MILKEN INSTITUTE

# FUTURE OF WORK
## Insights for 2021 and Beyond

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## KEY TAKEAWAYS

- The COVID-19 pandemic is a double-whammy for inequality: The worst-off are hit harder while accelerating economy-wide digitalization further widens the skills gap.

- This report highlights technology's increasing impact on the workplace, providing valuable information for policymakers, business leaders, and educational institutions so they can make better decisions about how to prepare workers for the future.

- First, the report describes attitudes and perspectives toward remote work and skills training, using a "Future of Work" survey of 1,000 managers and employees by technology consulting firm Infosys. Key findings include:

  - a broad shift toward remote working and hiring, with a greater focus on inclusion and diversity (however, lower-wage respondents saw fewer opportunities);
  - net satisfaction with remote work and productivity, notwithstanding higher workloads and the loss of social interactions with colleagues;
  - high trust in employees during remote work, though with increased surveillance; and
  - a rise in employee skills training focused on working remotely, which most employees found useful (however, lower-wage employees felt more responsible for training themselves).

- Building on these findings, this report makes several recommendations to address rising inequality and disruption, supplemented with insights generated from numerous public events the Milken Institute has convened. These recommendations include:

  - accelerating regional growth through public investments that broaden access to local sectors with high potential;
  - financing access to education and skills training, including for underprivileged populations;
  - strengthening business-education partnerships, including just-in-time learning, agile curricula, and flexible time commitment; and
  - regular and outcomes-based evaluation of initiatives, to continually identify areas for improvement.

# INTRODUCTION

The aftermath of the 2008-09 financial crisis spotlighted unequal access to jobs and opportunities in the US. After the Occupy Wall Street protests, many industries and agencies re-examined policy areas for their impacts on inequality (including even the Federal Reserve[1]). Many policies today, including universal basic income,[2] free education and health care, reduced labor inflows, and controlled trade and investments, are partly in response to unequal access to opportunities and uncertainties about the future of work.

Meanwhile, artificial intelligence (AI) has exceeded human capability[3] in such areas as image classification, language translation, and speech recognition. For example, DeepMind's AlphaFold has generated breakthrough solutions in protein folding (a 50-year-old problem),[4] while OpenAI's GPT-3 can write HTML code to generate websites based only on human descriptions of what the site would look like.[5] AI enables autonomous vehicles and navigational systems that allow ships to cross the Atlantic and planes to land without radio signals. Entire factories and ports are already fully automated, as are an increasing suite of services. The benefits for industries are deep and far-reaching.

However, with automation comes displacement. By 2030 in the US:

- McKinsey estimates that 16 million to 54 million workers[6] may need to switch occupations.
- Oxford Economics forecasts some 2 million job losses[7] in manufacturing due to robotics automation.
- A Brookings Institution analysis predicts that six in 10 jobs[8] will face medium to high exposure to automation.
- PwC gauges that over a quarter[9] of jobs could be automated.

Worse, research and industry diffusion of technologies are accelerating, and many believe that speed determines the winner in the world of AI. This leaves workers less time to adjust and reskill. Moreover, general-purpose technologies, such as AI, blockchain, cloud computing, and 5G, will leave broad swathes of industries vulnerable to disruption.

## INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"It's even faster than I thought, the speed … from [AI] research to product."**

**Lee Kai-Fu,** Chairman and CEO, Sinovation Ventures
(2020 Global Conference)

**"You have to worry about concentration [plus] new companies nipping at your heels with very flexible easy entry … So it is actually a hard time to go slow as a major company."**

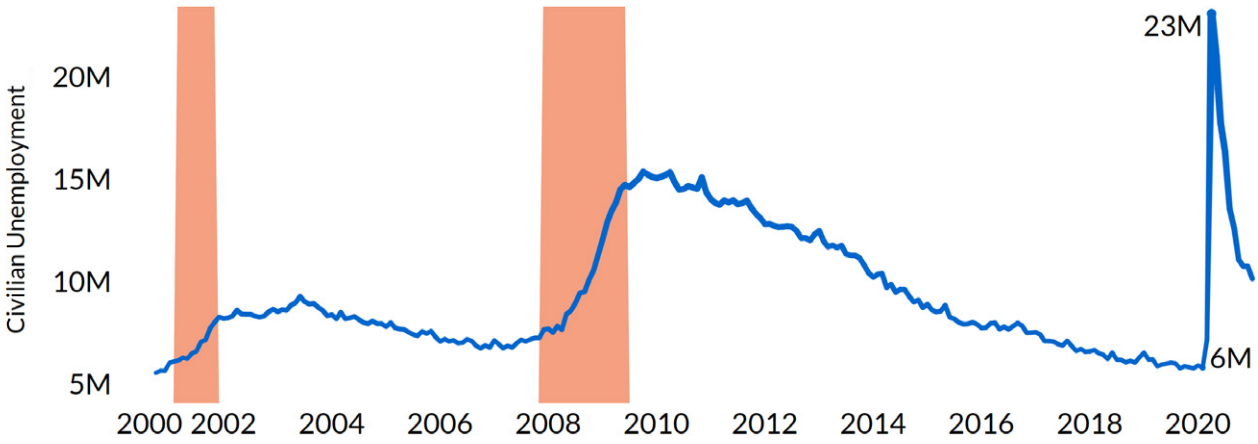
**Susan Athey,** The Economics of Technology Professor,
Stanford University (2020 Global Conference)

**"Every industry here is going to get disrupted for the next three to five years, and these are all changes that will last for decades."**

**Guru Gowrappan,** CEO, Verizon Media
(2020 Global Conference)

Positively, the same studies often expect technology to produce net gains in jobs, as seen in the past. Indeed, the US experienced an unusually protracted rise in employment from 2010-19 (see Figure 1) even amid the ongoing AI revolution. This speaks in part to successful efforts by key stakeholders to address the shifts in skills demanded and the crucial role various organizations play in preparing their communities for the future.

**Figure 1: US Unemployment Rate, 2000–2020**




*Note: Shaded columns denote recession periods.*

*Source: US Department of Labor (2021)*

Unfortunately, COVID-19 has worsened matters for now, and World Economic Forum research believes that while there will still be a net gain in jobs, the magnitude of this gain is shrinking.[10] The ongoing pandemic is a double-whammy for inequality: The worst-off are hit harder while accelerating economy-wide digitalization further widens the skills gap.

