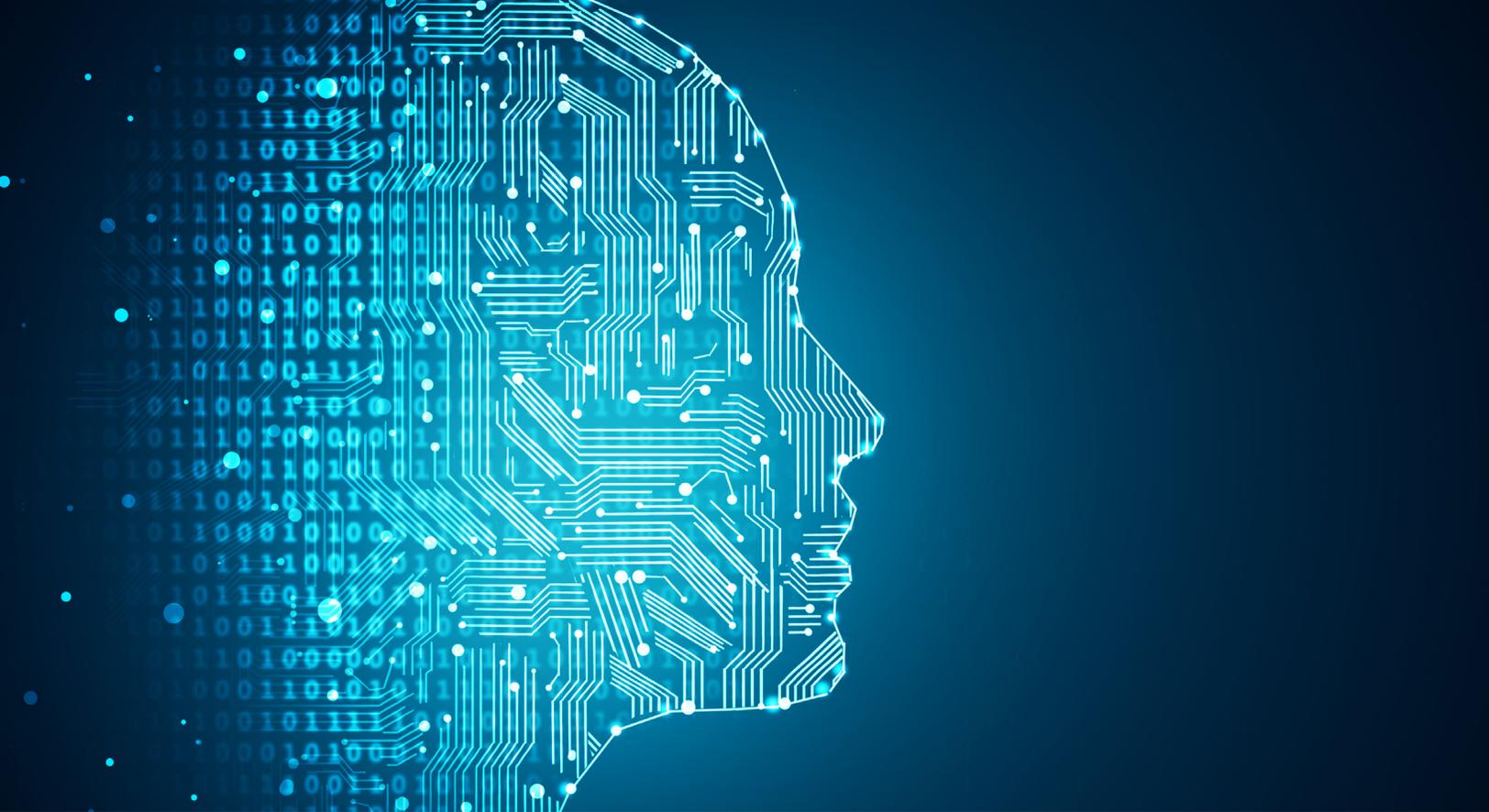


Thought Leaders Predict AI's Impact on the Workforce

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On November 12, 2018, Littler Mendelson P.C., the world’s largest labor and employment law firm, hosted a Roundtable of distinguished leaders from government, industry, and academia to discuss the rapid evolution of the workplace and workforce due to AI, robotics, and other automation technologies. The Roundtable attendees had diverse backgrounds and perspectives. They participated in a wide-ranging conversation regarding many of the legal and ethical issues surrounding these emerging technologies.

