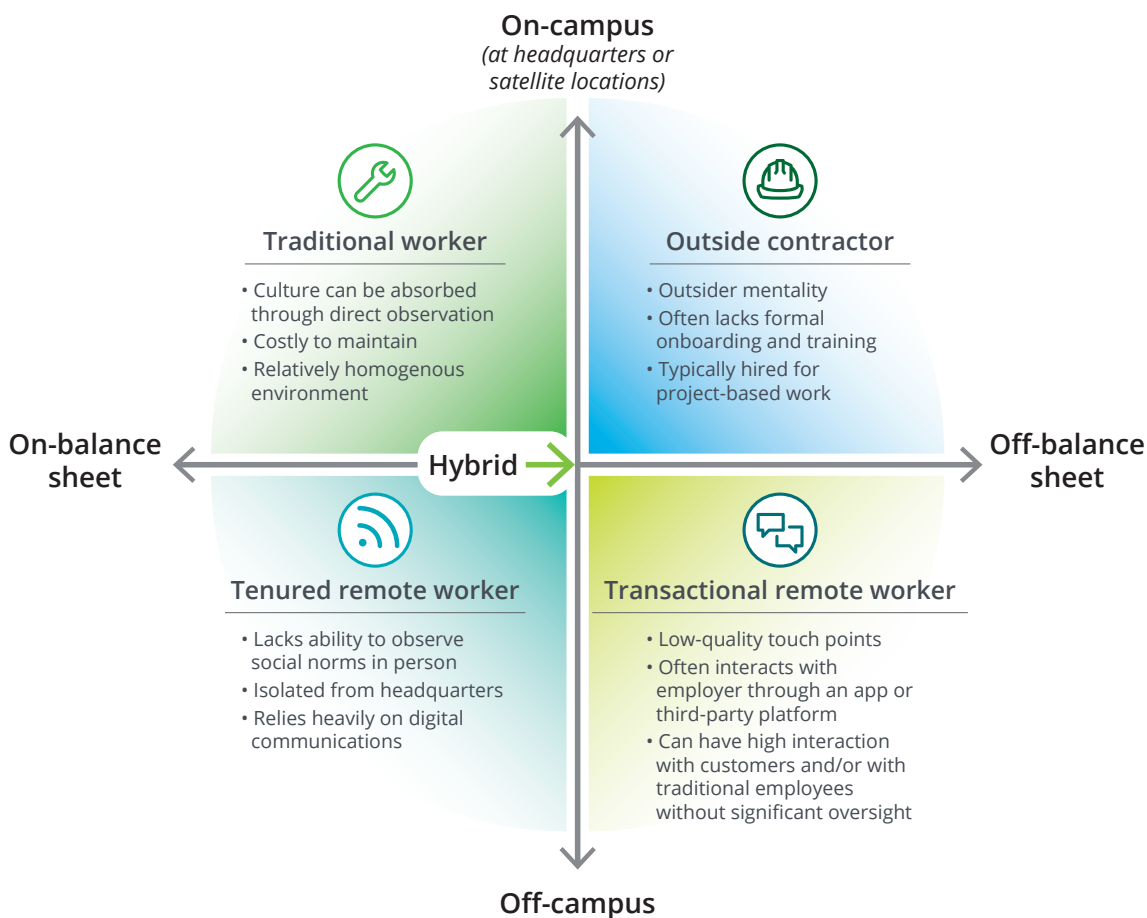
Technology enables the proximity of work to expand beyond a company’s walls and balance sheets. The alternative worker is one of the fastest-growing

segments of the workforce. The National Bureau of Economic Research found that between 2005 and 2015, approximately 94 percent of net new employment in the United States occurred within the alternative work arrangement—including everything from gig to freelance and off-balance sheet workers.<sup>4</sup> And this number is anticipated to keep growing. By 2020, an Intuit report predicts that nearly 40 percent of all US workers will be engaged in some sort of alternative work arrangement.<sup>5</sup>

Within our research, we have identified four segments of work arrangements that each possess their own unique needs. Figure 2 shows how the workforce can be segmented along two axes: location—on- vs. off campus, and contract type—on- vs. off balance sheet.<sup>6</sup> Each of these worker segments represents an opportunity to capture value and diversity across organizations. However, each segment also offers a challenge to incorporate broadly into a company’s culture.

This new relationship between workers and organizations is likely going to present unique challenges, but also opportunities for both individuals and companies to evolve. As the alternative worker shifts to more rapidly evolving work, the way that work is done is likely to change, moving from short-term transactional remote worker to longer-term relationships that help to accelerate learning and performance improvement. The more creative alternative work becomes, the more likely it will rely on small teams or work groups that would collaborate on different projects over extended periods of time.