Civilian unemployment spiked by over 17 million in just two months. Small businesses[11] and the less well off[12] have been hit particularly hard. Meanwhile, those who kept their jobs had to reimagine their business lines, adopt unfamiliar technologies, and revisit all assumptions about the nature of work itself. With the future of work looming nearer than ever, how prepared are we to face it?

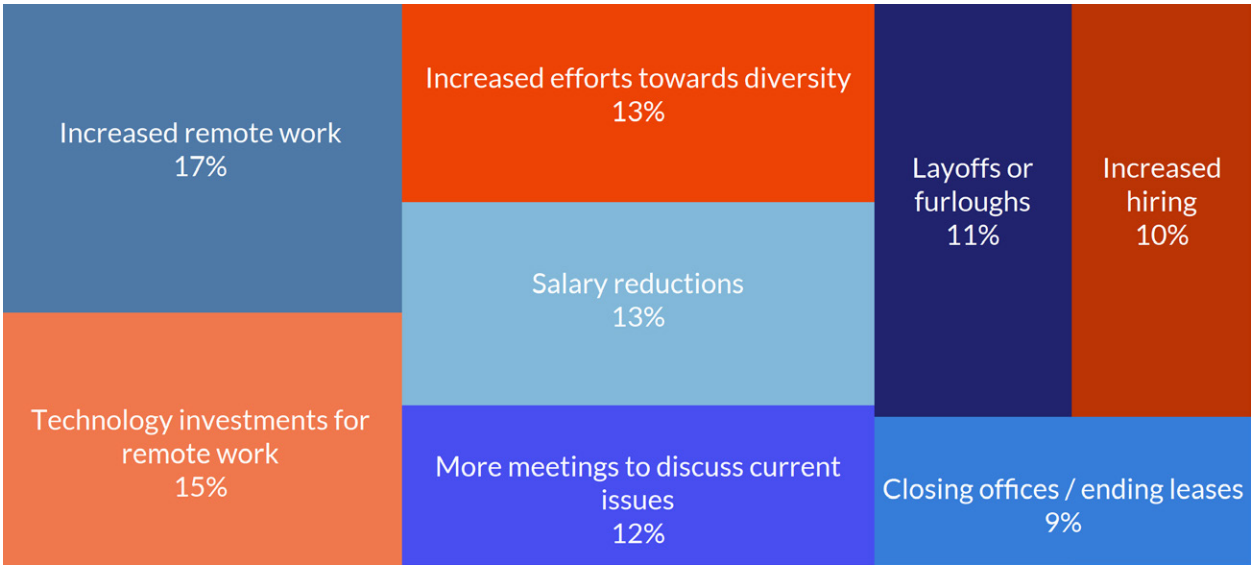
# REMOTE WORK

The Milken Institute partnered with technology consulting firm Infosys to conduct a survey on attitudes and preparedness towards the future of work. Infosys surveyed 608 managers and 401 employees—all US-based—from companies with at least $1 billion in revenue from October to November 2020.

## REMOTE HIRING AND JOB OPPORTUNITIES

Companies' responses to COVID-19 are varied and evenly distributed (see Figure 2). Unsurprisingly, many switched to remote work and adopted the technologies to do so, with computer programmers leading this trend. Larger companies, as well as the entertainment and education industries, turned more toward wage cuts and layoffs, while arts and design saw a larger share of respondents closing offices. Meanwhile, the health-care industry responded to COVID-19 by increasing efforts toward diversity.

**Figure 2: Firms' Responses to COVID-19**




*Source: Infosys (2020)*

## INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"[Remote work] throws up the question: Do we need all this real estate, all these offices, and can more be actually done from home?"**

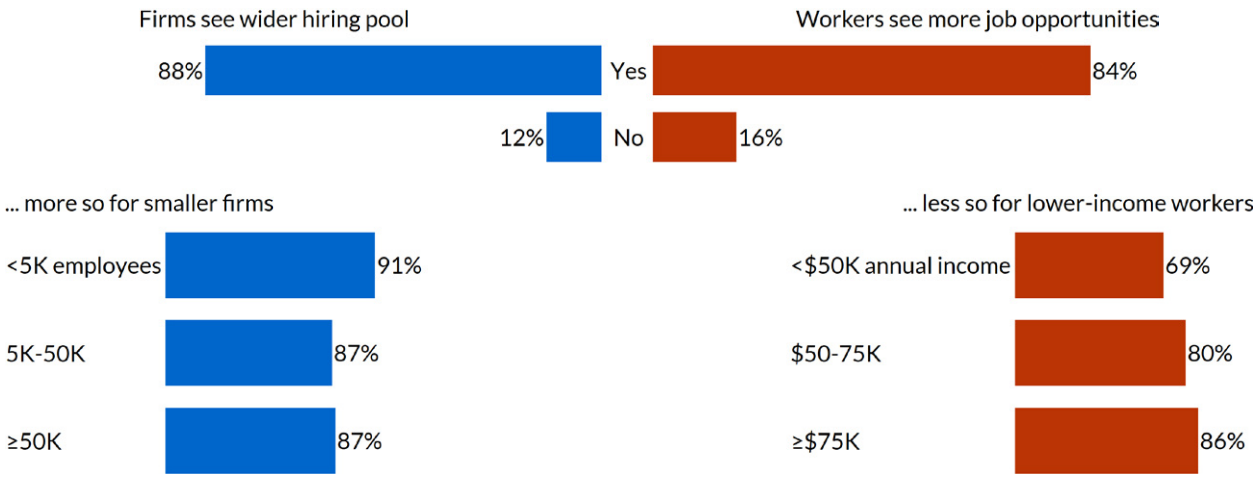
**Thomas Gottstein,** CEO, Credit Suisse (Conversations with Mike Milken Podcast Series)

**"We've invested a lot over the last 10 years actually on making sure that we had the right technology to work from home."**

**Carmine Di Sibio,** Global Chairman and CEO, EY (Conversations with Mike Milken Podcast Series)

Most employees saw increased job opportunities from other geographies, and employers were more willing to hire workers from elsewhere, especially smaller firms (see Figure 3). Relatedly, 13 percent of respondents reported a greater emphasis on diversity at their workplace. This could bode well for workers with different backgrounds who are traditionally constrained by geography. However, lower-income employees saw fewer remote job opportunities. It remains to be seen what the net impact of remote hiring will be on workplace inclusivity.