The primary topic of discussion during the morning session of the Roundtable was the impact that automation will have on the workforce, and what companies, industry groups, and workers¹ must do to prepare for the disruptive impact of AI, robotics, and other emerging technologies. These issues go to the very core of the mission of the Emma Coalition,² a nonpartisan, nonprofit organization formed by Littler with the goal of saving American capitalism in the 21st century by preparing America’s employers and workers for the coming *Technology-Induced Displacement of Employees*, or TIDE. In furtherance of that mission, the Emma Coalition has prepared the following report summarizing the thoughts that the Roundtable participants voiced and the points of consensus they reached during the morning session of the Roundtable.³

1 We use the term “worker” rather than “employee” to emphasize the important role that freelancers and other contingent workers will play in the economy of the future. Companies’ efforts to build a workforce with the necessary skill set can and must extend to contingent workers, who some studies suggest are more likely than traditional employees to participate in programs that provide them with new skills.

2 <https://www.littler.com/service-solutions/wpi/emma-coalition>

3 Tom Green, founding Editor in Chief of *Robotics Business Review* and current Editor in Chief of *Asian Robotics Review*, attended the Roundtable and prepared his own summary of the gathering and the discussion surrounding the Emma Coalition and its mission. Tom Green, *Workplace Survival Skills in an Age of Automation*, *Asian Robotics Review*, available at <https://asianroboticsreview.com/home240-html>.

The Coming of the TIDE

The consensus of Roundtable participants is that while automation is likely to displace workers in many occupations, it also will spur enormous demand for workers in both existing fields and in new occupations that technological change will generate. The founders of the Emma Coalition refer to this process of labor market disruption as Technology-Induced Displacement of Employees, or TIDE.

Jobs Created, Jobs Displaced, and Jobs Transformed

During the rapid rise of sophisticated AI over the past decade, considerable public attention has focused on the potential threat to workers in jobs that are vulnerable—or, at least, that appear to be vulnerable—to automation. In the media, stories have proliferated suggesting that a third or more of developed-world jobs will be vulnerable to automation within the next two decades.

The unspoken assumption underlying these concerns about automation is that the workers at companies that automate are more vulnerable to economic dislocation than workers at companies that do not automate. But in reality, the outlook for workers at companies that do not automate may be far more bleak. The increases in efficiency and productivity from the incorporation of AI and robotics into companies' operations mean that companies that refrain from adopting automation technologies may find themselves at a decisive competitive disadvantage. Over the past two decades, retail companies that failed to recognize and leverage the potential benefits to their business from e-commerce struggled to survive in the digital economy. With the rise of AI and robotics, companies that fail to automate tasks that can be done more efficiently and reliably by automated systems will fall behind their competitors. In the worst case, such companies will fail altogether, which likely would mean the loss of *all* jobs at that company.

Fortunately, automation is not a zero-sum game, where the automation of certain tasks means a reduction in the amount of work available for humans to do. Today, in an era when companies in sectors as diverse as financial services to grocery stores have aggressively incorporated AI and automation into their operations, unemployment in the United States stands at less than 4%, a historically low level. Going forward, the most successful companies will not be those that simply automate for the sake of automation or that take a short-term approach that focuses only on the savings and profit margins that automation can bring. Instead, successful companies will identify the tasks that they will need performed in the near future, identify which tasks are best-suited for humans, and use the profits and savings generated by automation to upskill and leverage the capabilities of their workers. Such companies will provide their workers with the skills needed to perform tasks for which humans will remain best-suited.

Automation is also likely to transform many jobs that it does not directly displace, just as technological change has brought sweepingly broad changes to many industries in recent decades. Consider the jobs related to flying a commercial airliner. In the cockpit, increasingly sophisticated autopilot and computer systems in commercial airliners have eliminated the need for flight engineers during the past 30 years while increasing airlines' demand for IT specialists. At the same time, the job of the airline pilot has changed substantially, with pilots having to learn how to operate and navigate the electronic displays of modern cockpits while also having to take over the active monitoring of aircraft systems that flight engineers used to perform.

A similar trend will undoubtedly play out in many other industries and jobs with the rise of AI and automated systems. In addition to the jobs that automation will create and those it will displace, AI and other emerging technologies will radically transform entire industries and economic sectors in the coming decades. As a result, many jobs that are not directly displaced by automation will, like modern airline pilots, nevertheless require workers to develop new and different skills than those jobs require today. Autonomous vehicles will require mechanics with skills quite different from those required to maintain traditional human-driven vehicles. In health care, future surgeons will need to learn how to operate robotic surgical systems. The rise of telemedicine and virtual office visits will require physicians to master completely different ways of examining and interacting with patients.

