Creating the future workforce today

By Michael J. Fenlon and Brian K. Fitzgerald

pwc

A free, open and just society depends upon an inclusive and sustainable market economy. The combined impact of globalization and the "Fourth Industrial Revolution" of artificial intelligence and other new technologies is transforming business and society. As Jan Tinbergen, the first winner of the Nobel Prize in Economics, suggested, inequality is a race between technological progress and education.[1] The stakes in Tinbergen's race are alarmingly high: these drivers of economic and social change have led to widespread concerns about large elements of our society being "left behind." The COVID-19 pandemic has accelerated these trends, which include growing inequality, gaps in workforce skills for the digital economy, conflict over immigration, demands for greater racial and gender equality, the erosion of trust in institutions, and growing cultural and political polarization, including the recent unprecedented violent insurrection in the US Capitol. Achieving inclusive, sustainable economic growth is a continued challenge.

In this paper, we will examine how leaders in business and higher education can continue to collaboratively build an adaptive, inclusive and sustainable workforce for the 21st century innovation economy. Companies and academic institutions have a shared responsibility, as well as economic and social incentives, to help close the digital talent gap and build a workforce that is ready for the future. As a recent joint PwC-World Economic Forum report recognized, "[B]y giving all people opportunities to build the skills they will need to fully participate in the future workplace, we can start to create more inclusive and sustainable societies… This, in turn, will lead to a prosperity dividend."[2]

To get there, we need leadership with purpose. The Business Roundtable, for example, has redefined corporate purpose to include not only serving shareholders, but also providing value to customers, investing in employees, dealing fairly with suppliers, supporting the communities in which companies operate, and protecting the environment through sustainable practices[3]. Addressing societal and economic disparities necessitates:

● Innovative, market-relevant approaches to education and upskilling,

● Commitment to workforce diversity, equity and inclusion, and

● Alignment with a broader definition of corporate and institutional purpose focused on stakeholders and society.

Our discussion begins with an overview of the educational and workforce trends disrupting our economy and society. These shifts create unprecedented challenges and opportunities. Fortunately, leaders in business and higher education— often working in tandem—are innovating to equip employees and students with Digital Age skills, while promoting greater diversity, equity and inclusion, and creating new pathways and tools for lifelong learning. We share examples of these efforts in the hope that others will leverage these models to meet future workforce needs and continue to help build a more equitable future.

We close with recommendations and a call to action. In these turbulent times, we need innovation and commitment. Leaders in business and education share responsibility for reshaping our workforce for the future, and the Business-Higher Education Forum (BHEF) is uniquely positioned by virtue of its mission and membership to serve as a catalyst for this critical work.

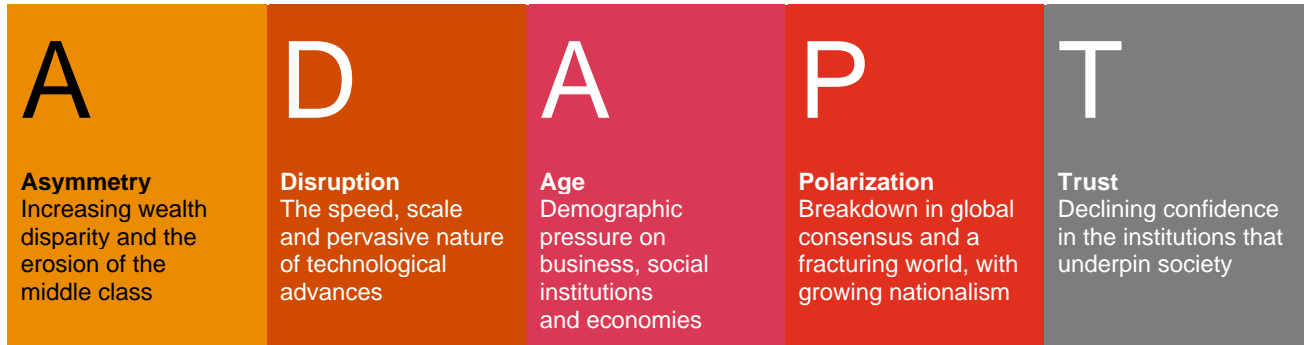### ADAPT: A framework for understanding urgent issues driving change[4]

As Blair Sheppard, PwC's global leader for strategy and leadership, and members of his team traveled the pre-pandemic world, they met with leaders in business, politics and civil society, but also with people they encountered spontaneously— in cafes, hotels, schools, and buses. The insights, stories and personal feelings of concern shared in these meetings aligned with their research. They created an acronym—ADAPT—that captures the complex and urgent issues of our time: asymmetry, disruption, age, polarization and trust. These trends are driving rapid change, and the pandemic has only accelerated their impact. Understanding these forces will be essential to overcoming the difficult challenges they present for the workforce of the future.

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[1] See Tinbergen, J. *Substitution of Graduate by Other Labour* (Jan. 1974). Kyklos Vol. 27, Issue 2, p.224.

[2] World Economic Forum in collaboration with PwC (Jan. 2021). Upskilling for Shared Prosperity, p.3. Available at http://www3.weforum.org/docs/WEF_Upskilling_for_Shared_Prosperity_2021.pdf

[3] Business Roundtable, *One Year Later: Purpose of a Corporation*, https://purpose.businessroundtable.org/

[4] Sheppard, B.H. (2020). *Ten Years to Midnight: Four urgent global crises and their strategic solutions*, Berrett-Koehler Publishers, Inc. See also https://www.pwc.com/gx/en/issues/adapt.html

A	D	A	P	T
Asymmetry Increasing wealth disparity and the erosion of the middle class	**Disruption** The speed, scale and pervasive nature of technological advances	**Age** Demographic pressure on business, social institutions and economies	**Polarization** Breakdown in global consensus and a fracturing world, with growing nationalism	**Trust** Declining confidence in the institutions that underpin society

Asymmetry

Increasing wealth and income disparities and the erosion of the middle class are creating severe societal asymmetries. Although technology has the potential to empower innovators, some scholars are characterizing the digital innovation economy as a "winner take all" arena, driving an extraordinary concentration of wealth and social power in an increasingly small group of individuals and families.

- In the US, the top 10% now control almost 70% of the wealth, while the bottom 50% control approximately 2%.[5]

- Upward mobility, a critical factor in any democracy and a hallmark of the American Dream, has fallen dramatically—while 90% of children born in the US in 1940 went on to earn more than their parents, only 50% of children born in 1985 are meeting that goal.[6]

Sheppard identifies a crisis of both real and felt prosperity—without either, people may stop dreaming, launching businesses and contributing to growth. They also may engage in unhealthy behaviors, report higher incidences of mental illness and substance abuse, become more insular, and begin to lash out against established institutions—which in many cases have not represented their interests—and people they perceive as different, potentially leading to an increasingly fractured society. Sheppard identifies three major demographics in crisis:

- **Young people falling behind:** Around the world, many young people are unable to gain the same level of financial security their parents have had. In the US, higher education is increasingly difficult to access for students from families with economic insecurity, and burdensome student debt may reduce social mobility.

- **Retiring broke:** The shift from pensions to 401(k)s in the US allowed people to choose between consuming in the present and saving for retirement. The 2008 financial crash wiped out significant retirement savings while also scaring many away from the market. A 2019 survey found that 55% of US respondents (aged 55–65) had less than $10,000 saved for retirement, and approximately 69% had less than $50,000.[7]

- **The encumbered middle:** Sandwiched between these two groups are mid-career workers, heavily encumbered by mortgages, car payments, children's tuitions, and care for aging parents. This group may also be at high risk for losing jobs to automation and industry disruption.

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[5] Federal Reserve, *Distribution of Household Wealth in the US since 1989.*
https://www.federalreserve.gov/releases/z1/dataviz/dfa/distribute/chart/#quarter:124;series:Net%20worth;demographic:networth;population:all;units:level

[6] Opportunity Insights, Harvard University. Available at https://opportunityinsights.org/

[7] *Ten Years to Midnight: Four urgent global crises and their strategic solutions*, p.33.

