November 2025

AI & WORKFORCE DEVELOPMENT

Building a Secure, Equitable Future for Tech Workers



TECH EQUITY

CONTENTS

Executive Summary	**3**
Our recommendations for the future	4
Introduction	**5**
How AI is impacting the tech job market	8
Tech Industry Commitments to AI Upskilling	**12**
Pledging resources to training initiatives	12
Online courses and bootcamps	13
The outlook for industry-led upskilling	14
Public Policy Approaches to AI and Labor	**16**
Federal level	16
State level	17
The outlook for public policy approaches	19
Labor Union-Led Efforts in Training and Worker Protection	**22**
Collective bargaining	23
Collaboration with colleges	24
Union and employer partnerships	25
The outlook for labor union-led efforts	26
Conclusion	**28**
Acknowledgements	30
Citations	**31**



EXECUTIVE SUMMARY

2025 saw a wave of press coverage and headlines warning of major shifts in our lives at work. Policymakers and working people are feeling uncertain about the future and are looking for appropriate policy responses. Previous cycles of labor disruption have shown that a sole focus on reskilling, retraining, and workforce development has been far from sufficient to address the impact of technology-induced shifts in the labor market.

Workforce training commitments alone are an insufficient response from tech companies and policymakers to the current and unfolding impact of emerging technology on workers.

Workforce development programs can be useful resources as jobs change, but they need to be paired with broader economic policies to ensure that tech's evolution benefits everyone. Unless we take seriously the question of the power differential between employers and workers, any benefits of AI technology breakthroughs will continue to accrue to the rich and powerful.

We share examples and lessons from three main approaches to workforce development: *tech industry commitments to AI upskilling; public policy approaches to AI and labor;* and *labor union-led efforts in training and worker protection.* These examples lead us to three significant conclusions regarding the AI-related workforce development initiatives that have been announced in the last three years.

- First, industry-led initiatives and, to a lesser extent, public policy initiatives, rarely design training programs based on what workers want and typically do not include mechanisms to integrate worker voice into program development.

- Second, absent the leverage of worker power through collectively bargained agreements or community benefits agreements, industry commitments are typically vague and highly opaque—both before programs are started and after they are completed. There is little data to be found on the outcomes of corporate training programs, whereas there are numerous studies that have produced robust evidence on publicly-funded programs.
- Third, programs to ensure that the skills of the labor force match the job market are only one small piece of the picture when policymakers are considering how to ensure that working people are protected as technology develops. Policymakers need to think expansively to develop a robust policy response to ensure that workers are protected from harm and that the benefits of technology are equitably distributed.

OUR RECOMMENDATIONS FOR THE FUTURE

1. Center workers in developing solutions.
2. Hold companies accountable for the funds they've committed to address AI education and training.
3. Think expansively about a robust policy response—everything from increasing worker power and the right to collective bargaining to expanding a durable and sustainable social safety net to addressing the use of fissuring and related labor arrangements, and more, needs to be on the table—rather than an overemphasis on AI skills training.



INTRODUCTION

The release of ChatGPT in 2022 sparked a frenzy in the technology sector. It kicked off a race to build and bring to market more powerful generative AI models, and companies in nearly every sector are eager to adopt them. Since then, companies across industries are aggressively pursuing use cases for AI within their workforces.[1]

In the early days of this AI hype cycle, employers frequently touted AI as a tool to augment, rather than replace, workers. But the narrative is changing. Many companies are eagerly adopting an "AI-first" model, boasting about efficiency gains and finding cost savings via layoffs.[2]

This year, 2025, has also seen a wave of headlines warning of major shifts in our lives at work, including a "white collar blood bath."[3] Tech company executives are openly talking about their desire for a future with more work for AI and less for humans. Anthropic CEO Dario Amodei set off a wave of press coverage this year when he speculated that AI would eliminate half of entry-level white-collar jobs in a mere one to five years.[4]

Despite these statements from CEOs and the resulting media narrative, researchers have not empirically identified widespread job losses due to AI at this stage, and there is no consensus on how widespread the adoption of AI is within firms. Recent research suggests that "the broader labor market has not experienced a discernible disruption since ChatGPT's release."[5] For example, the New York Fed summarized responses from its August 2025 regional business surveys stating: "businesses reported a notable increase in AI use over the past year, yet very few firms reported AI-induced layoffs. Indeed, for those already employed, our results indicate AI is more likely to result in retraining than job loss."[6]

Nonetheless, policymakers and working people are feeling uncertain about the future and are looking for appropriate policy responses. TechEquity's polling found that Californians are most concerned with AI's impact on reducing wages (55%) and replacing low-paying jobs (52%), while 59% of Californians think that AI will most likely benefit the wealthiest households and corporations, not working people and the middle class.[7]

WORKFORCE TRAINING COMMITMENTS ALONE ARE AN INSUFFICIENT RESPONSE FROM TECH COMPANIES AND POLICYMAKERS TO THE CURRENT AND UNFOLDING IMPACT OF EMERGING TECHNOLOGY ON WORKERS.

Although 80% of U.S tech leaders cited upskilling as the best way to improve employees' gaps in important tech skills,[8] previous cycles of labor disruption have shown that focusing on reskilling, retraining, and workforce development has been far from a sufficient solution to the broader crisis. While workforce development programs can be helpful—and even necessary when centered on the rights and needs of workers and guided by a labor market analysis that provides a clear pathway to quality and durable employment—ultimately, they need to be paired with broader economic policies to ensure the benefits and gains of new technology are more evenly distributed.

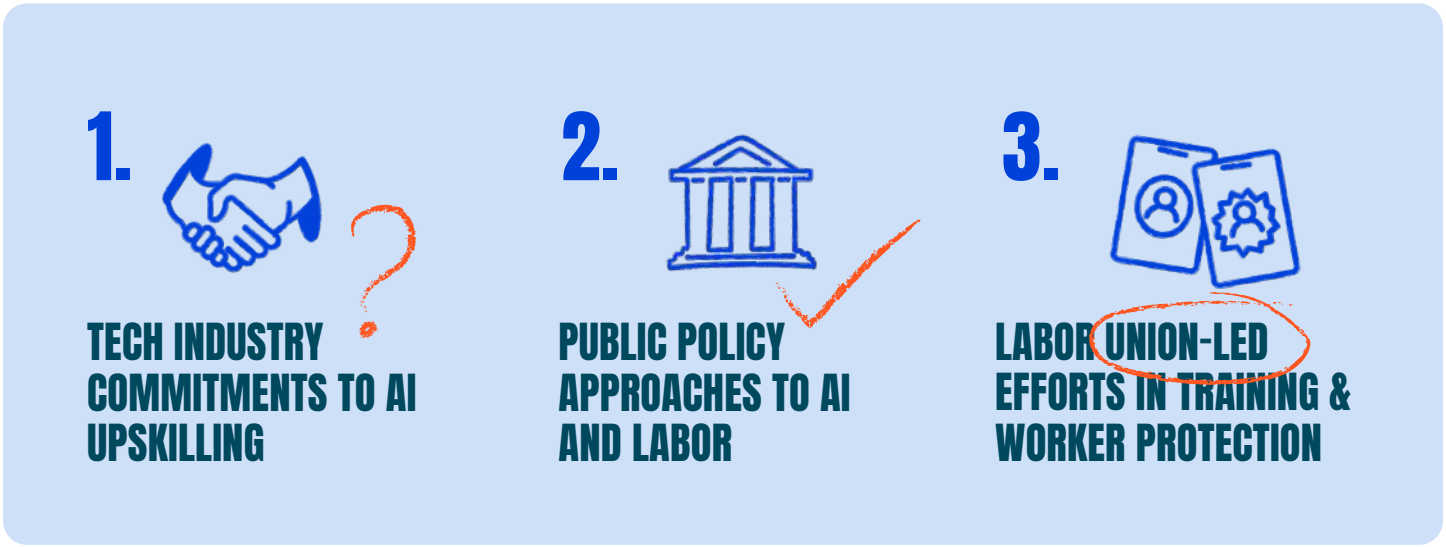
Workforce training commitments alone are an insufficient response from tech companies and policymakers to the current and unfolding impact of emerging technology on workers.

Previous TechEquity research focused on the tech industry's use of contract labor to erode labor conditions in the industry and on the power of worker voice to ensure that workplace technology enhances, rather than degrades, work. In this paper, we highlight potential lessons for approaching workforce development or reskilling against the backdrop of the current moment of AI hype and uncertainty.

We first explore how AI is impacting the tech job market and how the poor working conditions that are already widespread in the industry are bound to be exacerbated—and spread to other industries—by the introduction of AI tools and systems, particularly if workers and unions are not at the center of determining the technological future of work.

Next, we share examples and lessons from three main approaches to workforce development:

- **Tech industry commitments to AI upskilling:** This section focuses on private sector initiatives that are largely driven and funded by tech companies;
- **Public policy approaches to AI and labor:** This section focuses on publicly-funded programs as well as policy efforts to address skills training on the U.S. federal and state levels; and
- **Labor union-led efforts in training and worker protection:** This section focuses on a range of strategies employed by labor unions that center workers.



These examples lead us to three significant conclusions regarding the AI-related workforce development initiatives that have been announced in the last three years.