**Figure 3: More Remote Hiring and Working during Covid-19**




*Source: Infosys (2020)*

## INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"Diversity and inclusion is potentially enhanced by … remote work, the ability to access new pools of talent, [and] the capacity to try to think about how to create an inclusive community."**

**David McCormick,** CEO, Bridgewater Associates (2020 Global Conference)

**"We set some goals around diversity [to which] we're now linking executive compensation."**

**Kevin Johnson,** President and CEO, Starbucks (2020 Global Conference)

**"Start looking for opportunities of people from communities selling into those communities … because those aren't high-cost opportunities at all."**

**Mark Cuban, Owner, Dallas Mavericks (2020 Summer Series)**

**"[Startups] no longer have to be in Zone A hiring cities … They're able to go and get some of the best talent and compete on an apples-to-apples basis with these larger companies."**

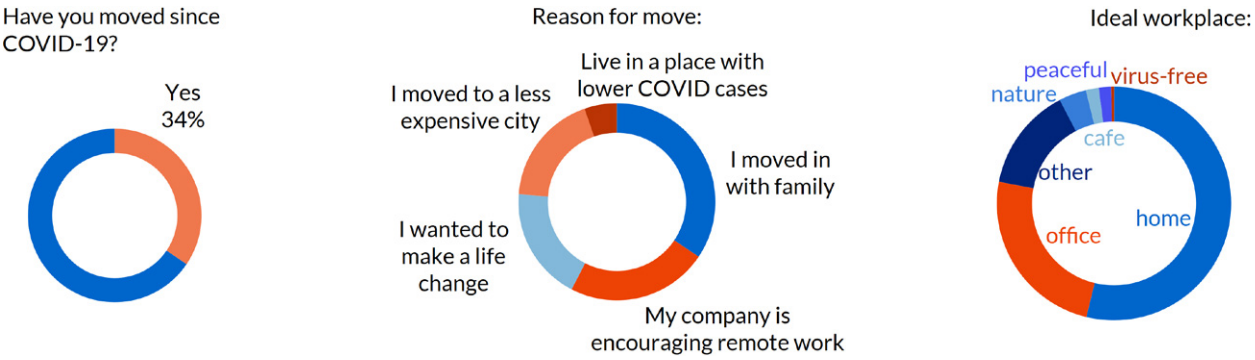
**Irina Novoselsky,** CEO, CareerBuilder (2020 Global Conference)

**"The flexibility that work from home and a hybrid model offers, I think, is going to actually be a big boon for women."**

**Greg Maffei,** President and CEO, Liberty Media Corporation (2020 Global Conference)

How many have capitalized on these remote opportunities? A third of respondents relocated since the onset of COVID-19, and nearly half of respondents now primarily work from home. Interestingly, the desire to move to areas with lower COVID-19 infection rates did not significantly influence respondents' desire to relocate (see Figure 4). Over a third wanted to live with family, while nearly a fifth sought to defray costs of living. Of those who moved, eight in nine were satisfied with their new location, with managers reporting higher satisfaction than non-managers.

## Figure 4: Relocation and the Ideal Workplace




*Source: Infosys (2020)*

The majority chose home as their ideal workplace, while a quarter picked the office. A few chose nature (park, beach, island, etc.), cafés, or quiet places. Again, almost no one picked their ideal workplace based on avoiding COVID-19. Interestingly, similar proportions of managers and non-managers wanted to work from the office. Respondents without children and female respondents wanted to work from home more than their counterparts.

## PRODUCTIVITY AND SURVEILLANCE

Respondents thought they were more productive while working remotely, even as their workloads also increased (see Figure 5). Most lower-income respondents and workers in smaller companies felt more productive in the office, while higher-income respondents and childless respondents felt more productive at home. Managers reported high confidence in employees' productivity amid remote work. Just under one in eight respondents think work hours will decrease with technological advancement.

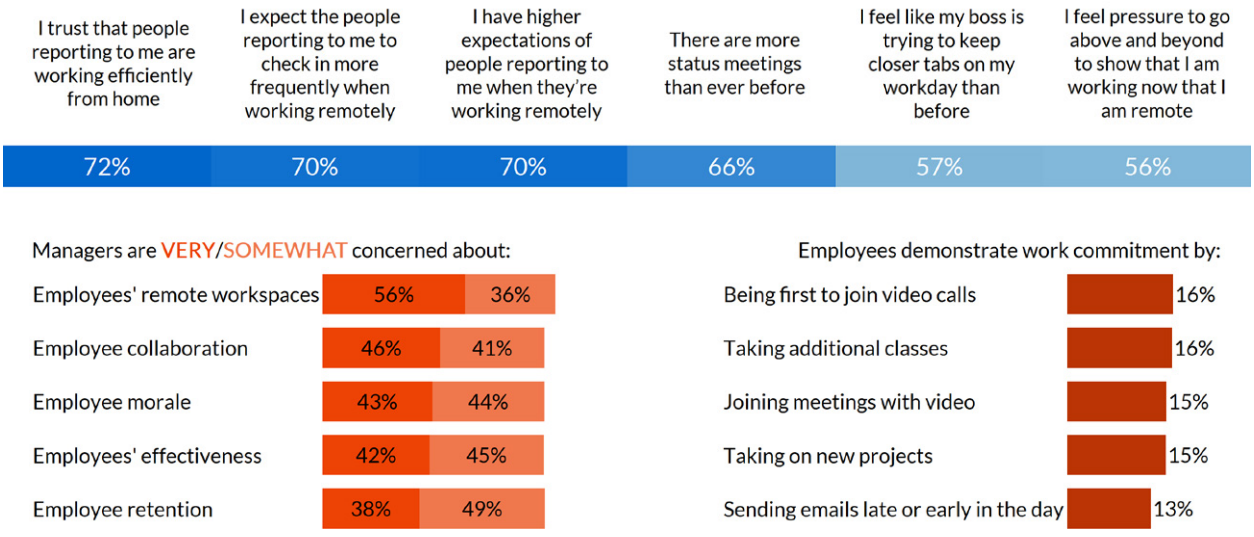
Remote work has eroded the boundaries between home and office, increasing working hours. It is also possible that people are working harder to keep their jobs secure amid the economic downturn. Increased remote working may further lengthen workers' hours because of greater competition arising from remote hiring, the need to accommodate colleagues in other time zones, and an awareness that companies are scrutinizing their employees' time more closely.

