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AI AND THE FUTURE OF WORK: MOVING FORWARD TOGETHER

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BEFORE THE

SUBCOMMITTEE ON EMPLOYMENT AND WORKPLACE SAFETY

OF THE

COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS

UNITED STATES SENATE

ONE HUNDRED EIGHTEENTH CONGRESS

FIRST SESSION

ON

EXAMINING AI AND THE FUTURE OF WORK

OCTOBER 31, 2023

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C O N T E N T S

STATEMENTS

TUESDAY, OCTOBER 31, 2023

AI AND THE FUTURE OF WORK: MOVING FORWARD TOGETHER

Tuesday, October 31, 2023

U.S. SENATE,
SUBCOMMITTEE ON EMPLOYMENT AND WORKPLACE SAFETY,
COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 10 a.m., in room 430, Dirksen Senate Office Building, Hon. John Hickenlooper, Chairman of the Subcommittee, presiding.

Present: Senators Hickenlooper [presiding], Casey, Kaine, Braun, and Budd.

OPENING STATEMENT OF SENATOR HICKENLOOPER

Senator HICKENLOOPER. [Technical problems]—let's try that again. The Committee on Employment and Workplace Safety will come to order.

Today we are discussing the future of AI and its impact on the workforce. One of our expectations is to show that there will—that there is nothing to be afraid of in this future. Ranking Member Braun and I will each give an opening statement. Then we will introduce the witnesses.

After the witnesses give their testimony, Senators will have 5 minutes for a round of questions. Now, it is no secret that artificial intelligence is having a moment in all of our lives in myriad ways, and the workplace is certainly no exception.

Just yesterday, President Biden signed an Executive Order focused on AI governance, a critical step in our Nation's overall approach to how we integrate AI into a larger and larger parts of our life.

This is just the beginning. To make sure our workforce is positioned for success, we want to know how AI is being adopted and how AI is being used in the workplace. This is going to help us understand how we can ensure that workers are trained, that they have sufficient training, and that they are empowered to maximize the potential of this rapidly evolving technology.

According to a recent Pew study, nearly 6 in 10 workers, when they were contacted, had interacted with an AI system or application in their workplace just in the last year, and we know that is just the beginning. This number will continue to rise. AI technology has been a part of our daily lives for years, from my phone's text

suggestion functions, to search engines' ability to recommend top results.

But now generative AI systems like ChatGPT are coming to the stage where they can assist us with writing our emails, making travel plans, quickly analyzing large datasets, even increasing the artwork we surround ourselves with.

This technology has the potential to positively alter the way that literally all of us work, but I think we have an imperative to do it right, to make sure we are not making missteps as we move so rapidly in this direction. I think working together and including workers in that conversation is essential.

Maybe that is the most important point we can make today. Many people think of movies where AI replaces humanity. I think the reality in many cases will be that AI will work hand in hand with the workforce, the people that are actually doing the work.

Just look at some of the most popular AI applications we are seeing, how they are being used. I mean, ChatGPT is great, but it requires input from a worker who has a combination of subject matter expertise and a decent level of AI literacy.

He has got to be able to give the system clear and direct prompts—make sure that it is being directed properly. Got to monitor the output for inaccuracies that are not as rare as they hopefully will become.

This is all part of why it makes it so important that we make sure that our workers across all industries are active partners in this transition. We should make sure that we help our workers to gain the relevant and essential skills, to gain the training that they are going to need to be able to succeed in this transition. In some ways, it is a tale as old as time. We don't call plumbers just because a wrench is hard to use.

We call them because they have mastered how to use that wrench to solve all manner of problems, and they have learned how to recognize the essential elements of each specific problem. Now, Bob Dylan and I both play the banjo, but even if we pluck the same notes, I think you would recognize that you would be missing the magic.

If you were listening to Bob he and any great musician bring a certain order and magic to what they do. No different than what a plumber does when he walks in and can unravel the most complex issues in your house. So, whatever the tools are, it is still workers that are using them and creating the magic.

Their skills, their training is what is going to make the difference. And that is why we have got to find smart workforce development opportunities around AI that are inclusive, that lift up the skills of all our workers to make sure that everyone thrives, everyone has the opportunity to create their own better future, their own career.

Today's hearing is going to provide an opportunity for us to hear from some terrific experts who have been considering AI implementation in a variety of contexts and have direct experience of how these efforts to train and upskill our workers are succeeding at some of the challenges we face.

Our goal today is to walk away with a better understanding of what AI integration looks like in work workplaces around different industries, the role both public and private sector leaders in fostering literacy and making sure that the training of the workforce of tomorrow continues unimpeded, what more needs to be done at a Federal level to make sure we all get it right.

I think this Subcommittee is uniquely positioned to help identify how employers and workers can best understand, and maybe more importantly, leverage the AI tools that are at our disposal. After all, I think every Member in this room wants to make sure that AI technology remains a treat, not a trick.

[Laughter.]

Senator HICKENLOOPER. Before I introduce our panel of witnesses, I would also like unanimous consent—to ask for unanimous consent to enter two letters into the record. One from IBM and one from the National Security Council. No objections. Without objection.

[The following information can be found on page 47 in Additional Material:]

Senator HICKENLOOPER. With that, I would like to welcome each of our witnesses who are joining us today. Tyrance Billingsley is the Founder and Executive Director for Black Tech Street based in Tulsa, Oklahoma. There, he is leading the initiatives, community based approach to tech innovation and the economic development that leads to feet on the ground, real life experiences.

Josh Lannin is the Vice President of Productivity Technologies at Workday, from my home State of Colorado. There, he leads Workforce's team through production of tech products, including AI technology systems. Workday has been a leader in adapting AI—from before people were even talking about AI.

Mary Kate Morley Ryan serves as the Managing Director of talent organization Accenture, one of the leaders in the country in terms of facilitating the acquisition of the skills necessary to deal successfully with AI.

At Accenture, she is focused on researching workforce transformation and inclusion in the future of work. Now, I recognize Ranking Member Braun to make his opening remarks, and then to introduce our final witness.

OPENING STATEMENT OF SENATOR BRAUN

Senator BRAUN. Thank you, Mr. Chairman, all of you for being here, and I look forward to introducing you in a moment. Senator Hickenlooper and I come from a unique background, unusual for most individuals in the U.S. Senate.

We actually spent a lot of time in the real world before we got here. We ran businesses. We were entrepreneurs by trade. And I look at the 37 years that I spent with a little, little business. I mean, it was so hardscrabble. It was 17 years with 15 employees.

But when I knew I had a tiger by the tail, that is when I had to start confronting technology, and the always extreme cost of it. And I am talking about dollar spent to get the latest and greatest,

because in year 17, we were on RadioShack. I can tell you now that we employ a lot of custom coders.

That little business grew from a regional one, then a national one with locations in most states. You learn a lot there. I learned to generally always say to my chief technology officer, which is my older son, my younger son runs the business as the CEO and CFO—we just quit saying no to that latest and greatest technology because we have leveraged it so well to differentiate ourselves from the competition.

We are looking at AI. Would you do the same? Well, being an entrepreneur, when I watch to see whatever is hitting the market across the spectrum of our economy, and I have heard it forewarned by the people that put it out there more than anything I have ever observed in my time, being someone looking for that leading edge, what is that next best way to do something.

It brings us to an interesting crossroads with something that looks like it can do so much, that can be so beneficial, but also looks like the malfeasance that could come from it forewarned by the people that know the most about it should give you pause. I am very concerned that we don't smother it. I think that we could do that easily.

Generally, we overregulate here, and we get bureaucrats and folks that don't know how to get from here to there in the real world, making all the rules. So, we have got to be careful about that. What we see it can do and what we are being warned about that it may be used for the wrong purpose to me is the essence of the journey that we are on.

All I can tell you is we are a lot more productive now in my own business, now that we have got the greatest and latest technology. I remember back when we were doing orders by hand on a RadioShack system.

That is why I think in weighing how we get through this, we have got to err on the side of letting it breathe, letting it show what it can do, but also take into consideration what the people that know the most about it are giving us as an admonition to be careful with it. So, I think that is where we are today.

As we apply it to how we can use it in the workforce, our economy grows by how much productivity we can leverage on the people that are in it itself. And over time, we always come into confrontations to where we are worried about what it is going to do to the economy because it will displace jobs.

This is a little different because it can get into areas of creativity. You already see things like patent trolling. You see things that are trying to rob people of their—what they have created in other arenas in our economy.

I think there is a lot there to be worried about. I do believe that hearings like this, and they are going to have many more in the Congress, are key to putting some type of framework of common sense regulation around it, keeping full in mind that we don't want to smother something that could be so beneficial to all of us. I will yield back.

Senator HICKENLOOPER. Thank you, Senator Braun, and Ranking Member. I appreciate that perspective. And it is unusual in the Senate to have a chair and a co-chair of—that are both entrepreneurs. They are not as many entrepreneurs in the—in our Congress as there used to be, for whatever reason.

Senator BRAUN. Need to be more, don't you think?

[Laughter.]

Senator HICKENLOOPER. Well, that is a bias we shouldn't be ashamed of. All right, now for our opening remarks, I will go from order from left to right.

Senator BRAUN. Introduce the next witness. Are you going to do that?

Senator HICKENLOOPER. Oh, yes. I am sorry. No, no, you do it now.

Senator BRAUN. Okay. Yes. My pleasure to introduce Bradford Newman. Mr. Newman is a Litigate Partner, Resident in Baker McKenzie's Palo Alto Office, and Chair of the North American Trade Secrets Practice.

Mr. Newman routinely advises and represents the world's leading technology, banking, professional service, manufacturing, and commerce companies in connection with their most significant data protection and trade secret matters. That is a lot. Among other subjects, Mr. Newman specializes in matters related to AI.

He is the Chair of the AI Subcommittee of the American Bar Association and has been instrumental in proposing Federal AI workforce legislation, as well as developing AI oversight and corporate governance, best practices designed to ensure algorithmic fairness.

Mr. Newman was also recognized as one of the top 20 AI attorneys in California in 2019. We welcome his expertise to the conversation today.

Senator HICKENLOOPER. Welcome to you all. Appreciate that. I apologize, Mr. Newman, for slipping—moving too—I hit fast forward accidentally. So, we will start with Mr. Billingsley to give his opening remarks, and then go down the line.

STATEMENT OF TYRANCE BILLINGSLEY, FOUNDER AND EXECUTIVE DIRECTOR, BLACK TECH STREET, TULSA, OK

Mr. BILLINGSLEY. Thank you, Mr. Chairman. I am appreciative to the Subcommittee on Employment and Workplace Safety for this opportunity to testify here.

My name is Tyrance Billingsley II, and I am the Founder and Executive Director of Black Tech Street, an initiative to rebirth historic Black Wall Street as a Black innovation economy and catalyze a movement that sees Black Americans embrace technology as a wealth building and global impact mechanism.

Black Tech Street was founded when I asked myself the question, what could Black Wall Street have been had it been supported and not destroyed? When I thought about the level of tenacity that it took for these Black entrepreneurs to build successful businesses during Jim Crow in my hometown of Tulsa, Oklahoma, I imme-

diately saw parallels with the tech industry, and not long after, I came to a three pronged epiphany.

One, tech is one of the only industries in which intergenerational wealth is generated in 7 to 10 years via a successful company exit. Two, tech is the core medium through which all global innovation takes place.

Three, by the year 2030, there were projected to be as many as 4.3 million vacant, high paying tech jobs due to a tech talent shortage. After considering these three things, I not only saw an incredible wealth building opportunity for Black Americans, but I also saw the Black Wall Street vision pushed to a new horizon.

I surmised that had Black Wall Street been supported and not destroyed, it would have been nothing other than the nation's premier Black innovation economy. Focusing on the three verticals of cybersecurity, business, intelligence, data analytics, and responsible artificial intelligence, Black Tech Street was founded on the premise that technology presents unparalleled economic opportunity.

The key word here is responsible AI, and back in Oklahoma, we are taking a community first approach and not just relying on big tech to address how AI can be a responsible tool for the benefit of communities and entrepreneurs.

To that end, our organization has brokered a holistic alliance with Microsoft to support the creation of 1,000 Black cyber and cyber adjacent professionals in Tulsa by the year 2030. We facilitated the participation of over 70 Black Tulsans in the largest public AI red teaming exercise alongside CDI at DEF CON 31, and we co-led the Tulsa Hub for Equitable and Trustworthy Autonomy Consortium that recently received a U.S. Economic Development Agency's regional tech hubs designation alongside Tulsa Innovation Labs and the George Kaiser Family Foundation.

While we believe that all of our work is critical, the conversation around AI is on an entirely different level of urgency and importance. Artificial intelligence will not just disrupt lives, it will remake the world. Perhaps most urgently, AI will fundamentally transform the workforce, which is the lifeblood of any well-functioning society and economy.

In truth, the workforce will be the first area where we truly see the power—the transformative power of AI at scale, whether this be in the innovation economy, the creative economy, or one of the many other facets.

Whether or not we ensure AI secures a beneficial arrangement for people in the future of work will set a precedent for how AI is administered in all facets of life. If the systems for AI in the workforce are designed in a human centered way, AI could be a tool to fundamentally alter the socioeconomic position of marginalized communities in this country, or it could exacerbate preexisting inequities in a way that are almost irreparable.

To that end, I believe there are four critical guidelines that can help us ensure that the future of work built by AI is safe, equitable, and beneficial for the American worker and economy. One,

approach the regulation of AI and the issues that surround it in the workforce and more broadly as a socio-technical issue.

Complex or wicked socio-technical issues are problems that resist solution despite repeated attempts, are difficult to describe or predict, are not addressable by single individuals or organizations, are not addressable in a single intervention and require multiple coordinated interventions, and the most critical question in them is discerning where to focus, followed by what to do, when, and how.

Two, develop a worker centered AI social contract for the workforce that defines the rules of use and engagement as they relate to AI for both employees and employers, is rooted and framing and incentivizing AI as a copilot to enhance human creativity, productivity, and output.

Sets the precedent for policies and systems that define how AI can and should be used in relation to workers as the most critical aspect of the future of work instead of just what the technology can do. And finally displays a stable framework for using AI to unleash human potential in a way that also leads to better profit and performance for companies.

Three, over-index and incentivize training and education programs that target people of color and communities that have been historically left out of the technological revolution. Four, develop the framework for AI and the future of work in a way that strengthens the intersection between workforce and high growth, as well as small business entrepreneurship.

I believe that these four guiding principles and the inclusion of communities like Tulsa in these conversations will be the keys to ensuring that we utilize AI to build a future of work that unleashes the true potential of the labor force, empowers the American economy of the 21st century. Thank you very much.

[The prepared statement of Mr. Billingsley follows.]

PREPARED STATEMENT OF TYRANCE BILLINGSLEY

I am appreciative of the privilege to testify here today. My name is Tyrance Billingsley II and I am the Founder and Executive Director of Black Tech Street, an initiative to rebirth historic Black Wall Street as a Black Innovation Economy and catalyze a movement that sees Black Americans embrace technology as a wealth-building and global impact mechanism. Black Tech Street was founded when I asked myself, "What could Black Wall Street have been if it had been supported and not destroyed?"