- First, industry-led initiatives and, to a lesser extent, public policy initiatives rarely design training programs based on what workers want and typically do not include mechanisms to integrate worker voice into program development.
- Second, industry commitments are vague and highly opaque—both before programs are started and after they are completed. There is little data to be found on the outcomes of corporate training programs, whereas there are numerous studies that have produced robust evidence on publicly-funded programs. The scale of disruption that tech companies themselves are saying is inevitable, together with the fact that tech companies are already driving deterioration in job quality, makes it imperative that companies be held accountable for the commitments they make.

- Third, programs to ensure that the skills of the labor force match the job market are only one small piece of the picture when policymakers are considering how to ensure that working people are protected as technology develops. Policymakers need to think expansively to develop a robust policy response to ensure that workers are protected from harm and that the benefits of tech are equitably distributed.

HOW AI IS IMPACTING THE TECH JOB MARKET

When determining how to respond to the future of work that AI executives envision, in which wide-ranging industries replace jobs with automated systems, it is useful to consider what tech workers are already facing. Instead of focusing only on AI-based tools, which are relatively new to the labor market, it is instructive to understand our current moment in the recent context of the labor impacts of digital technologies more broadly construed, such as algorithmic management tools, automated decision making systems, monitoring and surveillance tools, and related technology. Labor conditions within the tech industry itself carry lessons for the present and the future.

The tech industry increasingly embraces a labor model that includes precarious contract roles, cost-cutting through offshoring and automation, and laying off employees en masse. *It is important to note that many of these trends have been longstanding strategic preferences of tech CEOs that predate the current generative AI boom.* Some of the trends TechEquity identified in the tech labor market more broadly include:

- **Mass layoffs:** More than 150,000 tech employees lost their jobs to layoffs in 2024, according to Layoffs.fyi,[9] and more than 22,000 workers have lost their jobs in 2025 as of this writing, according to TechCrunch.[10] A broad range of factors contribute to layoffs, and it's also worth noting that "blaming AI shifts responsibility away from poor strategic planning and mismanagement."[11]
- **Contract work:** Layoffs are anecdotally connected to an increase in contract work, which has steadily been rising in the tech sector.[12] In the second half of 2025, 65% of tech leaders plan to increase their use of contractors, according to a report by a staffing firm.[13] Contract work is often characterized by a lack of security, lack of benefits, and low pay.

- **Global outsourcing and offshoring:** Researchers have identified the increasing use of "AI-enabled fissuring," in which employers restructure jobs so that work may be outsourced to vendors or platforms across the global AI supply chain, leaving workers without the social safety net that comes with good-quality employment.[14] As an article from *Futurism* described: "AI giants slash full-time jobs in the U.S., use AI-powered platforms like Mercor to turn those jobs into gig work, then punt those temporary jobs off to desperate workers across the developing world."[15]
- **Challenges with entry-level work:** Generative AI is complementing higher-level white collar jobs but stepping in as a substitute for low-level white collar jobs, according to researchers at Columbia Business School, Purdue University, Stanford Graduate School of Business, and the University of Chicago.[16] Some recent research finds evidence that entry-level employment declined in occupations that are most exposed to AI and in which AI tools are used to *automate* work rather than *augment* human workers.[17] However, other research indicates that these changes "may predate ChatGPT's release and may not be attributable to AI."[5] Anecdotal reporting indicates that people graduating with computer science degrees are finding themselves in a tough job market after years of being promised that coding skills would translate into stable, high-paying careers.[18]
- **Hiring freezes and smaller full-time, directly employed teams:** Some companies have reportedly instituted hiring freezes, and Indeed found that "tech [job] postings plunged through the end of 2023 and have edged lower since; on July 11, 2025, they stood 36% below their February 2020 level," likely attributable to a broad range of factors beyond AI.[19] In the past, hiring quickly was a hallmark of fast-growing tech companies. Today, there is a shift toward "tiny teams"[20] and "the biggest bragging rights for these start-ups are for making the most revenue with the fewest workers."[21] Start-ups, as well as established companies, want to do more work with fewer people. Some CEOs are loudly proclaiming their efforts to shrink their workforces on investor calls.[22] As the Wall Street Journal recently noted, "All of the shrinking turns on its head the usual cycle of hiring and firing. Companies often let go of workers in recessions, then staff up when the economy picks up. Yet the workforce cuts in recent years coincide with a surge in sales and profits, heralding a more fundamental shift in the way leaders evaluate their workforces."[23]

- **AI "agents":** AI agents are being touted by AI companies as the equivalents of junior workers.[24] Many companies claim to be using AI tools with "agentic" capabilities, but they haven't always lived up to expectations. Carnegie Mellon set up a fake company and staffed it with AI agents, which ended up failing most of their real-world assignments.[25] Some companies that plowed ahead with replacing humans with AI are reversing course. Fintech company Klarna started replacing its customer service workers with AI agents in 2024. In 2025, it is looking to repopulate those roles with people, albeit people working in gig roles rather than full-time jobs.[26] Despite this setback, the fintech company seems unlikely to reverse course completely on its AI enthusiasm.[27] AI agents' long-term impact on human workers is yet unknown.
- **Forcing employees to use AI:** A number of companies including Amazon,[28] Coinbase,[29] Electronic Arts,[30] Microsoft,[31] Google,[32] and Shopify[33] are reportedly pushing employees[34] to use AI tools in their workflows and in many cases monitoring employees' utilization of the technology,[35] even though workers have raised concerns about its effectiveness and efficiency,[30] as well as the broader social and environmental impact.[36]
- **Deteriorating working conditions generally, especially at startups:** A recent wave of press coverage focused on AI startups in California that are finding inspiration in a schedule referred to as "996," or 9 am to 9 pm, six days a week, which emerged in China.[37] Some say the weekend—one of the definitive achievements of the U.S. labor movement—is "disappearing"[38] in the "hardcore culture" of Silicon Valley.[39] In their current recruiting, "companies trying to win in the hypercompetitive AI arena are scouting for commitment bordering on fanaticism"—workers not only willing to labor for long hours, but in some cases actually live at the office.[40]
- **Increasing use of workplace monitoring and surveillance—also used to potentially discourage workplace organizing:** AI can also be used to exert more control over workers. Company leaders can use it to monitor employees and to automate decision-making around hiring and firing. Some states have introduced legislation to limit AI's application in those areas, but there is no unifying federal legislation that applies to AI and workers' rights.[41] AI as a surveillance tool has the potential to discourage and disrupt workers' efforts to organize and collectively bargain for rights regarding the use of AI.[41] With the shadow of AI-related layoffs hanging over many tech workers' heads, they can be made to feel disposable and without job

> security. "As a CEO myself, I can tell you, I'm extremely excited about it. I've laid off employees myself because of AI. AI doesn't go on strike. It doesn't ask for a pay raise. These things that you don't have to deal with as a CEO," AI implementation consultant Elijah Clark said in a 2025 Gizmodo article.[42]

It is within this context of rapid job quality deterioration and a clear desire from executives to exploit AI to gain leverage over workers that we must consider the set of proposals aiming to prepare the workforce for a shift to an AI labor market.

If these are the conditions within tech industry workplaces, we should be wary about ceding authority to the industry alone to retool the workforce, or relying too heavily on training programs at all. A more comprehensive solution set, including proposals that create accountability for those responsible for eroding the health of the labor market, must be on the table.



TECH INDUSTRY COMMITMENTS TO AI UPSKILLING

While comprehensive solutions will be needed, industry is a key stakeholder in the future of the tech workforce and will play a major role in shaping the workforce development landscape for the AI era. Tech companies are major employers that are at the same time developing the technology that is reshaping the labor market and, as such, have already begun designing workforce reskilling/upskilling programs. Employer-led upskilling can mean many different things, ranging from informal and unstructured to holistic, company-wide strategies.

Pledging resources to training initiatives

While making it clear that some jobs are ripe for replacement, several companies are pledging millions of dollars to programs designed to train workers and equip them with AI skills.

- Cisco is leading the AI-Enabled ICT Workforce Consortium.[43] Accenture, Eightfold, Google, IBM, Indeed, Intel, Microsoft, SAP, and Cornerstone are also part of this initiative. As members of the consortium, Google pledged $130 million for AI training around the world; Cisco plans to train 25 million people in cybersecurity and digital skills by 2032; and Intel aims to equip more than 30 million people with AI skills by 2030.
- In 2023, Amazon announced its "AI Ready" initiative, which pledged to provide two million people around the world with free AI skills training and education by 2025.[44] Amazon reportedly beat its goal a year ahead of schedule.[45]
- In 2023, IBM announced its intention to train two million people in AI by the end of 2026.[46] The company also launched the IBM SkillsBuild program in 2025, which offers free generative AI courses, faculty training, hands-on labs, and capstone projects.[47]

- In 2024, Google announced a $75 million AI Opportunity Fund, which is focused on workforce development for more than one million Americans.[48]
- Microsoft announced plans to train one million South Africans in AI, cyber, and digital technologies,[49] and also pledged $1 million to train one million Nigerians.[50] In Kenya, Microsoft Philanthropies and the International Training Centre of the International Labour Organization (ITCILO) created the Women in Digital Business program to help female entrepreneurs acquire digital skills.[51] Microsoft also pledged $4 billion to fund AI education in schools, technical colleges, community colleges, and nonprofits, according to the *New York Times*.[52]

Online courses and bootcamps

Big tech companies, including Amazon, Google, IBM, and Microsoft, are offering a range of paid and free online courses.[53] Intensive paid programs and certificates with a focus on AI, data science, and machine learning are also provided by colleges and online coding bootcamps, which are meant to provide a path into tech jobs for workers without college degrees in computer science.