## Figure 5: Higher Productivity but Greater Workload

*Source: Infosys (2020)*

Most employers expressed concern about collaboration, effectiveness, and morale and admitted to keeping closer tabs on employees (see Figure 6). Similarly, most employees reported more meetings and greater pressure to demonstrate their commitment, including being first to meetings, keeping videos on, and emailing beyond working hours. Female respondents were slightly likelier to work longer hours and assume new projects. Male respondents were slightly likelier to take additional classes and much likelier to say that their workloads are higher.

## Figure 6: Trust upon Scrutiny

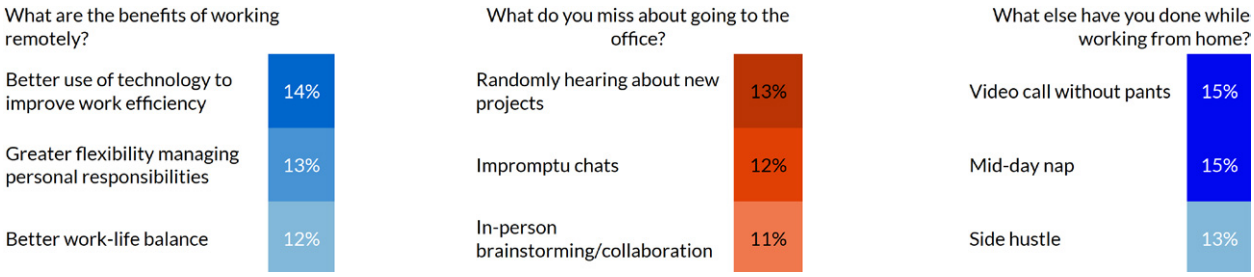



*Source: Infosys (2020)*

## PREFERENCES

There is a net preference for remote work and a net increase in work-life flexibility (see Figure 7), which is congruent with earlier findings about higher satisfaction. Nonetheless, respondents also miss the social aspects of working in the office, such as ad hoc conversations and in-person collaboration. Aligning with earlier responses that they are more productive when working remotely, few respondents indicated that they missed the focus they had at work or the helpful hints they would receive from co-workers.

**Figure 7: Preferences Regarding Remote Work**




*Source: Infosys (2020)*

Relatedly, research has found that while increased work-life flexibility has allowed people more time to spend on unpaid domestic work, women in the US still average five more hours[13] per week on domestic work than men do. Coupled with fewer social interactions and increased surveillance, remote work has not been a panacea for work-life balance. A positive development is that many C-suite executives are contemplating how to address its downsides.

### INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"Our biggest challenge is frankly how do you still maintain a vibrant culture, how do you still maintain that camaraderie, get to see your friends at work, all those sorts of intangible things."**

**Jason Maynard**, Senior Vice President of Global Field Operations, Oracle NetSuite Global Business Unit (2020 Global Conference)

**"Learning how to work remotely, to be present when you can't be present, is an incredibly challenging skill … There is a generation coming … that has had a masterclass in leadership in eight months that took me 25 years to learn."**

**Judith McKenna,** President and CEO, Walmart International (2020 Global Conference)

**"I'm very concerned about the time decay that inevitably is going to come from [remote work] … Our success is going to be contingent on having an engaged employee base that really wants to perform, and part of that engagement is a sense of inclusion."**

**Todd Gibbons,** CEO, BNY Mellon (2020 Global Conference)

**"Better work gets done when people can run into each other in hallways, see each other at lunchtime, and ideas can be communicated. What I find fascinating is how many people have said that they thought working at home would be fun, and they can't stand it."**

**Judy Faulkner,** Founder and CEO, Epic (Conversations with Mike Milken Podcast Series)

It is possible that worries about insufficient interaction drive managers to hold more meetings, which are then misinterpreted by employees as heightened surveillance. It is specifically the casual, directionless conversations that employees enjoy (see Figure 7), rather than all forms of communication.[14] Indicatively, "Zoom fatigue"[15] has become so prevalent that companies like Google have implemented "no meetings weeks."[16]

It is also worrying that 97 percent of respondents believed their company would prioritize business continuity over employees' safety when thinking about returning to the office. While the pandemic situation remains in flux and makes decision making difficult, this nonetheless indicates that increasing meetings may not have addressed employees' main concerns.

# SKILLS AND TRAINING

Amid the short-term trend towards remote work, jobs themselves will change, requiring new skills and methods of attaining them. When thinking about growth prospects, a third of CEOs are extremely concerned about the availability of key skills.[17] It is hence important to dissect respondents' attitudes towards skills training for the future.

## INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"The biggest collateral damage [of Covid-19] would be if we sleep through a huge opportunity to shift gear in our economies and our societies for the better... Is [the digital economy] going to be a winner for few but not for everybody?"**

**Kristalina Georgieva,** Managing Director, International Monetary Fund (2020 Summer Series)

Future skills normally fall into two main categories: STEM on one side and creativity and empathy on the other. Bill Gates has extolled the virtues of scientific, mathematical, and economic thinking,[18] Mark Cuban has proclaimed the importance of liberal arts majors,[19] Lee Kai-Fu has stressed the human qualities of empathy and compassion,[20] while Peter Thiel and Elon Musk have decried MBA programs for stifling creativity.[21] Interestingly, survey respondents split evenly on the importance of soft versus hard skills across all demographics. Managers most picked trustworthiness as an important soft skill.

**Figure 8: Importance of Employees' Soft Skills**

*Source: Infosys (2020)*

## INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"We want to make sure that we're trusted by the local community and do the right thing for them ... That's one of the reasons we've invested ... in our local San Francisco and Oakland public schools—it demonstrates back to the community that we're committed to them."**

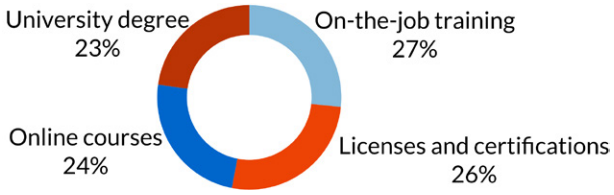
**Marc Benioff**, Chair, CEO, and Co-Founder, Salesforce
(2020 Global Conference)

## THE RACE BETWEEN EDUCATION AND TECHNOLOGY

Education systems face the unenviable task of staying relevant (and funded) with markets racing ahead. In a ZipRecruiter survey[22] of college graduates' most-regretted majors, respondents indicated that some fields of study were too general or impractical, had limited job opportunities, or did not train them sufficiently.

