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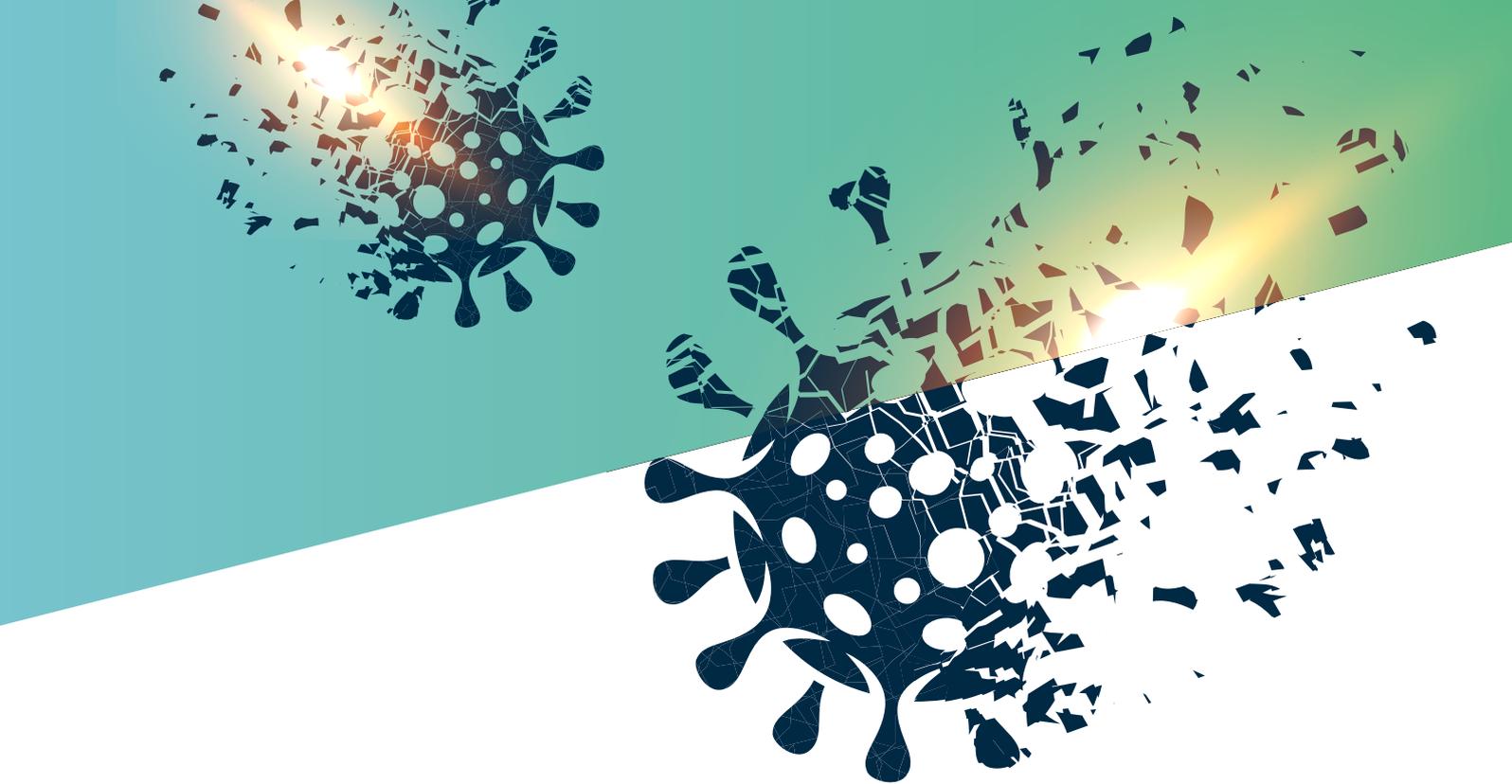
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# THE NEW WORLD OF WORK

2020

A look at how **COVID-19** has reshaped  
our attitudes to the issues surrounding  
the new world of work



# INTRODUCTION

We are living in uniquely turbulent times. The Covid-19 Coronavirus has turned our world upside down to a stage where, for many of us, our working lives are unlikely to return to their former situation. The effects of the virus can be seen worldwide as can be clearly seen in data from the John Hopkins University<sup>1</sup>. Organizations, teams and individuals have been forced to change course. These changes have brought a great deal of suffering and hardship to many. With this paper we will look forward to a post-pandemic future whilst recognizing the tremendous work being performed by the experts in their field today. And let us take this opportunity to thank our scientists and healthcare workers that are using their talents to inform us in the short term, cure us in the medium term and keep us safe for the long term.

In many parts of the world, the national government's response to the pandemic has, sensibly, been to implement a social distancing policy. That means, where possible, people working from home. We now have goods delivered rather than enjoy the social experience of "shopping". It is of course technology that enables online ordering, large scale warehouse automation and processing, as well as online video conferencing that have enabled life to continue so effectively for so many.