Such bootcamps have shown signs of decline in recent years due to issues like market saturation and international hiring trends.[54] Positive outcomes have dropped steeply for some programs. For example, in the second half of 2021, 83% of people who graduated from the Codesmith bootcamp's part-time program landed full-time technical jobs within six months. In 2023, just 37% of graduates could say the same.[54]

Besides the lack of data on the efficacy of these courses, the fast-changing technology being incorporated into coding makes it difficult for workers to determine the value of AI bootcamps in their careers. The undefined nature of 'AI skills' also compounds the risks involved in pursuing such courses, which come at the cost of time and money, which workers can ill-afford.[55]

In addition to questions related to the effectiveness of such training, the bootcamp industry has been prone to fly-by-night operations that may exploit workers' desperation.[54] Given this pattern, it is likely that there are bootcamps that are keen to ride the AI hype wave, that will charge participants and not deliver on their promises to impart them with marketable skills.

One tech worker we interviewed with a background in computational linguistics is currently a contractor with OpenAI. He shared his experience with taking online courses through Coursera: "I was doing that to try to make myself more marketable," he said. "I think they're interesting, but I'm not sure if it really proves anything to the recruiters."

There is also research to show that the tech giants offering online courses in AI skills may use these investments to further perpetuate their own market dominance by making their products central to the skills being offered. [56]

The outlook for industry-led upskilling

So far, **there is little to no data about the effectiveness of the recent wave of industry-led AI upskilling programs.** The lack of transparency and accountability for these programs makes it very hard to see them as much more than marketing campaigns. While companies claim that employees need to develop AI skills to keep pace with transforming workplaces, these skills are rarely well-defined, making it difficult for workers to identify the right training for them.

Retraining in AI skills might also not be the best choice for workers, depending on the nature of their work. A recent NBER study showed that workers in occupations with high AI exposure who chose to train in AI-intensive work (occupations where there is a high likelihood that generative AI or LLMs could be used to complete core tasks) faced a 29% earnings penalty compared to their peers who chose to train in more generalist skills.[57]

Employers speak about the need to retrain or upskill workers, but mass layoffs and reduced training budgets reveal the contradictions inherent in such rhetoric.[58] Further, workers who are displaced by technological advancements are often unable to return to jobs comparable to those they lost.[59] If industry-led programs are to provide workers with meaningful support, they need to lead to secure, full-time employment. Companies need to make transparent **commitments, paired with independent evaluation, regarding how these programs can help current employees maintain job security and how they can create new, high-quality jobs.**

> **"I WAS [TAKING COURSERA COURSES] TO TRY TO MAKE MYSELF MORE MARKETABLE. I THINK THEY'RE INTERESTING, BUT I'M NOT SURE IF IT REALLY PROVES ANYTHING TO THE RECRUITERS."**
>
> - Tech worker currently contracting with OpenAI

The lack of transparency and accountability is only one of the barriers inherent in employer-led upskilling programs. Some programs, like

AT&T's Future Ready initiative, a company-wide retraining program in the 2000s, required employees to use their own resources, time, and sometimes money to participate in reskilling.[60] **Workers want upskilling, but they cite time and cost as the top barriers standing in their way,** according to McKinsey & Company research.[61]

Additionally, women and people of color face additional barriers. A 2023 report from DeVry University found that 73% of men reported having access to upskilling opportunities compared to 56% of women.[62] Two-thirds of people of color included in the survey reported that upskilling is essential to their career development, but 42% reported having access to paid upskilling.[62] If upskilling initiatives are to be considered successful, they need to be accessible to all workers, and they need to benefit both employers and workers.



PUBLIC POLICY APPROACHES TO AI AND LABOR

As the previous section highlighted, voluntary employer-led programs alone cannot meet the challenge of retooling the workforce for the AI economy. Public policy has a pivotal role to play in shaping how the labor market will evolve and ensuring the protection of workers. The public sector can also fund education and upskilling, pave the way for the creation of jobs, and protect workers' rights. For years, the federal government and state governments have developed various policy approaches specific to workforce development. Although AI policy development as it relates to workforce development and regulation is still nascent, there is a flurry of activity underway at both the federal and state government levels to address AI's impact on the labor market.

Federal level

The federal government announced several overlapping plans for developing workers' AI skills and preparing them for potential displacement by AI and related technologies.

In April 2025, President Donald Trump signed the "Advancing Artificial Intelligence Education for American Youth" executive order.[63] The order mandates the creation of an AI education task force, the development of resources for K-12 AI education, enhanced AI training for educators, and the promotion of registered apprenticeships.

Next, the Trump Administration announced the "AI Action Plan" in July 2025, which includes several policy recommendations related to workforce development.[64] One section of the plan emphasizes a "worker-first AI agenda." Recommended policy actions focus on funding for AI skill development through workforce and education programs. The plan suggests a pathway for employers

to offer tax-free reimbursement for AI training. It also touches on funding for the retraining of workers displaced by AI, with an emphasis on states and existing legislation: WIOA (Workforce Investment and Opportunity Act) and the Public Works and Economic Development Act (PWEDA).

The action plan also calls for government agencies to conduct research to understand how AI adoption impacts job creation, job displacement, and pay. Another section of the plan details policy actions for workforce investment to support AI infrastructure. Highlighted efforts include:

- Gathering stakeholders to develop national skill frameworks;
- Partnering with state and local governments to create training programs;
- Expanding pre-apprenticeships and registered apprenticeships;
- Updating Career Technical Education (CTE) systems; and
- Growing development opportunities for undergraduate, graduate, and postgraduate students and educators.

Further, a provision of the One Big Beautiful Bill Act expands Pell Grant eligibility, historically reserved for acquiring two- or four-year degrees and certain certificate programs, to include some shorter-term job training programs.[65] This could allow tech workers to access funding for AI training and certificate courses offered by community colleges.[66] In the same vein, the U.S. Department of Labor announced $30 million in grants for training workers for jobs in high-demand industries, including artificial intelligence infrastructure.[67]

The federal government also announced commitments from the tech industry in the form of the "AI Action Pledge," which calls for companies to provide K-12 students and teachers with resources for "an AI-ready workforce." Although 141 companies have signed the pledge [68] (as of September 8, 2025), it does not specify a dollar amount for the resources signatories will provide or any other details about what these companies will actually do.

Another public-private partnership is the Partnership for Global Inclusivity on AI (PGIAI)—a $100 million commitment backed by the U.S. Department of State and private sector companies, including Amazon, Anthropic, Google, IBM, Meta, Nvidia, and OpenAI.[69] Among its many aims, the partnership earmarked $5 million for "education and cultural exchanges funding," specifically for programs that advance AI capacity building.

State level

States with existing workforce development programs can integrate AI or use existing programs as launchpads for new AI-specific training initiatives. "The

states that have done more homework on that front are in a better position when it comes to AI than the states that have just started or the states that just don't make much of an investment in their adult students and workers," said Amanda Bergson-Shilcock with the National Skills Coalition.

State-level activity regarding AI has been prolific. A report from Code for America found that most states are in the early stages of developing structured AI training and workforce development programs.[70] For example:

- **Arizona** is working with InnovateUS, an online learning initiative for public servants, to offer training for state employees. The two courses offered through this partnership are "Using Generative AI at Work" and "Scaling AI in Your Organization."[71]
- **California** initiated a generative AI training for state employees in 2024, focused on "how the technology may safely, ethically, and equitably function in the workplace."[72] California was the first of several states to ink an agreement with chip maker Nvidia to forge a public-private collaboration.[73] The partnership seeks to give universities, community colleges, and adult education programs resources for student and educator AI education and workforce development. The state also signed agreements with four other big tech companies—Adobe, Google, IBM, and Microsoft—focused on training students in high schools, community colleges, and state universities for jobs in AI.[74]
    - **California's High-Road Training Partnerships (HRTP).** The HRTP initiative launched in 2017 to develop a framework for workforce development with the participation of employers, workers, and labor union representatives.[75]
- **Mississippi** also entered a memorandum of understanding (MOU) with Nvidia, which outlines a partnership focused on AI education and workforce development.[76] The state also created the Mississippi Artificial Intelligence Network (MAIN) with the goal of delivering AI curriculum and workforce training.[77]
- **New York** backed initiatives to train the state's workforce on AI, increase AI career opportunities for disadvantaged college students, and support workers who are displaced by AI.[78]
- **New Jersey** created a generative AI training program in partnership with InnovateUS.[79] Thus far, more than 16,000 employees are reportedly participating in the program.[70]
- **Pennsylvania** is working with InnovateUS to train state employees on the use of AI.[70] Additionally, the Commonwealth is working with Carnegie Mellon University on educational workshops.[80] In July 2025, Pennsylvania touted a

$20 billion initial investment from Amazon to build AI and cloud computing campuses across Pennsylvania. The project is expected to create "1,250 high-paying tech jobs."[81]

- **Utah** created a Center for AI Excellence in 2018, established policy on generative AI in 2023, and launched its Office of Artificial Intelligence Policy (OAIP) in 2024.[82] The state also has an MOU with Nvidia for training the state workforce.[83]

The outlook for public policy approaches

The evidence of public retraining programs' success is mixed and often difficult to obtain, according to Brookings.[59] But ongoing federal and state policy efforts remain an important piece of workforce development efforts that prioritize worker needs and job quality.