When I thought about the level of tenacity that it took for these Black entrepreneurs to build successful businesses during Jim Crow in my hometown of Tulsa, Oklahoma, I immediately saw parallels with the tech industry and not long after, I came to a three-pronged epiphany:

1. Tech is one of the only industries in which intergenerational wealth is generated in 7–10 years via successful company exit.
2. Tech is the core medium through which all global innovation takes place.
3. By the year 2030, there are projected to be as many as 4.3 million vacant high-paying jobs due to a tech talent shortage.

After considering these three things, I not only saw the perfect wealth-building opportunity for Black Americans, but I also saw the Black Wall Street vision pushed to a new horizon. I surmised that if Black Wall Street were supported and not destroyed, it would be nothing other than the Nation's premiere Black Innovation Economy. Focusing on the three verticals of cybersecurity, business intelligence/data analytics and responsible artificial intelligence, Black Tech Street was founded on the premise that technology presents unparalleled economic opportunity.

A key word here is *responsible* AI. And back in Oklahoma, we are taking a community-first approach and not just relying on Big Tech to address how AI can be a responsible tool for the benefit of our communities and entrepreneurs.

To that end, this organization has brokered a holistic alliance with Microsoft to support the creation of 1000 Black Cyber and Cyber adjacent professionals in Tulsa by the year 2030, facilitate the participation of over 70 Black Tulsans in the largest public AI Red Teaming exercise at DEF CON 31, and co-lead the Tulsa Hub for Equitable and Trustworthy Autonomy consortium that recently received a U.S. Economic Development Agency Regional tech hubs designation alongside Tulsa Innovation Labs and the George Kaiser Family Foundation.

While we believe that all of our work is critical, the conversation around AI is on an entirely different level of urgency and importance. Artificial intelligence will not just disrupt lives; it will remake the world. Perhaps most urgently, AI will fundamentally transform the workforce, which is the lifeblood of any well functioning society and economy. In truth, the workforce will be the first area where we truly see the power transformation of AI at scale, whether this be in the innovation economy, the creative economy or one of the many other facets.

Whether or not we ensure AI secures a beneficial arrangement for people in the future of work will set a precedent for how AI is administered in all facets of life. If the systems for AI in the workforce are designed in a human centered way, AI could be a tool to fundamentally alter the socioeconomic position of marginalized communities in this country, or it could exacerbate pre-existing inequities in a way that is almost irreparable.

To that end, I believe there are four critical guidelines that can help us ensure that the future of work built by AI is safe, equitable and beneficial for the American worker and economy.

1. Approach the regulation of AI and the issues that surround it in the workforce (and more broadly) as a sociotechnical issue. Complex or "wicked" sociotechnical issues are problems:
    - That resist resolution despite repeated attempts
    - Are difficult to describe or predict
    - Are not addressable by single individuals or organizations
    - Are not addressable in a single intervention and require multiple coordinated interventions
    - The most critical question is discerning "Where to focus?" followed by what to do, when and how.
2. Develop a worker centered AI social contract for the workforce that:
    - Defines the rules of use and engagement as they relate to AI for both employees and employers.
    - Is rooted in framing and incentivizing AI as a co-pilot to enhance human creativity, productivity and output.
    - Sets the precedent for the policies and systems that define how AI can/should be used in relation to workers as most critical to the future of work vs what the technology can do or is capable of.
    - Displays a stable framework for using AI to unleash human potential in a way that also leads to better profit and performance for companies.
3. Overindex and incentivize training and education programs that target POC and marginalized communities that have been historically left out of technological revolutions.
4. Develop the framework for AI and the future of work in a way that strengthens the intersection between workforce and high growth, as well as small business entrepreneurship.

I believe that these four guiding principles and the inclusion of communities like Tulsa in these conversations will be the keys to ensuring that we utilize AI to build a future of work that unleashes the true potential of the labor force and powers the American economy of the 21st century.

AI and the Future of Work: A Sociotechnical Approach

With complex sociotechnical problems, the first issue at hand is often to discern "where to focus". The entirety of the questions around AI and how it will remake our world could be defined and, in my opinion, should be approached like a complex

sociotechnical problem. However, "AI and the Future of Work" presents a specific subset of the issues that can be focused on, as it is the most imminent of the AI issues that will have a visible and tangible effect at scale.

I believe that "AI and the Future of Work " is a sociotechnical problem in and of itself that needs to be addressed and can then provide a framework for addressing AI issues more broadly as it relates to ensuring the future we build is equitable, safe, trustworthy and beneficial.

Albert Einstein said, "If I had 20 days to solve a problem, I would take 19 to define it." Identifying a true problem can be difficult, especially in a complex sociotechnical problem, because there is rarely just one. In cases like these, we have to think in terms of two questions:

1. "Which problems are most urgent for me to solve?"
2. "Which problems are the ones that, if I solve or make progress on, will have a domino effect on solving for the greatest number of other problems due to the multifaceted and interconnected nature of the issue I am tackling?"

To answer these questions, one can use a method called "**catalytic factor analysis**". Catalytic Factor Analysis is based on a method designed to identify which keystone species in an ecosystem are critical to success, i.e., if a certain species were to flourish or flounder, would the overarching effect on the ecosystem be positive or negative in relation to the health of the ecosystem.

It starts with a 5 step process of:

1. Identify a "North Star" for AI and the Future of Work.
2. Gather a room of key experts in AI and the workforce from FOW thought leaders, policy experts, labor lawyers, human rights activists and technologists to identify the root factors relating to AI and workforce/the future of work.
3. Have the experts collectively rank the problems in a survey based on their "catalytic" nature and their urgency as it relates to securing the "North Star" as it relates to AI and the Future of Work.
4. Conduct an exercise using a tool that utilizes catalytic factor analysis to identify which factors in the system are catalytic.
5. Prioritize research, funding and public private sector efforts to mobilize and solve (or take steps to solve) the factors that were deemed catalytic.

The thesis is that, with the opinion of the blended participants of experts from various fields touching AI and workforce, the outcome will be an accurate network map of catalytic factors that can be actioned against in various ways and from various players in the public and private sectors. This will allow the Federal Government and other stakeholders to know what to prioritize and where to pour funding and efforts in terms of solving the issues that are most urgent, as well as maximizing efficiency by tackling issues that will go the longest way in tackling others related to AI and the workforce overall.

Workers Social Contract in The Age of AI

Whether it be the SAG-AFTRA strike in Hollywood or the nuance around AI's use in the workplace of different industries, it is clear that there needs to be a workers social contract for AI that governs its use, both by the employee and the employer. The need for this is something that would likely be identified as a result of the study above if it were to be done; it is the baseline of the entire AI and the Future of Work conversation. At some point, there will need to be a new social contract for everyone as it relates to AI more broadly, but once again, the workforce will likely be the first example of how this plays out (and thus set the pace for the broader conversation).

This contract has to not only govern AI in the workforce but also create a culture where AI is viewed as a copilot to enhance creativity and productivity, set the precedent in the public and private sectors of prioritizing how AI is used in relation to workers and work as most important vs just what the tech is capable of, and maximize both human potential and profitability for the companies.

Overindexing Investment in Education and Training in POC Communities

POC communities have historically been left out of technological revolutions that result in massive wealth and other socioeconomic disparities. The opportunity and

dangers presented by AI could fundamentally alter the socioeconomic position of POC in America forever, and this can either be good or bad. If the funding and infrastructure are not sufficient to ensure that POC are educated, trained and proficient in AI prior to widespread adoption and further technological innovation, the economic effect could be catastrophic nationwide. Conversely, if the right care is taken, AI could be the catalyst that goes toward remedying many of the socioeconomic disparities that resist solution.

AI Workforce and The Intersection of Entrepreneurship

If sufficient care is taken to truly ensure AI is well applied to the future of work and the efforts are successful, the workplace will be the perfect place to build proficiency with AI in a way that will poise participants in the labor market to take up the entrepreneurial spirit and use their learned proficiency in AI to start small or high growth businesses based on their experiences. The higher the level at which we succeed as it relates to a framework for AI and the Future of Work, the better the backbone of the other parts of the American economy that depend on the labor force, such as entrepreneurship and academic research.

Support for Fiscal Year 2024 Appropriations to Spur Innovation

Last, none of these efforts will succeed without adequate government funding and support.

In the immediate future, I urge Congress to support the following fiscal year 2024 appropriations to support organizations like Black Tech Street and Tulsa Innovation Labs back home in Oklahoma in their efforts to innovate:

- President Biden's fiscal year 2024 Budget Proposal showed the administration's investment in science and innovation through his proposed fiscal year 2024 budget requests. As Congress seeks to finalize its NSF and CJS budgets; as such please, consider fully funding the following programs which provide Federal resources to support key programs that aid Black Tech Street in transforming Oklahoma.
- The Department of Commerce, Justice and Science Appropriations ("CJS"): The Senate Appropriations Committee's CJS bill would provide $71.7B, $10.3B below the fiscal year 2023 enacted level, and $19.5B less than President Biden's fiscal year 2024 budget request. While the House Appropriations Committee has not passed a bill, the House subcommittee approved the CJS bill for a total of $58.4B, which is $24.9B below the current level, and $34.2B below President Biden's fiscal year 2024 budget request.

Within the CSJ, there are key programs that are vital to Black Tech Street and its partners.

These include but are not limited to the following:

CJS Program	FY23 Final	FY24 President	FY24 House Subcommittee	FY24 Senate	Black Wall Street Request
Dept. of Commerce	$11.1B	$12.4B	$9.6B	$11.1B	$11.1B
EDA	$1.6B	$804M *$4B for Regional Tech Hubs	$255M	$466M	$804M
Regional Technology and Innovation Hub Program	$500M* *Funds to jumpstart program in supplemental	$4B		$41M	$4B
Regional Innovation Engines Program	$170M* *Directed at least $170M	$300M		$200M	$300M
Minority Business Development Agency	$68M	$110M	$55M	$70M	$110M

CJS Program	FY23 Final	FY24 President	FY24 House Subcommittee	FY24 Senate	Black Wall Street Request
STEM	$1.2B	$1.4B	$2.5M	$2.5M	$2.5M

- The Black Tech Street supports President Biden's request of $4B to build on the one-time $500 million provided in the Consolidated Appropriations Act, 2023. This funding would enable EDA to establish cutting-edge and strategic regional technology hubs that foster the geographic diversity of innovation and create quality jobs in underserved and vulnerable communities across the Nation—including our communities in the northern region of Tulsa.
- Within the Small Business Administration, the Black Tech Street supports President Biden's request and asks that $30M for SBA's Growth Accelerator Fund Competition, Regional Innovation Clusters, and the Federal and State Technology Partnership Program; $30M for the Community Navigator Pilot Program; and increasing the authorized lending level for the SBIC program by 20 percent to $6B is honored by Congress.

The National Science Foundation ("NSF"): Additionally, as part of the CSJ bill, President Biden's requested a total of requests $11.3 billion in discretionary budget authority for 2024, a $1.8 billion or 18.6-percent increase from the 2023 enacted level.

Within the NSF portion of the CSJ, there are key programs that are vital to Black Tech Street and its partners. These include but are not limited to the following:

NSF Program	FY23 Final	FY24 President	FY24 House	FY24 Senate	Black Wall Street Request
STEM Workforce	$1.2B	$1.4B	$2.5M	$2.5M	——
Scientific & Technological Advances	——	$2B	——	——	——
U.S. Leadership in Emerging Technologies	——	$1.2B	$300M	——	——
Research Activities for CHIPS and Science Act	$9.87B	$11.3B	$9.6B	$9.5B	$11.3B

- Black Tech Street supports President Biden's request of $1.4B in funding to STEM workforce development which is vitally important for the advancements in innovation by American workers.
- Black Tech Street supports the President's request of $1.2B in advancing U.S. leadership in emerging technologies—as a network of partners located in Oklahoma, our challenges to recruit and retain talented innovators faces both domestic and global competition. We support policy that supports keeping American jobs in America and applaud the President's request for this funding as part of NSF.
- Black Tech Street also supports the $7.6B for NSF's research and related activities and the $11B allocated by the Senate to implement the CHIPS and Science Act.

We are hopeful with the passage of the CJS bill and its NSF funding, Congress can continue to support innovation and advancements in commerce, science, innovation, and technologies that community partners like Black Tech Street work on each day for all Americans.

We are confident the above recommendations are a step in the right direction for our Nation's future.

Senator HICKENLOOPER. Thank you very much. Mr. Lannin.

STATEMENT OF JOSH LANNIN, VP, PRODUCTIVITY TECHNOLOGIES, WORKDAY, BOULDER, CO

Mr. LANNIN. Good morning, Chairman Hickenlooper, Ranking Member Braun, and Members of the Subcommittee. My name is Josh Lannin. I am Vice President of Productivity Technology at Workday.

Workday is a leading provider of cloud applications for finance and human resources. Our software is used by more than 10,000 organizations, including half of the Fortune 500, servicing over 65 million users. In April of this year, nearly one in four of all U.S. job openings were processed on the Workday platform, a responsibility we take very seriously.

At the same time, our business gives us a unique vantage point and opportunity to shape the future of work. For more than 25 years, I have led teams of developers, product managers, and researchers that build software, which has transformed how teams run their business.

AI clearly holds great potential in this area, which is why I commend the Subcommittee for its timely bipartisan focus on how AI will impact the American workforce. It is clear that advancing technology will change the skills the workforce of the future requires.

As a father of two teenage daughters, it is an incredibly challenging time to give them career advice. At the same time, when I see how new technologies are helping them in ways, in their schooling, I couldn't have imagined when I was in school.

At Workday, we believe that I can enable U.S. workers and employers to better navigate future changes by focusing on a skills based approach to talent. Today, an employee can use Workday's AI to identify opportunities for career development.

For example, employees can ask Workday specific questions about their company's learning and development policies and get a clear answer without having to read page after page of documentation, all thanks to AI.

As our Workday product teams integrate AI, we strive to put people at the center and enable them to apply their judgment. This requires careful crafting of the Workday product experience, so users understand always how and when AI is augmenting their work. It is also why Workday provides tools that enrich but don't replace human judgment. It is an approach that builds trust with our customers and our users.

Recently, Workday surveyed 1,000 senior business leaders about AI and learned there is overwhelming agreement the AI is needed to help their employees work more efficiently and make better decisions.

Yet leaders also told us that people lack the skills to adapt to the coming changes in the workplace. How do we address the skills gap, while also equipping workers and employers to navigate the

coming changes? It is a significant challenge to identify and invest in skills that are relevant today, or recognizing those skills will change in the future.

Workday's view, a skills based approach to talent, an approach that emphasizes what a person can do or learn, rather than their credentials is the best way forward. The Governors of 10 states are embracing such an approach because it provides for more nimble reskilling and expands applicant pools.

We are pleased to see the President's new AI Executive Order acknowledge the importance of skills in a changing workplace. And I have seen firsthand in my organization how shifting to a skills based approach has impacted our organization, faster hiring and the opportunity to bring on qualified candidates we might have overlooked in the past.

To make a shift to a skills based approach, you need both the right mindset and technology. Workday skills cloud, for example, uses AI to align skills to a common vocabulary and map how different skills relate to each other.

With that in place, our customers provide online talent marketplaces for their employees to find new internal opportunities to get the skills they need. For example, a retail associate who is interested in a management position can discover a leadership role at another store and take suggested online learning classes to give them the skills they need to apply for that opportunity.

In other words, AI can take the guesswork out of workforce development and elevate people skills. Finally, I would like to mention that Workday believes there are steps the Subcommittee can take to support the transition to a data driven, skills based approach to talent at a national scale.