So today we are acutely aware of how these relatively new technologies have helped us to carry on when all else failed. It is interesting therefore to consider some of the less obvious and more embryonic technological changes as we look to a post-pandemic world. These

technologies include machine learning, AI, (Howard 2019) drones, automation, robotic processes, autonomous vehicles, and so on<sup>3</sup>. These new paradigms have already been driving significant changes across industries<sup>4</sup>. Recent research completed by Deloitte Human Capital Trends showed that AI and robotics are entering the workforce much faster than we may have imagined. It revealed that 38% of companies across 140 countries now believe that robotics and automation will be “fully implemented” in their company within five years.

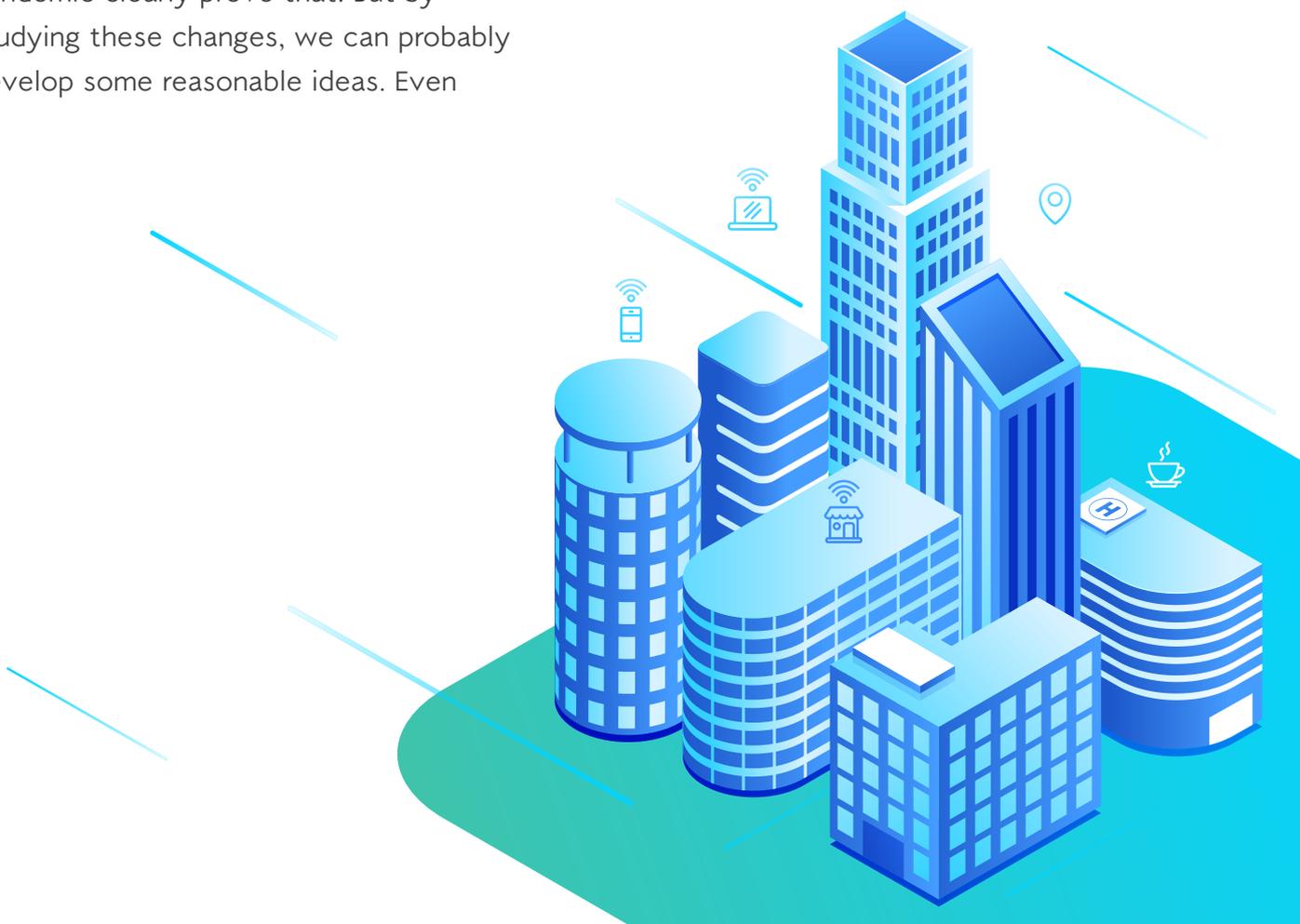
Experts estimate that within the decade, the traditional notion of work will be transformed.<sup>6,7</sup>

No one knows what our work will look like in the future. The dramatic changes now being wrought by the current pandemic clearly prove that. But by studying these changes, we can probably develop some reasonable ideas. Even

before Covid-19, we were experiencing a significant transition. These transitions had already contributed to a significant degree of uncertainty in terms of job security<sup>8</sup>, and availability. Experts weigh in on both sides of the equation.<sup>9</sup> Some despise the changes due to the potential tsunami of unemployment and the stress it might put on society. Others welcome this transition<sup>10</sup> predicting a future where machines will fulfill our basic needs.