Many **existing public workforce development programs do successfully connect job seekers with employment**; in fact, more than 70% of workers who engage with the public workforce system are able to find jobs and remain employed a year after, according to a brief from New America.[84]

The Workforce Investment and Opportunity Act (WIOA), signed into law in 2014, is the federal government's primary approach to workforce development.[85] In 2023, WIOA served 185,436 displaced workers. The employment rate for displaced workers in the second quarter following completion of the WIOA program was 70.7%.[86]

WIOA has the potential to be a policy tool to address AI workforce training needs by providing funding, driving inclusive access to high-quality training, and protecting workers' rights.[87] But the legislation has not been reauthorized, leaving its future uncertain. As it stands, WIOA's employment and training services are underfunded by approximately $400 million to $1 billion, taking into consideration the size of the U.S. economy and inflation, according to the Center for American Progress.[88]

Even if WIOA were to be reauthorized, **an overarching concern with such federal programs is that these programs do not guarantee workers a livable wage.** Studies of multiple workforce development programs have revealed that there is no strong association between training and earnings.[84]

WIOA was developed to help workers reenter the workforce quickly, but it is not set up to help workers achieve long-term economic mobility through wage growth and career advancement, according to a report from The Century Foundation. [89]

The report highlights a key gap: "A good portion of WIOA funding effectively serves as a publicly subsidized recruitment and training mechanism for firms that rely on a high-churn, low-wage labor model with no clear pathway to professional advancement or upward mobility."[89] **The raft of measures announced by the Trump administration also does not address the question of the quality of jobs expected to be generated.** The federal government's AI Action Plan refers to a worker-first AI agenda, but details on how such an agenda is to be achieved are sparse.

Much of the tech industry views workers as disposable, short-term resources. "Tech companies are built on the concept of staffing up rapidly and laying off whenever they want," said Bergson-Shilcock with the National Skills Coalition. Generating good-quality jobs will require a fundamental change in this approach and will involve long-term investments from employers, and not just the federal and state governments.

> **"TECH COMPANIES ARE BUILT ON THE CONCEPT OF STAFFING UP RAPIDLY AND LAYING OFF WHENEVER THEY WANT."**
>
> - Bergson-Shilcock with the National Skills Coalition

For instance, **the workforce development strategies that are the most successful in terms of employment and earnings have a clear structure and services that provide sustained financial and social support.** When the U.S. Department of Labor's Employment and Training Administration (ETA) conducted a Gold Standard Evaluation of WIOA, it found that intensive services, such as skills assessments and individualized employment plans, increased earnings by 7% to 20%.[89] The provision of such services necessitates long-term investment in workers, an element that is hard to find in recently announced initiatives. Thus, instead of being reactive to emerging technology, workforce development ought to be an active and continuous measure adopted widely by governments and firms.

Further, as with any workforce development effort, it is invaluable to center worker voice. Currently, just 20% of seats on Workforce Development Boards are allocated for worker representatives. Increasing that number could better align worker and employer interests in workforce training programs—in a September 2024 letter to the Senate on WIOA reauthorization, the AFL-CIO together with unions including SEIU, reiterated the need for WIOA to include equal

representation for workers on workforce boards, together with industry-sector partnerships, quality performance standards, strong worker protections and employer compliance with federal labor laws.[89]

Policymakers could also consider recent proposals to address labor transitions in the context of AI—everything from a federal job guarantee[90] to a robot[91] tax [92] should be on the table.[93] Another **emerging category of state-led actions in response to potential AI-related job losses is focused on reporting layoffs to state agencies.** However, while CEOs who stand to profit from the enterprise contracts for the AI technology they produce continue to predict widespread automation, "no employers to date have indicated AI as a reason for layoffs"[94] after New York Gov. Kathy Hochul amended New York's WARN (Work Adjustment and Retraining Notification) Act to require employers to disclose when mass layoffs occur as a result of AI or automation.[95] This illustrates the challenges of holding industry accountable for the disruption they are responsible for and from which they may profit. U.S. Senators Mark R. Warner (D-VA) and Josh Hawley (R-MO) also recently introduced the AI-Related Job Impacts Clarity Act that would require covered employers to report "any artificial intelligence-related job impact" to the U.S. Department of Labor.[96]



LABOR UNION-LED EFFORTS IN TRAINING AND WORKER PROTECTION

Workers are on the front lines of technological adoption and, therefore, can and should shape how technology is conceptualized, designed, deployed, and used in the workplace. Labor unions are a powerful vehicle to balance the power between employers and workers. In recent years, the labor movement has undertaken a range of approaches to address AI specifically: from securing technology rights through collective bargaining to the growing movement to advancing protections through public policy to agreements with major tech companies and partnerships with colleges and universities.

Unions leverage worker organizing and collective bargaining to secure protections from job loss, fair compensation and benefits, transparency regarding the use of the technology, and guidelines for ethical use. In TechEquity's recent paper *Take the Mic: How Worker Voice Shapes Workplace Technology*, we shared examples of how unions have won legally binding contracts that preserve working conditions and prevent

> **"THROUGHOUT OUR HISTORY, UNIONS HAVE BEEN AT THE CENTER OF TECHNOLOGICAL CHANGE, HAVE MANAGED THROUGH MAJOR TRANSITIONS, AND HAVE FOUGHT TO ENSURE THAT NEW TECHNOLOGIES SERVE WORKERS AND THEIR COMMUNITIES, AND MAKE JOBS BETTER AND SAFER."**
>
> - AFL-CIO

job displacement; place limits on workplace surveillance; safeguard workers' rights against algorithmic management; and prepare for future technological developments.[97]

In addition to collective bargaining, unions collaborate with other stakeholders and institutions to develop successful models for education and training that center workers. As the AFL-CIO states in its Artificial Intelligence: Principles to Protect Workers, "Throughout our history, unions have been at the center of technological change, have managed through major transitions, and have fought to ensure that new technologies serve workers and their communities, and make jobs better and safer."[98]

Collective bargaining

Collective bargaining is a powerful way to improve pay, benefits, and working conditions. During the rapid uptake of AI, many unions have negotiated with employers regarding the use of this technology and its impact on employment.

An analysis of over 175 union contracts conducted by Lisa Kresge at UC Berkeley Labor Center's Technology and Work Program found that unions have successfully negotiated provisions that establish foundational rights when an employer plans to introduce new or modified technologies; secured commitments to ensure that technological change does not undermine workers' job stability, income security, or working conditions; negotiated over the use and governance of specific workplace technology applications, including formal mechanisms to participate in the planning, implementation, and oversight of workplace technologies; and addressed a range of data governance issues.[99]

Among the most highly publicized collective bargaining successes regarding the use of AI are the efforts of the Writers Guild of America (WGA)[100] and Screen Actors Guild - American Federation of Television and Radio Artists (SAG-AFTRA)[101] to negotiate with movie and television studios. WGA and SAG-AFTRA were able to secure agreements around consent, compensation, and future negotiations regarding the use of AI. The Teamsters Union reached an agreement with UPS that would require the delivery company to negotiate with the union before introducing technology such as drones and driverless vehicles.[102]

In 2023, the Alphabet Workers Union-CWA secured contract workers at Google a raise, increasing their pay to the tech company's minimum standard of $15 per hour, according to *Vice*.[103]

Specifically related to training and workforce development for technological change, Kresge identified four key categories of collective bargaining provisions:[99]

- "Training and retraining guarantees in technology transitions: Core commitments to provide training on newly introduced technologies, support for redeployment, and access to refresher courses.
- "Access, equity, and selection criteria for training: Provisions that promote inclusive participation in training, transparent eligibility rules, and protections for workers during the learning period.
- "Training delivery and program infrastructure: Language detailing how training programs are designed, funded, staffed, and scheduled, including hands-on training and competency development.
- "Tuition reimbursement, continuing education, and career development: Agreements that support ongoing learning and career mobility through tuition support, skill-building programs, and career planning initiatives."

Through these provisions, unions play an active role in helping workers shape how technology is used in the workplace and ensuring that workers benefit from its use.

In addition to contract provisions, unions have articulated clear vision statements for worker-centered approaches to technology. A UC Berkeley Labor Center analysis of AI principles developed by 15 different unions and worker organizations covers a broad range of protections for workers with respect to AI and digital technologies, including "affirm[ing] that workers have the right to a 'just transition' as digital technologies transform the labor market." Unions have called for "notice prior to layoffs, retraining, priority bidding for comparable roles, severance pay, and partial wage replacement" and support for labor-management training programs.[104]

Collaboration with colleges

Academic institutions are a natural incubator for workforce talent. Union collaboration with community colleges and employers can help workers develop new skills and advance their careers.