There is growing awareness, including with the National AI Advisory Committee, about the need to modernize the Department of Labor's workforce and labor market information reporting. High quality and timely Federal data is essential to be able to leverage AI and to provide workers and employers with actionable insights and what skills are needed.

Workday has partnered with industry stakeholders to craft model legislation that Congress can take to support these efforts. In conclusion, while AI will continue to drive change, we at Workday are all in on its ability to unlock human potential and support a skills based approach to talent.

We seek to play a constructive role in AI with workforce issues and practices. We hope the Subcommittee will see us as a resource as you consider a path forward. Thank you.

[The prepared statement of Mr. Lannin follows.]

PREPARED STATEMENT OF JOSH LANNIN

Good morning, Chairman Hickenlooper, Ranking Member Braun, and Members of the Subcommittee. My name is Josh Lannin, and I'm Vice President of Productivity Technology at Workday. I'm grateful for the opportunity to appear before you today.

For more than twenty-five years, I've worked on emerging technologies such as artificial intelligence (AI) that enhance how workers collaborate, amplify their team's performance, and succeed in the rapidly changing workplace. I've called Colorado home for more than thirty years, and I'm a proud graduate of the University of Colorado Boulder where my oldest daughter, Sydney, recently started.

Background

For those who don't know us, Workday is a leading provider of enterprise cloud applications for finance and human resources, helping customers keep pace with a changing world. Our applications for financial management, human resources, planning, spend management, and student management are built with AI and machine learning at the core to help organizations embrace the future of work. Headquartered in Pleasanton, California, Workday has more than 18,000 employees with offices in Boulder, Boston, McLean, and Salt Lake City.

Workday was founded in 2005 and today is used by more than 10,000 organizations around the world and across industries—from medium-sized businesses to more than 50 percent of the *Fortune* 500. The Workday customer community has 65 million users, and in April of this year, nearly one in four of all U.S. job openings was processed on the Workday platform.[1] We are deeply committed to providing consistent, reliable, and secure software services to our customers and their employees. We also believe we have a unique opportunity to improve employee experiences and empower people to do their best work.

Our customers include state, local, and county governments and institutions of higher education, including the cities of Denver and Boulder; Hamilton County, Indiana; the Colorado School of Mines; and DePauw University. Last year, Workday entered the Federal marketplace.[2], [3] We did so after recognizing that Federal agencies like the Department of Energy needed enterprise software that helps them address their workforce development and financial management challenges and can keep pace with rapid change.

I commend the Subcommittee for convening this hearing and for its bipartisan focus on how AI will impact the American workforce and on the skills needed to succeed in the changing workplace. These issues are a high priority for Workday and our customers, and we view them as central to the question of how to make the most of AI's potential. As with earlier advancements in technology, AI will impact how people work and the skills their jobs require. Notable developments around generative AI are also accelerating the pace and depth of transformation that we will likely see in the next two to 3 years. At the same time, we are confident that AI can empower U.S. workers and employers to navigate these changes by fostering a skills-based approach to talent.

My testimony will highlight how Workday and our customers are thinking about AI, how trustworthy AI can drive a skills-based approach to talent at scale, and the steps we recommend the Subcommittee consider so that workers and employers have the data to better adapt to the changing workplace.

Employers are Optimistic about AI and Navigating Skills Gaps

At Workday, we believe AI can positively transform how people and organizations work. The AI tools we deliver to our customers help people to make more informed decisions by surfacing new insights, identifying opportunities for career development, and improving workers' day-to-day by simplifying labor-intensive tasks.[4] Our guiding principle is that AI should be used in ways that augment, rather than displace people. As such, Workday provides tools that enrich—but don't automate—human decisions. Our product teams work hard so that users can understand how and when AI is being used so that a human is always the ultimate decision-maker. We've found that this is an approach that builds trust with our customers and end users.[5]

Earlier this year, Workday surveyed 1,000 senior decision-makers in human resources, finance, and technology for their perspectives on AI.[6] As decisions about

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[1] Landman, Inna. "First Half 2023 Hiring Trends: Slowdown and Stagnation," Workday Blog, September 20, 2023, *https://blog.workday.com/en-us/2023/first-half-2023-hiring-trends-slowdown-stagnation.html*.

[2] "Workday Achieves Fedramp Authorized Designation." Workday Newsroom. *https://newsroom.workday.com/2022-07-13-Workday-Achieves-FedRAMP-Authorized-Designation*.

[3] Robinson, Doug. "Tipping Point—Modernizing the Federal Workforce." POLITICO, July 11, 2022. *https://www.politico.com/sponsor-content/2022/07/11/tipping-point-modernizing-the-Federal-workforce*.

[4] Chakraborty, Sayan. "Workday's Vision for AI." Workday Blog, March 10, 2023. https://blog.workday.com/en-us/2022/workdays-vision-for-ai.html.

[5] Chakraborty, Sayan. "How AI and ML Are Powering the Future of Work." Workday Blog, July 6, 2023. https://blog.workday.com/en-us/2023/how-ai-and-ml-are-powering-future-work.html.

[6] Krist, Josh. "Workday Research: 'AI IQ' Study Reveals Artificial Intelligence Adoption Barriers for Business Leaders," Workday Blog, October 2, 2023, *https://blog.workday.com/en-us/*

the future of work are being made today, the results illustrate how employers are thinking about AI and the workplace. Senior decision-makers overwhelmingly agreed (80 percent) that AI is needed to keep their business competitive and help their employees work more efficiently and make better decisions. Of the technology leaders surveyed, 94 percent indicated they are investing in AI and a similar number (83 percent) expect to invest the same amount or more over the next 3 years.

Yet alongside the optimism about AI's potential is anxiety. A majority of senior decision-makers (72 percent) voiced concern that their organization lacks the skills to fully implement AI. Nearly all (93 percent) said it was important to keep a "human in the loop" when making significant decisions.

Although we're in the early days of AI adoption, the opportunities and challenges ahead of us are coming into view. Employers understand the benefits of using AI to address both labor-intensive and time-intensive work, but wrestle with growing skills gaps in AI, AI-adjacent, and more traditional roles. How do we address this skills gap while also equipping workers and employers to navigate the coming changes to the workplace? By one estimate, 85 percent of the jobs in 2030 have not been created yet.[7] While this number may be bullish, it speaks to the challenge of identifying and investing in skills that are not only in-demand today, but will also be relevant tomorrow.

Skills: the Right Lens to View the Changing Workplace

We believe a shift to a skills-based approach to talent—rather than trying to forecast the skills of the future—is the best way forward.[8,9,10] By a skills-based approach to talent, we mean an emphasis on what a person can do or learn, rather than solely on their credentials.

Awareness of the benefits of a skills-based approach to hiring, learning, and career development is growing.[11] Alongside the private sector, Governors of at least ten states, including Colorado, North Carolina, Pennsylvania, Utah, and Virginia, are taking steps to remove degree requirements for most state opportunities.[12] In hiring guidance issued by the Office of Personnel Management last year, the Nation's largest employer—the Federal Government—recognized the importance of a skills-based approach to recruiting its workforce.[13]

Why focus on skills? First, it helps workers more nimbly upskill and reskill for new roles, including through on-the-job experience.[14] Second, employers can expand their applicant pools and shine a spotlight on talented individuals who are equipped

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2023/workday-research-ai-iq-study-reveals-artificial-intelligence-adoption-barriers-business-leaders.html.

[7] Realizing 2030: A divided vision of the future—Dell USA, *https://www.delltechnologies.com/content/dam/delltechnologies/assets/perspectives/2030/pdf/Realizing-2030-A-Divided-Vision-of-the-Future-Summary.pdf*.

[8] Schlampp, Pete. "A.I. Is a Must for Skills-Based Organizations That Want to Move at the Speed of Future Business," Fortune, February 17, 2023, *https://fortune.com/2023/02/17/workday-future-business-skills/*.

[9] Somers, David. "How Workday Is Delivering Next-Generation Skills Technology at Scale," Workday Blog, September 28, 2022, *https://blog.workday.com/en-us/2022/how-workday-delivering-next-generation-skills-technology-scale.html*.

[10] Bryan Hancock et al., "Taking a Skills-Based Approach to Building the Future Workforce," McKinsey & Company, November 15, 2022, *https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/taking-a-skills-based-approach-to-building-the-future-workforce*.

[11] Ferguson, Stephanie. "Understanding America's Labor Shortage," U.S. Chamber of Commerce, October 23, 2023, *https://www.uschamber.com/workforce/understanding-americas-labor-shortage*.

[12] "States Consider Elimination of Degree Requirements." National Conference of State Legislatures. *https://www.ncsl.org/education/states-consider-elimination-of-degree-requirements*.

[13] "OPM Releases Skills Based Hiring Guidance." U.S. Office of Personnel Management. *https://www.opm.gov/news/releases/2022/05/release-opm-releases-skills-based-hiring-guidance/*.

[14] Coolberth, Nicky Lauricella. "118 Businesses and Organizations Call on Congress to Support Investments in Workforce and Skills Training as Part of Economic Recovery Legislation," National Skills Coalition. *https://nationalskillscoalition.org/news/press-releases/118-businesses-and-organizations-call-on-congress-to-support-investments-in-workforce-and-skills-training-as-part-of-economic-recovery-legislation/*.

to excel in a job but may not fit a traditional candidate profile on paper.[15], [16] Approaches that over-rely on college degrees can also screen out otherwise qualified candidates, such as applicants from underrepresented and rural communities.[17] Third, the data supports a skills-based approach to talent. Hiring for skills has been found to be five times more predictive of job performance than hiring for educational qualifications.[18] Organizations that use skills-based practices are also twice as likely to place talent effectively and 98 percent more likely to retain high performers.[19]

As a manager, I've seen the benefits of these practices firsthand. Workday's approach to talent is skills-based. As a result, I'm able to find qualified candidates for our product organization faster, and opportunities have opened up for individuals who might have been overlooked in the past.

AI Can Drive a Skills-Based Approach to Talent at Scale

At Workday, we've found that successfully implementing a skills-based approach to talent can be difficult to scale without the right technology.[20] People use different words to describe a skill, and very different skills can be described with the same word. Workers often struggle to identify which skills they should develop to advance their careers, and the lack of consistency makes it difficult for employers to identify workers who can fill an open role.

Fortunately, AI is unique in that it will drive change in the workplace and power the tools that workers and employers need to successfully navigate those changes. AI can process large amounts of data associated with occupational roles and responsibilities and develop so-called "ontologies" or vocabularies that make skills data actionable. Workday's Skills Cloud, for example, aligns skills to a common vocabulary by using machine learning to map how different skills relate to each other and evolve over time.[21] Skills Cloud has been used over 40 million times, including by hiring managers for new job postings and by incumbent workers and candidates to communicate the skills they have. Over 25 percent of *Fortune* 500 companies are now live on Skills Cloud and workers have entered over 200 million skills into their profiles.

Incumbent workers can also use Career Hub, a one-stop-shop on the Workday platform where employees can find AI-enabled personalized recommendations, such as learning content and short-term projects on other teams where they can pick up new skills. For example, a retail associate who is starting a new family and is interested in management can discover a leadership role at another store and take suggested learning courses to prepare them for that opportunity.[22] The result is a win-win for workers and employers: the retail associate can pursue growth opportunities that align with their career goals, and employers can benefit from and support their incumbent talent. This is one example of how AI and skills can take the guesswork out of workforce development and facilitate data-driven reskilling.

AI can also give workers the tools to succeed in their current roles. In the coming months, finance professionals using Workday will be able to use a generative AI tool to analyze contracts for any anomalies or discrepancies. This saves time, enhances accuracy, and frees up those workers to focus on negotiating contracts and building partnerships—all while keeping the human as the final decision-maker.[23] When

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[15] Schlampp.

[16] "STARs." Opportunity@Work. "*https://opportunityatwork.org/stars/*."

[17] The Editorial Board. "See Workers as Workers, Not as a College Credential." The New York Times, January 28, 2023. *https://www.nytimes.com/2023/01/28/opinion/jobs-college-degree-requirement.html*.

[18] Hancock et al.

[19] Griffiths, Michael, and Robin Jones. "Skills-Based Organizations: Deloitte Global." Deloitte, November 2, 2022. *https://www.deloitte.com/global/en/issues/work/skills-based-organizations.html*.

[20] "Skills credentials and Workforce of the Future." Workday. *https://www.workday.com/content/dam/web/en-us/documents/whitepapers/skills-credentials-and-workforce-of-the-future.pdf*.

[21] Stratton, Jim, David Somers, Rowan Miranda, et al. "The Foundation of the Workday Skills Cloud." Workday Blog, 2020. *https://blog.workday.com/en-us/2020/foundation-workday-skills-cloud.html*.

[22] Ernst, Chris. "Making the Shift to a Skills-First People Strategy." SHRM, August 23, 2022. *https://www.shrm.org/executive/resources/people-strategy-journal/summer2022/pages/chris-ernst-workday-skills-first-people-strategy.aspx*.

[23] Workday Staff Writers. "Workday elevates human performance with generative AI capabilities." Workday Blog, September 27, 2023. *https://blog.workday.com/en-us/2023/workday-elevates-human-performance-innovative-generative-ai-capabilities.html*.

thoughtfully and responsibly applied, these AI tools can elevate the work people do, and give them time back to focus on what matters most to them and their roles.[24]

Responsible AI Governance Builds Trust

While we see incredible opportunities for AI to unlock human potential, we also recognize that the risk of unintended consequences is real. One thing we are certain of is that people won't use technology they don't trust.[25] As a cloud-native enterprise software company, we learned early on that rigorous investments in technology governance are critical to earning and retaining our customers' trust. This is why Workday put in place a robust responsible AI program that includes:

- **Leadership Commitment** from a Responsible AI Advisory Board that is led by our General Counsel and counts our Chief Compliance Officer, Chief Technology Officer, and Chief Diversity Officer among its members.
- **Dedicated Resources** that include a team of social and data scientists and technology experts that report to our Board of Directors through our Chief Compliance Officer and that develops and maintains Workday's responsible AI governance framework. The team receives cross-company support, including from responsible AI champions who provide subject matter expertise so that AI products are developed in accordance with Workday's AI principles.[26]
- **Responsible AI Guidelines and Review Processes** that operationalize our principles through AI development guardrails, turning them into documented practices and assessments.[27] Our product development teams use tools to evaluate a potential AI feature's risk profile before we write any code. AI tools intended for use in consequential decisions, such as hiring or promotion, are treated as high-risk.
- **Disclosure** to equip our customers with a clear understanding of how our AI tools are developed and assessed, as well as transparency and choice in how their data is used.

Although Workday has taken these steps to develop AI in a responsible manner, we recognize that the lack of public trust in AI must be addressed across the industry.[28] Workday strongly supports new regulations on AI developed and used for consequential decisions, including hiring, promotion, and termination.[29,30] We were also early champions for the creation of the National Institute of Standards & Technology's AI Risk Management Framework because we recognized the need for a commonly accepted benchmark for AI governance.[31,32] Workday participated in every stage of the Framework's development, alongside contributors from academia, the business community, and civil society groups. Last month, NIST published a

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[24] Luke, Shane. "The requirements for seizing generative AI advantages. Fortune, September 27, 2023. *https://fortune.com/2023/09/27/workday-generative-ai/*.