**Whether we like it or not, the transformation has already begun, and it is here to stay.**

*It is interesting to see the changes we are already experiencing. A closer look at them might reveal how the future of work will shape up to be.*





# Humans And Machines *Working Together*

**Even before the advent of coronavirus, it was observed that around close to 45% of the jobs performed by humans today can be fully automated.**<sup>11 12 13 14 15</sup>

In some industries, such automation has already started. About 60 per cent of all occupations could see 30 per cent or more of their constituent activities automated, again with technologies available today.<sup>16 17</sup>  
<sup>18</sup> The emergence of these trends makes employees insecure about their jobs. The public is much more worried than hopeful about the prospect that robots and computers may one day be able to do much of the work done by humans today. Their greatest concern is that automation will make it harder for ordinary people to find jobs.<sup>19 20 21</sup>

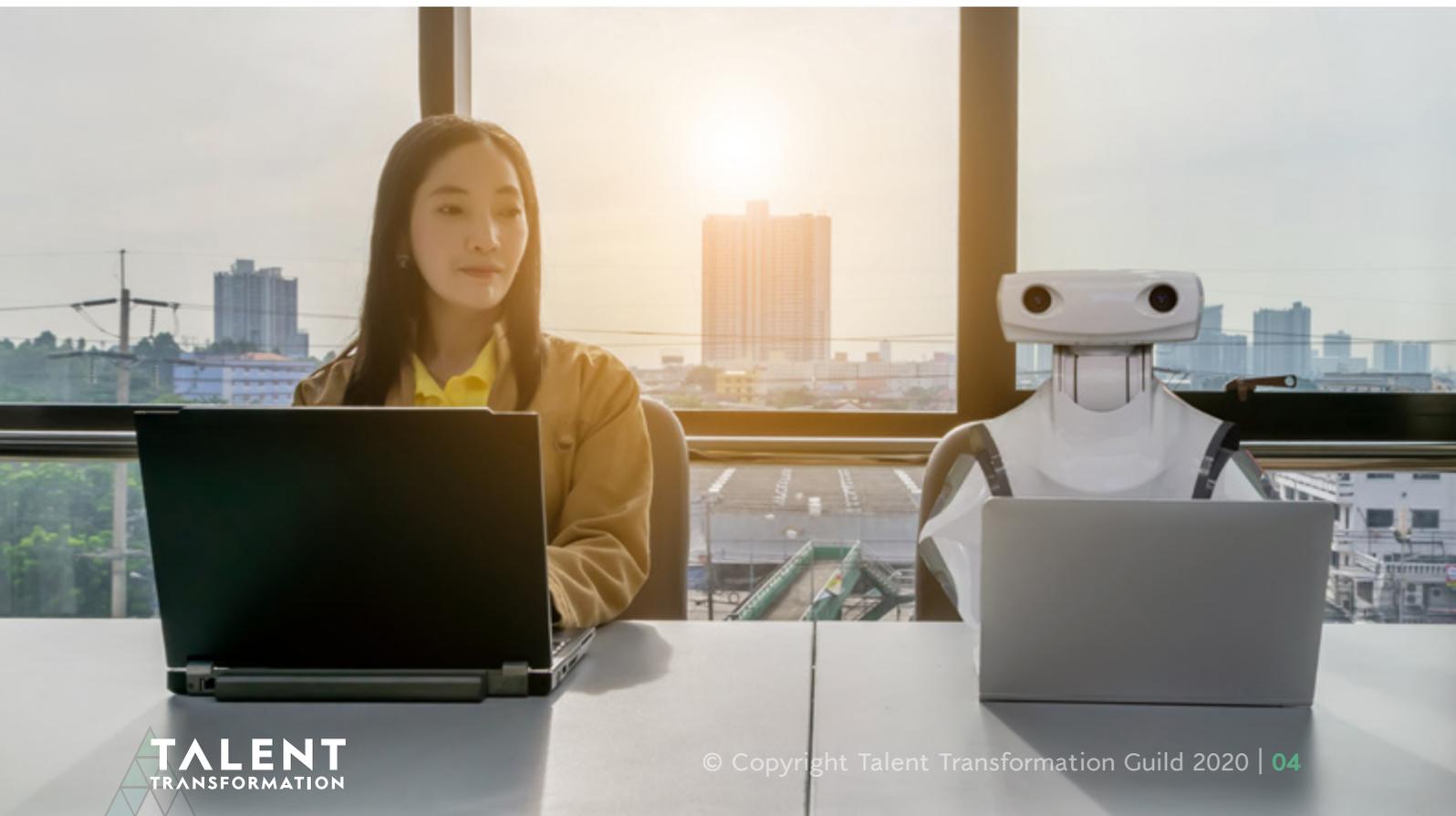
The situation is comparable to the wide-scale adoption of computers some

years ago. Employees everywhere were skeptical that the introduction of computers and later, the internet would make them redundant. But these changes actually created a whole new set of roles that did not exist before.<sup>22 23</sup> Jobs that require employees to interact with the computers, fix them, program them, and ensure the tasks are performed correctly. Not to mention the thousands of jobs created in the network engineering industry to keep the internet secure and up and running.