For example, the Service Employees International Union (SEIU) Local 1000 launched a public sector IT apprenticeship program in 2017.[105] Since then, the union added apprenticeships focused on mainframe computing technology[106] and cybersecurity.[107] These apprenticeship programs offer California state employees training and development in partnership with community colleges like American River College and Sacramento City College. The union notes many "apprentices have already received promotions into their sought-after IT classifications."[108]

Unions have a long track record of partnering with community colleges to establish training programs and career pathways.[109] The Washington State Labor Council (WSLC), the state's labor union federation, has a contract with the State Board for Community and Technical Colleges (SBCTC) dating back to 1998. In 2021, United Steelworkers Local 550 partnered with West Kentucky Community and Technical College to help local workers become radiological control technicians. Of the 2022 program cohort, 90% became employed at the Paducah Gaseous Diffusion Plant.[109]

The AFL-CIO Working for America Institute suggests best practices for these collaborations.[109] Together, unions and community colleges can define shared goals, incorporate labor leaders in partnership advisory bodies, assess the needs of workers and employers, design programs, work with industry partners, recruit qualified instructors, and implement worker-centered learning.

Union and employer partnerships

Unions are actively forging relationships with various stakeholders to help their members navigate the demand for AI skills development. The AFL-CIO Working for America Institute (WAI), a nonprofit, is playing a significant role in paving a way forward for tech workers.[110] The nonprofit works to connect "unions, employers, workforce intermediary partnerships, the workforce system, and community organizations to create, expand, and retain high-quality jobs."[110] Together with Jobs for the Future (JFF), the National Association of Workforce Boards (NAWB), CompTIA, TechSF, and community colleges it developed the IT Workers' Rights Guide,[111] as part of the Rapid IT Training and Employment Initiative (RITEI).[112] In collaboration with the AFL-CIO Working for America Institute, RITEI also aimed to educate future IT workers "about their right to collectively bargain and form or join unions, empowering them to fully engage in conversations and decisions about the role digital technologies—especially AI—will play in the jobs of the future."[113]

Unions and other stakeholders have also shown that collaborating on apprenticeships can help train workers for in-demand technology jobs.

RITEI envisioned apprenticeship as a way to:

- Transition contract tech workers to full-time W2 positions;
- Provide career pathways to underrepresented tech talent; and
- Create new talent pools and help workers develop skills to progress their careers.

RITEI highlights examples of the apprenticeship model's success in the tech industry. However, in an analysis of the RITEI, JFF found that "completion,

credentialing, and employment rates remained low throughout the implementation period." To address these shortfalls, JFF recommended focusing on assessing learning readiness to identify program participants, work-based learning opportunities to address lack of experience amongst participants, strategic employer partnerships to create placement opportunities, and supportive services to improve completion rates.[114]

Unions are also working with major tech employers. In 2023, the AFL-CIO formed a partnership with Microsoft.[115] That partnership's goals include AI education for workers and students, feedback from workers and labor leaders, and collaborative policy and skills development.

Microsoft, along with OpenAI and Anthropic, is also throwing its weight behind the American Federation of Teachers. Together, the three companies will provide $23 million in funding to set up an AI training center for educators.[116]

The outlook for labor union-led efforts

While membership has declined, unions have continued to provide a model for successfully negotiating around workplace technology and education and training, specifically, as well as securing technology protections for workers broadly through policy advocacy and legislation. While the technology sector has traditionally been very difficult for unions to organize, there are burgeoning unionization efforts in tech.[117] For workers not yet in unions, concerted activities for the purpose of collective bargaining or other mutual aid or protection are still covered by the National Labor Relations Act.

At the collective bargaining table, companies are often resistant to negotiating specific terms of technology use. For example, the NewsGuild-CWA, while noting that "more than three dozen collective bargaining agreements now include language covering artificial intelligence in their newsrooms," also highlighted that "the use of artificial intelligence to perform bargaining unit work is a mandatory subject of bargaining, but employers are reluctant to agree to contract terms that set enforceable parameters around the use of ever evolving technology."[118]

While many aspects of technology and its impact on workers have been incorporated into collective bargaining agreements for years, there are **emerging issues posed by AI and digital technologies that are still evolving in union negotiations.** An analysis of 60 collective agreements from around the world commissioned by Public Services International (PSI) found that nearly half "addressed issues related to job and employment security, security of professional careers and various aspects related to skills, and training and

further training... Thus, these issues can be regarded as well-developed and already established in collective agreements at various levels." At the same time, these provisions revealed "gaps related to e-learning, self-learning, blended learning, and learning platforms or virtual learning... because of how company practices change and develop at a rapid pace."[119]

Existing collaborations offer a framework for union collaboration with community colleges and employers going forward, but these initiatives will likely have to adapt to account for the speed at which AI is developing.

Workers need to actively shape technology decisions at work. Unions remain the most powerful way for workers to effectively form a countervailing force and have their voices heard in regard to their job training, job quality, and compensation. Collective action and bargaining empower workers to have a say in how technology like AI is implemented and how it can help them do their jobs more efficiently without threatening their job sustainability and quality.

Involving unions in the development of workforce development and upskilling programs can help make these initiatives more effective. "More union engagement in skills leads to more employer investment and co-design processes leading to better outcomes," according to a discussion paper from the Trade Union Advisory Committee to the Organisation for Economic Co-operation and Development (OECD).[120]

> **"NO ONE KNOWS BETTER HOW TO DO A JOB THAN SOMEONE WHO DOES THE JOB."**
>
> - AFL-CIO Working for America Institute

The AFL-CIO Working for America Institute also summarizes a key advantage to workforce development programs that are developed with unions as partners: "No one knows better how to do a job than someone who does the job. Unions bring to bear the experience and skills of the workforce in a structured way to inform training programs. Labor representatives can provide firsthand insights directly from the workers on the 'shop floor,' or other worksites, into the current and emerging skills needed in the job market."[109]



CONCLUSION

The future of human labor and AI is far from decided.

If we look at previous waves of automation, we see that these changes have not permanently reduced the number of available jobs. Automation may have brought with it short-term disruption and long-term increases in productivity and labor demand,[121] but also wages have stagnated[122] and inequality has increased. Unless we take seriously the question of the power differential between CEOs and workers, any benefits of AI technology breakthroughs will continue to accrue to the rich and powerful.

Workforce development programs can be useful resources as jobs change, but they need to be paired with broader economic policies to ensure that tech's evolution benefits everyone.

Here are key recommendations for the future:

1. **Center workers in developing solutions:** As highlighted throughout this paper, workers need power and a voice when it comes to how technology impacts their work. Responses to AI at work should authentically engage workers and unions, who are closest to the technology and best suited to speak to their needs more broadly.
2. **Hold companies accountable for the funds they've committed to address AI education and training:** Companies that sell AI technology have announced many commitments to programs that may ultimately end up further entrenching their power and profits. While millions of dollars are being committed in press releases, there is often a lack of transparency and independent reporting on where these funds are being spent and the impact and efficacy of these donations. Community benefits agreements and collectively bargained training programs can be powerful mechanisms for accountability.

3. **Policymakers need to think expansively about a robust policy response rather than an overemphasis on AI skills training:** It will take a broad range of policy approaches to meet the current moment of technological disruption. Education, training, and workforce development, even when effectively designed, are only one piece of the puzzle. Everything from increasing worker power and the right to collective bargaining to expanding a durable and sustainable social safety net to addressing the use of fissuring and related labor arrangements, and more, needs to be on the table.

Most importantly, nothing that comes next is inevitable. The future we risk is one of growing inequity: the few in power benefit enormously while workers have access to fewer secure, quality jobs.

It is important to acknowledge the AI hype cycle, driven by tech companies' promises of efficiency gains and massive amounts of money being spent to adopt these tools. Thus far, AI is not living up to its promises of efficiency and human benefit.

Effective workforce development and upskilling initiatives should strive to understand how this technology can actually lead to benefits for entire workforces, not just employers' bottom lines. Securing a place for all tech workers will depend on policymakers, employers, and workers collectively preparing and adapting for the potential outcomes of this unknown future.

ACKNOWLEDGEMENTS

Lead Author
Carrie Pallardy

Contributors
Catherine Bracy
Samantha Gordon
Tim Newman
Swati Chintala
Jonathan Mehta Stein

Thank you to the workers, unions, organizations, and researchers who informed this paper, both publicly and confidentially, including Annette Bernhardt and Pamela Egan (UC Berkeley Labor Center), Shannon Wait (Alphabet Workers Union-CWA), Amanda W. Bergson-Shilcock (National Skills Coalition), and Dani. And thank you to the Kellogg Foundation, without whose support this project wouldn't have been possible.