The pandemic has heightened and expanded the crisis, and arguably created a fourth group at risk: people who were barely managing day to day, and now are unable to afford housing, food or other necessities.[8]

One of the starkest asymmetries of the pandemic is the "K-shaped" economic recovery, with distinct winners and losers.[9] We see this divergence across entire industries—in-person retail, cruise lines, entertainment, airlines, hotels and conference organizers, and so many more. In contrast, other sectors, which operate more in the digital economy, have survived and even flourished after successfully pivoting to work-from-anywhere and digital business platforms and infrastructure. Consider that "non-teleworkable" jobs accounted for more than 80% of pandemic job losses in the US through August 2020.[10]

Exacerbated by structural inequities, significant disparities in the US during the pandemic also correlate with education, race, gender, disabilities, and rural vs. urban:

- Prime-aged employees without a bachelor's degree are facing much higher job losses than those with a college education.[11]

- 38% of White adults reported pandemic-related job or wage loss, as compared with 61% of Hispanic adults and 44% of Black adults.[12]

- 34% of US small business owners said their operations are currently profitable, but among minority-owned small businesses, only 26.5% of Black and 29.2% of Hispanic business owners said the same.[13]

- Closed schools and limited childcare capacity have disproportionately impacted women, and particularly women of color, with one in four women considering downshifting their careers or leaving the workforce due to COVID-19.[14] Women are also much less likely to have returned to work than men (54% vs. 73%).[15]

- As of September 2020, 12.5% of US workers with a disability were unemployed, up from 7.8% in January 2020. By comparison, 7.5% of US workers without a disability were unemployed in September 2020.[16]

- High-speed internet access is much scarcer in rural areas. While 97% of Americans living in urban areas have access to high-speed fixed service, only 65% of people living in rural areas and 60% living on Tribal lands have access. The FCC estimates that approximately 30 million Americans lack access to the benefits of the Digital Age.[17]

Alarmingly, these asymmetric impacts reach beyond the current workforce to the future talent pipeline, now facing learning loss as the pandemic continues to upend K-12 education.

These problems are complex, but increased access to market-relevant education throughout people's working lives can hold many of the answers for better life outcomes, participating in the benefits of the digital growth economy, and the ability to pivot as technology changes the knowledge and skills required for job security.

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[8] Sheppard, B., Zarubina D. and Jenkins A. (May 13, 2020), *Adapting to a new world: Facing the challenges of the post-COVID-19 landscape*, strategy+business. Available at https://www.strategy-business.com/article/Adapting-to-a-new-world?gko=5b5d0

[9] Bheemaiah, K., Esposito, M., & Tse, T. (Dec. 22, 2020). *Are we experiencing a K shaped recovery from COVID-19?* World Economic Forum. Available at https://www.weforum.org/agenda/2020/12/k-shaped-covid19-coronavirus-recovery/

[10] Tuzemen, D. and Tran, T. (Sept. 30, 2020). *Were Teleworkable Jobs Pandemic-Proof?* Federal Reserve Bank of Kansas City. Available at https://www.kansascityfed.org/publications/research/eb/articles/2020/were-teleworkable-jobs-pandemic-proof

[11] Ibid.

[12] Lopez, M., Rainie, L., and Budiman, A. (2020). *Financial and health impacts of COVID-19 vary widely by race and ethnicity*. Pew Research Center. Available at https://www.pewresearch.org/fact-tank/2020/05/05/financial-and-health-impacts-of-covid-19-vary-widely-by-race-and-ethnicity/

[13] Pilon, A. (Dec. 8, 2020). *SCORE Looks at Impact of COVID-19 on Small Business in the US*. Small Business Trends. Available at: https://smallbiztrends.com/2020/12/score-survey-covid-impact-small-business.html

[14] Lean In (2020). *Women in the workplace 2020*. Available at: https://leanin.org/women-in-the-workplace-2020

[15] US Chamber of Commerce Foundation (Oct. 2020). *Returning to Work and the Childcare Dilemma*, Working Parents, Childcare and COVID-19. Available at: https://www.uschamberfoundation.org/sites/default/files/media-uploads/EarlyEd_Minis_Report4_FINAL.pdf

[16] US Department of Labor. *Employment for Persons with a Disability: Analysis of Trends During the COVID-19 Pandemic*. Available at https://www.dol.gov/agencies/oasp/evaluation/completedstudies/Employment-for-Persons-with-Disability-Analysis-of-Trends-During-COVID-19-Pandemic

[17] FCC. *Bridging The Digital Divide For All Americans*. Available at https://www.fcc.gov/about-fcc/fcc-initiatives/bridging-digital-divide-all-americans

Disruption

In the Fourth Industrial Revolution, innovation is powered by rapid technological advances on multiple fronts, including artificial intelligence, blockchain, 3-D printing, cloud, robotics, biotechnology, and the Internet of things. Digitally connected products and services and increased automation are transforming every aspect of our existence: how and where we work, what skills we need, how we interact, and how much privacy we retain. Automation is causing job losses, with more to come. Technology is also creating jobs: evolving digital and people skills are in high demand. As institutions and businesses struggle to keep up with fast-changing market dynamics, opportunities for new alliances exist—public-private, and between the companies that need skilled workers and the educators who can provide life-long skill development.
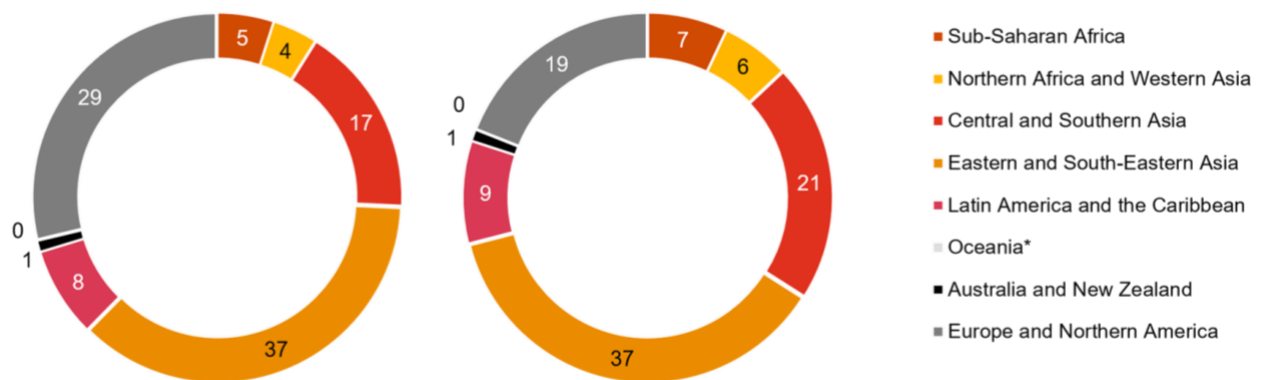
↗ Increasing demand		↘ Decreasing demand	
1	Data Analysts and Scientists	1	Data Entry Clerks
2	AI and Machine Learning Specialists	2	Administrative and Executive Secretaries
3	Big Data Specialists	3	Accounting, Bookkeeping and Payroll Clerks
4	Digital Marketing and Strategy Specialists	4	Accountants and Auditors
5	Process Automation Specialists	5	Assembly and Factory Workers
6	Business Development Professionals	6	Business Services and Administration Managers
7	Digital Transformation Specialists	7	Client Information and Customer Service Workers
8	Information Security Analysts	8	General and Operations Managers
9	Software and Applications Developers	9	Mechanics and Machinery Repairers
10	Internet of Things Specialists	10	Material-Recording and Stock-Keeping Clerks
11	Project Managers	11	Financial Analysts
12	Business Services and Administration Managers	12	Postal Service Clerks
13	Database and Network Professionals	13	Sales Rep., Wholesale and Manuf., Tech. and Sci.Products
14	Robotics Engineers	14	Relationship Managers
15	Strategic Advisors	15	Bank Tellers and Related Clerks
16	Management and Organization Analysts	16	Door-To-Door Sales, News and Street Vendors
17	FinTech Engineers	17	Electronics and Telecoms Installers and Repairers
18	Mechanics and Machinery Repairers	18	Human Resources Specialists
19	Organizational Development Specialists	19	Training and Development Specialists
20	Risk Management Specialists	20	Construction Laborers

Source
Future of Jobs Survey 2020, World Economic Forum.

Age

Technological disruption may favor "digital natives," while other workers may struggle to catch up with recent technological advances. For older workers, who are living longer and want or need to stay in the workforce, lifelong learning can prolong and improve their career trajectories. With US life expectancy increasing from 49 in 1900[18] to a projected 85.6 years by 2060,[19] providing opportunities for older workers will be critical for economic growth and well-being. Younger workers face their own challenges: Older workers who cannot afford to retire may remain in jobs longer, diminishing availability. Student debt and a grim job market may deter younger workers from investing in education, entrepreneurship or taking a career risk. Increased polarization around immigration to the US—often from countries with a surplus of undereducated or underemployed youth—may diminish workforce diversity and innovation, as well as the taxpaying base and workforce to support aging populations. Providing workers of all ages pathways into the innovation economy is an important component of sustainability. Affordable opportunities for truly lifelong learning, like stackable certificates that can lead to degrees at workers' own pace, will allow workers of any age to upskill as jobs and skills shift.