Figure 2. The alternative workforce goes to work



Source: Deloitte analysis.

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## Shifting demographics: Workforce supply changes

The supply of workers is rapidly evolving globally as a result of shifting demographics, enhanced longevity, and increased focus on the inclusion of the marginalized segments of the population. This brings an opportunity for organizations to leverage the most diverse labor market to date.

1. *The US workforce is aging and will continue to age.* 70 is the new 50 in the future of work. While Millennials are the largest generational cohort in the market, we project workers over the age of 65 as the fastest-growing worker segment.

2. *The US workforce is more diverse.* Changing policies are drawing in more diverse populations into organizations. We are seeing a more diverse workforce by gender, ethnicity, culture, religion, and sexual preference and identification than ever before.

3. *Americans continue to become more educated.* More and more young people are going to college, and many workers are increasingly trying to improve their educational background mid-career.

One could say that tomorrow’s workers will be much like today’s, but only more so. And the challenges, and benefits of an aging, diverse, and educated workforce, many of which are already evident, will likely only grow in the future.<sup>7</sup>

## Reengineering work: Technology transforms jobs

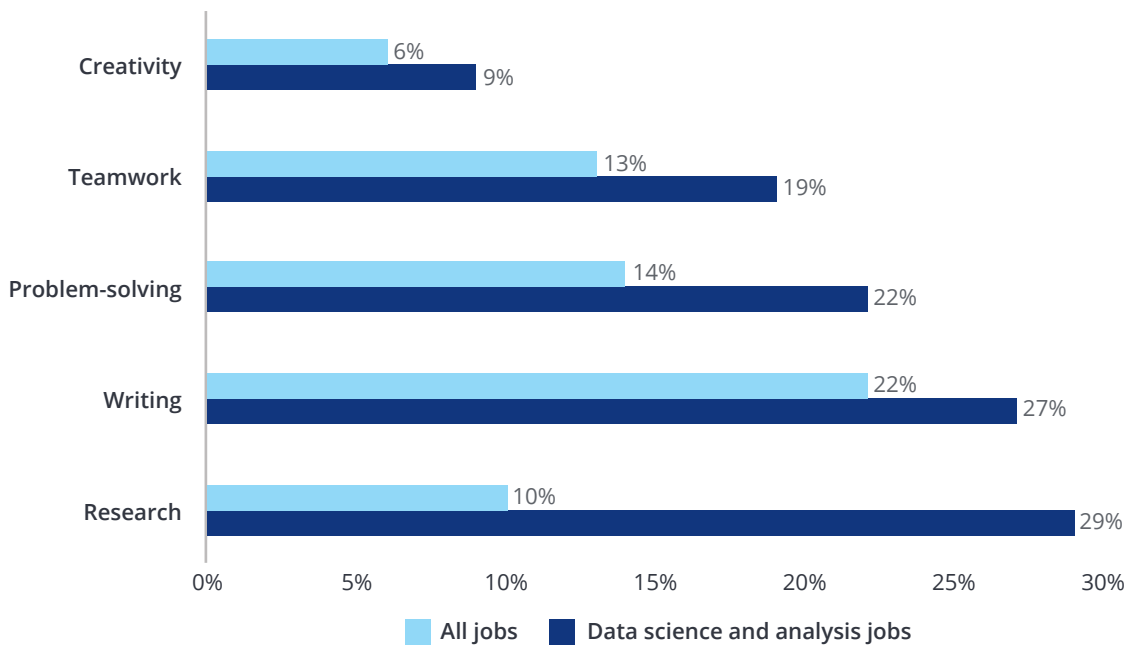
Not only is the worker going off campus and off balance sheets, but the work is also becoming increasingly augmented by technology, which frees up greater capacity for higher-order cognitive tasks. Unpacking the implications that the forces of technology have on the worker is fundamental to organizational leaders seeking to navigate the forces reshaping our understanding of work.

For example, the advent of artificial intelligence (AI) makes it possible—indeed, desirable—to reconceptualize work, not as a set of discrete tasks laid end to end in a predefined process, but as a collaborative problem-solving effort where humans define the problems, machines help find the solutions, and humans verify the acceptability of those solutions.<sup>8</sup> The advancements in augmented reality (AR) allow humans and machines to team together to achieve results neither could alone.<sup>9</sup>

These increasingly sophisticated technologies have caused the nature of work to shift away from relatively routine work environments to ones filled with growing diversity and complexity. In particular, there has been growth in highly cognitive non-routine work (including professional or managerial work). The economist, Robert Gordon, notes that from 1970 to 2009, highly cognitive nonroutine work grew by 60 percent, while repetitive work declined by 12 percent.<sup>10</sup> While tasks, especially those routine in nature, become automated, there is greater capacity for human creativity, innovation, and problem-solving.