CITATIONS

1. Hawkins, E. (2025, March 6). AI terms skyrocket in company earnings calls. Axios. https://www.axios.com/2025/03/06/ai-workplace-terms-mention-earnings-calls

2. Alex Hanna, Tina M. Park, and Sophie Song. (8 Aug 2025). Don't Be Fooled By Trump's Plan To 'Upskill' Workers To Prepare For AI. Tech Policy Press. https://www.techpolicy.press/dont-be-fooled-by-trumps-plan-to-reskill-workers-to-prepare-for-ai/

3. Wu, T. (2025, June 24). Opinion | A 'White-Collar Blood Bath' Doesn't Have to Be Our Fate. The New York Times. https://www.nytimes.com/2025/06/24/opinion/ai-job-loss-white-collar.html

4. Jim VandeHei and Mike Allen.(28 May 2025). *Behind the Curtain: A white-collar bloodbath*. Axios. https://www.axios.com/2025/05/28/ai-jobs-white-collar-unemployment-anthropic

5. Gimbel, M., Kinder, M., Kendall, J., & Lee, M. (2025). Evaluating the Impact of AI on the Labor Market: Current State of Affairs | The Budget Lab at Yale. The Budget Lab. https://budgetlab.yale.edu/research/evaluating-impact-ai-labor-market-current-state-affairs

6. Abel, J. R., Deitz, R., Emanuel, N., Hyman, B., & Montalbano, N. (2025). Are Businesses Scaling Back Hiring Due to AI? Liberty Street Economics. https://doi.org/10.59576/lse.20250904

7. TechEquity. (2025, August 19). How Californians Feel About AI—Findings From the 2025 AI Compass. TechEquity Collaborative. https://techequity.us/2025/08/19/how-californians-feel-about-ai/

8. Weddle, Brooke et al. (14 Jul 2025). *We're all techies now: Digital skill building for the future*. McKinsey & Company. https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/we-are-all-techies-now-digital-skill-building-for-the-future

9. Layoffs.fyi. (2024) *Layoffs Tracker*. Layoffs.fy. https://layoffs.fyi/

10. Cody Corrall, Alyssa Stringer, Kate Park. (31 Jul 2025). *A comprehensive list of 2025 tech layoffs*. TechCrunch. https://techcrunch.com/2025/07/31/tech-layoffs-2025-list/

11. Rajgopal, S. (2025, August). Is AI The Scapegoat Employers Use To Explain Technology Layoffs? Forbes. https://www.forbes.com/sites/shivaramrajgopal/2025/08/17/is-ai-the-scapegoat-employers-use-to-explain-technology-layoffs/

12. TechEquity. (2024) *Inside Tech's Shadow Workforce*. https://techequity.us/wp-content/uploads/2024/02/2024-CWDP-Research-Update.pdf

13. Robert Half. (2025) *2025 Tech and IT Job Market Outlook*. Robert Half. https://www.roberthalf.com/us/en/insights/salary-hiring-trends/demand-for-skilled-talent/tech-it

14. Doellgast, V., Appalla, S., Ginzburg, D., Kim, J., Thian, W. L., & International Labour Organization. Research Department,. (2025). Global case studies of social dialogue on AI and algorithmic management. ILO. https://doi.org/10.54394/VOQE4924

15. Wilkins, J. (2025, February). Startup Investors Foaming at the Mouth To Carve Up Your Job With AI. Futurism. https://futurism.com/startup-investors-gig-jobs-ai

16. Berger, Philip et al. (27 Jun 2024) *Employer and Employee Responses to Generative AI: Early Evidence*. SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4874061

17. Brynjolfsson, E., Chandar, B., & Chen, R. (2025, August). Canaries in the Coal Mine? Six Facts about the Recent Employment Effects of Artificial Intelligence. Stanford Digital Economy Lab. https://digitaleconomy.stanford.edu/publications/canaries-in-the-coal-mine/

18. Singer, Natasha. (10 Aug 2025). *Goodbye, $165,000 Tech Jobs. Student Coders Seek Work at Chipotle*. The New York Times. https://www.nytimes.com/2025/08/10/technology/coding-ai-jobs-students.html

19. Bernard, B. (2025, July 30). The US Tech Hiring Freeze Continues. Indeed Hiring Lab. https://www.hiringlab.org/2025/07/30/the-us-tech-hiring-freeze-continues/

20. Frick, Walter. (20 Jun 2025). *Silicon Valley's 'Tiny Team' Era Is Here*. Bloomberg. https://www.bloomberg.com/news/articles/2025-06-20/ai-is-ushering-in-the-tiny-team-era-in-silicon-valley

21. Griffith, E. (2025, February 20). A.I. Is Changing How Silicon Valley Builds Start-Ups. The New York Times. https://www.nytimes.com/2025/02/20/technology/ai-silicon-valley-start-ups.html

22. Cutter, Chip. (27 Jul 2025). *CEOs Are Shrinking Their Workforces—and They Couldn't Be Prouder*. The Wall Street Journal. https://www.wsj.com/lifestyle/careers/layoff-business-strategy-reduce-staff-11796d66

23. Cutter, C., & Weber, L. (2025, June 15). The Biggest Companies Across America Are Cutting Their Workforces. WSJ. https://www.wsj.com/business/the-biggest-companies-across-america-are-cutting-their-workforces-a0e8739a

24. Shibu, Sherin. (3 Jun 2025). *OpenAI CEO Sam Altman Says AI Agents Are Like a Team of 'Junior Employees'.* Entrepreneur. https://www.entrepreneur.com/business-news/openai-ceo-sam-altman-ai-agents-are-like-junior-employees/492687

25. Spice, Byron. (17 June 2025). *Simulated Company Shows Most AI Agents Flunk the Job.* Carnegie Mellon University. https://www.cs.cmu.edu/news/2025/agent-company

26. Wilkins, Joe. (13 May 2025). *Company Regrets Replacing All Those Pesky Human Workers With AI, Just Wants Its Humans Back.* Futurism.https://futurism.com/klarna-openai-humans-ai-back

27. Scheiber, Noam. (2 Feb 2025). *Why Is This C.E.O. Bragging About Replacing Humans With A.I.?* The New York Times. https://www.nytimes.com/2025/02/02/business/klarna-ceo-ai.html

28. Kim, E. (2025, July). *Amazon now requires staff to show AI use to get promoted at Ring and some other units.* Business Insider. https://www.businessinsider.com/amazon-requires-staff-show-ai-use-get-promoted-ring-2025-7

29. Hart, J. (2025, August). *Coinbase CEO says he "went rogue" and fired some employees who didn't adopt AI after being told to.* Business Insider. https://www.businessinsider.com/coinbase-ceo-fired-employees-not-using-ai-tools-onboarding-2025-8

30. Needleman, S. E. (2025, October). *Inside the AI divide roiling video game giant Electronic Arts.* Business Insider. https://www.businessinsider.com/inside-ai-divide-roiling-video-game-giant-electronic-arts-2025-10

31. Stewart, A. (2025, June). *Microsoft pushes staff to use internal AI tools more, and may consider this in reviews. "Using AI is no longer optional."* Business Insider. https://www.businessinsider.com/microsoft-internal-memo-using-ai-no-longer-optional-github-copilot-2025-6

32. Langley, H. (2025, August). *For Googlers, the pressure is on to use AI for everything—Or get left behind.* Business Insider. https://www.businessinsider.com/google-employees-use-ai-or-get-left-behind-gemini-2025-8

33. Li, K. (2025, April). *Shopify CEO says before hiring anyone new, employees must prove AI can't do the job better.* Business Insider. https://www.businessinsider.com/shopify-ceo-tobi-lutke-employees-prove-ai-job-2025-4

34. Jetha, R. (2025, July 24). *Big Tech's new rule: Use AI or be fired.* The San Francisco Standard. https://sfstandard.com/2025/07/24/layoffs-firing-ai-engineers-tech-white-collar-jobs/

35. Needleman, S. E. (2025, August). *Not on board with AI? Pretend. Your boss is watching.* Business Insider. https://www.businessinsider.com/boss-track-ai-use-career-2025-8

36. Amazon Employees for Climate Justice. (2025). *AI Open Letter. AECJ.* https://www.amazonclimatejustice.org/open-letter

37. Knibbs, K. (2025, July). *Silicon Valley AI Startups Are Embracing China's Controversial '996' Work Schedule* | WIRED. https://www.wired.com/story/silicon-valley-china-996-work-schedule/

38. Daniel, A. (2025, July). *'The weekend is disappearing' for Silicon Valley's AI startup workers.* Quartz. https://qz.com/silicon-valley-996-ai-startup-workers-weekends-china-san-francisco

39. Abril, D. (2025, October 20). *Why these companies insist on a 72-hour workweek.* The Washington Post. https://www.washingtonpost.com/business/2025/10/20/ai-996-startups/

40. Borchers, C. (2025, October 2). *In a Sea of Tech Talent, Companies Can't Find the Workers They Want.* Wall Street Journal. https://www.wsj.com/lifestyle/careers/in-a-sea-of-tech-talent-companies-cant-find-the-workers-they-want-76b7983a

41. Center for Labor & a Just Economy. (1 Sep 2024). *Building Worker Power in Cities & States.* Center for Labor &a Just Economy. https://clje.law.harvard.edu/publication/building-worker-power-in-cities-states/regulating-ai-in-the-workplace/

42. Olinga, Luc. (27 Jul 2025). *The End of Work as We Know It.* Gizmodo. https://gizmodo.com/the-end-of-work-as-we-know-it-2000635294

43. Cisco. The AI Workforce Consortium: Preparing for the Future: AI's Impact on Information and Communication Technology Jobs. https://www.cisco.com/c/m/ai-enabled-ict-workforce-consortium.html

44. Amazon. (20 Nov 2023). *Amazon Announces 'AI Ready,' a New Initiative Designed to Provide Free AI Skills Training to 2 Million People by 2025.* Amazon. https://www.businesswire.com/news/home/20231119572231/en/Amazon-Announces-AI-Ready-a-New-Initiative-Designed-to-Provide-Free-AI-Skills-Training-to-2-Million-People-by-2025

45. Lonergan Maureen. (4 Apr 2025). *Amazon's 4 big insights from fast-tracking AI training to 2M people.* HR Executive. https://hrexecutive.com/amazons-4-big-insights-from-fast-tracking-ai-training-to-2m-people/