Distribution of population aged 65 years or over by region, 2019 and 2050 (percentage)

- Sub-Saharan Africa
- Northern Africa and Western Asia
- Central and Southern Asia
- Eastern and South-Eastern Asia
- Latin America and the Caribbean
- Oceania*
- Australia and New Zealand
- Europe and Northern America

Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). **World Population Prospects 2019**.
*Excluding Australia and New Zealand.

Polarization

Rising wealth and income inequality mean that large segments of society feel left behind, creating fertile ground for potential extremism, distrust and a breakdown in civil and civic discourse. From climate change to vaccinations to election integrity, we see large-scale rejection of expertise, polarization of fact bases and priorities, and a lack of global or national consensus. Echo chambers created by social media, algorithm-based news feeds and an increasingly fractured media are fueling political and cultural polarization, including the spread of conspiracy theories. When a significant number of people

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[18] Leonhardt, D. (Sept. 27, 2006). *Life Expectancy Data*, New York Times. Available at https://www.nytimes.com/2006/09/27/business/27leonhardt_sidebar.html

[19] Medina, L. Sabo, S., and Vespa, J. (Feb. 2020). *Living Longer: Historical and Projected Life Expectancy in the United States, 1960 to 2060*, p. 3. U.S. Census Bureau. Available at https://www.census.gov/content/dam/Census/library/publications/2020/demo/p25-1145.pdf

believe that opportunity, prosperity and equality are out of reach in a digital, global economy, the foundations of our society can begin to crack.

Some researchers[20] have also identified how racial polarization and resentment can inhibit investments that are in the general interest of our society. Citibank has estimated that not addressing racial gaps between Blacks and Whites has cost the US economy up to $16 trillion over the past 20 years—and that increasing access to higher education, and other actions—could add $5 trillion of additional GDP over the next five years.[21]

Trust

Trust in all information sources at record lows
Percent trust in each source for general news and information
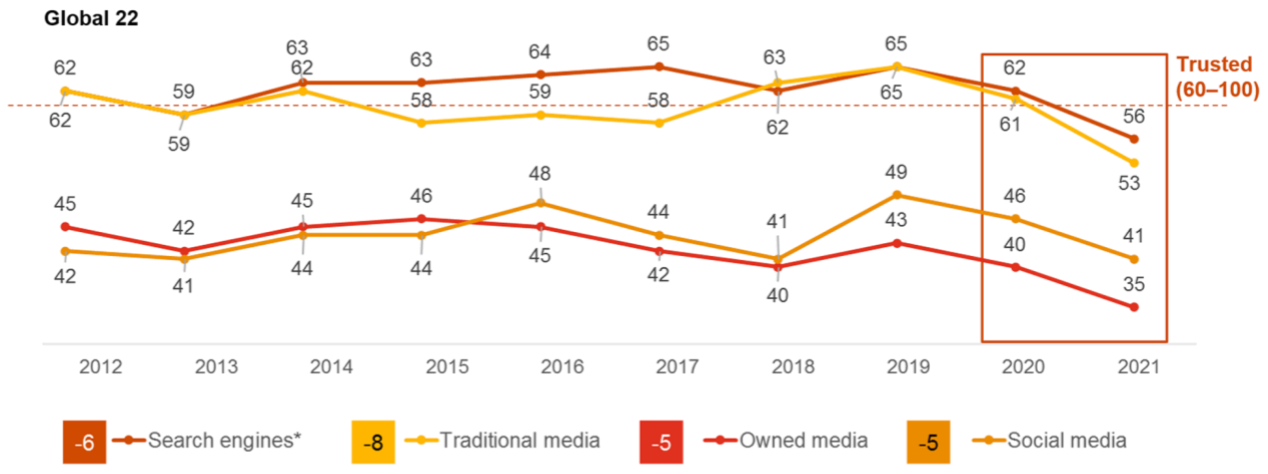
2021 Edelman Trust Barometer. COM_MCL. When looking for general news and information, how much would you trust each type of source for general news and information? 9-point scale; top 4 box, trust. Question asked of half of the sample. General population, 22-mkt avg.
*From 2012-2015, "Online Search Engines" were included as a media type. In 2016, this was changed to "Search Engines."

The many consequences of the other ADAPT trends are creating disillusionment with the present and pessimism about the future. With a range of institutions—from tax systems to the police to universities to government and beyond—struggling to meet the challenges of the Digital Age, trust in these institutions and their leaders is ebbing dangerously. Trust in media sources is at a record low around the globe, with only 35% of those surveyed for the 2021 Edelman Trust Barometer saying they trust social media, 41% for owned media, and 53% for traditional media (also the largest drop from the prior year).[22] Media fragmentation and the rise of social media echo chambers, discussed above, have blurred lines between facts, opinions and fiction in the US. In a splintered society, fears that a good education is inaccessible, particularly to racially/ethnically underrepresented students, and that schools are not meeting students' needs for career success add to mistrust. But Edelman's barometer also points to a private sector opportunity: business is the only trusted institution in this year's study.[23]

The ADAPT trends, powerful and challenging before the pandemic, are now on fast forward. Although daunting to address, these forces make returning to the pre-pandemic status quo a non-starter. Longer working lives and fast-changing skills demands are contributing to a shift from the traditional higher education model to more adaptive, skill-based learning. To be sustainable, these changes must be inclusive—people need to see that they can access the

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[20] For example: https://www.nytimes.com/2021/02/13/opinion/race-economy-inequality-civil-rights.html?referringSource=articleShare

[21] Peterson, D. and Mann, C. (Sept. 2020), *Closing the Racial Inequality Gaps*, Citi. Available at https://ir.citi.com/%2FPRxPvgNWu319AU1ajGf%2BsKbjJjBJSaTOSdw2DF4xynPwFB8a2jV1FaA3Idy7vY59bOtN2lxVQM%3D

[22] Edelman. *Edelman Trust Barometer 2021*, p.24. Available at https://www.edelman.com/trust/2021-trust-barometer

[23] https://www.edelman.com/trust/2021-trust-barometer

lifelong education and training necessary to work and succeed. The workforce of the future should be diverse, equitable, inclusive and sufficiently agile to adjust to technological advances and the "creative destruction" that accompanies innovation in a capitalist, free market economy. Creating this workforce is essential not only for businesses and institutions, but for society and democracy.

Building the workforce of the future—today

As we discussed in our previous joint paper, Reskilling—A solution for the digital skills gap, new technology is driving demand for new skills and the creation of new jobs.[24] At the same time, automation and outdated skills can threaten job security for both new job market entrants and experienced workers, creating complex challenges—but also opportunities—for businesses, educators and policy makers. Before COVID-19, an estimated 375 million workers globally needed to upskill and reskill to meet changing job demands from digitalization, automation, AI and globalization.[25] Scholars forecast these trends will continue accelerating post-pandemic, placing economic pressure on businesses to ameliorate the human-machine balance and raising the stakes for upskilling to help secure the future for our workforce and our society.

Potential job automation rates by industry across waves
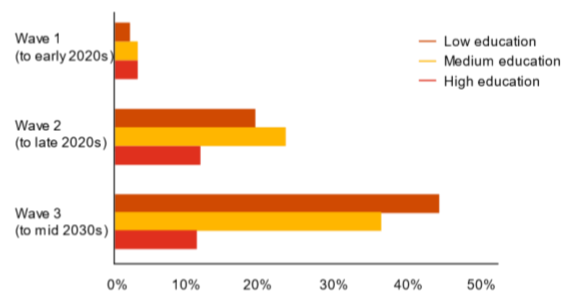
% of existing jobs at potential risk of automation
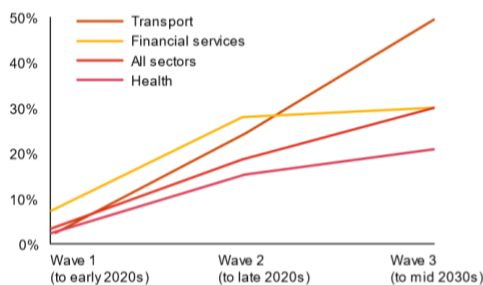
Source: PwC estimates based on OECD PIAAC data (median values for 29 countries)

Potential job automation rates by education level across waves

% of existing jobs at potential risk of automation

Source: PwC estimates based on OECD PIAAC data (median values for 29 countries)

Closing the skills gap holds enormous promise. PwC and the World Economic Forum project that the US stands to gain $900 billion by 2030—or 3.7% of GDP—if we can close the skills gap by 2030.[26] It's worth emphasizing that this projection focuses solely on closing the current skills gap and increased labor productivity. This means that additional gains could be expected from upskilling to support new technology-enabled jobs, beyond the current baseline.[27]

This workforce of the future will need a mix of new digital skills and age-old human traits, such as creativity and interaction. BHEF has identified four foundational areas for 21st-century skills:[28]

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[24] Fenlon, M. and Fitzgerald, B. (2019). *Reskilling—A solution for the digital skills gap*. Available at https://www.bhef.com/sites/default/files/BHEF_PwC_2019_Reskilling_Whitepaper.pdf

[25] BHEF (2020). *Addressing the Nation's Upskilling Imperative: Data-driven recommendations for business and higher education.* Unpublished manuscript.