Forward-thinking companies both in traditional blue-collar industries such as automotive manufacturing as well as in digital-era sectors such as e-commerce are already establishing training programs that provide

their workers with the skills workers will need to remain part of the future workforce. The consensus of Roundtable participants is that the models established by these companies will be a blueprint for companies that seek to achieve the correct mix of appropriately skilled human workers and smart automation that will be the formula for economic success in the global economy.

Companies know the skills they currently need from their workers. But the quickening pace of automation will force companies to identify not merely the skills they currently require, but also the skills they will need its workers to have several years into the future. This is not a trivial task, given the continuously evolving labor market landscape both within and across industries. Indeed, in some cases, it may be wholly impossible to identify some future positions that companies will have available, since many of the jobs that workers will hold a decade from now may not even exist yet—just as the job of “Social Media Manager” did not exist in the middle of the last decade.

The McKinsey Global Institute and the World Economic Forum, along with many other think tanks and other institutions, have issued reports about jobs most vulnerable to automation as well as which jobs they project to be in demand in the coming years and decades. But while these reports provide companies with valuable data regarding the future of the labor market as a whole, they do not speak to the conditions within specific industries, much less take into account the future plans and circumstances of individual employers. In projecting future talent needs, companies will have to rely on AI and the power of predictive analytics to spot trends and identify the jobs that will constitute their future workforce—and, by extension, the skills they will require workers to have to perform those jobs effectively.

Training the Workforce of the Future

The key challenge that employers and workers will face to minimize the disruptive impact of automation will be providing workers—especially those displaced by automation—with access to training programs that provide them with the skills needed for the jobs of the future. Roundtable participants were asked what steps companies, trade groups, and educational institutions could take to provide workers with the training needed to remain competitive in the global labor market. Three points of consensus emerged during the discussion that followed: (1) building the workforce of the future will require a greater emphasis on lifelong learning; (2) flexible training programs should be designed that can quickly adjust and adapt to the frequent changes in labor-market demands that will accompany automation; and (3) training programs should place greater emphasis on providing workers with general competencies and skills that will be transferable to jobs in multiple fields.

Lifelong Learning

The traditional model of education has long-seemed to operate on the unspoken assumption that most workers will be able to complete their education in their late teens or early 20s, and then embark on an occupation or profession that will keep them employed for several decades. The shortcomings of that model have been laid bare in recent years with the decline of once-robust manufacturing regions, many of which entered periods of economic decline as workers lost their jobs without being provided with a viable path to retool their skill set and reenter the workforce. The “one career” model is likely to break down completely in the coming decades, as automation disrupts one industry after another and forces workers to learn new skills—or hone existing skills—periodically to remain part of the workforce.

Worker training in the 21st century still must start with traditional K-12 education, and there will continue to be demand for workers with college or postgraduate degrees in many fields. Improving the quality of America’s traditional education system, particularly as it relates to the STEM subjects (Science, Technology, Engineering, and Mathematics), will thus be essential. But the Roundtable participants were unanimous that a sustainable model of workforce training also will require building an educational culture that places a greater emphasis on lifelong learning and providing workers with new skills throughout their careers. The most successful companies will be those that build such lifelong learning into their business models, thus bringing the skill and talent pipelines of their workforce within their control. This will allow companies to integrate training, whether in the form of “upskilling” or “reskilling,” into their employees’ daily work.

Flexibility and Agility

To be able to effectively train workers in a labor market landscape that will be continuously changing due to automation, the best training programs will be those that are flexible and agile. The operators of training programs must be able to reorient and even redesign them with some frequency as it becomes clear which jobs will be most affected by automation, and, as new data becomes available, on which skills will be most in-demand in the coming years.

Such programs will have to provide workers with skills that will remain in demand long enough to provide the workers (and the companies or other institutions that underwrite the costs of the programs) with an adequate return on the investment in training. This requires a delicate balance; projections regarding which jobs will be available in five years will be more accurate than those regarding the jobs that will be available in 10 years, but a job that is available in 10 years will provide companies and workers with a greater return on their time and money invested in training. This further underscores the need for individual companies and industry groups to actively participate in the management of such training programs, because those industry actors will have the best sense of the prevailing labor market trends within their industries and spheres of operations. Such direct participation will also allow individual companies to incorporate workforce training programs into their own medium- and long-term strategic plans.