46. IBM. (18 Sep 2023). *IBM Commits to Train 2 Million in Artificial Intelligence in Three Years, with a Focus on Underrepresented Communities.* IBM. https://newsroom.ibm.com/2023-09-18-IBM-Commits-to-Train-2-Million-in-Artificial-Intelligence-in-Three-Years,-with-a-Focus-on-Underrepresented-Communities

47. IBM. (28 Feb 2025). *IBM is equipping the next generation of student developers across universities with AI skills*. IBM. https://newsroom.ibm.com/blog-IBM-is-equipping-the-next-generation-of-student-developers-across-universities-with-AI-skills

48. Google. (26 Apr 2024). Google.org's $75M AI Opportunity Fund for the United States. Google. https://publicpolicy.google/article/AI-opportunity-fund/

49. Boltt, Julia. (24 Jan 2025). *Microsoft commits to skilling one million people for digital skills through Artificial Intelligence skilling initiative in South Africa*. Microsoft. https://news.microsoft.com/source/emea/features/microsoft-south-africa-launches-ai-skilling-initiative-to-train-1-million-people-by-2026/

50. Badham, Debbie. (24 Feb 2025). *During the AI Tour in Lagos, Microsoft deepens its commitment to advancing digital skills in Nigeria*. Microsoft. https://news.microsoft.com/source/emea/features/during-the-ai-tour-in-lagos-microsoft-deepens-its-commitment-to-advancing-digital-skills-in-nigeria/

51. International Training Centre. (6 Mar 2025). *Breaking barriers with digital skills: Empowering women entrepreneurs in Kenya*. International Training Centre. https://www.itcilo.org/stories/breaking-barriers-digital-skills-empowering-women-entrepreneurs-kenya

52. Singer, Natasha. (9 Jul 2025). *Microsoft Pledges $4 Billion Toward A.I. Education*. The New York Times. https://www.nytimes.com/2025/07/09/business/microsoft-ai-education.html

53. Curry, R. (2024, July). *Big Tech's A.I. Certifications Are Increasingly Valuable in Job Market | Observer*. https://observer.com/2024/07/big-tech-ai-education-program/

54. Tong, Anna. (9 Aug 2025). *From bootcamp to bust: How AI is upending the software development industry*. Reuters. https://www.reuters.com/lifestyle/bootcamp-bust-how-ai-is-upending-software-development-industry-2025-08-09/

55. Kessler, Sarah. (24 Nov 2024). *Should You Still Learn to Code in an A.I. World?* The New York Times. https://www.nytimes.com/2024/11/24/business/computer-coding-boot-camps.html

56. Luchs, Inga et al. (7 Feb 2023). *Learning machine learning: On the political economy of big tech's online AI courses*. Sage Journals. https://journals.sagepub.com/doi/full/10.1177/20539517231153806

57. Hyman, B. G., Lahey, B., Ni, K., & Pilossoph, L. (2025). *How Retrainable are AI-Exposed Workers? (Working Paper No. 34174)*. National Bureau of Economic Research. https://doi.org/10.3386/w34174

58. Faulkner, M. (2025, October 2). *Reskilling vs. replacement: Making the case for investing in people. HR Executive.* https://hrexecutive.com/reskilling-vs-replacement-making-the-case-for-investing-in-people/

59. Jacobs, J. (2025, May). *AI labor displacement and the limits of worker retraining*. Brookings. https://www.brookings.edu/articles/ai-labor-displacement-and-the-limits-of-worker-retraining/

60. John Donovan and Cathy Benko. (Oct 2016). *AT&T's Talent Overhaul*. Harvard Business Review. https://hbr.org/2016/10/atts-talent-overhaul

61. Ellingrud, Kweilin et al. (13 May 2025). *The upskilling imperative: Required at scale for the future of work*. McKinsey & Company. https://www.mckinsey.com/industries/public-sector/our-insights/the-upskilling-imperative-required-at-scale-for-the-future-of-work

62. DeVry University and Advancing Ambition (2023). *Closing the Activation Gap: Converting Potential to Performance by Upskilling the Workforce*. https://www.devry.edu/content/dam/devry_edu/newsroom/closing-the-activation-gap.pdf

63. The White House. (23 Apr 2025). *ADVANCING ARTIFICIAL INTELLIGENCE EDUCATION FOR AMERICAN YOUTH*. The White House. https://www.whitehouse.gov/presidential-actions/2025/04/advancing-artificial-intelligence-education-for-american-youth/

64. The White House. (Jul 2025). *Winning the Race America's AI Action Plan*. The White House. https://www.whitehouse.gov/wp-content/uploads/2025/07/Americas-AI-Action-Plan.pdf

65. Congress.gov. *H.R.1—One Big Beautiful Bill Act*. Congress.gov. https://www.congress.gov/bill/119th-congress/house-bill/1/text

66. Sequoia Carrillo, Cory Turner, Elissa Nadworny. (18 Jul 2025). *What the 'One Big Beautiful Bill' will change for students, schools and colleges*. NPR. https://www.npr.org/2025/07/18/nxs1-5459784/trump-school-college-student

67. U.S. Department of Labor. (11 Aug 2025). *US Department of Labor announces availability of $30M in grants to train American workers for jobs in high demand, emerging industries*. U.S. Department of Labor. https://www.dol.gov/newsroom/releases/eta/eta20250811

68. The White House. (2025). *Pledge to America's Youth*—The White House. https://www.whitehouse.gov/edai/

69. U.S. Department of State. *Partnership for Global Inclusivity on AI (PGIAI)*. U.S. Department of State. https://www.state.gov/advancing-sustainable-development-through-safe-secure-and-trustworthy-ai/

70. Code For America. (July 2025). *Government AI Landscape Assessment*. Code for America. https://codeforamerica.org/explore/government-ai-landscape-assessment/

71. Arizona Department of Administration. (24 Feb 2025). State of Arizona Implements Employee Gen AI Training. Arizona Department of Administration. https://doa.az.gov/news/state-arizona-implements-employee-gen-ai-training

72. State of California. (31 July 2024). *California launches GenAI training for state employees State of California*. https://www.genai.ca.gov/2024/07/31/california-launches-genai-training-for-state-employees/

73. Stewart, Louis. (9 Aug 2024). *Golden Opportunities: California to Train Students, Educators in AI*. Nvidia. https://blogs.nvidia.com/blog/california-ai-education/

74. Governor Gavin Newsom. (7 Aug 2025). *Governor Newsom partners with world's leading tech companies to prepare Californians for AI future*. Governor Gavin Newsom. https://www.gov.ca.gov/2025/08/07/governor-newsom-partners-with-worlds-leading-tech-companies-to-prepare-californians-for-ai-future/

75. California Workforce Development Board. *High Road Training Partnerships: 2025 Grant Program*. California Workforce Development Board.https://cwdb.ca.gov/initiatives/high-road-training-partnerships/hrtp-2025-grant-program/

76. Office of Governor Tate Reeves. (18 Jun 2025). *State of Mississippi to advance artificial intelligence education, innovation and workforce development with NVIDIA*. Office of Governor Tate Reeves. https://governorreeves.ms.gov/state-of-mississippi-to-advance-artificial-intelligence-education-innovation-and-workforce-development-with-nvidia/

77. MAIN. *What is MAIN?* Main. https://mainms.org/about/

78. Governor Kathy Hochul. (9 May 2025). *Governor Hochul Signs Legislation Expanding Historic Empire AI Consortium and Establishing Nation-Leading AI Protections for Responsible Growth as Part of the FY 2026 Budget*. Governor Kathy Hochul. https://www.governor.ny.gov/news/governor-hochul-signs-legislation-expanding-historic-empire-ai-consortium-and-establishing

79. Governor Phil Murphy. (3 Jul 2024*). Governor Murphy Unveils AI Tool For State Employees and Training Course For Responsible Use*. Governor Phil Murphy. https://www.nj.gov/governor/news/news/562024/20240703a.shtml

80. Carnegie Mellon University. *Block Center for Technology and Safety*. Carnegie Mellon University. https://www.cmu.edu/block-center

81. Pennsylvania Department of Community & Economic Development. (15 Jul 2025*). Under Governor Shapiro, Pennsylvania is a National Leader in Economic Growth, AI Innovation, and Energy*. Pennsylvania Department of Community & Economic Development.https://dced.pa.gov/newsroom/under-governor-shapiro-pennsylvania-is-a-national-leader-in-economic-growth-ai-innovation-and-energy/

82. Government Technology. (10 Jul 2024). *Utah Launches Office of Artificial Intelligence Policy*. Government Technology. https://www.govtech.com/artificial-intelligence/utah-launches-office-of-artificial-intelligence-policy

83. Governor's Office of Economic Opportunity. (10 Mar 2025). *Utah Leaders Collaborate with NVIDIA to Advance Tech Talent Development. Governor's Office of Economic Opportunity*. https://business.utah.gov/news/utah-leaders-collaborate-with-nvidia-to-advance-tech-talent-development/

84. McCarthy, Mary Alice. (5 Feb 2025). *What Works in Workforce Development? A Review of the Evidence*. New America. https://www.newamerica.org/education-policy/briefs/what-works-in-workforce-development/