[26] *Upskilling for Shared Prosperity*, p.22.

[27] Ibid.

[28] BHEF (2018). *The New Foundational Skills of the Digital Economy: Developing the Professionals of the Future*. Available at http://www.bhef.com/publications/newfoundational-skills-digital-economy-developing-professionals-future

- **Workplace skills**, including analytical reasoning, critical thinking, complex problem-solving, resilience, and cross-cultural perspective.

- **Business skills**, including business processes, decision-making, operations and project management, and visualization. Additionally, marketing, sales and content production, and other roles that require facility interacting with different types of people remain in demand.[29]

- **Digital skills**, including AI, robotics, data science and analytics, information security, programming, big data and data management, and software development. Emerging industry-specific digital skills include: e-commerce and social media specialists (consumer sector), fintech engineers (financial services) and materials engineers (automotive).[30]

- **Domain knowledge** in areas like biology, economics, sociology and physics. Beyond these more technical areas, marketing, sales and content production, and other roles that require facility interacting with different types of people remain in demand.

Perceived skills groups with growing demand by 2025, by share of companies surveyed

A. Relative importance of different skill groups
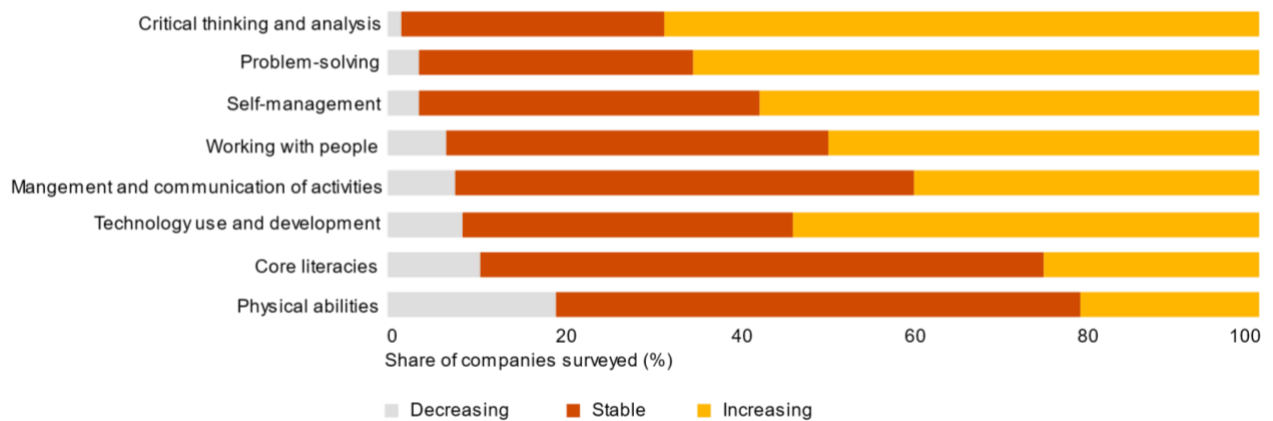
Source: World Economic Forum The Future of Jobs Report 2020

At the same time, many skills are becoming obsolete. Machines perform a growing number of jobs more efficiently, including administrative, clerical, and data processing roles, and some manual labor.[31]

Education, life-long learning and "up-skilling" are essential to fill in-demand jobs, while providing workers with the ability to secure their futures.

New skills, new modes of learning: meeting the education challenge

Accessible, market-relevant education and training are needed to decrease disparities caused by rising tuitions, crippling student debt and mismatches between curriculum and skills demands. Pre-pandemic, some universities and colleges were already confronted with declining enrollments due to demographic shifts, a mental health crisis on campus, challenges to immigration policies and international students, and impacts from the ADAPT challenges. For higher education, freshman enrollment for 2020 decreased 13% overall from a 2018-2019 baseline, with Black, Hispanic and

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[29] Schwab, K. & Zahidi, S. (Oct. 20, 2020), *The Future of Jobs Report 2020*, p.31. Available at https://www.weforum.org/reports/the-future-of-jobs-report-2020

[30] *The Future of Jobs Report 2020*, p.30.

[31] *The Future of Jobs Report 2020*, pp.9-10, 28.

Native American freshman enrollment down by nearly 30% at community colleges, versus 20% for White and Asian Americans.[32] These declines, along with state funding cutbacks have resulted in falling higher education budgets and employment.

At the same time, online tuitions are dropping, and AI-based teaching assistants and chatbots provide online student services at scale. With campus shutdowns and the move to remote learning at in-person institutions, students face barriers to engagement—lack of interaction, reliable internet, a dedicated workspace or adequate technology. External commitments, such as work, family obligations and childcare, have also made it increasingly difficult to complete academic work. For example, a study of the Virginia Community College System found that the rapid shift to virtual instruction resulted in a 6.7% decrease in course completion.[33] Students also lose opportunities to build deeper relationships, create networks, and benefit from the personal and educational growth that peer cohort and face-to-face interactions with faculty can provide. On the other hand, students gain flexibility in living arrangements and work options with increased, less expensive, and better-quality online options. These realities raise questions about how to improve online learning, while, at the same time, the value proposition of traditional higher education models faces growing skepticism.

The burdens of student debt are also causing students to question the value of a traditional education. Less than 11% of people with federal student debt—about 4.6 million out of 42 million—are repaying their loans during the pandemic.[34] The contrast is striking: twice as many low- and moderate-income households[35] are behind on their payments during the pandemic, as compared to high- and middle-income households. In the immediate future, debt-ridden seniors can also face a challenging job market after graduation.

At the same time, businesses may be struggling with a shortage of skilled talent: 74% of CEOs surveyed around the globe were concerned about the availability of key skills.[36] Around the world, companies rated skills gaps in local labor markets as the top barrier to adopting new technologies, followed by the inability to attract specialized talent.[37] Businesses and governments need skills like analytical thinking, active learning and complex problem-solving,[38] and jobs are growing in new technology specializations, including AI and machine learning, data analysis, big data, and the Internet of things.[39] A recently published report by the National Security Commission on Artificial Intelligence calls for urgent investment in AI talent as a US national security and economic imperative. While China's university system increased the number of STEM graduates by 360% between 2000-2014, the US university system saw only a 54% increase over the same time period.[40] To gain these priority skills and jobs in growth areas, students and employees are increasingly turning to new modes of learning. The combination creates opportunities for both sectors—business, education, and government—to rethink how they train the workforce for the future.

Significant change is already underway. Enrollment in short-term credential classes has increased 70%, compared to the prior year.[41] Competency-based and requiring less time and tuition than a conventional degree, these courses aim to match skills to evolving hiring needs. Credentials can also "stack" over time to earn degrees.

[32] Amour, M.S. (2020). *Enrollment still down.* Inside Higher Ed. Available at https://www.insidehighered.com/news/2020/11/12/enrollment-declines-continue-national-student-clearinghouse-finds

[33] Amour, M.S. (2020). *Course completion rates fell during remote switch.* Inside Higher Ed. Available at: https://www.insidehighered.com/quicktakes/2020/09/25/course-completion-rates-fell-during-remote-switch

[34] Nova, A. (2020). *Less than 11% of people with federal student debt are repaying their loans during COVID.* CNBC. Available at https://www.cnbc.com/2020/10/07/less-than-11percent-of-people-with-federal-student-loans-are-paying-during-covid-19-.html

[35] Jabbari, J., Kondratjeva, O., Despard, M., and Grinstein-Weiss, M. (Aug. 5, 2020). *Low-income households falling further behind on student debt due to COVID-19.* Brookings Institution. Available at: https://www.brookings.edu/blog/up-front/2020/08/05/low-income-households-falling-further-behind-on-student-debt-due-to-covid-19/

[36] PwC. *Talent trends 2020: Upskilling: Building confidence in an uncertain world.* Available at https://www.pwc.com/talenttrends

The Future of Jobs Report 2020, p.35.