[25] Cosgrove, Barbara. "Safeguarding Privacy while Innovating with AI." Workday Blog, May 24, 2023. *https://blog.workday.com/en-us/2023/safeguarding-privacy-while-innovating-ai-workday.html*.

[26] Trindel, Kelly. "Workday's Continued Diligence to Ethical AI and ML Trust." Workday Blog, September 19, 2023. *https://blog.workday.com/en-us/2022/workdays-continued-diligence-ethical-ai-and-ml-trust.html*.

[27] Srihari, Dileep and Meghan Chilappa, "Impact Assessments: Supporting AI Accountability and Trust," Access Partnership. *https://accesspartnership.com/impact-assessments-supporting-ai-accountability/*; "Impact Assessments: A Key Part of AI Accountability," BSA. *https://www.bsa.org/files/policy-filings/08012023impactassess.pdf*.

[28] Tyson, Alec. "Growing Public Concern about the Role of Artificial Intelligence in Daily Life." Pew Research Center, August 28, 2023. *https://www.pewresearch.org/short-reads/2023/08/28/growing-public-concern-about-the-role-of-artificial-intelligence-in-daily-life/*.

[29] "Toward Trusted Innovation: Our Vision for U.S. AI Policy." Workday. *https://www.workday.com/content/dam/web/en-us/documents/public-policy/Workday-US-AI-Policy-Paper-Released-June2023.pdf?trk=public-post-comment-text*.

[30] "Building Trust in AI and ML Through Principles, Practice, and Policy." Workday. *https://www.workday.com/content/dam/web/en-us/documents/whitepapers/building-trust-in-ai-ml-principles-practice-policy.pdf*.

[31] "A Timely Bipartisan Push for Trust in AI: Congress and the NIST Trustworthy AI Framework." Morning Consult, January 12, 2021. *https://morningconsult.com/opinions/congress-and-the-nist-trustworthy-ai-framework/*.

[32] Morse, Chandler C., "The New NIST AI Framework: Accelerating Trustworthy AI." Workday Blog, February 16, 2023. *https://blog.workday.com/en-us/2023/the-new-nist-ai-framework-accelerating-trustworthy-ai.html*.

case study featuring Workday's use of the AI Risk Management Framework, the first of any organization. [33]

We also recognize the need for a practical roadmap that developers and deployers of AI in the workplace can use. This is why Workday joined the Future of Privacy Forum and other leading technology companies to co-develop the *Best Practices for AI and Workplace Assessment Technologies*. [34] The *Best Practices* are a roadmap for responsible AI in the workplace that accounts for the shared responsibility of AI developers and deployers. [35] They leverage Workday's experience in developing trustworthy enterprise AI capabilities, as well as the NIST AI Risk Management Framework and guidance from U.S. regulators, including the Equal Employment Opportunity Commission. [36] We were proud to endorse the *Best Practices* and have called on other organizations to join us in putting them to use.

Modernize Federal Labor Market Data

As the Subcommittee weighs AI's impact on the future of work, we recommend that it consider taking steps to modernize Federal labor market data. [37] Federal labor market data that is granular, high quality, and timely could fuel the AI technologies needed to bring a skills-based approach to talent to a national scale. When equipped with this kind of information, workers, employers, and educators can better navigate the coming changes to the workplace. [38]

Although the Department of Labor (DOL) produces important Federal macroeconomic information, the current reporting system provides limited insight into employment patterns and skills that are in demand in the job market. [39], [40], [41] Awareness about the importance of better Federal labor market data, however, is growing. [42]

In the wake of the economic disruption caused by the pandemic, the Workforce Information Advisory Committee recommended that the DOL take steps to improve data on the changing nature of work, improve the accuracy of local-level data, and adequately fund state reporting infrastructure. [43] The White House's National Cyber Workforce & Education Strategy, in recognizing the importance of a skills-based approach to talent, also highlighted the need to improve labor market data and resources. [44] Moreover, in its Year 1 Report, the National AI Advisory Committee (NAIAC) recommended that DOL prioritize and request adequate funding for ongoing efforts to modernize the Workforce and Labor Market Information system. [45] The NAIAC concluded that "with the appropriate investments and privacy safe-

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[33] "Using the AI Risk Management Framework." National Institute of Standards and Technology. *https://www.nist.gov/system/files/documents/2023/09/14/workday-success-story-final-for-release.pdf*.

[34] "Future of Privacy Forum and Leading Companies Release Best Practices for AI in Employment Relationships." Future of Privacy Forum. *https://fpf.org/blog/future-of-privacy-forum-and-leading-companies-release-best-practices-for-ai-in-employment-relationships/*.

[35] "AI Developers and Deployers: An Important Distinction." BSA. *https://www.bsa.org/policy-filings/ai-developers-and-deployers-an-important-distinction*.

[36] Morse, Chandler C. "Advancing Responsible AI in the Workplace: The Future of Privacy Forum's Best Practices." Workday Blog, October 16, 2023. *https://blog.workday.com/en-us/2023/advancing-responsible-ai-workplace-future-privacy-forums-best-practices.html*.

[37] Robinson.

[38] "Real-time labor data could be the answer to workforce woes." Axios. *https://www.axios.com/sponsored/content-item/workday-real-time-labor-data-could-be-the-answer-to-workforce-woes*.

[39] Goger, Annelies, and Janie McDermott. "Digital Transformation in Labor and Education Systems." Brookings, November 9, 2021. *https://www.brookings.edu/essay/digital-transformation-in-labor-and-education-systems/*.

[40] "Workforce Policy." Business Roundtable. *https://www.businessroundtable.org/workforcepolicy*.

[41] "What is JEDx? Why Now? What Does It Do? Who Benefits?" The U.S. Chamber Foundation. *https://www.uschamberfoundation.org/sites/default/files/JEDx%20One-Pager-May2022.pdf*.

[42] "Unemployment Insurance: DOL Needs to Further Help States Overcome IT Modernization Challenges." Government Accountability Office, July 10, 2023. *https://www.gao.gov/products/gao-23-105478#summary-recommend*.

[43] Workday's Principal Product Strategist Chris Kim was recently appointed to the Federal Workforce Information Advisory Committee.

[44] "National Cyber Workforce and Education Strategy." The White House, July 2023. *https://www.whitehouse.gov/wp-content/uploads/2023/07/NCWES-2023.07.31.pdf*.

[45] Workday Co-President Sayan Chakraborty serves on the National AI Advisory Committee in his personal capacity.

guards in place, AI-driven tools coupled with real-time labor market data can enable workers to not only adapt to a changing workplace, but also thrive."[46]

To advance the modernization of Federal labor market data, Workday has collaborated with stakeholders on model legislation. Our proposal would:

1. **Establish a workforce and labor market data pilot program** that would focus on supporting ongoing efforts and existing public-private partnerships with technical resources for states.
2. **Create a rapid response initiative** that would encourage Federal agencies to identify labor shortages and workforce gaps across the country and provide Congress insight on labor data standardization.
3. **Establish a congressional Commission** to provide recommendations on how to further improve the collection, security, maintenance, and dissemination of labor market data.

Conclusion

At Workday, we are all in on trustworthy AI's ability to unlock human potential and support a skills-based approach to talent. As workplaces and work transform, it's increasingly clear that technologies like AI are necessary to help workers and employers navigate change. Workday seeks to be a partner. As you chart a way forward on responsible AI and the future of work, we hope the Subcommittee will consider us a resource. Thank you and I look forward to your questions.

Senator HICKENLOOPER. Thank you very much, Mr. Lannin.

Ms. Morley Ryan.

STATEMENT OF MARY KATE MORLEY RYAN, MANAGING DIRECTOR OF TALENT AND ORGANIZATION, ACCENTURE, ST. LOUIS, MO

Ms. MORLEY RYAN. Chairman Hickenlooper, and Ranking Member Senator Braun, and Members of the Subcommittee, it is my pleasure to speak to you this morning on behalf of Accenture.

My name is Mary Kate Morley Ryan. I focus on technology and workforce transformation, social innovation, and inclusion in the future of work. Accenture is a global professional services organization that helps the world's leading businesses, governments, and other organizations build their digital core, transform their operations, and accelerate their growth.

We have approximately 733,000 people serving clients in more than 120 countries. We are the largest independent technology services firm globally, and the top partner of most leading technology and AI companies.

Our unique position in the market allows us to identify cross-cutting trends and concerns in the use of AI and generative AI, including how they will affect the future of work and business.

We recently issued a report with the World Economic Forum that provides a structured analysis of the potential impacts of the integration of large language models on jobs. Our research analyzed over 19,000 individual tasks across 867 occupations, assessing the potential exposure of each task to large language model adoption.

We were able to identify occupations with a greater proportion of time spent in tasks with the potential for automation, including credit authorizers, telemarketers, and others. We also identified oc-

[46] "National Artificial Intelligence Advisory Committee Year 1 Report." NAIAC. May 2023. *https://ai.gov/wp-content/uploads/2023/05/NAIAC-Report-Year1.pdf.*

cupations that are more likely to be augmentable, those that will be unaffected, and a number of new roles that will be created, such as AI developers, data curators, and AI content creators.

AI will transform the way we work. We estimate that 40 percent of all working hours across industries will be impacted by large language models like the ones driving the generative AI applications such as ChatGPT. That does not mean that generative AI will replace 40 percent of all working hours. On the contrary, jobs will not be done either by humans or by robots, but by humans enhanced by AI.

As AI transforms the workplace, in addition to aligning on responsible AI frameworks and governance, organizations will need to consider its workforce impact in three key ways. First, how it will impact existing jobs. Second, how can we develop a pipeline of talent to create the AI powered technologies of the future.

Third, what kind of skilling needs it will create. The reality is we don't currently have the workforce we need to fill the jobs of the future. That is why we advise our clients to establish a skills foundation tailored to their organization, to deconstruct the work to support human and machine collaboration, and re-architect strategic and operational talent practices.

At Accenture, we put this advice into practice. We recently announced a $3 billion investment that will double our data and AI practice from 40,000 to 80,000 people over the next 3 years through a combination of acquisitions, new hires, and retraining our current workforce.

Additionally, we view skilling and apprenticeship programs as critical to our success and adaptability. That is why we invest $1 billion a year in upskilling our own people and invest heavily in structured, earn and learn apprenticeships.

We have also put our skill based hiring commitment into action by opening nearly half of our entry level positions to people who do not have a 4-year college degree. The workforce commitments and programs we drive internally are echoed in the way that we serve our clients.

Client conversations around the workforce, including skills based practices, responsible AI, technology and AI fluency are happening every day, if not every minute—every minute of every day. All too often, AI and the workforce debate turns into a binary one with the machine—will machines take our jobs?

But the answer is not binary. AI cannot—can help us do our jobs better if deployed effectively and responsibly. We believe the focus must be on evolving how we work and unleashing the potential of people, as much as we are focusing on the technology.

I appreciate the opportunity to speak with you this morning and look forward to answering your questions.

[The prepared statement of Ms. Morley Ryan follows.]

PREPARED STATEMENT OF MARY KATE MORLEY RYAN

Chairman Hickenlooper, Ranking Member Braun and Members of the Subcommittee, it is my pleasure to speak with you this morning on behalf of Accenture. My name is Mary Kate Morley Ryan. I focus on workforce transformation, social innovation, and inclusion in the future of work at Accenture. I am responsible for the

firm's U.S. *Innovating for Society* strategy which pilots, implements, and amplifies solutions to pressing workforce-related challenges faced by people and organizations.

Accenture is a global professional services company that helps the world's leading businesses, governments and other organizations build their digital core, transform their operations, accelerate their growth and enhance citizen services, creating tangible value at speed and scale. We are a talent and innovation-led company with approximately 733,000 people serving clients in more than 120 countries. We combine our strength in technology and leadership in cloud, data and artificial intelligence (AI) with unmatched industry experience, functional expertise and global delivery capability.

Accenture has deep experience both in AI as a technology and its application across nearly every industry. We are the largest independent technology services firm globally and the top partner of most of the leading technology and AI companies. Our unique position in the market as well as our use of AI internally allow us to identify cross-cutting trends and concerns in the use of AI and Generative AI (Gen AI), including how they will affect the future of work and business at both a micro and macro level.

The AI Awakening

It is exceedingly rare for a single advancement in technology to unleash big changes in human behavior and business dynamics, demanding a government response at an accelerated pace, but that is the reality of what is happening with AI today. This means that government and private sector leaders are presented with incredible opportunities to be more efficient and drive more growth. In a recent survey Accenture conducted of C-suite executives, 97 percent said that they believe Gen AI will be a transformative game-changer worth long-term investment. [1]

The rapid growth of AI also requires government and private sector leaders to navigate a world of increasingly hard choices. Public and private organizations will need to deploy enterprise-wide responsible AI through a deep interrogation of every AI use case, application, and process, with complete and persistent monitoring.

At Accenture, for example, we use a rigorous risk-based approach for each use case to navigate through over 50,000 AI use cases integral to our daily operations—highlighting the enormity of our task. As we chase the rapid growth offered by AI, it's crucial to simultaneously commit to the time-intensive diligence essential for responsible AI. Collaborating with numerous global organizations, we've been pioneering organizational frameworks, aligning them in significance with anti-corruption, security, and data privacy initiatives, thereby seamlessly connecting growth with responsibility.

AI Will Transform the Workplace

AI presents a significant value creation opportunity; if organizations fully embrace the integration of AI, the U.S. economy could add $8 trillion in economic activity and increase productivity by as much as 40 percent. [2] We know that AI will transform the way we work, and this is a good thing.

We believe about 40 percent of all working hours across industries will be impacted by large language models (LLMs) like the ones driving the Gen AI applications such as ChatGPT. That does not mean that Gen AI will replace 40 percent of all working hours. On the contrary, we view this as a "both/and" proposition; not an "either/or." Jobs will not be done either by robots or by humans, but by humans enhanced by AI.

The integration of LLMs in various industries presents a paradigm shift in how we interact with information and, by extension, how we work. Every role in every enterprise has the potential to be reinvented. In any given job, some tasks will be automated, some will be augmented or assisted—freeing people to do things that matter more—and some will be unaffected by the technology. There will also be new tasks for humans to perform, such as ensuring the accurate and responsible use of new AI-powered systems.

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[1] *Pulse of Change, C-suite perceptions on generative AI*, *https://newsroom.accenture.com/content/1101/files/PulseOfChange.pdf*.

[2] *Why Artificial Intelligence is the Future of Growth*, https://newsroom.accenture.com/news/artificial-intelligence-poised-to-double-annual-economic-growth-rate-in-12-developed-economies-and-boost-labor-productivity-by-up-to-40-percent-by-2035-according-to-new-research-by-accenture.htm.

Accenture recently issued a report in partnership with the World Economic Forum that provides a structured analysis of the potential impacts of LLMs on jobs.[3] Our research analyzed over 19,000 individual tasks across 867 occupations, assessing the potential exposure of each task to LLM adoption, classifying them as tasks that have high potential for automation, high potential for augmentation, low potential for either or are unaffected (non-language tasks). It also explores the new roles that are emerging due to the adoption of LLMs.

About 62 percent of total work time across occupations involves language-based tasks, meaning the widespread adoption of LLMs, such as those behind ChatGPT, could significantly impact a broad spectrum of job roles. The jobs with the highest time spent on tasks that could potentially be automated through LLMs include various types of office clerks, especially those dealing with record keeping and other forms of information management, including Credit Authorizers, Checkers and Clerks (81 percent of work time could be automated), Management Analysts (70 percent), Telemarketers (68 percent), Statistical Assistants (61 percent), and Tellers (60 percent).