Further research suggests that more than 30 percent of high-paying new jobs will likely be social and “essentially” human in nature.<sup>11</sup> Therefore, we anticipate a movement toward a “STEMpathetic” workforce—one that comingles technical knowledge and cognitive social skills, such as connecting with other people and communicating effectively. Roles in the future will likely continue to require

**Figure 3. Data jobs require more soft skills**  
Percentage of posts requesting soft skills



Source: Matt Sigelman, “By the numbers: The job market for data science and analytics,” Burning Glass Technologies, February 10, 2017.

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new types of soft skills, even in very technical-centric fields. Figure 3 shows the types of expertise employers are looking for in data analysis positions: research, writing, and problem-solving skills, along with teamwork and creativity. Individuals and organizations who can master both technical and social skill sets could lead the way in the future of work.

The future of work could create more good jobs, if organizational leaders are able to evolve their jobs by crafting them to make the most out of their employees' inherent nature to be social creatures and creative problem-solvers.<sup>12</sup> Artificial intelligence

and augmented reality technologies may allow more good jobs to be created as work begins to leverage the essentially human qualities of social and critical skills. This, of course, would require an emphasis on continuous learning and development, which Millennials continue to rate as the No. 1 driver of good jobs.<sup>13</sup> However, gearing up the workforce to take on increasingly complex tasks that leverage social skills would require policy makers, organizations, and individuals to work together to forge the new realities that lie ahead.

# What are the impacts of the future of work?

**T**HE opportunities presented by the future of work allow us to reimagine and evolve our workplaces and workforces. However, doing so requires mandates at the societal, organizational, and individual level.

## Implications for policy makers

**Reassess policies.** In order for individuals and organizations to keep pace with the changes in the future of work, it is necessary for societal institutions to reassess legal and regulatory policies. Governments in particular should consider updating the definitions of employment to account for freelance and gig economy work and the provision of and access to government health, pension, and other social benefits through micropayment programs. In addition, business formation and bankruptcy rules could be updated to make it easier to launch—and exit—a business as an entrepreneur. Policy makers seem to have an interest in both hastening the emergence of new forms of work—the better to raise citizens’ overall standard of living—and preparing for the stresses of the transition.<sup>14</sup>

**Reimagine lifelong education.** It is anticipated that the half-life of skill sets will decrease to five years in the future of work.<sup>15</sup> Individuals embarking upon a 30-year career would have to update and refresh their skills six times throughout their careers. Ecosystems should be ready to rethink through education and establish a framework to help everyone develop their talent more rapidly.

This focus on education should extend to marginalized populations and older generations who do not want to or cannot transition out of the workforce. In addition, payment structures and incentives could be designed to support this approach to lifelong education: facilitating access to ongoing education and training throughout a working career that might span 50 years and many different types of work.<sup>16</sup>

## Implications for organizations

And so these shifts are not inconsequential; the changing nature of work can throw unique challenges and opportunities in the way of today’s organizational leaders. And companies that fail to address these challenges may risk being left with a workforce poorly equipped to drive lasting success.

**Redesign work for technology and learning.** To take effective advantage of technology, organizations will likely need to redesign work itself, moving beyond process optimization to find ways to enhance machine-human collaboration, drawing out the best of both and expanding across alternative workforces. Organizational leaders should ensure that technology possibilities are connected to both customer and employee needs during work redesign.<sup>17</sup> In addition, organizational leaders would have to find ways to balance what is new (and the new potential of it) with the strength of what a company still has, such as their brand and values.<sup>18</sup>

**Rethink through your workforce strategy.** It will likely be important for organizational lead-

ers to use data for strategic workforce planning by identifying shifting demographics and the ways in which technology is upending work. Leaders can proactively prepare talent strategies by utilizing talent and workforce planning tools to provide a clearer line of sight into their changing workforce composition. It may be imperative to then utilize these data insights to develop strategies for workforce segments across a broad range of ages and stages in their career.

## Implications for individuals

**Engage in lifelong learning.** In the future of work, individual learning has to become lifelong—without it you are likely to find your skill set obsolete in less than five years. We no longer learn to work, but rather work to learn. As a result, in the new landscape of work, personal success will largely depend on accelerating learning throughout one’s lifetime. As a lifelong learning imperative takes hold, we see individuals increasingly focusing on

participation in small but diverse work groups that can amplify learning.

**Acquire a technology language.** In particular, all workers, regardless of occupation, should become fluent in a technology language. “Tech fluency” refers to a baseline level of technology knowledge and proficiency that workers should have to succeed in a business climate in which technology is no longer an enabler of strategy and revenue, but a foundational driver of both.<sup>19</sup> The challenge is that achieving tech fluency, at whatever level, isn’t a once-and-done matter of mastering a particular set of knowledge. It typically requires continuous self-directed learning and development at the individual level to ensure technology readiness in the future.