Concerns that formal education is too long, expensive, and unaligned with rapidly changing market needs are not new. At any point in time, a third of graduates are underemployed[23] (i.e., over-educated in areas irrelevant to their jobs). Respondents rated on-the-job training as the most important modality of skills training and a university degree as the least important (see Figure 9). This is not exclusive to the US. Preliminary research has found that it is primarily the sudden switch to remote work in labor-intensive sectors that has sparked bankruptcies among small- and medium-sized enterprises (SMEs) worldwide, rather than falling demand.[24] Learning and working are becoming less disparate and more interspersed, if not concurrent. Thus, higher education institutions will increasingly need to partner with other stakeholders to plug the skills gap.

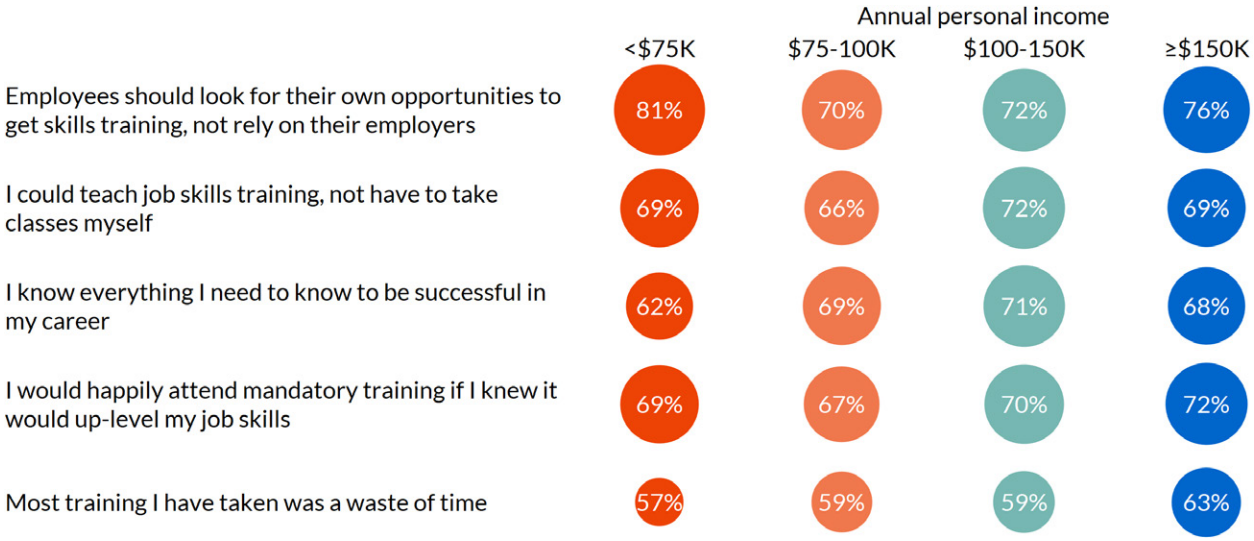
**Figure 9: Priority in Skills Training**




*Note: Respondents were given 10 points to allocate to any combination of the four options.*
*Source: Infosys (2020)*

The role businesses play in skills training cannot be understated. Ninety-nine percent of respondents said their firm offers skills training opportunities. More broadly, firms serve as conduits through which employees can continuously learn. However, many respondents felt that most training is useless (see Figure 10). Perceptions further vary with income levels. Lower-income respondents were likeliest to believe in self-reliance, though they were least confident about their chances of succeeding in their careers, equally willing to attend training sessions, and find them the most useful. This needs further attention, as low-wage workers must be the targets and beneficiaries of training and should not feel like they have to fend for themselves.

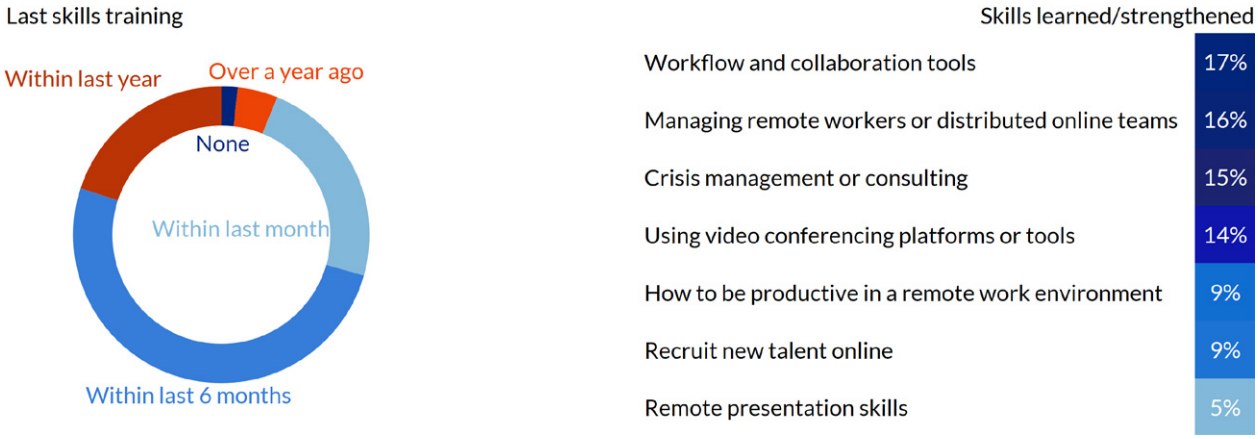
**Figure 10: Attitudes towards Employee Training**




*Source: Infosys (2020)*

Positively, there was a spike in work-related skills training when stay-at-home orders started in March 2020 (see Figure 11), with 95 percent of respondents saying it was beneficial to their jobs. This speaks to the receptivity toward just-in-time learning. Indeed, many respondents participated in training to stay current in their work.

## Figure 11: Recent Training in Remote Work Tools




*Source: Infosys (2020)*

# FUTURE OCCUPATIONS AND INDUSTRIES

Many studies and frameworks[25] have already detailed which skills[26] and jobs[27] will see high demand in the future. On top of that, four important nuances must be highlighted when predicting future jobs: course corrections in digitalization, the productivity paradox, the multi-faceted nature of "future resilience," and the disaggregation of jobs and companies into skills and tasks.

## COURSE CORRECTIONS IN DIGITALIZATION

The soaring interest in machine learning saw many organizations rebranding themselves as tech companies overnight, rushing into data science without a good grasp of the internal changes required. Forecasts based only on these trends will conclude that data scientists look to remain highly marketable.