Jobs with the highest potential for task augmentation emphasize mathematical and scientific analysis as well as critical thinking and complex problem solving, including roles such as Insurance Underwriters (100 percent of work time potentially augmented), Bioengineers and Biomedical Engineers (84 percent), Mathematicians (80 percent), and Editors (72 percent).[4]

In addition to reshaping existing jobs, the adoption of LLMs is likely to create new roles within the categories of AI Developers, Interface and Interaction Designers, AI Content Creators, Data Curators, and AI Ethics and Governance Specialists.[5]

An industry analysis was done by aggregating potential exposure levels of LLM adoption of the jobs to the industry level, noting that jobs may exist in more than one industry. The industries with the highest estimates of total potential exposure (automation plus augmentation measures) are both segments of financial services: financial services and capital markets, and insurance and pension management. This is followed by information technology and digital communications, and then media, entertainment, and sports. Similarly, a function group analysis reveals that the two thematic areas with the greatest total potential exposure to LLMs are information technology, with 73 percent of working hours exposed to automation and augmentation, and finance, with 70 percent of working hours exposed.[6]

To illustrate the research approach and how specific jobs will be reinvented with AI, the report broke down one customer service job in 13 component tasks. Our research found that:

- 4 tasks would continue to be performed primarily by humans with low potential for automation;
- 4 tasks could be fully automated; and
- 5 tasks could be augmented to help humans work more effectively, such as using an AI-generated summary to help provide a rapid solution with a human touch.[7]

The potential for transformation is enormous across all kinds of industries, occupations and roles. We expect to see five core ways that Gen AI will commonly work with people:

1. As an **always-on advisor**, putting new kinds of intelligence into human hands in areas ranging from sales enablement and human resources to medical and scientific research and corporate strategy.

2. As a **creative partner**, offering new ways to reach and appeal to audiences, bringing unprecedented speed and innovation to production design, design research, visual identity and naming, copy generation and testing and real-time, personalized customer relationship marketing.

3. As a **software developer**, boosting productivity in areas ranging from automating code writing to predicting and pre-empting problems.

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[3] *Jobs of Tomorrow: Large Language Models and Jobs* (Sept. 2023), *https://www..weforum.org/docs/WEF-Jobs-of-Tomorrow-Generative-AI-2023.pdf*.
[4] Id.
[5] Id.
[6] Id.
[7] Id.

4. As an **automation driver**, especially those tasks that provide historic context, present the next best actions, or summarize or make intelligent predictions.

5. As an **enterprise protector**, as companies learn to use Gen AI to their advantage in governance and information security, including in Security Operations Centers to mitigate threats and identify vulnerabilities faster.

So how do we Skill for the Jobs of the Future?

Given the transformative potential that AI has, government and private sector organizations will need to consider AI impacts on their workforce in three ways: how it will impact existing jobs; how to develop a pipeline of talent to create the AI-powered technologies of the future; and what kind of workforce/skilling needs it will create. Organizations will need their employees to be capable of developing, deploying, monitoring and working with AI and AI-enabled technologies in the future.

Unfortunately, we simply don't have the pipeline of students or the existing workforce we need to fill the jobs of the future and competition for jobs in these areas is fierce. We tell clients to take a skills-driven approach to address this issue, including:

- Establishing a skills foundation through data models, infrastructure, policies, processes and platforms;
- Deconstructing work into tasks, skills, and models to support human and machine collaboration; and
- Rearchitecting both strategic and operational talent practices, including workforce planning, learning, talent acquisition, internal mobility, and performance and rewards. [8]

Using our own programs as an example, Accenture recently announced a $3 billion investment in our Data & AI practice that includes plans to double our data and AI workforce from 40,000 to 80,000 over the next 3 years through a combination of acquisitions, new hires and reskilling/retraining of our existing workforce. [9] Our reskilling, upskilling, retraining and apprenticeship programs are critical to our success and adaptability.

On the upskilling front, we invest $1 billion a year in training, reskilling and leadership development of our people. We have set up multi-stage training programs. The first stage is to ensure that all our employees have the training needed to be technology conversant. Everyone at Accenture participates in our technology quotient (TQ) training program, designed as a simple and effective way to learn about a technology, how it's applied, why it matters, and how it works with other technologies [10] TQ has enabled our 700k+ workforce to be conversant across technology areas enabling our people to perform at their best and most innovative for our clients. AI has always been one of the hottest topics, and now we're leveraging the platform for Gen AI learning.

We also have skill and role-based learning as organizations look to pivot AI skills for a generative AI era. In some instances, this includes partnerships with top academic institutions. For example, Accenture partnered with Stanford University to create a Foundation Model Scholar Program last July. We are now sending our practitioners to this multi-day training to learn from the best.

As a skills-driven organization, we believe in expanding our talent sourcing pools by focusing primarily on talent and skills, not degrees. We do that through re-thinking our recruiting process—things like asking strengths-based questions like: "How do you feel about working in an environment that is often challenging?" to get a sense of the person's approach and experiences. We ask candidates to pick any topic they want related to technology and allow them to present to their interviewer as they feel best equipped to better understand their critical thinking skills in action.

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[8] *Becoming a Skills-Driven Organization*, Accenture, *https://www.accenture.com/content/dam/accenture/final/accenture-com/document/Accenture-Becoming-a-Skills-Driven-Organization-Report.pdf*.

[9] *Accenture to Invest $3 Billion in AI to Accelerate Clients' Reinvention* (June 13, 2023), *https://newsroom.accenture.com/news/accenture-to-invest-3-billion-in-ai-to-accelerate-clients-reinvention.htm*.

[10] *Raise your cloud technology IQ*, Accenture Blog, July 2021, *https://www.accenture.com/us-en/blogs/blogs-careers/raise-your-cloud-technology-iq*.

Additionally, we reduced the number of entry-level positions that require a 4-year college degree. As of fiscal year (FY) 2023, nearly half of Accenture's entry-level positions in the U.S. are open to individuals who do not have a 4-year college degree.

We heavily invest in structured, "earn and learn" apprenticeship programs. Since launching the Accenture North America apprenticeship program in 2016, we have onboarded more than 2,000 apprentices and met our fiscal year 2022 and fiscal year 2023 goals of filling 20 percent of our entry level roles in North America through our apprenticeship program. Apprentices come from diverse backgrounds and ethnicities, typically with a minimum of a high school diploma or equivalent.

We continue to add a variety of new partnerships with community-based organizations and across the business world to source apprentices, who specialize in one of many unique, in-demand digital career paths ranging from cybersecurity, application development and data science serving clients in more than 40 cities.

We are also helping other employers—including our clients—create professional apprenticeship programs based on the best practices we've established in our own successful model. We have launched 9 local Apprentice Networks convening over 175 employers with talent and other key partners and published a national professional apprenticeship resource guide to help companies jumpstart their own programs.[11] The 10th Network is set to launch in November in Southern California.

In addition to the work we're doing to skill our own people, we're also creating digital skilling programs for our clients. In one example, we worked with a global critical infrastructure company to implement an enterprise-wide digital skilling program, enabling them to identify skills gaps across the business in more than 100 job families. Within the first 12 months, more than 20,000 employees enrolled in personalized skilling at scale; over 1,200 employees have spent more than 5 hours in training. In total, their employees have spent about 18,000 hours and completed 112,000 courses.

Conclusion

All too often the AI and workforce debate turns into a binary one—will the machines take all of our jobs? The answer, we think, is a resounding no. But it can help us do our jobs better if deployed effectively and responsibly. We know that government and private sector organizations will need to radically rethink how work gets done. Reauthorization of the Workforce Innovation and Opportunity Act (WIOA), offers one opportunity to provide the public workforce development system the ability to scale training opportunities with a focus on Gen AI upskilling. We believe the focus must be on evolving our operations and training our people as much as on the technology itself.

I look forward to answering your questions today.

Senator HICKENLOOPER. Thank you very much, Ms. Morley Ryan. Mr. Newman.

STATEMENT OF BRADFORD NEWMAN, PARTNER/LEADER OF THE AI PRACTICE, BAKER & MCKENZIE LLP, CO-CHAIRMAN, THE AI SUBCOMMITTEE FOR THE AMERICAN BAR ASSOCIATION, PALO ALTO, CA

Mr. NEWMAN. Chairman Hickenlooper, Ranking Member Braun, and the honorable Members of the Employment and Workplace Subcommittee, my name is Brad Newman. I am a partner with the law firm of Baker & McKenzie, where I am a leader of their AI practice.

I serve as the chair—I have served as a Chair and now Co-Chair of the AI Subcommittee of the American Bar Association. Today, I am here as a concerned citizen and a parent.

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[11] *Apprenticeship Program Resource Guide*, *https://accenture.pagetiger.com/accentureapprentice*.

For many years, I have had the privilege to represent the world's leading developers of AI, tend to get a behind the scenes look at the technology, including the incredible promise it presents to improve so many of our lives, and in particular the workforce, as well as the very serious social downside.

I have published extensively on the need for legislative safeguards on the use of AI. I have spoken with the world's leading data scientists and ethicists, as well as the EEOC, and I am familiar with all sides of the AI regulatory debate.

I passionately believe that AI in the employment context is one area where the Federal Government should act cautiously, prudently, and once fully informed, on a bipartisan basis, to enact legislation designed to promote innovation and protect the health, welfare, and safety of society.

My long held belief is that the existing laws do not adequately provide for the potentially harmful downside of AI in the employment context. Without additional funding and training, existing agencies are not fully prepared to oversee and regulate this complex technology.

In 2015, I published an article in TechCrunch entitled, The Artificial Intelligence Poses a Greater Risk to IP Than Humans Do. In 2018, I published a follow-up piece entitled, Society Needs the Artificial Intelligence Data Protection Act Now. In these articles, I proposed a comprehensive Federal AI legislative framework, including addressing AI's impact on the workforce.

My articles and demands for regulation piqued the interest of the House of Representatives, affording me the great privilege of working on a draft bill of the AI Data Protection Act. I urge this Committee to conclude, as I have, that we need new AI legislation. Because of the significant civil rights implication of workplace technologies, AI legislation in the employment context is a prudent place to begin this journey.

Eventual Federal legislation should not regulate AI technology generally, but rather delineate specific prohibited use cases and guardrails. Future legislation must not create overly burdensome compliance obligations. It should not create rules and regulations that are so onerous that only the very largest developers and users of this technology can afford to comply, thus creating a de facto monopoly for the largest industry players.

A rational, risk based approach would ensure that all AI developers have the resources to comply and participate in the opportunities presented by the AI workforce ecosystem. The developers of this technology want to do the right thing and are eager to work with a bipartisan group of Federal legislators to get this right.

Carefully regulating the use of AI in the employment context is as important as regulating the securities markets for which we have the SEC, our food and drug safety for which we have the FDA, and so forth.

However, just as the Federal Government does not regulate against securities and new drugs per se, so should the Federal Government narrow its regulation of AI to known risk factors rather than the technology as a whole. No existing law adequately pro-

tects the workforce from the potential downside risks of AI employment tools, while ensuring that they promote innovation.

Developers and users of this technology face an increasing patchwork of state and local legislation which creates onerous, vague, and expensive compliance obligations depending on the jurisdiction.

Regulations like those enacted in New York City, for instance, come with convoluted and unclear rules that will likely prove too expensive for many segments of the user community to comply with, thus incentivizing them to abandon the benefits of AI tools in this use case.

The New York City law codifies a misguided, one size fits all approach to AI regulation that prioritizes limiting the technology rather than minimizing or eliminating risk factors the technology poses.

That is not a desirable outcome. Companies that develop AI and deploy AI technology in the workforce and the workforce itself deserve a rational solution that delivers clarity and consistency on a national level. The guardrails should be plainly spelled out in bipartisan Federal legislation.

Again, Chair Hickenlooper, Ranking Member Braun, and the Members of the Subcommittee, it is truly an honor to share my perspective on these important issues, and I welcome the opportunity to answer any questions. Thank you.

[The prepared statement of Mr. Newman follows.]

PREPARED STATEMENT OF BRADFORD NEWMAN

Honorable Members of this Subcommittee, My name is Brad Newman. I am an attorney based in Silicon Valley for the last nearly 30 years. I am a partner with the law firm of Baker McKenzie, where I serve as a leader of our Firm's AI practice. For the last several years, I served as the Chair and now the Co-Chair of the AI Subcommittee of the American Bar Association, Business and Commercial Litigation Section. In 2018, I was recognized by the Daily Journal as one of the Top 20 AI attorneys in California. I frequently teach lawyers, judges and clients accredited Legal Education courses in AI and particularly, ethical uses of AI, oversight and governance. I have been an invited speaker on AI at several of the Nation's top law and graduate business schools, including MIT Sloan. For many years I have had the privilege to represent the world's leading developers of AI, and to get a behind the scenes look at the technology—including the incredible promise it presents to improve so many aspects of our lives, and in particular the workforce, as well as the very serious societal downside. I have published extensively on the need for legislative safeguards on the use of AI, including in the employment domain. I have spoken with many of the world's leading data scientists and AI ethicists, as well as with the EEOC, and believe that I am familiar with all sides of the AI regulatory debate, and the many differing perspectives about how to approach this important topic in the employment domain.

I am not part of any lobbying, special interest or industry group. I am here as a concerned citizen and father. I am anti-regulation, but passionately believe that the AI employment context is one area where the Federal Government should act—cautiously, prudently and once fully informed—on a bipartisan basis to enact legislation designed both to promote innovation and protect the health, welfare and safety of society. I want to stress that while I am here today as a private citizen, my views are informed by what I have personally witnessed and experienced since at least 2010. I also want to be clear from the onset that my long held belief is that existing laws do not adequately provide for the potential downside impact of AI, including in the varied and growing employment use cases context. Nor are any existing agencies fully prepared to oversee, regulate and enforce an omnibus AI Bill.

For the benefit of society, I urge this Committee to ultimately conclude, as I have, that we need new omnibus Federal legislation. Eventual Federal legislation should not regulate AI technology generally, but rather, delineate specific prohibited use

cases and guardrails for AI use in the employment context. That is an important distinction. Future legislation must promote and encourage continued AI innovation and protect the workforce, without creating overly burdensome compliance obligations that will fuel inefficiency and discourage future AI advancements in places like Silicon Valley and other tech hubs around the country where very smart minds are working around the clock to create new and better AI algorithms. The optimal outcome for Federal AI legislation would be one that successfully avoids creating the scenario where rules and regulations are so onerous that only the very largest developers and users could afford to comply and thus have a de-facto monopoly over the industry and innovation. Rather, a rational, risk-based approach would ensure that AI developers both large and small have the resources to comply and thus participate in the vast opportunities presented by the AI workforce ecosystem. From my vantage point, industry—and particularly the developers of this technology, want to do the right thing and are eager to work with a bipartisan group of Federal legislators to get this right—especially in the employment context.

Back on December 31, 2015, I published an article in Tech Crunch entitled "Artificial Intelligence Poses A Greater Risk To IP Than Humans Do." In this initial article which focused predominantly on IP risks arising from AI proliferation, I noted that AI will displace human workers. While I candidly noted that I am no fan of over-regulation, I stressed that AI is one area where there needs to be Federal regulation and I proposed omnibus Federal legislation called the Artificial Data Protection Act. In this initial article, I laid out some of the general requirements I thought important for any Federal legislation. This includes the requirement that companies of a certain size designate a Chief AI Officer charged with internal corporate oversight and monitoring of AI usage in the workplace. This was one of, if not the earliest proposal to create a C-suite position called the Chief AI Officer designated with overall corporate responsibility and governance of AI. I also proposed the creation of a Federal agency staffed with legal and technical experts to address issues arising under the AI Data Protection Act.