[38] *The Future of Jobs Report 2020*, p.36.

[39] *The Future of Jobs Report 2020*, p.30.

[40] The National Security Commission on Artificial Intelligence. (2021). *Final Report,* p. 171. NSCAI. Available at: https://www.nscai.gov/

[41] Belkin, D. (Nov. 12, 2020). *Is This the End of College As We Know It?* The Wall Street Journal. Available at https://www.wsj.com/articles/is-this-the-end-of-college-as-we-know-it-11605196909

This approach has the potential to be significantly more inclusive while broadening the talent pipeline. Recent research estimates that 71 million Americans have the right skills for higher-wage jobs, but are unable to enter those roles because they lack four-year degrees.[42] In the US, individuals without a college degree are disproportionately African-American and Hispanic.[43] These demographics are also more likely to experience job loss from automation because they are disproportionately concentrated in support roles.[44] Providing credentials courses online or on weekends and evenings can also broaden access to underrepresented students who are balancing family obligations, reskilling for a new career, or are veterans (please see the Washington University in St. Louis/Boeing case study for a program designed to create access for these groups).

A necessary corollary to short-term, stackable credentials is hiring practices that recognize the benefits of looking beyond degrees. A recent Business Roundtable initiative shifts companies' hiring and talent management focus to skills, rather than just degrees, while also improving diversity, equity, inclusion and workplace culture.[45] More than 80 of America's largest companies have signed on. These shifts toward a greater focus on skills also connect with emerging enterprise technology that supports a "talent cloud" of individuals with verified skills–a kind of individual skills "passport" to facilitate matching people with opportunities and allow people to move within and between companies more easily.

Looking beyond competencies, high-quality work-based learning experiences, including apprenticeships, accelerator cohorts, internships and mentoring, provide students greater access to job-ready skills and professional visibility. These opportunities help facilitate supportive relationships with experienced professionals, increased social capital and hands-on learning—catalysts for success and equity.

Updating skills is equally critical for workers already in the workforce. The World Economic Forum reports that 94% of global business leaders surveyed expect employees to gain new skills on the job (up significantly from 65% in 2018).[46] The case for upskilling is compelling:

- Recent research from PwC shows that upskilling can create an extra 10–15% benefit to large-scale transformation initiatives and reduce individual workloads by up to 40%.[47]

- 93% of CEOs who created upskilling programs said they increased productivity.[48]

- Companies with the most advanced upskilling programs saw more than three times the improvement in innovation and accelerated digital transformation, as compared to those starting the journey.[49]

- Upskilling also helps recruitment and retention: PwC has found a 5% improvement in overall workforce retention due to upskilling,[50] and 77% of 22,000 employees surveyed globally said they would be willing to upskill in order to become more employable.[51]

A recent joint study by PwC and the World Economic Forum charted a virtuous cycle based on upskilling, with benefits from closing the skills gap and a more highly skilled workforce with a greater sense of agency, to increased worker engagement and better, more inclusive training.[52]

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[42] Gallagher, S., and Palmer, J. (2020). *The pandemic pushed universities online. The change was long overdue.* Harvard Business Review. Available at https://hbr.org/2020/09/the-pandemic-pushed-universities-online-the-change-was-long-overdue

[43] Fitzgerald, B.K. and Thornton, J. (July 2020). Skills-based hiring: Opportunity or illusion? *After the Pandemic: Reimagining the Future of Education and Work*, Vol. III. A Bookazine Education by Diplomatic Courier.

[44] *Addressing the Nation's Upskilling Imperative*.

[45] *Business Roundtable Launches Initiative to Place Greater Emphasis on Skills in Hiring and Advancement, Improve Equity and Diversity in Employment* (Dec. 4, 2020). Available at https://www.businessroundtable.org/business-roundtable-launches-initiative-to-place-greater-emphasis-on-skills-in-hiring-and-advancement-improve-equity-and-diversity-in-employment

[46] *The Future of Jobs Report 2020*, p.36.

[47] *Upskilling for Shared Prosperity*, p.32.

[48] PwC, *23rd Annual Global CEO Survey: Navigating the rising tide of uncertainty* (2020). Available at https://www.pwc.com/gx/en/ceo-agenda/ceosurvey/2020.html

[49] PwC. *Talent trends 2020.*

[50] *Upskilling for Shared Prosperity*, p.32.

[51] PwC. *Talent trends 2020.*

[52] *Upskilling for Shared Prosperity*, p. 27.

Closing the skills gap across regions and industies

Higher skilled workforce better suited for a knowledge economy

Employees have an increased **sense of agency and well-being**

Workers have a better understanding of their **worker rights**, increased participation in **collective bargaining** and wider political activities

Good work

Increased productivity

Upskilling activities

Positive workforce engagement with increased willingess to learn and self-develop

Better and more inclusive employer training opportunities for a stable workforce

Stronger collaboration between actors to foster continuous improvement and new approaches of training

Creation of new training to support the development of new sectors

Source: PwC analysis

Despite the benefits of upskilling, many employers and employees remain hesitant to invest in these opportunities. While 75% of Chief Human Resources Officers (CHROs) surveyed by PwC plan to increase employee support through upskilling, only 39% of CFOs said the same,[53] suggesting competing C-suite priorities. Employees have expressed concern, with only one in three responding that their employer has provided the opportunity to develop the digital and transferable skills they need.[54] On the other hand, employee engagement also appears to be lagging: only 42% of employees engaged in employer-supported reskilling and upskilling courses.[55] This raises the question how to effectively increase engagement and whether employees believe their employers value retraining efforts. Ultimately, how can the design of these initiatives create a greater ROI for employees and businesses? BHEF has identified several critical design attributes for employers:[56]

- Defining the digital skills needed across functions

- Developing customized upskilling agendas

- Developing and implementing ROI measures for upskilling that capture employee diversity, growth, retention and promotion

- Creating a flexible, supportive and inclusive culture of continuous learning

- Recognizing and endorsing new digital learning pathways and leading-edge credentials for working adults

These criteria support learning plus rapid conversion of classroom knowledge to applied skills, creating benefits for employers while building the value and relevance of employees' "human capital." By investing in programs that match training to skills needs and by signaling to employees that upskilling efforts will be rewarded, employers can realize the benefits of a digitally fit workforce.

Our case studies include several ways that businesses and educators are collaborating to create these outcomes. With technology disrupting traditional methods for teaching, learning and skill building—as well as higher education itself—educators and business leaders have opportunities to reimagine not only how to educate the workforce to use technology, but also how to use technology to educate, as highlighted by some of the case studies in this paper.

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[53] PwC. *CHRO insights: Latest findings from PwC's Pulse Survey*. Available at https://www.pwc.com/us/en/library/chro.html

[54] PwC. *Talent trends 2020.*

The Future of Jobs Report 2020, p.35.

[56] *Addressing the Nation's Upskilling Imperative*.

Transforming the workforce with purpose: Diversity, equity, inclusion, trust and transparency

Closing the digital talent gap and addressing disparities are essential to a sustainable and inclusive economy. By leading with purpose, business leaders and educators have an exciting opportunity to transform the workforce and help create a better future—a future grounded in the lessons learned from the hardship, inequities and urgency the pandemic has created. Currently our most trusted institution, businesses have a responsibility, a platform and economic incentives to create meaningful, innovative change.

Key components for building trust are transparency and measurable results. ESG—environmental, social and governance issues, including human capital accounting—provide opportunities for companies to demonstrate that they are values-driven. In addition to addressing regulatory shifts and higher stakeholder demand for these metrics, companies can realize significant benefits by quantifying the value of investing in, engaging and retaining talent. These tools can help make and refine the case for upskilling and diversity—in terms of ROI and also for society as a whole—while creating trust and transparency. For example, PwC's focus on creating a culture of belonging and upskilling (please see ProEdge, Digital Badges and While You Work case studies below for more detail) are among its ESG efforts to build long-term purpose-driven organizational strength.