However, there are signs of an ongoing recalibration in the expectations of what data scientists alone can achieve when a data pipeline and culture are not present. In one jobs ranking, "Data Scientist" plunged from second[28] to 22nd place[29] in just two years. In parallel, a Stack Overflow survey[30] found that more than one in five data scientists and analysts in the US are actively seeking a new job. This is but one example of potential course corrections as mass digitalization progresses. Thus, it is crucial to continuously update jobs forecasts and initiatives on future job preparedness in response to market developments.

## THE PRODUCTIVITY PARADOX

Related to this is the "productivity paradox"—that technological adoption since as early as the 1960s has not led to visible signs of economy-wide productivity growth. More optimistic quarters reason that productivity metrics and technological diffusion are difficult to quantify precisely.[31] Conversely, critics argue that barriers to adoption can delay measurable gains by decades,[32] and the low-hanging fruits to improve standards of living, such as electricity, sanitation, and transportation, have long been harvested. [33]

## INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"Diffusion is very slow … In an intermediate time frame, you're still paying [current employees] … and then there's also just a long time to see the benefits in many cases where you've so many steps to go through."**

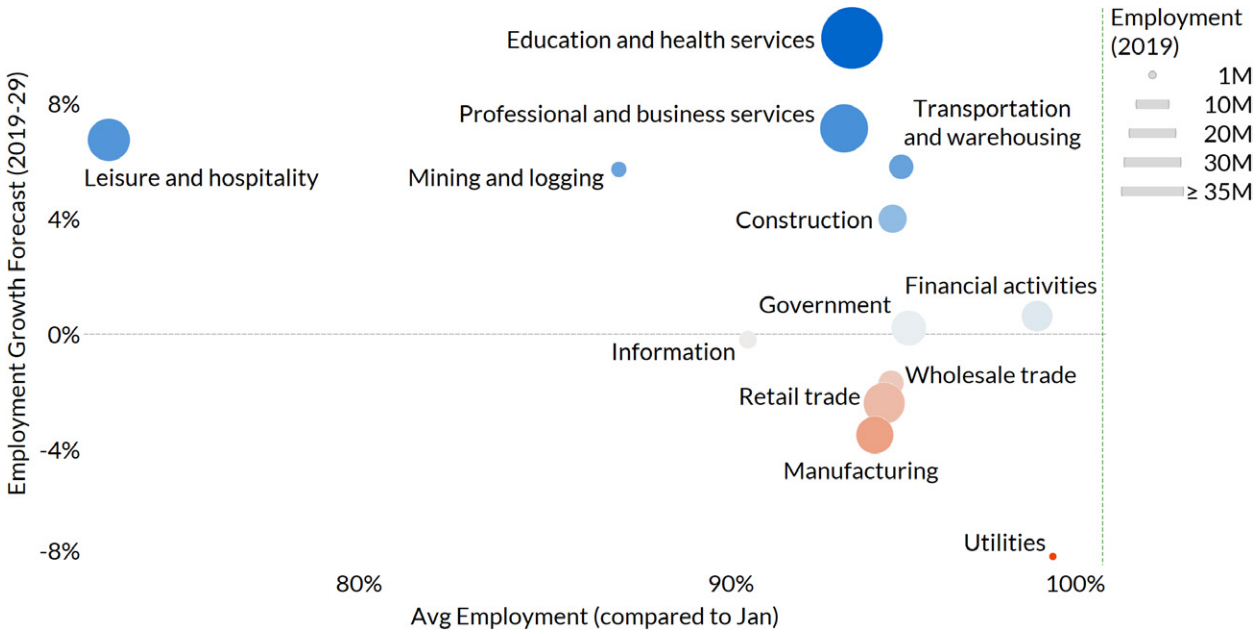
**Susan Athey,** The Economics of Technology Professor, Stanford University (2020 Global Conference)

While the relationship between productivity and technology may seem obvious at the firm level, overall adoption remains uneven. Thus, policies entailing the mass distribution of technology—from investing in connectivity infrastructure to bringing devices into lower levels of education—must be evaluated at the right level.

## PANDEMIC RESILIENCE VERSUS FUTURE RESILIENCE

It is tempting to assume that industries that outperformed during COVID-19 will continue to do so. But the opposite seems to be true (see Figure 12). The utilities industry saw the smallest decline in employment during COVID-19 yet is forecast to see the largest fall in employment over the next decade. Similarly, leisure and hospitality have been hardest hit but expect strong employment growth by 2029.

**Figure 12: Pandemic-Resilient Industries Not the Same as Future-Resilient Industries**




*Note: "Average Employment" averages the (seasonally adjusted) employment level, relative to January 2020, for each month from April 2020 onwards, when the US witnessed the full brunt of COVID-19. 2019-29 forecasts were estimated before the onset of COVID-19.*

*Source: Bureau of Labor Statistics (2021); Milken Institute staff calculations*

Some essential industries were spared from lockdowns and hence maintained employment levels. However, even essential industries cannot count on government protection when facing longer-term socioeconomic and technological forces. For example, even the Labor Department's estimates of jobless claims have been deemed inaccurate with mass layoffs.[34] Thus, government work processes themselves must also be continuously improved. The future of work is complex. Maintaining headcount during COVID-19 does not guarantee these industries are future-proof, while layoffs today do not necessarily indicate a broader decline.

## TASKS, JOBS, AND COMPANIES

Looking even more into the future, increased digitalization, automation, and remote hiring may further disaggregate the creation of goods and services. Similar to the spread of manufacturing across global value chains, the individual tasks that make up jobs may be split more among machines, algorithms, onsite, remote, and freelance workers. This modularization[35] of jobs enables increasingly fine-tuned

outsourcing. In the future, instead of aggregating generalist employees working similar jobs, companies may increasingly look like online platforms synthesizing the diverse efforts of specialists spread worldwide, each performing a unique task across multiple product lines. Thus, even if a field is forecast to have high employment prospects, the benefits accruing to local workers will depend on the openness of labor markets and whether the US economy can remain dynamic enough for workers to accumulate cutting-edge experiences for a competitive edge.

# PREPARING FOR THE FUTURE OF WORK

Policies to prepare for the future of work span across work-sharing arrangements; redistribution; unemployment insurance; subsidies for work transition and technological adoption; increased minimum wages; dignifying care-related, social, and unpaid domestic work; as well as strategies for training, infrastructure, and growth. Over the years, the Milken Institute has made many specific recommendations to prepare for the future of work, many of which center on reducing inequality. These include strengthening business-education partnerships, financing access to education and skills training, catalyzing regional growth through targeted investments, and evaluating regularly, and all of them usually interconnect.