It is worth noting that the photo Tech Crunch ran with the 2015 article was a picture of the Terminator—a science fiction AI war machine. I knew at the time that my call to arms was premature, and that society at large which did not have my Silicon Valley based vantage point of this technology, was not yet ready to act. But I persisted. In the years that followed, based on what I saw in the AI field and knew was on the horizon, I continued to speak out about the needs for rational and well-designed Federal AI regulation.

On May 15, 2018, I published a follow-up piece in Tech Crunch entitled: "Society Needs the Artificial Data Protection Act Now." In this article, I included further details about what I thought prudent Federal AI legislation should include. Now, in addition to addressing unique IP considerations, I proposed Federal AI legislation should address AI's impact on the workforce. My 2018 article begins:

> On December 31, 2015, I published my original call to arms for society's rational regulation of artificial intelligence before it is too late. I explained certain reasons why someone who is against solving problems through regulation would propose precisely that mechanism to help hedge the threats created by AI, and announced my proposed legislation: The Artificial Intelligence Data Protection Act (AIDPA).
>
> Since 2015, we have witnessed AI's rapidly evolving national and international growth and adoption that will soon impact every phase of mankind's life, from birth to death, sex to religion, politics to war, education to emotion, jobs to unemployment.
>
> Three of many recent developments confirm why now is the time for the AIDPA: (1) a McKinsey study from late 2017 determined that up to 800 million workers worldwide may lose their jobs to AI by 2030, half of contemporary work functions could be automated by 2055 and other recent studies suggest as many as 47 percent of U.S. jobs could be threatened by automation or AI over the next few decades . . .
>
> Now—and not later—society must address AI's legal, economic and social implications with regard to IP and employment. Current legislation does not adequately account for the new challenges, threats and needs presented by the impact of AI.
>
> This article addresses the AIDPA's twin focuses (AI's threats to intellectual property rights and the labor force) and presents a proposed framework to address them. The AIDPA is intended to provide industry with a voice in regulating AI while promoting its safe, secure and ethical use. The United States must lead the way in regulating AI, and leaders in industry, tech-

nology and ethics should join together to finalize and enact the AIDPA—the first and most important legislation of its kind.

I believed that then and I believe that now. The week my 2018 article was published, I received a call from Congressman Nolan (D) of Minnesota's office. I was informed they read the article and agreed with it. They asked if I wanted to assist their office in turning the proposal into a draft discussion bill. I spent the latter part of 2018 working with their office and House Legislative Counsel to prepare a draft of the AI Data Protection Act. The intent was to complete the draft by the end of 2018 so that Congressman Nolan, who was not running for re-election, could read it into the record and it could be assigned a Bill number. However, as so often happens, events on the ground overtook us. The Federal Government shut down at the end of 2018, and Congressman Nolan returned to his home without having the opportunity to formally enter the Discussion Draft into the record.

The Discussion Draft of the AI Data Protection Act has several key features that I think are important for this Subcommittee to be aware of, pieces of which have now been included in subsequent legislative proposals floating around both Chambers of Congress.

1. Section 101 of the AI Data Protection Act provides for:

(a) the establishment of an Article II Federal AI Board and

(b) its makeup, authority and powers that include 5 Senate confirmed Board members who must at all times include members from each of these fields: industry, labor, data science and law.

2. Section 102 establishes certain statutory Unlawful Uses of AI that includes a prohibition on:

(1) Sole reliance on artificial intelligence—

(A) by an employer to make a decision regarding the employment of an individual, including an Adverse Employment Action

3. Section 201 establishes the requirement that covered entities appoint a Chief AI Officer with certain roles and responsibilities.

4. Section 202 creates a Federal Worker Realignment Program to "aid covered individuals [displaced by AI] by training such individuals for alternative careers and by helping such individuals find employment opportunities; and

5. Section 204 requires 60 day advance notice to workers who will be displaced by AI.

Any future AI workplace legislation enacted by Congress ought to have, at minimum, these components. It will go a long way to building trust between management and the workforce when it comes to AI employment tools, and minimize the current challenges faced by those who seek to utilize AI in responsible fashion to improve the employment relationship for both management and workers.

I want to conclude by contrasting a proposed omnibus Federal legislative approach to AI in the employment context with the existing status quo, which is a patchwork of vexing state and local regulation. In my opinion, carefully regulating the fair and lawful use of AI in the employment context is as important as regulating the fairness of the securities markets (for which we have the SEC), our food and drug safety (for which we have the FDA), management-labor relations (for which we have the NLRB), employment discrimination (for which we have EEOC), and so forth.

No existing law, in my opinion, adequately protects the workforce from the potential and serious risks of AI employment tools while ensuring the we promote innovation and have individuals with the right skill set presiding over these technical issues. Instead, the developers and users of this AI tecnhology face an increasing patchwork of state and local legislation, which creates onerous—and at times vague—compliance obligations depending on jurisdiction. Whether its employee biometrics like Illinois, employee personal information and the new Executive Order in California, employment bias in NY City, or many other areas that AI impacts in the employment domain, there is confusion and inconsistency. Regulations like those enacted by NYC come with incredibly complex and unclear regulations that will likely prove too expensive for many segments of the user community to comply with, thus incentivizing them to abandon the benefits of AI tools in this use case. That is not a desirable outcome, and one the Federal Government should seek to avoid. Both companies that develop and deploy AI technology as well as the work-

force deserve a rational solution that delivers clarity and consistency on a national level. The guardrails should be plainly spelled out in bipartisan Federal legislation.

I want to again thank this Subcommittee for inviting someone like me—a complete outsider to Washington DC—and listening to my viewpoints on these important issues. I am encouraged to see this Subcommittee approaching this topic by hearing from a range of perspectives.

Senator HICKENLOOPER. Thank you, Mr. Newman.

I feel comfortable saying I have been to a lot of Senate hearings, although at this I am a first termer, so that limits how sweeping this statement might sound, but I don't think I can remember being on a panel where I have four—any one of you I could spend an entire day with and want to hear, a, how you grew up, how you ever got to this position in your life, and you all are representing essential, important, key factors as we make this incredible transition.

I already am recognizing that we are not going to have enough time, so I am going to just warn the witnesses that they will be badgered at some time in the future for additional questions, I am sure. Let me start around Workday. Obviously creating many of the AI tools that—across America that America is using. Mr. Lannin, in your testimony, you note that the Workday really strives, it makes every effort to develop products that are going to enrich, and not automate, human decisions.

In your view, how should employers work with employees as they think about different types of automated decision-making? Well, let's start with that.

Mr. LANNIN. Thank you, Senator. It starts with that point of view that, as we say, puts the person at the center of the experience.

When we think about developing an experience, we think first about the employee and how they are using AI. And we have several principles I want to kind of unpack in terms of like how we apply that principle in our product experience.

When you are using a product of AI in an area where you are applying judgment for something that is important, bringing someone on board into your organization, promoting them, it needs to be very clear to the user that they are engaging with AI, and that is very critical.

Second, they need to know how they are passing data into the AI to make a decision. What is the basis for the information that is coming back from that AI system that they are evaluating and looking at.

We have learned from talking to employees and sort of looking at how they use our products, that if they have those two things in place, they have a better sense of what is happening and they can then apply their judgment to any resulting decisions or content that is being created for them, to apply that into their work environment.

That is what gives them the confidence in using the AI systems. It is also what gives the employers the confidence in using the AI system. So, from the perspective of the employers, they want to know what types of AI is powering the systems.

They want to know that we have evaluated those risks. They want to know that we have really continued to invest in understanding when AI is used, and we treat AI as something that customers can opt into, not opt out of.

Now, it is the case that over 80 percent of our customers at work, they have opted into using our AI solutions, but that is a conscious choice, and we have to provide them a lot of information to substantiate that work.

Senator HICKENLOOPER. Great. Thank you. And I have more questions, but I am going to go around the horn first. So, we are in the beginning stages of what I always think of is the great transition.

It is not just to clean energy, but it is our worlds are changing simultaneously. But as we are doing that, we are building the careers of the 21st century. Mr. Billingsley, in your testimony, you allude to how Tulsa, and I know Oklahoma City better than I know Tulsa just because there is a band there called The Flaming Lips that I have listened to occasionally.

But you allude to how Tulsa, specifically the community Greenwood, was left out of the last technological revolution. What lessons can we learn to effectively incorporate AI literacy training into our workforce development in smaller, rural communities, and particularly from my point of view, small businesses?

Mr. BILLINGSLEY. Thank you, Chairman. I would actually speak about Greenwood kind of being a microcosm for marginalized communities across the country.

We know communities of color, and typically underserved ones are often left out of these kinds of technological revolutions, which leads me to why I made my third point. I think it is critical for, when it comes to making policy and advising in terms of how we are going to build the infrastructure, to ensure AI is something that everyone has access to.

We have to over-index in the communities that have historically been left out because we know that AI already has the potential to cause a lot of disruption. But if that is layered on top of a community that already didn't have some of the basic resources, whether it be from broadband or computer literacy from a previous technological jump, we could see a worse effect.

But that is not to speak of the negative aspects. It is to speak of the positive aspects. Think about some of the unleashed creativity potential that could happen if systems were developed specifically around ensuring that people in these communities were able to have on ramps to be trained in them and also get jobs in the field.

When I say the field, I don't mean AI as its own vertical just specifically, but I also mean many of the high growth industries that we know will last in the—for the foreseeable future.

Senator HICKENLOOPER. Absolutely. No, I get that, that the overlapping nature of some of our previous technological revolutions or disruptions did leave—they left whole communities behind. And now, we could—we run the risk of compounding that—those gaps. I will turn it over now. We are out of time. I will get back to you

guys later. But for now, I will turn it over to Ranking Member Braun.

Senator BRAUN. Thank you, Mr. Chairman. Mr. Newman, I was listening. My first question was going to be about, how do we do this between the Federal Government, and state and local Government.

You cited that already some of the lower levels of Government have gotten out there. I think you made it clear that you think we need some template here that will be the general framework. Is that in a nutshell what you said earlier?

Mr. NEWMAN. It is Ranking Member Braun. The companies that want to use this are being faced with a vexing and increasing patchwork of state and local laws, some of which are promulgated by folks who are less than informed on the technology, the upside risks and the downside risks.

This is creating a lot of headwinds for those who want to innovate, those who want to responsibly deploy, and those who want to make sure, as my fellow folks here testifying, want to make sure this is done responsibly.

I am anti-regulation by DNA, but this is an area where I think the Federal Government ought to act responsibly and prudently, and occupy the field, so there is a uniform set of rules to do this responsibly that large and small companies alike can draw from and make sure they are on the right side of the compliance line while innovating.

Senator BRAUN. You referenced something that is in the House currently. How long has that been there? Was it in the last Congress, or did it originate in this Congress?

Mr. NEWMAN. It made it to a discussion draft bill, not a formal numbered bill, and it was in the 2018 Congress. I think that was a 118th Congress.

Senator BRAUN. You mean the last Congress?

Mr. NEWMAN. Yes.

Senator BRAUN. That was 117th.

Mr. NEWMAN. 117th. Yes, sir.

Senator BRAUN. Okay. So, it made it to that point. Any other formality on legislation that you are aware of?

Mr. NEWMAN. There is a bunch kicking around, but no.

Senator BRAUN. I think Senator Hickenlooper and I will take a look at that. You talk about the downside risks. I am going to call it the nefarious use of AI. Could you give me your top three biggest concerns, both domestically and internationally, in terms of what that might be in the time you have been looking at this?

Mr. NEWMAN. In the employment context or generally?

Senator BRAUN. I am talking more broadly here now.

Mr. NEWMAN. Yes, I think AI could be use nefariously and will be by state actors to influence domestic issues. I think there will be a lot of fakes, voice and image. I think AI will be used to interfere with our elections and promulgate cyber-attacks. Those are the most national security points of concern, in my view, ex the workplace.

Senator BRAUN. I am glad you got it on record because we hear a lot about it and a lot of times it is just referred to generally. Thank you. Ms. Morley Ryan intrigued me. You work for Accenture. In fact, you mentioned—and workforce is such a big deal in a place like Indiana. We have got inherently low unemployment rates.

We have half our counties that are trying to find their next act. That idea of getting better skills while you are in the place where everyone goes to school K through 12. How do you see that?

I thought you mentioned that you are going to have entry level positions in your own company that don't require a 4-year degree. Is that true, and would you elaborate on that?

Ms. MORLEY RYAN. Yes. Thank you, Senator Braun. Yes, we have multiple ways to come into Accenture. To your point, half of our entry level positions, or almost half of our entry level positions, do not require a 4-year degree.

Senator BRAUN. Currently?

Ms. MORLEY RYAN. Currently. Yes. And we hire 20 percent of our entry level positions through our apprentice program across North America. We have had 2,000 apprentices since 2016. We also do a bunch around apprentice networks across the country.

We don't have one in Indiana yet, but Chicago was our founding apprentice network where we encouraged other employers to join us in building apprentice work and learn programs.

Additionally, from an access and onramp perspective, we work with nonprofits and other organizations to provide our perspective on technology and AI fluency to inform how they are developing their learning and training programs.

Senator BRAUN. You mentioned, too, that you were going to increase—how many employees does Accenture have currently?

Ms. MORLEY RYAN. We have 733,000 employees globally.

Senator BRAUN. Okay. And you mentioned going from 40,000 to 80,000.

Ms. MORLEY RYAN. Yes, sir.

Senator BRAUN. Particularly aimed at an AI focus.

Ms. MORLEY RYAN. Yes, sir. Data and AI.

Senator BRAUN. You are going to bump it 5 to 10 percent of total employment on that. And again, a large percentage of those will be you, if you come out of high school with the right aptitude, you could come and apply for a job and get one.

Ms. MORLEY RYAN. Yes. Assuming that there are openings and all that sort of thing——

Senator BRAUN. Sure.

Ms. MORLEY RYAN. But yes, and I think——

Senator BRAUN. I think that is an amazing statistic from a company like Accenture that I would have just assumed it would have taken a 4-year degree. My daughter actually worked there for four or 5 years——

Ms. MORLEY RYAN. Oh, Okay.

Senator BRAUN. Now, in the company that I built. She and her two brothers are running it, but I think that is something we need to shout out more.

Ms. MORLEY RYAN. Yes.

Senator BRAUN. College educations are getting so expensive. The stuff that I see is only 35 percent of the jobs actually require it. It is generally in technical or professional training. I think it is neat that you are doing that in a way that to me then emphasizes how important that K through 12 education is and teaching real life skills for a multitude of uses once you graduate from high school. I will yield back.

Senator HICKENLOOPER. All right.

Senator Casey.

Senator CASEY. Mr. Chairman, thanks very much. Before I start my questions, I wanted to ask unanimous consent that a statement be entered to the record. It is from Matthew Shearer entitled, The Promise and the Peril of AI in the Workplace. It is dated today. I would ask consent to make that part of the record.

Senator HICKENLOOPER. Without objection.