Transparency is also important as companies implement and accelerate their diversity, equity and inclusion strategies. D&I was a growing priority for business leaders before the pandemic, but many have a new sense of urgency following the broad calls for racial justice in 2020 and the pandemic's glaringly disproportionate impact on Black and Latinx communities in the United States. The rapid growth of CEO Action for Diversity & Inclusion, which now includes over 1,600 CEOs and university presidents, exemplifies CEO-driven commitment to creating diverse, inclusive, equitable workplaces and transparency about their efforts (please see case study below for more detail). In a recent PwC survey of CHROs, 52% planned increased D&I training, and 71% planned changes to their human capital reporting, including around pay equity.[57] Significantly, a recent Edelman trust barometer found that "my employer" is the most trusted institution for responding to systemic racism.[58] The business community has an important opportunity to build on that trust and create success when people feel other institutions are failing them.

Case studies

Many companies and educational institutions are taking up the challenge to provide in-demand skills while addressing diversity, equity and inclusion. These varied approaches offer hope that through innovation and collaboration, businesses and educators can address the disparities that threaten the emergence of a sustainable post-pandemic economy. We hope this sample provides insight into the range of options and opportunities that are available for upskilling, reskilling and inclusion, while catalyzing continued innovation. In addition to training, many of the programs provide mentorships, new job pathways, and other key structures to encourage success. These investments by businesses and educators also help create important new talent pipelines for companies and regions in need of digitally skilled employees.

PwC ProEdge, Digital Badges and While You Work: New pathways for reskilling at scale

In our last joint paper, Reskilling—A solution for the digital skills gap, we shared PwC's digital reskilling strategy, grounded in citizen-led innovation. In addition to fast-track reskilling through a new Digital Accelerator role that is influencing broader

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[57] PwC. *CHRO insights.*

[58] Edelman Trust Barometer (2020). *Special Report: The Fight for Racial Justice In America.* Available at https://www.edelman.com/research/systemic-racism

adoption of automation, analytics and other tools, PwC created a "digital lab" that can be leveraged and scaled across the entire firm. This virtual "storefront" allows PwC's people to reimagine the way they work, providing efficiencies by sharing bots, automating workflows and helping drive innovation. A tailored Digital Fitness app enables all employees to customize their learning and continuously improve their digital acumen. Building on this foundation, PwC continues to innovate with additional upskilling tools and credentialing opportunities for its people.

ProEdge: Personalized upskilling at scale—a global upskilling platform

PwC turned its Digital Fitness Assessment (DFA) into an external app for clients. Initially, PwC worked with content providers to provide DFA for free to select universities and public schools. Once the global pandemic hit, PwC made the DFA app freely available to all.

PwC most recently created ProEdge, an end-to-end digital workforce transformation platform designed to help clients close skills gaps from within to avoid disruption and stay competitive. The platform's customized, adaptive curriculum and credentials are mapped to future roles and tailored to individual learning goals. ProEdge allows business leaders to dig into industry and company data insights, create learning plans aligned with organizational goals, and develop the talent they need for the future. The benefits to learners are equally valuable: teaching skills employees need for success, helping them stay relevant as skill requirements change, and providing industry-recognized, function-specific credentials to build their portfolios. ProEdge helps enable organizations and their employees to work together to innovate at scale and deliver sustainable change.

For more information, please see PwC's website.

Digital Badge Program: Portable, transparent, verified skills

Digital badges are part of an expanding ecosystem of recognized acumen issued by forward-thinking organizations around the world. They act as visible, shareable records of new knowledge and skills, and complement degrees, certifications, licenses and professional experience to reflect the unique value an individual could bring to a team or project. PwC's badge program removes limits on where, when, what and how its workforce learns. The badges enable employees to gain and showcase new, in-demand skills and increase talent mobility.

As skills continue to emerge and evolve faster than ever before, digital badges represent PwC's commitment to transforming how its people learn and work and PwC's ability to guide clients as they tackle their most important business challenges. Badges also represent a differentiated approach to learning and come at no cost to the badge earner—these learning distinctions do not add to education costs. Secured by a third party for authenticity, digital badges contain extensive data on acquired skills. Current badges include digital acumen, human-centered design, and artificial intelligence, but the program is designed to adapt regularly to changing technology and business needs around the globe.

Badges are aligned with business strategy and employees' personal interests and have led to over 116,000 badges issued globally to date.

For more information, please see PwC's Digital badge program.

While You Work Program: A new pathway for earning a degree

While business and society both benefit from diversity, equity and inclusion, racially and ethnically diverse groups are traditionally underrepresented within the accounting industry. PwC is committed to building a culture of belonging and accelerating its work on diversity, equity and inclusion. The organization's first Diversity & Inclusion Transparency Report, released in 2020, uses the same data-led, analytical approach the organization applies to solve other complex business

problems.[59] The report provides a baseline for measuring progress, pinpoints areas for improvement, establishes an entry point for difficult conversations and facilitates employees' ability to hold the firm accountable on D&I.

The 150-credit hour requirement to become a CPA, which can delay entry into the workforce and further burden students with debt, may dissuade racially/ethnically diverse candidates from pursuing the accounting profession. Through an innovative new learning pathway, PwC is aiming to disrupt the traditional higher educational model and open the doors to new talent. This summer, PwC will welcome Black and Latinx bachelors graduates to participate in a fellowship program— "While You Work." In collaboration with Northeastern University, PwC's teams designed and developed an immersive experience that deeply integrates learning and working. The year-long fellowship will uniquely combine PwC client work with Northeastern course work. The end goal: a MS in Management from Northeastern University and a fulltime job offer with PwC, all without any additional school debt or putting off entry to the workforce.

For more information, please see PwC's While You Work program.

Miami Dade College and NextEra Energy: Stackable credentials in data science and analytics

To meet the growing demand for data science and analytics professionals in its regional job market, Miami Dade College (MDC) collaborated with BHEF, NextEra Energy and other local and national companies to launch a suite of industry-recognized stackable credentials, including Florida's only four-year bachelor's degree in data analytics. At MDC, racially/ethnically diverse students represent about 90% of the population and 78% work while attending college, creating an opportunity to expand and diversify the talent pipeline for industry growth. To design the program, an industry focus group helped map the requisite knowledge and skills for data analysts. Next, MDC constructed a new curriculum for the credentials (a certificate, associate's, and bachelor's degree).

Beyond the credentials, professionals from NextEra Energy co-developed active learning courses and provided students extensive opportunities, including an energy sector specialization and a direct pathway to jobs. Additional industry leaders have co-hosted roundtables with BHEF, developed faculty capacity for future programs, and provided case studies, speakers, and mentors. To date, a total of 319 underrepresented students and 126 female students have enrolled to earn data analytics stackable credentials at MDC.

For more information, please see the BHEF publications Building Bridges to Success and Creating Purposeful Partnerships.

Washington University in St. Louis and The Boeing Company: An engineering pathway for underrepresented students

In the St. Louis region, engineers are in high demand, but many individuals from the area lacked a clear pathway for entering the profession. The Joint Engineering Leadership Development Program (JELDP) seeks to close this gap by preparing students for engineering careers. The program includes coursework, mentoring, an internship program and student makerspace. Lower-division classes are taken at the University of Missouri-St. Louis or a local community college, such as St. Louis Community College, and upper-division engineering courses are offered in the evenings and on Saturdays at Washington University in St. Louis. By design, the program supports educational and economic equity for underrepresented students who start in the community college system, have significant family obligations, are changing careers or are veterans.

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[59] PwC. *Building on a culture of belonging: 2020 PwC Diversity & Inclusion Transparency Report*. Available at https://www.pwc.com/us/en/about-us/diversity/assets/diversity-inclusion-transparency-report.pdf

Boeing's contributions include co-developing curriculum and providing internships, mentorships, scholarships, and adjunct faculty. In return, Boeing gains an important source of diverse, skilled talent. The collaboration has also benefited other St. Louis companies and attracted new firms to the region, while helping students lay the groundwork for a successful career. JELDP demonstrates how a major research university can work with a leading global company and regional academic institutions to develop engineering talent from a diverse, highly disadvantaged community.

For more information, please see the BHEF publications Building Bridges to Success, Creating Purposeful Partnerships, and Developing a Diverse Regional Engineering Talent Ecosystem.

IBM digital credentials and P-Tech:
A Holistic credentialing framework

IBM credentials are encapsulated in a portable, digital object that includes information about the requirements to earn the credential, when it was earned, and the outcomes achieved. Following implementation of its digital credentialing strategy, IBM's training and education programs have received a substantial boost: learner engagement is up significantly, digital course completion rates have increased exponentially, and skills coverage insights have improved dramatically. IBM credits the extension of digital credentials across the complete learning journey. While high stakes credentials, such as formal certifications, may be the end goal, IBM recognizes the value of credentials that reflect skill progression milestones and expertise obtained incrementally.