We are watching the same scenario unfold again. Despite 45 per cent of the workforce feeling that their jobs could be at risk, the adoption of AI, machine learning, and automation will require skilled employees to interact and communicate with these technologies. Recent studies paint a clearer picture. Despite there being

more automation than ever before, there are close to 7 million well-paying jobs in the US alone that employers are finding it difficult to fill.<sup>24 25</sup> The real reason behind the current talent crunch is a skill-gap that is being caused by organizations engaging in digital transformations.

As technology progresses, organizations need more and more individuals to fill mid and high-skill roles.<sup>26</sup> To fill these roles, employees must be conversant with big data, OLAP, ML, AI, automation scripting, robot deployment, drone piloting, and other high-tech skills. Exposure towards STEM (science, technology, engineering, and math) subjects is necessary to achieve these skills. But the participation of students, both in the US and Europe, in these high-tech and engineering courses has been dwindling for years.



Some organizations have already identified the challenges and are taking corrective steps. Amazon, for example, is investing close to US\$700 million to upskill a third of its low-wage US workforce.<sup>27</sup> As these 100,000 employees are brought up to speed to work with the latest technologies, we expect other companies will organize similar initiatives.

Just as with previous industrial revolutions, the introduction of new and sophisticated technologies does not necessarily strip away jobs. Instead, it creates opportunities that were not possible before. Automation is intended to substitute for labor. But automation also complements that. It raises output in which in turn leads to higher demand for labor and interacts with adjustments in labor supply. Journalists and often expert commentators tend to overstate the extent of machine substitution for human labor and ignore the strong complementarities between automation and labor that increase productivity, raise earnings, and the demand for labor.<sup>28 29 30</sup>

Another reason for technology not replacing jobs is because necessity can still be the mother of invention. So it is often the case that machines are designed to take on the dirty, dangerous, dull, repetitive, demeaning, disliked, detestable and physically tough tasks. These are tasks which were always difficult to fill anyway. In many countries, lower cost labor would be imported to

undertake these roles, where local employees who would be able to take up something more desirable. In this day and age, a modern job seeker needs to have skills that allow them to co-exist and collaborate with machines.<sup>31</sup> But if the current trend is a marker, we can see the skill gap widening for a good part of the next decade.

But of course, we should remember that, just because an activity can be automated, it doesn't mean that it should be. There are other factors involved. Jobs such as bookkeepers, and auditing clerks, for example, demand skills and training. That means they are scarcer than basic cooks. But the activities they perform cost less to automate, requiring mostly software and a basic computer. The only solution is for governments, companies, and educational institutes to adapt to the changing times. Governments to create environments to incubate the talents required for the future. Education to teach cutting-edge and cross-cutting skills as are necessary for this new age.

Companies will have to share the burden of and preparing their workforces for the technology they must master.<sup>35 36 37</sup>