To implement these training programs, companies and industry groups should partner with America's strong network of community colleges and increasingly sophisticated online learning platforms. Companies will need to leverage AI, as well as longer-established digital technologies, to spot deficiencies in workers' skills and knowledge and to help reduce overhead on training costs. But effective training programs will not be able to rely on digital technology alone; many American workers lack the computer skills necessary to complete an educational program through digital platforms, and computer proficiency will not be necessary for many of the jobs projected to grow in the future. Consequently, it will be essential for companies to partner with established traditional education providers to ensure that workers of all ages and learning styles are able to participate in the training programs.

Many companies today—including several participants at the Roundtable—have already partnered with community colleges and other local educational institutions to establish training programs that are both well-targeted and diverse. Designing and adapting training programs that will remain robust in a constantly shifting labor-market climate will require continuous engagement between industry actors and education providers.

Focusing on Fundamental Skills and Competencies

Another point of consensus from Roundtable participants was that training programs should place a greater emphasis on broader competencies whose value will be durable and applicable to many jobs, and not just on discrete skills required for particular jobs. Training thus should include providing workers with generalizable skills such as problem-solving, communications, and analytical reasoning—competencies that are relevant to many different categories of jobs, and for which humans are likely to outperform machines for years to come. Providing workers with such broader competencies will enable those workers to complete and transition between training programs more quickly than workers whose training programs are designed to prepare them merely for one specific job.

Of course, a focus on such broader competencies must be in addition to, and not in lieu of, concrete skills that will allow a worker to successfully obtain employment upon completion of the training program. For these more job-specific skill sets, the focus should be on providing workers with the skills needed for entry-level jobs. This will allow workers to reenter the workforce and obtain the skills needed for further advancement as necessary, either through on-the-job training and experience or through additional training or certification programs catered to the skills needed for higher-level positions.

The Road Ahead

The foregoing principles should guide employers, industry groups, and educational system as they attempt to build a workforce with the skills needed for America's workers and companies to remain competitive in the coming decades. There are, of course, many questions that still must be answered. How do we design training programs with the flexibility, agility, and breadth that will be necessary? Who will underwrite the costs of establishing training programs? And how can the funding for them be structured so that all workers can participate, including and perhaps especially those unable to pay out-of-pocket for the cost of training? What role will federal, state, and local governments play?⁴

America's institutions in both the public and private sector are long overdue in addressing these issues, but there are promising signs on the horizon. In August 2018, the Department of Commerce announced the creation of American Workforce Policy Advisory Board, whose mission is to address the need to provide workers with the skills needed to thrive in an economy that "is changing at a rapid pace because of the technology, automation, and artificial intelligence that is shaping many industries." It remains to be seen how the Advisory Board goes about fulfilling its mission, or how much federal funding will be made available to implement any recommendations it makes. In the meantime, the "rapid pace" of technological change means that real, implementable solutions need to be formulated sooner rather than later.

The challenge of finding those solutions is even more daunting than this description suggests, because technological change is far from the only disruptive force affecting the America's workers and workplaces. The increasing prominence of the contingent workforce may require regulators and legislators to reexamine the longstanding model, predicated on employer/employee relationships, for providing workers with workplace protections and benefits. The contingent workforce also raises new questions about how workers can have an effective voice regarding workplace conditions and policies and what role organized labor could play in providing that voice. States have traditionally been laboratories for experimentation for labor-market policies, but given the enormous resources that other economic powers⁵—particularly China—are investing in reorienting their workforces, it is not clear that state and local governments will be able to marshal the necessary resources, much less develop a cohesive national strategy, for making America's workforce competitive in the coming decades.

Consequently, while the establishment of the Advisory Board is a promising development, companies and industry groups must be proactive in facing the challenges of the TIDE. Companies should, without delay, begin expanding in-house training programs, building relationships with community colleges and online learning platforms, and establishing public-private partnerships to ensure that companies will have access to workers with the skills they will need workers to have in the future global labor market. It is the Emma Coalition's mission to ensure that companies take the necessary steps to make sure that they—and America's workers—remain competitive in the 21st century economy.

4 Legislation dealing with these issues has been introduced in the U.S. Senate by Senators Warner and Coons. <https://www.scribd.com/document/393386960/LLTA-Leg-Text-11-16-18>.

5 Little Hoover Commission Report #245, *Artificial Intelligence: A Roadmap for California*, <https://lhc.ca.gov/sites/lhc.ca.gov/files/Reports/245/Report245.pdf>.

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