Providing a holistic and verifiable digital record of learners' educational activities improves visibility into talent development pathways and trends. As the global pandemic escalated and shelter-at-home mandates grew, the consumption of IBM credentialed learning activities rose almost proportionally, indicating that a thoughtful and well-managed digital credential program can motivate individuals to take ownership of their skill development and grow professionally—even during times of adversity.

Additionally, IBM's Pathways in Technology Early College High Schools (P–TECH) provides high school students from underserved backgrounds with the academic, technical, and professional skills and credentials they need for competitive STEM jobs. Each P-TECH school works with a high school, community college, and an industry sponsor to provide students with a paid internship while earning both a high school diploma and a two-year associate degree in a competitive STEM Field. The program combines rigorous coursework with mentoring and worksite visits. P-TECH schools are no cost to students and their families, and have no testing or grade requirements for admission. Free, digital learning is also available through Open P-TECH, which introduces students and educators to emerging technologies and new ways of working, such as agile and design thinking.

For more information, please see IBM's digital credential case study and IBM's P-Tech website.

CEO Action for Diversity & Inclusion™:
Aiming for large-scale equity

The CEO Action for Diversity & Inclusion™ provides an evolving forum where companies can learn from each other and create change at scale. Instead of pulling back from diversity, equity and inclusion efforts as they faced the challenges of the pandemic, CEOs increased engagement. Founded in 2017, the coalition now has nearly 2,000 signatories from more than 85 industries, including a 40% increase after the murder of George Floyd.[60] CEO Action is grounded in the belief that collaboration and collective action—rather than competition—by the business community is crucial for D&I progress. Signatories commit to tracking progress, and to four goals:

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[60] Gonzalez, F. (Feb. 4, 2021), *PwC's Tim Ryan on making meaningful change in the workplace*. American Way. Available at https://www.americanway.com/articles/pwcs-tim-ryan-on-making-meaningful-change-in-the-workplace/

- Continue to make workplaces trusting places to have complex, and sometimes difficult, conversations about diversity, equity and inclusion.

- Implement and expand unconscious bias education.

- Share leading—and unsuccessful—practices, so that companies can learn from each other.

- Create and share strategic D&I plans with boards of directors.

CEO Action's transparent, cooperative approach provides an excellent forum for business leaders to share lessons learned from internal upskilling efforts and collaborations and how to better to design these initiatives to help accelerate progress on D&I.

For more information, please visit CEO Action for Diversity & Inclusion.

Making Milwaukee a Region of Choice: Pledging D&I among employers and upskilling through partnerships

After identifying racial disparities as the biggest challenge to the region, the Metropolitan Milwaukee Association of Commerce (MMAC) launched the Making Milwaukee a Region of Choice for Diverse Talent Call to Action in 2019. That year, an initial group of 64 employers representing 128,000 Metro Milwaukee employees pledged to diversify their employment and management, and to share best practices to make workplaces more inclusive.

With the onset of the pandemic, Milwaukee's economy was devastated. Business leaders recognized that efforts to attract diverse talent to the region had struggled and that to thrive, Milwaukee needed opportunities for current residents. Building on Making Milwaukee a Region of Choice, 110 Milwaukee-area companies representing 140,000+ employees pledged to increase their employment of Black and Hispanic workers by 15% and managers by 25% by 2025. MMAC will report aggregate data annually to track progress. The pledge is open to MMAC member companies and beyond.

These efforts are bolstered by several other initiatives, including collaborative relationships with regional schools at every level. For example, the Higher Education Regional Alliance (HERA), chaired by Mark Mone, the Chancellor of University of Wisconsin-Milwaukee, represents more than 150,000 students at 18 public and private two- and four-year colleges and universities, 11 community-based organizations, and an industry forum engaging over 50 firms. HERA aims to bridge equity gaps and connect business and talent needs. From 2019-2020, first-to-second year retention of Asian, Black and Hispanic HERA students increased two percent, and businesses are benefiting from the availability of short-term micro-credentials in high-demand areas, including healthcare and STEM. HERA is also providing virtual internships and platforms for students to transfer between institutions and to connect college graduates with employers.

UWM also launched TechEd Frontiers, a proprietary on-demand, self-paced, on-line upskilling platform that provides high quality, affordable and market-informed pathways to high-demand jobs. TechEd Frontiers allows learners to earn badges that can be awarded credit and are stackable toward credentials and degrees. The platform leverages the expertise and research of UWM faculty and industry partners, while advised by an industry advisory board (which includes BHEF) that provides market perspectives on curricula and employment needs. The initial pathways launched in April 2021 are Data Analytics, Data Visualization, and Cybersecurity Analyst I pathways.

For more information, please visit MMAC, HERA and TechEd Frontiers.

Walmart's Center on Racial Equity: A culture, diversity and inclusion strategy

With a workforce of 1.5 million people in the US and 20.69% Black and African-American associates, Walmart has recognized the importance of modeling and striving for racial equity.[61] In June 2020, Walmart and the Walmart Foundation committed $100 million over the next five years to the Center on Racial Equity. The Center will focus on research, advocacy, and innovation to support Black communities and philanthropic leaders addressing systemic racism. Efforts will address four key areas:[62]

- **Finance:** Identifying minority supplier and marketplace seller development.

- **Healthcare:** Increasing Walmart Health Clinics to increase health and wellness access.

- **Education:** Driving change through efforts such as Live Better U by providing associates free student coaching and college credit for Walmart training, career pathways for graduates, and recruitment programs with Historically Black Colleges and Universities.

- **Criminal justice:** Evolving recruitment practices to confirm appropriate consideration of non-violent, formerly incarcerated applicants.

For more information, please see Walmart's Culture, Diversity & Inclusion report.

ECMC's Connecticut Digital Credential Ecosystem Initiative: Developing new digital career pathways for under and unemployed adults

In October 2020, the ECMC Foundation, a nationally focused foundation whose mission is to inspire and facilitate improvements in educational outcomes, awarded a grant to create the Connecticut Digital Credential Ecosystem Initiative. Led by BHEF, this network of companies, community colleges, government agencies and other stakeholders will develop new pathways to digital careers, particularly for individuals unemployed due to COVID-19.

As part of this pilot initiative, BHEF is collaborating with the New England Board of Higher Education to help community colleges issue industry-validated credentials that support educational and career pathways across Connecticut. Participating employers will approve the knowledge, skills and abilities for these credentials by supporting faculty in curriculum design and building experiential learning opportunities and recruitment support for students who complete the credential. The credentials will be issued through community colleges.

For more information, please see BHEF's press release.

Silicon Valley Leadership Group: Shaping the innovation economy

Founded in 1978 by David Packard of Hewlett-Packard, the Silicon Valley Leadership Group is a 40-year-old business organization of hundreds of Silicon Valley's most dynamic companies working to shape the innovation economy of California and the nation. The Leadership Group works to address issues that affect the region's economic health and quality of life and advances proactive solutions in areas such as education, equity, and technology and innovation. Among its many programs and campaigns are:

- Bridging the Gap Digital Divide: Addresses the gap between those with access to computers and the internet, and those who do not, particularly during COVID-19.

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[61] Walmart (2021). *Culture, Diversity and Inclusion Report.* Available at https://corporate.walmart.com/media-library/document/culture-diversity-and-inclusion-mid-year-report/_proxyDocument?id=00000174-735e-d28a-a7ff-f7df22a40000

[62] *Making a Difference in Racial Equity Walmart CEO Doug McMillion's Full Remarks* (2020). Available at https://corporate.walmart.com/equity

- <u>Celebration of Women Leaders</u>: Engages women–and men–in conversations and allyship to elevate women and girls into positions of leadership and influence.

- <u>Community College to Career</u>: Actively brings together industry and education on work-based learning opportunities to expand economic opportunity and increase diversity in the STEM workforce.

For more information, please visit the <u>Silicon Valley Leadership Group website</u>.

One Columbus: Increasing the skilled talent pool

One Columbus is the economic development organization for the 11-county Columbus Region. In collaboration with local and state entities, One Columbus serves as the business location resource to help companies across Central Ohio and around the world compete in the global economy.

As part of its workforce strategy, One Columbus connects companies seeking to expand existing operations or introduce new operations to the region with the right talent. Recognizing the challenges of finding, hiring and training a qualified workforce, One Columbus and JobsOhio help organizations navigate the professional workforce sponsors in the region and invest in key strategies to increase the skilled talent pool. Among its services, the One Columbus team offers:

- Consultation on talent needs and concerns

- Connections to private, public, state and nonprofit resources

- Workforce screening, training and recruitment resources

For more information, please visit the <u>One Columbus website</u>.