[The following information can be found on page 54 in Additional Material:]

Senator CASEY. Thanks very much. As Congress considers artificial intelligence and the future of work, it is critical that we focus on workers' voices and then ensure that workers have a seat at the table when policies are made and decisions are made—being made that impact workplaces, excuse me, in such a significant way.

As the power imbalance in workplaces continues to grow, employers are increasingly willing to use workplace technologies like AI, as well as invasive surveillance technologies that will allow them to track workers like—almost like pieces of equipment.

Decisions are being made solely by employers without consultation or input from workers, and that is why I have introduced several bills aimed at creating a much needed set of rules, standards, protections, and oversight to counter the risks of workplace technologies that are spreading unchecked.

This July, I introduced the No Robot Bosses Act in Senate Bill 2419, which aims to regulate the potential risks and use of AI in the workplace. This bill would add protections for job applicants and employees related to automated decision systems and would require employers to disclose when and how these systems are being used.

It will also create guardrails around how AI can manage workers. A second bill, by way of example, is the Stop Spying Bosses Act. This is Senate Bill 262 that I introduced in February to require disclosures and prohibitions for employers engaging in surveillance of workers.

American workers are the backbone of our Country, and they deserve to be treated with basic dignity at work. I am hopeful that these bills and other actions that we take will help empower and protect workers, and I will continue to fight for those protections and rights. Mr. Newman, I just have a question for you.

Do you agree that the rise of AI has created both novel and unaddressed issues in the American workforce, and particularly with respect to both the autonomy of and the dignity of the American worker, and that it requires both study and appropriate rules of the road?

Mr. NEWMAN. I agree with you 100 percent, Senator.

Senator CASEY. Thank you. And I hope we can work together on legislation and other policies that relate to workers. Mr. Chairman, that is all I have. I will give back all my time.

Senator HICKENLOOPER. Great. Thank you.

Senator Budd.

Senator BUDD. Chairman, thank you. And I thank the panel for being here today. Mr. Lannin, whether businesses are aware of it or not, many of these existing services that they use—I mean it has had AI integrated into it for years, whether they knew that or not.

But as this technology further develops and the public has greater access to tools like generative AI, how can businesses of all sizes best leverage this technology?

Mr. LANNIN. Thank you, Senator. And it is true that there has been a breakthrough around the use of artificial intelligence in the last year and a sort of a greater awareness among people from all walks of life about what it means.

That is pervasive from the employers and workers that we talk to. I think it is paramount that businesses are very transparent with their efforts in this area. It is one of the reasons that we believe not only in putting in place risk based frameworks, but sharing what we are doing as an industry is so important.

We hear more and more an interest from people who are both workers at companies and employers in understanding exactly how we are employing AI and for what ends. And when we provide that level of transparency, and the more we can do that in a standardized way, to Mr. Newman's point, I think we will get more confidence and trust built around the use of AI. And I think fundamentally that is what this is about.

It is something new and it is going to take time for people to build trust and confidence in these systems. And if you are not transparent with the ways that you are leveraging AI, you are not going to be successful in sort of getting people comfortable and getting the most out of this technology.

Senator BUDD. Workday is a very well-known company, but it is most thought of as more of an enterprise level. What would you suggest for small businesses to more quickly adopt some of the AI?

Mr. LANNIN. Yes. Thank you, Senator. In my experience, it is taking an open mind toward experimentation or having an eye toward risk. There are a lot of great resources.

There are emerging skill sets around AI that are coming up. And as we have talked about so far in the testimony, availing yourself of about the online resources around prompt engineering, responsible use of large language models are all really valuable frameworks.

Just within our organization, we do a lot of pretty informal training on how best to use AI technologies to make decisions and just driving a conversation around that, technology in the workplace, really elevates the discussion and allows us to sort of embrace the technology. And we also sort of encourage like a skeptical attitude.

Try things, try to break it, see if it really works, and in a practical sense, see if it has bias. And when you get comfort level with people using this technology, it is pretty amazing. And finally, I will just say, like watching my daughter go to school and come back using these tools in her classes, it is really interesting seeing in the last year professors switching to a mindset of like, we expect you to use these tools, just disclose that you are using them.

Explain how you are working with them. Don't just write the essay and pretend it is yours. Like really use this in a meaningful way. And I think that principle holds for small businesses and large businesses as well.

Senator BUDD. That is helpful. Thank you. So, in the coming years, AI regulation will present a difficult challenge to both Congress and Federal agencies.

Already, the European Union has proposed regulations that would classify AI technology, according to a four tier risk based system, and California's Governor has directed state agencies to examine and report on so-called high risk applications of AI, including those that would cause workforce displacement.

I think that the Federal Government should really tread carefully when considering new regulations in any form. And I appreciate your sentiment and your DNA, Mr. Newman. And I think that is particularly true in such a cutting edge industry.

But, Mr. Newman, what impacts could these early attempts at regulation, could they have on the very development of AI technology?

Mr. NEWMAN. Well, I think we are seeing it in the state and local level in a patchwork of various approaches. It can be viewed as anti-innovative. It can raise the cost. It can fuel litigation. It can create barriers to responsible adoption.

A lot of the developers are scratching their heads saying, what do I have to do in California? What do I have to do in New York City? Should we be in New York City if that is what we have to do? That is the opposite of what we want as a society.

We want clarity. We want efficiency. We want fairness. We want rational regulation. And we are creating a hodgepodge of anti-competitive, anti-innovation catch or catch can all over the country, and that isn't desirable to fuel innovation.

Senator BUDD. Thank you all again for being here. Thank you, Chairman. I yield back.

Senator HICKENLOOPER. Thank you.

All right, Senator Kaine.

Senator KAINE. Thank you, Mr. Chairman. And thanks to our witnesses for being here. At least three of you, Mr. Billingsley, Mr. Lannin, and Ms. Morley. Ryan, your testimony is really focused on workforce issues. Mr. Newman, you really get into how to conceive

of the regulatory challenge, not that you ignore the workforce issues, but I really want to focus on the workforce side.

Maybe I will use, Mr. Lannin, your written testimony. "We believe a shift to a skills based approach to talent is the best way forward. By a skills based approach to talent we mean an emphasis on what a person can do or learn rather than solely on their credentials."

I kind of read Mr. Billingsley testimony about the need to overindex investment in education and training and communities representing people of color. Ms. Morley Ryan, you are talking about Accenture's apprenticeship programs and some of the things you are doing.

Okay, how do we deal with the workforce and how do we look at what it is to be educated and ready to succeed in an AI dominant economy? We are woefully behind in a number of the policies we have at the Federal level. Senator Braun and I are co-sponsors of a bill that has now been pending before the Senate for 9 years.

The bill would do something really radical. It would allow Pell Grants to be used for career and technical training and not just college. It has virtually zero cost. It has—it has had about 60 Members of the Senate currently serving as co-sponsors at one time or another. It has gotten close to being passed, but there always seems to be something in the way.

Most recently, we had it on the list for a markup in Committee, but there were two other bills being markup that day that were controversial, and so the entire markup was pulled down, and what we expected was going to be essentially a voice unanimous vote from the Committee never happened. It has not yet been scheduled for another markup.

Meanwhile, all of my employers are telling me they are having a hard time hiring people. We just did a manufacturing bill. Who is going to make it? We just did an infrastructure bill. Who is going to build it?

You have testified that significant percentages of your employees don't need college degrees, and yet we offer to families whose kids want to go to college or whose parents want their kids to go to college a significant financial entitlement, an incentive they can count on in the Pell Grant.

But for a family that wants to have a youngster in Tulsa, for example, master skills to be an AI professional decades forward that doesn't require a college degree, we don't necessarily provide easily accessible financial aid for that family or for that student. Just seems to me to be a no brainer, a no brainer.

I agree with you, Mr. Lannin, we really are moving to sort of skills rather than credentials. Now, sometimes the best credentials are a validator of skills. So, somebody who can pass the American Welding Society certification exam, they can take that anywhere in the country, and they may not know what the name of the high school you attended or what college you went to, but they know an AWS certification is.

A credential can often be a validation of the skills or the validation of your ability to succeed in this area. But I just would like

to throw it open to you we are the HELP Committee. We set Federal education policy, including—how we incentivize students and their families to learn.

I think we ought to incentivize college attendance, but I don't think we should suggest that college is the only way for somebody to successfully learn and be productive in this economy, and I would just love any of your comments on that.

Mr. LANNIN. Yes. Thank you, Senator. I couldn't agree more. And I hope that with the looming transformation of AI, could be used as impetus for taking action now at a congressional level.

I would just say, like Accenture we have had a lot of success with our opportunity onramp program at Workday, where 20 percent of our hires this year in early and mid-stage careers will come from a program that works with nonprofits to provide skill based training for people at Workday. 4 to 6 month internships that are paid, transitioning to full time hires at our company.

People don't have to come from a background where they have had the opportunity to get a college degree, or maybe they are a midlife and they are a veteran, or they are coming as a caregiver and just having that skills based orientation and mindset is so beneficial to us as an organization, and I do think we share that with my other panelists.

Senator KAINE. Mr. Billingsley.

Mr. BILLINGSLEY. Absolutely. So, I would draw a parallel between something that we are actually doing in Tulsa.

We are trying to tackle a similar issue as it relates to the cybersecurity industry, and we have taken—we have some nontraditional programs like the Cyber Skills Center that offers a 6-month boot camp that we then use to connect people to apprenticeships within companies so that they can grow and be groomed and then get full time employment.

We should see something similar as it relates to the infrastructure around education and certification with artificial intelligence. But another thing we should consider is community wide use case training.

One of the best ways for people to understand the power of artificial intelligence, specifically in different areas of the workforce, is for them to get hands on experience, seeing how effective it can be as a copilot for them.

One of the things that we have worked on designing in partnership CDI how do you go into a community and take some critical areas, workforce areas, and get the community to use whether they be not just chat bots but other forms of AI as copilots, whether it be in creative expression grant writing, community development, social and criminal justice.

We can provide real world examples of how people can use AI to enhance and improve their output in their career. That is a perfect way to get initial exposure before you plug them into an actual preset infrastructure.

Senator KAINE. [Technical problems.]

Ms. MORLEY RYAN. Yes. I echo again my fellow panelists here. I think what you are speaking to, Mr. Billingsley, is also just this overall technology and AI fluency that we need to be driving at the broadest level.

I think that starts at the K–12, sort of exposing people not only to the careers, which I think has been discussed quite a bit, but the technology in the context that it is a treat, to your point, Senator Hickenlooper, at the beginning, and not a trick, right.

We want people to see what the value is for them within their own context, within their own sort of incentives and environment. And that comes back, I think, to what everybody has said so far today, which is—centering the human or the person as a part of this conversation.

To your question on sort of workforce preparedness, Accenture is very much in the same—in line with you around providing opportunities, whether it is not a degree program, or even a credential, but really driving technology and add fluency in a variety of ways, which could be through work based learning, it could be through a credential program or a two or 4 year degree, or it could candidly continue to just be on the job, or within their K to12 education. Thank you for the question.

Senator KAINE. Thank you so much. I yield back.

Senator HICKENLOOPER. That was a great question. They are all great questions. And I agree that the making sure everything is human centered is key. It is our prerogative to continue the questioning. So, this—when you saw no other centers coming in, perhaps you breathed a sigh of release, but you should hold that sigh.

Ms.Morley Ryan and I think what we have seen with a lot of the questions and responses is that the balance between risk and opportunity that AI poses, and I think, I feel that we have an alliance of people that are more excited by the opportunity. Not that we don't have to be aware of the risks, but the opportunity is so exciting. And Senator Braun talked a little bit about small businesses.

Ms.Morley Ryan, I want to make sure that small businesses see the excitement of opportunity here. Having ways to train workforce. Again, I was so impressed that almost half your entry level work slots don't require college degrees.

When I was Governor of Colorado, we went—we spent a couple of years going through almost every work, every job in the State Government, and we found that almost half of them, we could not justify the college degree that was being required. We got rid of it. But boy, was there a lot of pushback on that.

I think—well, I think that allowing small businesses to be able to see what you guys have clearly seen, and it is really about skills and the ability to acquire these skills. So, how can we ensure that the AI education, this fluency you describe, and that the workforce development opportunities are tailored so that businesses of all sizes can get excited about it.

Ms. MORLEY RYAN. Thank you for the question. I think it starts again in this sort of K to 12 exposure, because people are using this technology. I think one of the things that we have learned from small, medium, large sized businesses that Accenture serves right

now is that the youngest people are often having two computers up, right.

The computer that is their work computer and the computer that they have their generative AI applications running on. So, they are—young people in general, I would say, are already using these applications. And for a small business, I think the presumption should be, they are going to be bringing this knowledge.

Now, whether it is to my fellow panelists' point, inform around how this technology works or not, I think the importance for small businesses is that they are, to your point, driving fluency, but leveraging what is available from what I would say trusted organizations in this space, from a learning perspective.

Accenture developed our responsibly AI framework even before NIST responsibly framework. But there is organizations like NIST that I think small businesses can look to, say, Okay, what should our governance or our policy for our organization be? And it is not over-burdensome because you have something that you can reference, right.

I think the second piece is looking at what is publicly available, again from a trusted organizations. And I would have to come back to you with some—a written statement around that. That they can use to drive fluency. There is tons of democratized learning in this, in the world now, right. Learning is essentially free if you can go find the right places for it.

I think it is kind of twofold, right, leveraging some of the existing frameworks and existing work that NIST and other organizations have done, but then also leveraging public learning in this space, would be a start.

Senator HICKENLOOPER. Yes, no, I think you are exactly right with the democratization of learning and education.

At various times the CEOs of Walmart, Target, Starbucks have said, we will share our, all of our IP in terms of around training and skills acquisition, if you could find a way to do that efficiently and fairly and have a system where you had a lifetime of apprenticeship opportunities.

Kids of all ages could get stackable credentials. It would reflect their skills, acquisitions, and sort through that. I think AI really helps us get there. I actually, as an individual, I own the rights to the domain name *myshot.com*, which I bought about 7 years ago right when Hamilton had just come out.

I don't think Lin-Manuel Miranda is going to actually ever let me use the song, but I did think that image of a country looking at this as *myshot.com*, people of all ages seeing that is something that you guys are working on.

Let me say, Mr. Newman, we look, and we see the research this—that AI technologies can create all these positive opportunities, jobs across. And that AI will impact each workplace differently.

It will be important to make sure that workers can access the trainings that meet a variety of skills and skill requirements. As this all happened so fast—these transitions are going so quickly, the potential that I think you lay out there that, that AI can be

a tool to take intellectual property and violate the cost and the creation of that capital.

What are some of—what do you imagine as some of the solutions that would protect companies to—in that situation?

Mr. NEWMAN. Yes. Well, coming from Silicon Valley, I think we place a premium on IP protection, and I think AI is a tool in the threat actors' arsenal to try through cyber or other means to implicate and compromise intellectual property, which is the bedrock of our Nation's innovation.

I think that there does need to be a hard look at the IP protections afforded around AI. I think on the domestic side and non-national security side, there is now a large debate in the courts about whether copyright holders should be given compensation if their copyrighted work is used in data training set for an algorithm.

I think that cries out for an as cap type model where there is a marking of copyrighted works and some statutory compensation to copyright holders. I mean, we are going to field of employment, but that is an AI generated issue with intellectual property.