The future of work is unfolding rapidly. Individuals should now set their eyes on longer careers and engage in lifelong learning. Businesses should be prepared to redesign work and refresh their talent models. Ecosystems should look to reassess policies that make it easier for alternative workers and actively provide the infrastructure to make it easier for individuals to access learning and development throughout their careers.

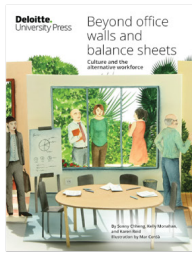
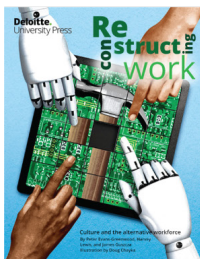
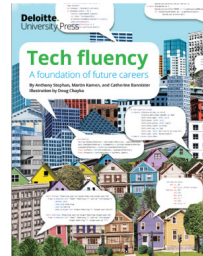
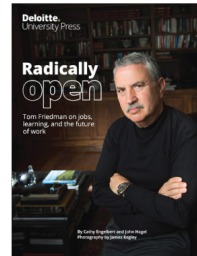
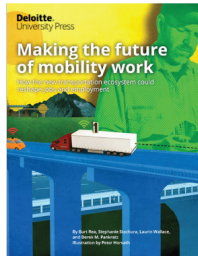
# What should you do next?

- **Individuals** should set their sights on longer careers with multiple stages, each involving ongoing training and reskilling.
  - **Organizational leaders** should prepare to redesign work and jobs to take advantage of the growing capabilities of machines and the need to retrain and redeploy people to higher-value and more productive and engaging jobs, working alongside smart machines and many types of workers—on and off the balance sheet, in crowds, and around the world.
  - **Public institutions** should proactively prepare for educational challenges, including funding for ongoing education, programs to mitigate the transition costs, and updating regulatory frameworks to support new types of work and workers and a more entrepreneurial economy.
- Are you ready for the evolution?

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## Deloitte Insights Future of Work Collection

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## ENDNOTES

1. Dan Schwan, "Robots will destroy our jobs and we are not ready for it," *Guardian*, January 11, 2017.
2. Peter Evans-Greenwood, Harvey Lewis, and James Guszczka, "Reconstructing work: Automation, artificial intelligence, and the essential role of humans," *Deloitte Review* 21, July 2017.
3. Cathy Engelbert and John Hagel, "Radically open: Tom Friedman on jobs, learning and the future of work," *Deloitte Review* 21, July 2017.
4. Lawrence F. Katz and Alan B. Krueger, *The rise and nature of alternative work arrangements in the United States, 1995–2015*, National Bureau of Economic Research, September 2016.
5. Intuit, *Intuit 2020 report*, October 2010.
6. Sonny Chheng, Kelly Monahan, and Karen Reid, "Beyond office walls and balance sheets: Culture and the alternative workforce," *Deloitte Review* 21, July 2017.
7. Patricia Buckley and Daniel Bachman, "Meet the US workforce of the future: Older, more diverse, and more educated," *Deloitte Review* 21, July 2017.
8. Evans-Greenwood, Lewis, and Guszczka, "Reconstructing work."
9. Joe Mariani, Brenna Sniderman, and Cary Harr, "More real than reality: Transforming work through augmented reality," *Deloitte Review* 21, July 2017.
10. Robert Gordon, *The Rise and Fall of American Growth* (New Jersey: Princeton University Press, 2016).
11. John Hagel, Jeff Schwartz, and Josh Bersin, "Navigating the future of work: Can we point business, workers and social institutions in the same direction?," *Deloitte Review* 21, July 2017.
12. Z. Ton, *The Good Jobs Strategy: How the Smartest Companies Invest in Employees to Lower Costs and Boost Profits* (New Harvest, 2014).
13. Josh Bersin, "Catch the wave: The 21st-century career," *Deloitte Review* 21, July 2017.
14. Ibid.
15. John Seely Brown and Douglas Thomas, *A New Culture of Learning* (CreateSpace, 2011).
16. Hagel, Schwartz, and Bersin, "Navigating the future of work."
17. Thomas Davenport, "The rise of cognitive work (re)design: Applying cognitive tools to knowledge-based work," *Deloitte Review* 21, July 2017.
18. Engelbert and Hagel, "Radically open."
19. Anthony Stephan, Martin Kamen, and Catherin Bannister, "Tech fluency: A foundation of future careers," *Deloitte Review* 21, July 2017.

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## ACKNOWLEDGEMENTS

The authors would like to thank **Geri Gibbons**, Deloitte Services LP, for her help in preparing this report.

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