# The Freelance Work Culture

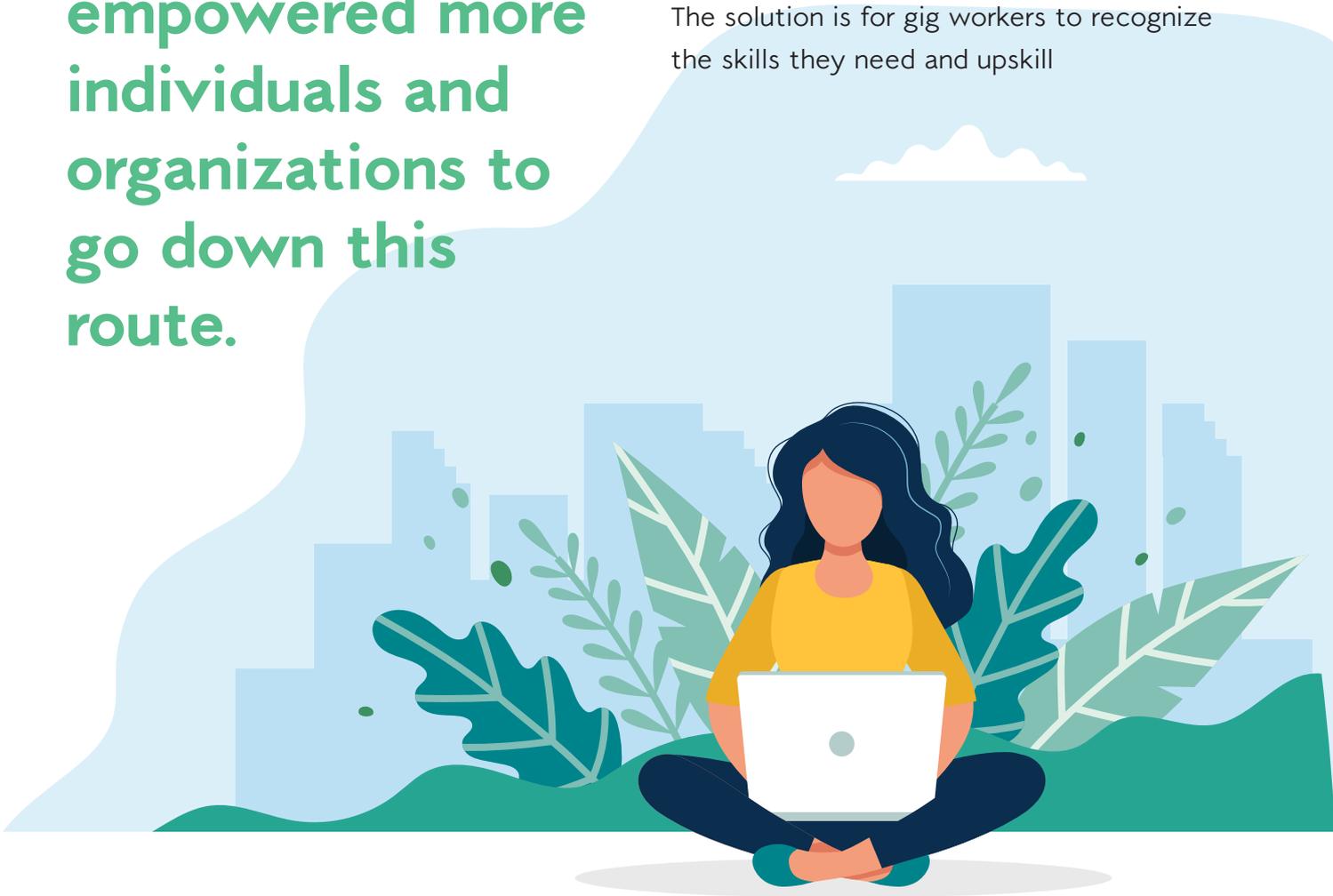
While freelance consultants working from gig to gig <sup>38</sup> have been a part of the economy for many decades <sup>39,40</sup>, this work model has seen a significant uptake in the current years.

**The increase of homeworking during the pandemic has empowered more individuals and organizations to go down this route.**

Studies show that 75 per cent of the millennials now prefer the work-by-project model instead of a steady job with an organization. This is a considerable change in terms of the workforce, economy, and current job market.

Some experts have expressed their concerns over this model since a gig-by-gig career cannot guarantee job security or sustained income. <sup>44</sup> Additional trade-offs freelancers face are infrequency, instability, barriers to high wages and intense global competition. <sup>45</sup>

The solution is for gig workers to recognize the skills they need and upskill





themselves. <sup>46</sup> With a better and updated skillset, gig workers can win high-skill projects that would otherwise be impossible to secure. This not only translates to better pay for the worker but also allows employers to find the right candidate for challenging to fill positions.

Gig platforms that accommodate employers and employees can detect skill shortages and upskill their members so they can benefit from emerging opportunities. They provide learning opportunities to their members and monitor their progress via assessments. This allows better opportunities for the worker, high-skilled employees for the employers, and build commissions for the platforms.

**By introducing training programs, we can create a win-win scenario where everyone gets what they want and deserve.**



# Embrace, *Not Resist*

The changes to working as we know it is here, and it is inevitable. The changes to people's working practices during the coronavirus will only accelerate the adoption of these changes. Introduction of new technologies and growth of the gig economy pose challenges. But there are benefits to be had if we overcome them. And, as we have seen during the pandemic, the effects of these new technologies on our lives can be both positive and sudden.

The millennial workforce has shown it is more likely to embrace this change. Surveys reveal they are more open to change and new ways of working. Instead

of longevity of work tenure, issues such as inclusivity, diversity and ethics are likely to figure far higher on their agendas.<sup>40</sup>

We're learning today how quickly these changes can happen under duress. History has taught us that industrial revolutions take away tasks and jobs, but it creates far more opportunities to take their place. It is up to us to embrace the changes and choose to adapt to this fast-changing work environment. The pandemic has reinforced the truism that we can never really know what the future holds. But it sure helps to stay prepared.

# BIBLIOGRAPHIES

(2019) Job Openings and Labor Turnover Summary

[More info](#)

(Feb. 12, 2019) US job openings jump to record high of 7.3 million

[More info](#)

AI eyeing social workers' jobs; Around 50 percent of all current jobs will be automated in the coming years as a result of the 4IR. (2019). Cape Times (South Africa).