Recommendations

The ADAPT trends—amplified by the global pandemic—make for challenging times. Disruption and disparities are everywhere, but so are opportunities for innovation and improvement. In business and education, we have an opportunity to rethink and reset to create a sustainable future. That future should include pathways to the workforce that are accessible to all and that remain so, even as technology forces rapid adaptation.

To that end, we offer recommendations for how the business and higher education communities can collaboratively build an adaptive, inclusive and sustainable workforce for the 21st century innovation economy:

- **New pathways:** Collaborations between businesses and educational institutions can create pathways and programs that diversify and grow the talent pool. Examples include:
  – Washington University in St. Louis and Boeing's Joint Engineering Leadership Development Program
  – PwC and Northeastern University's While You Work program
  – University of Wisconsin-Milwaukee's HERA program

- **Stackable credentials:** Increasing flexibility in when and how students earn credentials helps create new opportunities for students and businesses seeking new hires, particularly when businesses and higher education institutions work together to design curriculum to meet skills needs. Examples include:
  – Miami Dade College and NextEra Energy
  – PwC and Northeastern University's While You Work program
  – University of Wisconsin-Milwaukee's TechEd Frontiers
  – ECMC-BHEF Connecticut Digital Credential Ecosystem

- **Skills focus and recognition:** By focusing on skills or competencies—rather than degrees or prior work experience—needed for the job, employers broaden their applicant pool. For example, veterans may have acquired significant skills acquired during their service that may not be recognized. A skills focus also enables applicants to enter the job pool more quickly after acquiring specific competencies or micro-credentials without the obstacle of a lengthy degree program. Employers avoid immediate retraining due to a skills-credentials mismatch among new hires. Additionally, by recognizing and rewarding employees who acquire new skills, employers can demonstrate their commitment to upskilling and increase employee engagement. Providing clear pathways for advancement, allowing education during the workday, covering costs, creating transparent, transferable credentials, and recognizing and showcasing learning all signal that employers value employee upskilling efforts. Examples include:

  – PwC's ProEdge

  – PwC's digital badges

  – IBM's digital credentials

  – UWM's TechEd Frontiers

  – ECMC's Connecticut Digital Credential Ecosystem Initiative

- **Recruiting:** Removing barriers that may not be essential to a position – e.g., degree requirements, criminal record – or biases in the hiring process, such as sourcing or screening algorithms that can disproportionately impact underrepresented populations. Seeking collaborations with minority-serving institutions (Historically Black College and Universities and Hispanic Serving Institutions) and community and technical colleges to help build a more diverse recruiting pipeline and provide advice on programs and credentials. Examples include:

  – PwC

  – Walmart

- **Real-world learning:** Mentors, apprenticeships, internships and accelerator cohorts provide diverse graduates and new and experienced hires guidance and opportunities to learn on the job while networking and building relationships. Examples include:

  – PwC's While You Work and Digital Accelerator programs

  – Miami Dade College and NextEra Energy

  – Washington University in St. Louis and Boeing's Joint Engineering Leadership Development Program

- **Making the case and measuring the benefits:** Speaking up about the compelling benefits of upskilling and D&I for a sustainable economic future is important for both the business and education communities. By aligning D&I and upskilling with corporate purpose, tracking progress, and quantifying the value of human capital, companies can demonstrate the benefits to their stakeholder and to society more broadly. Examples include:

  – PwC's D&I Transparency Report

  – ESG and human capital accounting

  – Making Milwaukee a Region of Choice

- **Sharing practices and learnings:** Joining forums like CEO Action for Diversity and Inclusion™, BHEF, the Business Roundtable, the Silicon Valley Leadership Group, and One Columbus, among other organizations, will help business leaders and educators accelerate D&I and upskilling initiatives.

- Use BHEF's 8-step Partnership Implementation Process[63] for business-higher education collaboration to prepare graduates for diverse and inclusive workplaces and teams and create new digital upskilling solutions rapidly and at scale. This includes engaging companies through multiple touch points, such as high-impact practices, to prepare students with increased awareness and behavioral skills that will foster diversity and inclusion, and careful coordination to ensure that educators can map course work to the skills businesses seek.

- Increase transparency around digital skills, credentials and pathways to empower learners to advance in their careers.

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[63] Business-Higher Education Forum. (2019). *Creating Purposeful Partnerships: Business and Higher Education Working Together to Build Regional Talent Ecosystems for the Digital Economy*. Available at: https://www.bhef.com/sites/default/files/BHEF_2018_CEO_playbook_0.pdf

Call to action

Now more than ever, we call on leaders in business and higher education to work together to equip employees and students with Digital Age skills, focus on diversity, equity and inclusion, and create new pathways and tools for lifelong learning. These are intersecting priorities, and each is essential for the future workforce. We have shared case studies and recommendations to consider as you embark on this work and hope you will select relevant recommendations to implement at your own organization. We all share a responsibility to reskill our workforce for the future, an investment that will help secure the future of individual employees, our businesses–and our society. We hope you will commit to joining us in building an adaptive, inclusive and sustainable workforce for the 21st century innovation economy.

About the authors

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Michael J. Fenlon leads the people strategy and organization for PwC US, part of a network with over 280,000 people in 155 countries. He is an experienced global leader in strategy, leadership development, learning, innovation, culture, and performance. Fast Company magazine recognized Mike as one of the 100 most creative business leaders in the world in 2016. Mike is passionate about diversity and creating an inclusive workplace and believes this is a key to innovation and competitiveness in the 21st century. Mike founded "Aspire to Lead: PwC's Series on Leadership and Gender Equality," a global, university based forum (www.pwc.com/aspire), and co-sponsors PwC's HeForShe global impact partnership with the United Nations.

Mike was a faculty member of the Columbia Business School executive education team ranked #1 in the world by The Financial Times. As Associate Dean at Columbia Business School, he led EMBA programs and partnerships with London Business School and UC-Berkeley, and taught a popular course on Executive Leadership. He directed The Fundamentals of Management: Highlights of the MBA, and the Columbia Senior Executive Program. He consulted in the non-profit and government sectors and served in Executive Programs at the Kennedy School at Harvard University.

Publications include articles on leadership, people strategy and innovation. He has been featured in The Financial Times, Harvard Business Review, HR Magazine, The Wall Street Journal, Wharton Business Radio, Fox Television Business News, Big Think, and many other outlets. Mike resides in New York, where he and his wife, Dana, are raising four children and a yellow lab. He is a runner and is active in his community. He was educated at Columbia University where he received three master's degrees and a Ph.D.

Dr. Brian K. Fitzgerald
Chief Executive Officer, BHEF

Dr. Brian K. Fitzgerald, an internationally recognized leader in creating innovative talent solutions, has served as the Business-Higher Education Forum's (BHEF) chief executive officer since 2005. Under Dr. Fitzgerald's leadership, BHEF developed and implemented a long-term strategic plan, through which BHEF has formed dozens of successful partnerships between the nation's leading business and academic institutions to create new talent development solutions in high-demand emerging fields and utilized insights from case studies and cutting-edge market intelligence to influence thought-leaders and policy makers. Dr. Fitzgerald is an internationally recognized expert on the future of the American workforce, and his work has been widely published in domestic and international publications. He regularly presents the organization's latest market intelligence and insights to business and academic audiences and provides them with recommendations for successfully implementing BHEF's talent models.

Dr. Fitzgerald has served on a number of commissions and working groups during his tenure as CEO, most notably, he played a major role in the STEM working group under President Obama for the President's Council of Advisors on Science and Technology, which produced the widely cited 2012 report Engage to Excel, and the National Academies of Science study group of undergraduate computer science enrollment. Dr. Fitzgerald currently serves as a member of the Bipartisan Policy Center Higher Education Task Force, which will advise Congress on the reauthorization of the Higher Education Act.

Dr. Fitzgerald earned his master's and doctoral degrees from the Harvard Graduate School of Education, where he currently serves on the Dean's Leadership Council. Previously, he served as a member of the alumni council at Harvard for four years, acting as chairman for a year. He received his bachelor's degree from the Massachusetts College of Liberal Arts, where he was named a Distinguished Alumnus and awarded an honorary doctorate in public service. An avid sailor, Dr. Fitzgerald has sailed the Western Atlantic Ocean from Maine to Grenada and crewed on 11 Newport and MarionBermuda races, finishing 1st in class five times. He resides in Washington, DC, with his wife and three dogs.

Thank you!

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