85. U.S. Department of Labor. *Workforce Innovation and Opportunity Act*. U.S. Department of Labor. https://www.dol.gov/agencies/eta/wioa

86. U.S. Department of Labor. *Program Year (PY) 2023 Participants Served Among Core WIOA Programs*. U.S. Department of Labor. https://www.dol.gov/agencies/eta/performance/wioa-performance

87. Goodman, Veronica. (11 Jun 2024). Recommendations for Reauthorizing the Workforce Innovation and Opportunity Act. Center for American Progress. https://www.americanprogress.org/article/recommendations-for-reauthorizing-the-workforce-innovation-and-opportunity-act/

88. Goodman, Veronica. (4 Nov 2024). *Workforce Development: Reimagining and Modernizing How To Connect Workers With Good Jobs*. Center for American Progress. https://www.americanprogress.org/article/a-progressive-vision-for-education-in-the-21st-century/workforce-development-reimagining-and-modernizing-how-to-connect-workers-with-good-jobs/

89. McGrath, Emily et al. (14 Jun 2025). *Beyond Job Placement: Reimagining WIOA for Economic Mobility and Workforce Resilience*. The Century Foundation. https://tcf.org/content/report/beyond-job-placement-reimagining-wioa-for-economic-mobility-and-workforce-resilience/; AFL-CIO. (2024, September 30). Letter Supporting Legislation That Will Modernize the Workforce Development System | AFL-CIO. https://aflcio.org/about/advocacy/legislative-alerts/letter-supporting-legislation-will-modernize-workforce

90. The Job Guarantee Program. (2023). *The Job Guarantee Program.* The Job Guarantee Program. https://www.jobguarantee.org/

91. Ahn, M. J. (2024, May). *Navigating the future of work: A case for a robot tax in the age of AI.* Brookings. https://www.brookings.edu/articles/navigating-the-future-of-work-a-case-for-a-robot-tax-in-the-age-of-ai/

92. Sanders, B. (2025, October). *AI must benefit everyone, not just a handful of billionaires.* Senator Bernie Sanders. Senator Bernie Sanders. https://www.sanders.senate.gov/op-eds/ai-must-benefit-everyone-not-just-a-handful-of-billionaires/

93. Ramamurti, B., Jacobs, Z., & Haro, D. (2025, July 21). *The Biggest Economic Issue No One Is Talking About* [Substack newsletter]. The Bully Pulpit with Bharat Ramamurti. https://bharatramamurti.substack.com/p/the-biggest-economic-issue-no-one

94. Marr, Chris. (20 Oct 2025). *Statehouse AI Job-Loss Solutions Range From Punitive to Positive. Bloomberg Law.* https://news.bloomberglaw.com/daily-labor-report/statehouse-ai-job-loss-solutions-range-from-punitive-to-positive

95. Department of Labor, New York State. (2025). Worker Adjustment and Retraining Notification (WARN). Department of Labor. https://dol.ny.gov/worker-adjustment-and-retraining-notification-warn%29%3A

96. AI-Related Job Impacts Clarity Act, United States Senate (2025). https://www.warner.senate.gov/public/_cache/files/1/d/1d56a287-4702-47b6-b708-59ad35dea[…]EE8D3E85FD5CFC165E4.ai-related-job-impacts-clarity-act.pdf

97. TechEquity. (29 Jul 2025). *Take the Mic: How Worker Voice Shapes Workplace Technology.* https://techequity.us/2025/07/29/take-the-mic/

98. AFL-CIO. (2025). Artificial Intelligence: Principles to Protect Workers | AFL-CIO. AFL-CIO. https://aflcio.org/reports/workers-first-ai

99. Kresge, L. (2025). Negotiating Tech: An Inventory of U.S. Union Contract Provisions for the Digital Age. UC Berkeley Labor Center. https://laborcenter.berkeley.edu/negotiating-tech/

100. Writers Guild of America West. (17 Apr 2025). *Know Your Rights: Artificial Intelligence.* Writers Guild of America West. https://www.wga.org/contracts/know-your-rights/artificial-intelligence

101. SAG-AFTRA. *SAG-AFTRA A.I. Bargaining And Policy Work Timeline.* SAG-AFTRA. https://www.sagaftra.org/contracts-industry-resources/member-resources/artificial-intelligence/sag-aftra-ai-bargaining-and

102. UPS Teamsters. *UPS National Master Tentative Agreement 2023-2028 Summary Changes & Improvements.* https://teamster.org/wp-content/uploads/2023/08/UPS-Master-Highlights-single-pgs-1.pdf

103. Roscoe, Jules (27 Feb 2023). *The Invisible Workers Who Train Google's Algorithm Fought for $15/Hr and Won.* Vice. https://www.vice.com/en/article/the-invisible-workers-who-train-googles-algorithm-fought-for-dollar15hr-and-won/

104. Feng, K., & Khan, M. (2025, September). A First Look at Labor's AI Values: An analysis of recent statements about technology by unions and other worker organizations. UC Berkeley Labor Center. https://laborcenter.berkeley.edu/a-first-look-at-labors-ai-values/

105. SEIU Local 1000. *About Local 1000.* https://www.seiu1000.org/about/

106. SEIU Local 1000. *zSystems Apprenticeship Program.* https://www.seiu1000.org/zsystems-apprenticeship-program/

107. SEIU Local 1000. (15 Jul 2025). *Cybersecurity Apprenticeship Program.* https://www.seiu1000.org/cybersecurity-apprenticeship-program/

108. SEIU Local 1000. (15 Jul 2025). *Information Technology (IT).* https://www.seiu1000.org/information-technology-it-apprenticeship/

109. AFL-CIO Working for America Institute. (Oct 2023). *BRIEF: ADVANCING PARTNERSHIPS BETWEEN ORGANIZED LABOR AND COMMUNITY COLLEGES.* AFL-CIO Working for America Institute. https://www.workingforamerica.org/system/files/brief_advancing_partnerships_final.pdf

110. AFL-CIO. (2016, October 4). Working for America Institute. Working for America Institute. https://www.workingforamerica.org/

111. Sara Lamback and Madeleine Chaisson. *RITEI Workers' Rights Guide.* Jobs for the Future. https://www.jff.org/idea/ritei-workers-guide-introduction/

112. Jobs for the Future. *Rapid IT Training and Employment Initiative.* Jobs for the Future. https://info.jff.org/rapid-it-training-and-employment-initiative

113. McDonald, Jane. (7 Dec 2023). *IT Workers Can Navigate AI's Evolution Through Collective Action.* Jobs for the Future. https://www.jff.org/blog/it-workers-can-navigate-ais-evolution-through-collective-action/

114. Krysti Specht and Orrian Willis. (17 Jan 2023). *RITEI Leverages Apprenticeship Buzz to Create Accessibility for In-Demand Tech Roles.* Jobs for the Future. https://www.jff.org/blog/ritei-apprenticeship-create-accessibility-demand-tech-roles/ ; Lamback, S., Spektor, B., & Chaisson, M. (2024). Beyond Access

and Affordability: Insights from Piloting a Virtual A+ Training Model. Jobs for the Future. https://www.jff.org/wp-content/uploads/2025/07/714_Beyond-Access-and-Affordability-508-1.pdf

115. AFL-CIO. (11 Dec 2023). *AFL-CIO and Microsoft Announce New Tech-Labor Partnership on AI and the Future of the Workforce*. AFL-CIO. https://aflcio.org/press/releases/afl-cio-and-microsoft-announce-new-tech-labor-partnership-ai-and-future-workforce

116. Singer, Natasha. (9 Jul 2025). *OpenAI and Microsoft Bankroll New A.I. Training for Teachers*. The New York Times. https://www.nytimes.com/2025/07/08/technology/chatgpt-teachers-openai-microsoft.html

117. Zaveri, P. (2023, March). The tech layoffs have created the perfect moment for tech workers to get organized and unionize, but getting there isn't easy. Business Insider. https://www.businessinsider.com/tech-layoffs-allow-workers-learn-how-to-unionize-2023-3

118. Newsome, D. (2025, May 12). Guild members are winning strong protections from employer-pushed AI | The NewsGuild—TNG-CWA. https://newsguild.org/guild-members-are-winning-strong-protections-from-employer-pushed-ai/

119. Voss, E., & Bertossa, D. (n.d.). Collective Bargaining and Digitalization: A Global Survey of Union Use of Collective Bargaining to Increase Worker Control over Digitalization. New England Journal of Public Policy, 34(1). https://scholarworks.umb.edu/cgi/viewcontent.cgi?article=1822&context=nejpp

120. Trade Union Advisory Committee to the Organisation for Economic Co-operation and Development (22 Jul 2016). *Unions and Skills TUAC discussion paper on OECD strategies for skills, Jobs and the Digital Economy*. https://tuac.org/wp-content/uploads/2018/06/1607t_unions-skills.pdf

121. Autor, David. (2015). *Why Are There Still So Many Jobs? The History and Future of Workplace Automation*. Journal of Economic Perspectives. https://www.aeaweb.org/articles?id=10.1257/jep.29.3.3

122. Lee, Juhohn. (19 Jul 2025). *Why American wages haven't grown despite increases in productivity*. CNBC. https://www.cnbc.com/2022/07/19/heres-how-labor-dynamism-affects-wage-growth-in-america.html



Find us at techequity.us

Reach out at info@techequity.us