Anderson, Kathryn F. & Livesey, Laura Martinez (2019) Workers' predictions of work automation: which workers are concerned about automation vulnerability?

[More info](#)

Ashford, S. J., Caza, B. B., & Reid, E. M. (2018). From surviving to thriving in the gig economy: A research agenda for individuals in the new world of work, *Research in Organizational Behavior*, 38, 23–41.

[More info](#)

Autor, David H. 2015. "Why Are There Still So Many Jobs? The History and Future of Workplace Automation," *Journal of Economic Perspectives*, 29 (3): 3-30.

[More info](#)

Bersin, Josh (Sept. 21, 2016). The Future of Work: It's Already Here,,, And Not As Scary As You Think

[More info](#)

Bersin, Josh. AI, Robotics, and Cognitive Computing Are Changing Business Faster Than You Thought (March 8, 2017)

[More info](#)

Bersin, Josh. Want To Prepare For Jobs Of The Future? Join The Hybrid Revolution (Jan. 22, 2019)

[More info](#)

Brynjolfsson, E. & Mitchell, T. (2017) What can machine learning do? Workforce implications Profound change is coming, but roles for humans remain. 358 *Science*.

[More info](#)

Chui, M., Manyika J., and Miremadi, M. *McKinsey Quarterly*. (July 2016) Where machines could replace humans—and where they can't (yet)

[More info](#)

David Weil. (2019). Understanding the Present and Future of Work in the Fissured Workplace Context. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, (5), 147.

[More info](#)

Debusmann, B. (2018). Nearly half of all jobs in Middle East can be automated, report shows.

[More info](#)

Deloitte. 2018 Deloitte Millennial Survey

[More info](#)

Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting & Social Change*, 114, 254–280.

 [More info](#)

Gleim, M. R., Johnson, C. M., & Lawson, S. J. (2019). Sharers and sellers: A multi-group examination of gig economy workers' perceptions. *Journal of Business Research*, 98, 142–152.

 [More info](#)

Howard, J. (2019). Artificial intelligence: Implications for the future of work. *American Journal of Industrial Medicine*, (11), 917.

 [More info](#)    [More info](#)

Julia Kokina and Thomas H. Davenport (2017) The Emergence of Artificial Intelligence: How Automation is Changing Auditing. *Journal of Emerging Technologies in Accounting: Spring 2017*, Vol, 14, No. 1, pp. 115-122.

 [More info](#)

Kazi, A. G., Yusoff, R. M., Khan, A., & Kazi, S. (2014). The freelancer: A conceptual review. *Sains Humanika*, 2(3), 1–7.

 [More info](#)

Kokina, J., & Blanchette, S. (2019). Early evidence of digital labor in accounting: Innovation with Robotic Process Automation. *International Journal of Accounting Information Systems*.

 [More info](#)

McClure, P. K. (2018). “You’re Fired,” Says the Robot: The Rise of Automation in the Workplace, Technophobes, and Fears of Unemployment. *Social Science Computer Review*, 36(2), 139–156.

 [More info](#)

McKinsey Global Institute (Jan. 2017) Jobs lost, jobs gained: Workforce transitions in a time of automation

 [More info](#)

Murphy, R. R., Nomura, T., Billard, A., & Burke, J. L. (2010). Human-Robot Interaction: An Exclusive Course for Computer Scientists and Engineers, *Robot Learning: Problems, Applications, and Results*, (2), 85.

Musaddique, Shafi (22 February 2018).

Three-quarters of UK employees favour flexible work, new study shows.

 [More info](#)

National Academies of Sciences, Engineering, and Medicine, *Information Technology and the U.S. Workforce: Where Are We and Where Do We Go*

from Here? (National Academies Press, Washington, DC, 2017). As cited by Brynjolfsson and Mitchell, 2017

Novak, V.; Dizdarevic, D. (2018). The Future of Work in the Light of Technological Change. *International Journal of Economics and Law*, 8, 127-136.

 [More info](#)

Oxford expert says 47 pct of U,S, jobs can be automated, (2017).

Pawel Popiel (2017) “Boundaryless” in the creative economy: assessing freelancing on Upwork, *Critical Studies in Media Communication*, 34:3, 220-233, DOI: 10.1080/15295036.2017.1282618

Poon, T. S.-C. (2018). Independent Workers: Growth Trends, Categories, and Employee Relations Implications in the Emerging Gig Economy. *Employee Responsibilities and Rights Journal*, 31(1), 63.

 [More info](#)

Preparing tomorrow’s workforce for the Fourth Industrial Revolution: For business: A framework for action,

 [More info](#)

Pulkka, V. (2019), "“This time may be a little different” – exploring the Finnish view on the future of work", International Journal of Sociology and Social Policy, Vol. 39 No. 1/2, pp. 22-37.