## STRENGTHENING BUSINESS-EDUCATION PARTNERSHIPS

Survey results have already shown that people attach the highest priority to on-the-job training and that businesses play an indispensable role in this regard. Nonetheless, a degree and relevant work experience are needed to be hired in the first place. Partnerships between industry and higher education institutions can address both these issues by incorporating flexibility into training schedules, allowing students to gain real working experience, orienting curricula and research towards market needs, and cultivating a longer-term talent pipeline from local schools. The last factor is particularly important, as the shift toward hiring can leave unprepared communities economically stranded.

The Capital CoLAB[36] is one such partnership in the Capital Region, combining up-skilling programs with digital technology credentialing and a feedback loop among educators, students, and employers. The partnership aims to add over 130,000 job opportunities in five years. In a similar vein, pymetrics, Per Scholas, Infosys, and other organizations have created a consortium of employers to provide a free online training platform for those affected by COVID-19.[37] Their "Reskill and Restart" platform curates jobs-specific skills training based on each individual's skills and aptitude, and matches individuals with employers during training. Other noteworthy partnerships have been compiled in this report[38] by the Milken Institute.

As disruption continues accelerating, the time horizon for reskilling will continuously shorten, as will the shelf-life of new skills. Just-in-time learning may become the dominant pedagogy, with much shorter courses laser-focused on task-specific skills, flexible time commitment, agile curricula, and increasingly blurred distinctions among educators, employers, and employees.

## INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"We're working with some of the nursing homes and our associations to see how we can facilitate the use of technology."**

**Jo Ann Jenkins,** CEO, AARP (Conversations with Mike Milken Podcast Series)

**"The Amgen Foundation has been really successful in funding innovative approaches to STEM education … and fortunately we invested quite a bit of time and effort in trying to make that available for distance learning."**

**Robert A. Bradway,** Chairman and CEO, Amgen (Conversations with Mike Milken Podcast Series)

**"In over 200 tier-1 middle schools, we're starting to build 5G labs in those schools so that they have hands-on experience ... [in] connectivity, technology, hands-on learning for both teachers and students."**

**Guru Gowrappan,** CEO, Verizon Media (Conversations with Mike Milken Podcast Series)

**"Ignite interest in STEM for young people because we think that preparing the workforce of the future is one of those really vital things."**

**Barbara Humpton,** President and CEO, Siemens USA (Conversations with Mike Milken Podcast Series)

**"Our online learning during this crisis is up almost 50 percent versus where we were … We're offering all our people a tech MBA."**

**Carmine Di Sibio,** Global Chairman and CEO, EY (Conversations with Mike Milken Podcast Series)

## FINANCING ACCESS TO OPPORTUNITIES

However, racing ahead in employee skills training without proper foundations will produce unequal outcomes, if any. Over half of surveyed higher education students[39] found it challenging to access a computer during stay-at-home orders. These barriers hinder the urgent need to cultivate familiarity with and curiousity about STEM.

More significant efforts and resources will be needed to secure foundational skills for as many people as possible, to empower the masses in individual lifelong learning and constant reskilling. The Talent Finance Initiative[40] is a multi-stakeholder initiative that uses private-sector-led solutions and financial innovation to better invest in workers. The program enables these individuals to develop skills that keep pace with innovation, and in doing so, advance economic opportunity, diversity, inclusion, and competitiveness. In 2018, Arizona voters approved the extension of a higher sales tax, with the extra money funding the state's Technology and Research Initiative Fund,[41] a highly successful initiative focused on bolstering education, training, and research. College Promise programs nationwide are gaining momentum, with 360 programs[42] to date providing up to full post-secondary tuition funding for deserving students.

## INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"I want kids … to be able to learn anything they want anytime, anywhere. Access to devices, access to broadband, the internet has to be as ubiquitous as access to water and electricity."**

**Arne Duncan,** Managing Director, Emerson Collective; former Secretary, US Department of Education (2020 Global Conference)

**"If I were president, one of the first things I would do is have an infrastructure bill around getting fiber … to the educational systems, the federal government, and the state governments."**

**Eric Schmidt,** former CEO and Chairman, Google (Conversations with Mike Milken Podcast Series)

Balanced against longer-term education financing is the need to stem short-term bleeding. Preliminary research has found that without fiscal stimuli, SME bankruptcies would have doubled[43] amid COVID-19. In particular, long-term unemployment can be dangerous as it reduces the chances of re-employment,[44] eliminating the channel of employer-provided, market-oriented training. Facts-based discussions must occur regarding the extent to which government should protect SMEs and safeguard employment.

### INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"While the government's done a pretty decent job on fiscal and monetary stimulus in the first few months … we need another fiscal stimulus … [for] small businesses and those who are facing unemployment … The people getting impacted the most happen to be women and people of color."**

**Ajay Banga,** CEO, Mastercard (2020 Global Conference)

## CREATING SUSTAINABLE, BROAD-BASED GROWTH

A vibrant economy is key to attracting further investments to finance these opportunities. Long-term economic dynamism must ultimately be sustained through productivity and innovation in broadly accessible and environmentally sustainable ways. Public investments, guided by multi-stakeholder consultations, can accelerate the market toward the jobs of the future and create jobs directly. Technological disruption is accelerating. Investments should target sectors already well-established and promising in the local economy to reduce both timelines and resources required.

### INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"There's no singular approach to business any longer … We have to start to realize that kids growing up in the inner cities don't have the same opportunities, and we have to invest there."**

**Mark Cuban,** Owner, Dallas Mavericks (2020 Summer Series)

**"If we want to have dynamic economies, they have to be inclusive."**

**Kristalina Georgieva,** Managing Director, IMF
(2020 Summer Series)

**"The best things that the money can go to are those things that produce productivity in a well-shared way."**

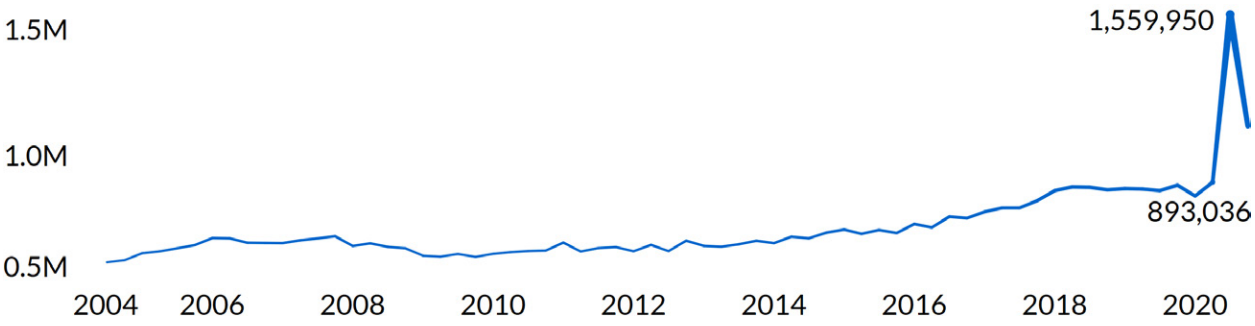
**Ray Dalio,** Founder, Co-CIO, and Co-Chairman, Bridgewater Associates
(Conversations with Mike Milken Podcast Series)

**"As we ask workers to be lifelong learners and upgrade their skills, we also need to upgrade the quality of our jobs."**

**Sarita Gupta,** Director, Future of Work(ers), Ford Foundation (2020 Global Conference)

California's STEM Core initiative,[45] for example, assembles major STEM employers to increase access to underprivileged populations. Catalyzed by public investments, the initiative provides curriculum, paid internships, and research opportunities and has enrolled over 300 students in 13 colleges across California. Colorado,[46] Georgia,[47] and Tennessee,[48] among many others, also have workforce development programs to reskill dislocated workers and out-of-school youth and to sustain talent development networks. Such programs help seed local growth hubs, retain talent, and increase access to opportunities. Impressively, business applications nationwide nearly doubled in Q3 (see Figure 13). If Americans could channel their strong entrepreneurial drive toward the future economy, it would strongly boost long-term workforce dynamism and productivity.

**Figure 13: Spike in Business Applications**




*Source: US Census Bureau (2021)*

## EVALUATING AND ITERATING

There remains a subtle balance between proactive versus evidence-based decision making. The long timeframes inherent in education necessitate early, pre-emptive decision making based on best guesses and limited knowledge of the future. While close communication with industry can help, as explained above, the market can also get forecasts wrong.

## INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"What I would love more from the business community would be, yes, to partner with us in education but also to challenge us and to hold us accountable for us producing young people who are prepared with the skills they need to enter the workforce … I worry far too often that businesses can now hire internationally … That's important for them to do, but I want them to have a real stake at their local level."**

**Arne Duncan,** Managing Director, Emerson Collective; former Secretary, US Department of Education (2020 Global Conference)

Hence, resources, however scarce, must be dedicated to evaluating program efficacy. The 2019 Nobel laureates in economics, Abhijit Banerjee and Esther Duflo, have shown,[49] for example, that not all education funding is money well spent. And preliminary evidence finds that students do worse[50] in online education when their educational institutions are inexperienced in remote learning and when the syllabus lacks peer-to-peer interaction. Thus, programs, collaborations, and stakeholders alike will need to think carefully and be flexible in determining what works best. Funding initiatives, such as the aforementioned College Promise programs, could be evaluated partly with employment metrics. In a similar spirit, Microsoft's global skills initiative[51] combines data across LinkedIn, GitHub, and Microsoft to identify in-demand jobs and their requisite skills. The company then plans to share data and insights from this initiative to further drive innovations in public policy.

For example, with the somewhat overhyped data revolution, there has been a proliferation of online courses and boot camps. These programs vary widely in quality, cost, exam rigor, and admissions criteria. Stakeholders thus need to agree on how to assess which courses are better and worth supporting. Accrediting bodies may play a useful role here, but collaborations between education and industry should not become hamstrung by middlemen, third parties, and vested interests, nor devolve into a check-listing exercise.

## INSIGHTS FROM MILKEN INSTITUTE EVENTS

**"The concept behind [Industry Recognized Apprenticeship Programs] is that rather than us in the government determining when an apprenticeship program is satisfactory, there can be accrediting bodies. These can be community colleges, these can be trade associations, labor unions."**

**Eugene Scalia,** Secretary, US Department of Labor (2020 Global Conference)

**"We need to significantly shorten the dialogue between employers and educational institutions like community colleges who are training the workforce. There is too much noise in between, too many parties in between … We need to better articulate competencies and skills to the employer as quickly as possible."**

**Eloy Ortiz Oakley,** Chancellor, California Community Colleges (2020 Global Conference)

# CONCLUSION

The COVID-19 pandemic has accelerated job displacement and unemployment trends initiated by advances in technology and automation. Emerging forces affecting the workforce have only exacerbated existing social inequities embedded in our pre-COVID economic landscape. Yet the fundamental dynamics reshaping the nature of work remain unchanged. This new normal presents an opportunity to recalibrate traditional workforce development models that recognize the long-term return on investment in talent, skills, and people, resulting in enhanced opportunity and social prosperity. Addressing these issues involves creating partnerships between workers and employers, as well as educators who can provide the tools to prepare people and companies for the ever-shifting needs of the new economy.

Revising this framework requires broader ecosystem participants to leverage their networks and funds to support state and regional talent development efforts. Forming cross-sectoral, regional employer collaboratives, for instance, can align competency-based curricula to short-term critical workforce needs and stretch public dollars. Educational institutions and employers must also expand their networks and get creative with leveraging other training, operational, and funding-related resources. In the long term, by investing in our talent pipelines, these networks can advance an adaptable education-to-employment system that supports sustainable careers in local industries.

Progress will depend not only on strategic thinking but innovative approaches to operational funding that build on the traditional vocational and public-private models that once existed in the economy but could not adapt with the times. Place-based pilot programs focused on developing robust talent pipelines can use existing networks and infrastructure but adjust them to the new future of work. By implementing these pilots and then scaling them up as the infrastructure evolves, resulting partnership programs can reduce costs, expand funding sources, leverage organizational strengths, and create shared prosperity in respective regions.

Finally, the pandemic has also drawn attention to the notion of essential jobs, such as health-care workers—not the highest paid but vital beyond doubt. Profound stress and shortages have required adaptation and shown where society's needs are now and are likely to be in the future. As societies race to prepare for the future of work, it is increasingly vital to ascertain both the obligations and opportunities emerging in this shifting landscape and how we can ensure that both workers and employers can meet their own needs and those of society and the economy.

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