 [More info](#)

PWC (2018). Workforce of the future : The competing forces shaping 2030

 [More info](#)

Romero, David & Stahre, Johan & Wuest, Thorsten & Noran, Ovidiu & Bernus, Peter & Fasth, Fast-Berglund, Åsa & Gorecky, Dominic. (2016). Towards an Operator 4.0 Typology: A Human-Centric Perspective on the Fourth Industrial Revolution Technologies.

 [More info](#)

Ryder, G. (2018). Correctly Valuing the Work of the Future, Journal of International Affairs, 72(1), 23–35.

Sawers, Paul (July 11, 2019) Amazon commits \$700 million to ‘upskill’ a third of its U.S. workforce by 2025

 [More info](#)

Son, H., Kim, C., Kim, H., Han, S. H., & Kim, M, K. (2010). Trend analysis of research and development on automation and robotics technology in the construction industry, KSCE Journal of Civil Engineering, 14(2), 131.

 [More info](#)

Spencer, D. A. (2018). Fear and hope in an age of mass automation: debating the future of work. New Technology, Work & Employment, 33(1), 1–12.

 [More info](#)

Timothy Bresnahan and Pai-Ling Yin, "Adoption of New Information and Communications Technologies in the Workplace Today," Innovation Policy and the Economy 17 (2017): 95-124.

UK Commission for Employment and Skills. (2017?). The Future of Work : Jobs and Skills in 2030

 [More info](#)

West, Darrell M. (Oct. 2015). What happens if robots take the jobs? The impact of emerging technologies on employment and public policy.

 [More info](#)

Wike, Richard and Stokes, Bruce. In Advanced and Emerging Economies Alike, Worries About Job Automation Many fear robots, computers will eliminate jobs, increase inequality (Sept. 13, 2018).

 [More info](#)

World Economic Forum (2018). The future of jobs report 2018.

 [More info](#)

Zahidi, Saadia (2016). The gig economy is changing the way we work, Now regulation must catch up

 [More info](#)

# FOOTNOTES

1. Coronavirus COVID-19 Global Cases by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University and Medical University and Medical
2. Howard, J. (2019). Artificial intelligence: Implications for the future of work. *American Journal of Industrial Medicine*, (11),917.  
[More info](#)
3. Bersin, Josh. AI, Robotics, and Cognitive Computing Are Changing Business Faster Than You Thought (March 8, 2017)  
[More info](#)
4. West, Darrell M. (Oct. 2015). What happens if robots take the jobs? The impact of emerging technologies on employment and public policy.  
[More info](#)
6. Bersin, Josh (Sept. 21, 2016). The Future of Work: It's Already Here... And Not As Scary As You Think  
[More info](#)
7. PWC (2018). Workforce of the future : The competing forces shaping 2030  
[More info](#)
8. Novak, V.; Dizdarevic, D. (2018). The Future of Work in the Light of Technological Change. *International Journal of Economics and Law*, 8,127-136.  
[More info](#)
9. Spencer, D. A. (2018). Fear and hope in an age of mass automation: debating the future of work. *New Technology, Work & Employment*,33(1), 1–12.  
[More info](#)
10. Pulkka, V. (2019), "“This time may be a little different” – exploring the Finnish view on the future of work". *International Journal of Sociology and Social Policy*, Vol. 39 No. 1/2, pp. 22-37.  
[More info](#)
11. According to our estimates around 47% of total US employment is in the high risk category. We refer to these as jobs at risk i.e. jobs we expect could be automated relatively soon, perhaps over the next decade or two. Frey. C. B., & Osborne. M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting & Social Change*, 114, 254–280.  
[More info](#)
12. Debusmann, B. (2018). Nearly half of all jobs in Middle East can be automated, report shows.  
[More info](#)
13. AI eyeing social workers' jobs; Around 50 percent of all current jobs will be automated in the coming years as a result of the 4IR. (2019).Cape Times (South Africa).
14. Oxford expert says 47 pct of U.S. jobs can be automated. (2017).
15. Chui, M., Manyika J., and Miremadi, M.

- McKinsey Quarterly. (July 2016) Where machines could replace humans—and where they can't (yet)  
 [More info](#)
16. Kokina, J., & Blanchette, S. (2019). Early evidence of digital labor in accounting: Innovation with Robotic Process Automation. *International Journal of Accounting Information Systems*.  
 [More info](#)
17. Son, H., Kim, C., Kim, H., Han, S. H., & Kim, M.K. (2010). Trend analysis of research and development on automation and robotics technology in the construction industry, *KSCE Journal of Civil Engineering*. 14(2), 131.  
 [More info](#)
18. Julia Kokina and Thomas H. Davenport (2017) The Emergence of Artificial Intelligence: How Automation is Changing Auditing. *Journal of Emerging Technologies in Accounting*: Spring 2017, Vol. 14, No.1, pp. 115-122.  
 [More info](#)
19. McClure, P.K. (2018). "You're Fired," Says the Robot: The Rise of Automation in the Workplace, Technophobes, and Fears of Unemployment. *Social Science Computer Review*, 36(2), 139–156.  
 [More info](#)
20. Wike, Richard and Stokes, Bruce, In *Advanced and Emerging Economies Alike, Worries About Job Automation Many fear robots, computers will eliminate jobs, increase inequality* (Sept.13, 2018).  
 [More info](#)
21. Anderson, Kathryn F, & Livesey, Laura Martinez (2019) *Workers' predictions of work automation: which workers are concerned about automation vulnerability?*  
 [More info](#)
22. Bersin, Josh. *Want To Prepare For Jobs Of The Future? Join TheHybrid Revolution* (Jan.22, 2019)  
 [More info](#)
23. World Economic Forum (2018). *The future of jobs report 2018*.  
 [More info](#)
24. (2019) *Job Openings and Labor Turnover Summary*  
 [More info](#)
25. (Feb.12, 2019) *US job openings jump to record high of 7.3 million*  
 [More info](#)
26. Timothy Bresnahan and Pai-Ling Yin, "Adoption of New Information and Communications Technologies in the Workplace Today." *Innovation Policy and the Economy* 17 (2017): 95-124.  
 [More info](#)
27. Sawers, Paul (July 11, 2019) *Amazon commits \$700 million to 'upskill' a third of its U.S. workforce by 2025*  
 [More info](#)
28. McKinsey Global Institute (Jan. 2017) *Jobs lost, jobs gained: Workforce transitions in a time of automation*  
 [More info](#)
29. Autor, David H. 2015. "Why Are There Still So Many Jobs? The History and Future of Workplace Automation." *Journal of Economic Perspectives*, 29 (3): 3-30.  
 [More info](#)
30. Brynjolfsson, E. & Mitchell, T. (2017) *What can machine learning do? Workforce implications* *Profound change is coming, but roles for humans remain.* 358 *Science*.  
 [More info](#)
31. Romero, David & Stahre, Johan & Wuest, Thorsten & Noran, Ovidiu & Bernus, Peter & Fasth, Fast-Berglund, Åsa & Gorecky,

- Dominic. (2016). Towards an Operator 4.0 Typology: A Human-Centric Perspective on the Fourth Industrial Revolution Technologies.  
 [More info](#)
- 32.** David Weil. (2019). Understanding the Present and Future of Work in the Fissured Workplace Context. RSF: The Russell Sage Foundation Journal of the Social Sciences, (5), 147.  
 [More info](#)
- 33.** Ryder, G. (2018). Correctly Valuing the Work of the Future. Journal of International Affairs, 72(1), 23–35.
- 34.** MURPHY, R. R., NOMURA, T., BILLARD, A., & BURKE, J.L. (2010). Human-Robot Interaction: An Exclusive Course for Computer Scientists and Engineers. Robot Learning: Problems, Applications, and Results, (2), 85.
- 35.** PWC (2018). Workforce of the future : The competing forces shaping 2030  
 [More info](#)
- 36.** UK Commission for Employment and Skills. (2017?). The Future of Work : Jobs and Skills in 2030  
 [More info](#)
- 37.** Preparing tomorrow’s workforce for the Fourth Industrial Revolution: For business: A framework for action  
 [More info](#)
- 38.** Gleim, M.R., Johnson, C.M., & Lawson, S.J. (2019). Sharers and sellers: A multi-group examination of gig economy workers’ perceptions. Journal of Business Research, 98, 142–152.  
 [More info](#)
- 39.** Kazi, A.G., Yusoff, R.M., Khan, A., & Kazi, S.(2014). The freelancer: A conceptual review. Sains Humanika, 2(3), 1–7.  
 [More info](#)
- 40.** National Academies of Sciences, Engineering, and Medicine, Information Technology and the U.S. Workforce: Where Are We and Where Do We Go from Here? (National Academies Press, Washington, DC, 2017). As cited by Brynjolfsson and Mitchell, 2017
- 41.** 2018 Deloitte Millennial Survey  
 [More info](#)
- 42.** Three-quarters of UK employees favour flexible work, new study shows ( 22 February 2018)  
 [More info](#)
- 43.** Poon, T.S.-C. (2018). Independent Workers: Growth Trends, Categories, and Employee Relations Implications in the Emerging Gig Economy. Employee Responsibilities and Rights Journal, 31(1), 63.  
 [More info](#)
- 44.** Ashford, S.J., Caza, B.B., & Reid, E.M. (2018). From surviving to thriving in the gig economy: A research agenda for individuals in the new world of work. Research in Organizational Behavior, 38, 23–41.  
 [More info](#)
- 45.** Pawel Popiel (2017) “Boundaryless” in the creative economy: assessing freelancing on Upwork, Critical Studies in Media Communication, 34:3, 220-233, DOI:10.1080/15295036.2017.1282618  
 [More info](#)
- 46.** Zahidi, Saadia (2016). The gig economy is changing the way we work. Now regulation must catch up  
 [More info](#)