This really gets me to the point where, again, DNA wise I am against regulation, but what worries me is state and local regulators who don't have the time and resources to delve into this area and understand the technology, understand the legal issues, understand the worker versus managements, all of these considerations are important.

That is why I think AI cries out for a Federal uniform solution in most, if not all, domains, national security and civil side as well, because it is the Federal Government that is uniquely positioned with its resources and the folks who are serving in the Federal Government to take the time to understand the issues we are just exploring today.

I think we are going to have a better bipartisan resolution that meets all of the varying constituents' legitimate needs if the Federal Government acts versus the state and local patchwork we are getting in every aspect of AI. I think it is detrimental to both sides of the debate.

Senator HICKENLOOPER. Great. Thank you.

Senator Braun.

Senator BRAUN. Mr. Lannin, Workday has only been a company for 18 years, it looks like. It started in 2005, financial planning, HR. A lot of companies started then. When did you start incorporating AI into what you do as a company and the consulting you give to others?

Mr. LANNIN. Thank you, Senator. Yes, it has been an amazing 18 year ride for the company. And it was interesting for us because we were one of the first companies to move to the cloud.

At the time that was very new for the type of work that we were doing, and there were a lot of incumbent questions upon us from customers about is the data is secure, cannot be trusted.

Some of those bedrock principles that we founded at the start of the company hold very much true as we have started to make for-

ays into AI over the last number of years, few years, especially in 2019. We had——

Senator BRAUN. On the timeline, the cloud, I think we all understand now. When did you actually formalize the use of AI into your own company and what you advise to others?

Mr. LANNIN. Yes, I want to follow-up with making sure it doesn't pre-date the data I am going to give you. But 2018, 2019 was a time when we started developing machine learning based algorithms to deliver capabilities.

That is also when we started working on what would become a lot of the NIST based AI risk management frameworks to go along with that work. And so——

Senator BRAUN. You are on the leading edge of it. So that is three to four, maybe 5 years. And the distance we have traveled, that is amazing.

Begs the question, since you are on the leading edge of it and we generally always hear about what good comes from it, are there any examples of where even in your own company or with businesses that have incorporated it, have gotten ahead of their skis and had issues with it?

Mr. LANNIN. None of significance, but I think we are so leaning into a prevailing concern with our experience that we could introduce risk, especially in terms of bias and discrimination into the workplace.

I think that is most pronounced for us as we start to evaluate some of these generative AI technologies. One of the things that a lot of our first generation AI was good at was like predicting financial numbers, doing math. Does your payroll add up.

Senator BRAUN. The low hanging fruit.

Mr. LANNIN. The low hanging fruit. And now we are talking about AI systems that can write business documents, evaluate contracts, really do a lot——

Senator BRAUN. Fair to say we are on the cusp of all the potential that might be good ahead of us, but a lot of the potential issues, which would beg the kind of a general regulatory framework, are just coming to the surface.

Mr. LANNIN. I think that is true. And I agree that we are a company that is very accustomed to working in regulated environments with a lot of different compliance regimes, cyber security, FedRAMP, many of these things.

We are comfortable with that, but what—it really hurts when you have a mishmash of different approaches. And having something uniform at a national level and allowing the U.S. to take leadership in this area is really important.

A lot of our businesses operate at a global level, and so, the more we can have a simplified, smart set of regulations, the more benefit we will have. And I think those benefits will accrue to all nature of businesses.

Senator BRAUN. Mr. Billingsley, when you take what we just talked about there and then you related to entrepreneurs wanting

to capitalize on it, we have seen cryptocurrency being something a little bit amorphous recently in terms of the volatility of it, No. 1.

What is your concern about everything we have discussed here in terms of entrepreneurs who generally are a little less risk averse, plowing into a field where they want to build a company when there are so many inherent uncertainties around it.

Mr. BILLINGSLEY. Thank you for the question. I actually think this is why the conversation around workforce is critical, because when we talk about how you are going to use AI, if it is going to be the bedrock of the new economy, that is both in terms of workforce and entrepreneurship, in a lot of ways some of the best entrepreneurs are people who spent a long time in a field learning a specific skill and then they branch out and start their own companies.

When you talk about risk averse entrepreneurs, yes, some will jump up and start companies without any background. But if we create the correct framework for people to learn and be trained with AI in the workforce, we are actually training up some more responsible people who have more fluent skills in terms of AI.

When they start, perhaps AI enabled businesses and companies, they can use them more responsibly. They can use them more effectively because they will have the reference point of what they learned and how they saw it administrated when they were in the workforce.

Senator BRAUN. I look back to the dot com craze as an analog, based upon just technology in general, and look at the number of companies that flamed out in a short period of time back then, and look now how important that has been in terms of woven into almost every aspect.

I think that was a lot less concerning then. But when you do get a hot new technology, entrepreneurs generally not being risk averse, this to me almost looks like it is more full of potential pitfalls than what we would have had back two decades ago.

Mr. BILLINGSLEY. Absolutely. I think that is the inherent nature of how AI should be approached.

When you have got a tool, I always use the analogy two kids hitting each other with pillows is one thing. But if they ended up having an actual weapon, the amount of times you have to get it wrong is one.

When we think about specifically high growth companies who are going to integrate AI and using it for solutions that are critical for whether it be loan applications and critical decisions, you don't have very many times to get it right before it becomes a serious problem.

The reference and initial framework is more critical than it has ever been.

Senator BRAUN. Thank you.

Senator HICKENLOOPER. Senator Kaine.

Senator KAINE. Thank you, Mr. Chair. And now, Mr. Newman, I might get to you, since I dealt with my other three witnesses in the first round. First, I was intrigued with one aspect of your testimony that was cryptic and unexplained.

I think I know what you mean, but I wanted to ask you about it. I am not part of any lobbying special interest or industry group. I am here as a concerned citizen and father. Why did you throw father into your testimony?

Mr. NEWMAN. I have five children, and the world they are coming into is going to be impacted from a 24 hour cycle, a sleep, awake, all the way back to a sleep by AI, and I am concerned. I know firsthand the tremendous upside AI offers in every use case, including the workforce.

Again, by DNA, I am anti-regulation, but AI from what I have seen behind the scenes, from those developing it and innovating it, they mean well, they are doing the best they can, but this is an area for the health, welfare, and safety of society, I believe the Federal Government ought to provide rules of the road.

Senator KAINE. It sounds like from listening to your testimony, reading it, but also listening to you in the Q&A that your belief in Federal regulation sort of is justified by two pillars.

One is there would be a danger of differing state level regulatory schemes that could choke off innovation, that could create huge problems for the development of this industry, that could put us at a strategic disadvantage with other nations.

The one justification for a Federal framework is to avoid needless complexity and contradictory state level regulation. But then the second level is sort of on the more affirmative side, you think that there are aspects where we could advance good and put up guardrails against bad by doing the Federal level regulation.

One item in your, the third page of your testimony, where you go over the sort of five—your five points about the different sections intrigued me. Section 202 creates a Federal worker realignment program to aid covered individuals displaced by AI, by training such individuals for alternative careers, and by helping such individuals find employment opportunities.

We have an analog to that in trade adjustment assistance. So, for a long while we have had Federal programs to focus resources on individuals and communities if trade has disrupted something that they have counted on as a pillar of the economy.

Until I read your testimony, I had not heard someone suggest the same thing from those displaced by AI or other technological advancements. My experience as a Mayor and Governor before I got here is that more people lose jobs to technology changes than to trade. But with trade, there is somebody you can blame.

You can blame the person who negotiated the trade deal. It is a job has gone overseas. There might be a plant with a lock on it. It is easy to blame. Whereas we don't really want to blame technology because we all like carrying around the latest version of these.

We tend not to focus so much upon the dislocations in the workforce caused by technology. But I thought that was an interesting proposal and thinking about it kind of connected to trade adjustment assistance. I found it to be a creative one. You want to expand on that?

Mr. NEWMAN. Yes, I have had this debate with many of folk, is AI the cotton gin. And are we luddites. And will there be more jobs created?

Yes, there will be some jobs created. But let me take my profession as an example, and maybe it is a good thing, but there are going to be less lawyers, Okay. There is tremendous private equity and venture capital being deployed to create AI solutions in the law, and they are going to be amazingly effective in doing things better than the human can do in the law.

Now, with our rule of law system, we always need humans. And there is going to be, in my view, you don't want AI judges, AI juries. But in the day to day practice of law, they are going to be less lawyers, less paralegals, less admin, and there isn't going to be a reentry into the workforce for a lot of these folks with their skill set.

I do come out on the side that AI is fundamentally different than all that has come before, and the impact on the workforce will be different, and there will ultimately, in my view, be dislocation on a different level than we have seen before.

I do think one aspect, if the Federal Government is eventually going to legislate this, is not only providing for something like a chief AI officer and the necessity for one, and having an AI board like we have, the FCC, the FDA, etcetera, or the NLRB, or the EEOC, but I think we are going to need a worker retraining program that is federally funded, that allows workers of various skill sets to have a way to reenter the workforce in some way if they are displaced by AI.

Senator KAINE. Let the record show Mr. Billingsley was emphatically nodding his head yes on that last point. So, I think that is an important thing for us to hear. I appreciate it.

Senator HICKENLOOPER. Great. Great question, and I appreciate the answer. I have got quick questions. I know that I am standing between you and freedom, and perhaps your lunch. So, let me see the first question I want.

Ms. Morley Ryan. your recent, or Accenture's recent life trends report states that technology today feels like it is happening to people, not for them. What does your research indicate about the skills that workers are seeking out to help them understand and leverage AI, and how can adequate skills training help workers to regain and restore their sense of trust in the workplace?

Then, Mr. Billingsley, I am going to ask you to comment on this as well.

Ms. MORLEY RYAN. I think the question—thank you for that question, Senator. I think the question that has sort of two—or my answer will have two parts. One is, we focus a lot on the hard skills, sort of what is AI, what does this technology do, how can I use it.

What Accenture has found through our extensive work with our own people and the $1 billion a year that we invest in our own learning, as well as our client conversations and engagement in the community, is that it is just as important to have what I would call sort of the support to build a culture of learning, right. Growth

mindset, self-efficacy, agency for that learner to have choice as to say what job is going to be their next job and giving them an opportunity to make that choice.

I think there is a component of sort of the hard skills piece, if that makes sense, from an availability, but then also recognizing what we know about human behavior, cognitive science, and neuroscience, about how people learn, so that we provide opportunities that—and training programs and learning programs that allow and are based on that knowledge. Yes.

Senator HICKENLOOPER. Okay. Mr. Billingsley.

Mr. BILLINGSLEY. Absolutely. I would echo those sentiments. In my community we have a saying called what you do for me without me, you do to me. And I think that is often the entire approach of these technological revolutions, or to be frank, even sometimes when regulation is handed down.

I think that this new age of AI that we are in is also an opportunity for us to take a far more community focused approach when it comes to not only figuring out what are the right decisions to make, but how are things actually going to affect people in real time, engaging workers, engaging community members in exposing them to this technology, to go back to that point. Exposing them to this technology in two different tracks.

One that is more framed in terms of how they might apply it in the workforce. But another that is more general, that helps people specifically in communities of color, many of whom have a really terrifying view of AI, that gets them to develop a culture that they are more comfortable with it, they can adopt it, but also they can see using it as a remedy to so many of the stumbling blocks that they have often faced, both in the workforce or in everyday life.

The culture and the social systems we build around AI are equally as important as the technology. For most people, it is more important because most people aren't on the fringes to be able to influence how the technology actually works, fundamentally.

But for most of us, it is these systems we develop. So that is where most of the energy needs to go, and it needs to be human, and people focused.

Senator HICKENLOOPER. Right. Got that. And then on that same similar slant, Mr. Newman, I thought—I mean, we all have a vested interest in protecting the rights of workers, especially their civil rights. But, and you were talking about that this universal opportunity for retraining workers that I think really makes a lot of sense. All of you have said a version of that along here.

Mr. Newman, in your experience, what are some of the factors that should weigh—that employers should weigh, should be thinking about when considering AI implementation to really help make sure that workers are included and at the same time protected, but really included as well? Just, I think sort of what Mr. Billingsley was saying.

Mr. NEWMAN. Yes, Thank you for the question, Chairman. The framework that all companies should aspire to who deploy AI, whether large or small, is to have either by name or the equivalent a chief AI officer.

One of their responsibilities will be to educate and disclose transparently to the workforce what AI systems are being used in the workplace that can affect your hire, your fire, your promotion, your identification for promotion, job selection, etcetera.

By being transparent in that way as one facet of the chief AI's officer's job, it takes a lot of the fear and uncertainty away, and the workforce can see that they are not being treated unfairly by AI because they understand what is happening. It is the black box approach.

It is the, we are using it in ways we are not showing you to spy and harm you, versus very responsible ways to use AI in the employment context that ought to be disclosed and workers should understand what is happening.

Senator HICKENLOOPER. Right. No, excellent points made. My last question for Mr. Lannin, although you could all—I mean, every one of you could have answered every one of these questions. It is so—such a great panel. There are a number of ways that AI obviously can enhance workplace processes.

You have all described this. Promote efficiencies, make workers more productive, make their lives easier in many cases. This could go too far, and we run the risk of relying too much on AI, I think at—potentially at the expense of human decision-making. Imagine decision-making being a muscle that atrophies.

Mr. Lannin, how are developers thinking about the need to balance advances in AI without losing sight of the critical analytic decision-making capability?

Mr. LANNIN. When we think about developing AI into our products, we need to think about what outcomes we are going to achieve as part of that process. Is it going to have an impact on the hiring we are doing? Is it going to have an impact on another part of the workforce?

If we understand the outcomes, then we can understand where human judgment comes to play most. And we can think about AI as that copilot that allows someone to be more informed in their judgment.

I think it starts with really assessing like, what are the key parts of any piece of work that matter the most, where we rely on that fundamental ability to make good decisions, and we can augment them, as sort of that foundation point.

Yes, AI will show up in lots of simple, nondescript ways across the products. It will recommend a song that is pretty innocuous. But there are many places in the work that we do where human decision-making matters. It was a great point around the legal profession. For sure, we want our judges and our jurors to be human beings that are applying their judgment.

I think that analogy holds for all kinds of different professions, and that is how I think about it, is what is the outcome we are driving. And if you think holistically about that, it is easy to arrive at the places. We need to keep people at the center.

Senator HICKENLOOPER. Great. And that is, I think, where you started, was keeping people at the center. More questions?

Senator BRAUN. I am good.

Senator HICKENLOOPER. All right. I think, not that I am out of questions, but I think that I will back off at the moment. But I really, I can't thank you all enough for taking the time to be here. I think this has been so illuminating in so many ways and I feel so optimistic. Not that there aren't serious risks that you guys have all laid out, but that it is—and I am an optimist.

Entrepreneurs, you can't be in small business—these days you can't be in Government if you are not somewhat of a small, of an optimist. And I think we—I come away from this feeling more hopeful than fearful.

Anyway, that will end our hearing today. I would like to thank the colleagues who are here and watching on the Zoom, the internet. I want to thank each of our witnesses Mr. Billingsley, Mr. Lannin, Ms. Mobley Ryan, Mr. Newman—Morley Ryan, sorry. Mobley—Morley Ryan, and Mr. Newman.

Again, words can't express how much I appreciate having such a wide arc of experience to help us work through this stuff. For any Senators that wish to ask additional questions or have questions that weren't asked today, questions for the record will be due within 10 business days. So, on Tuesday, November 15th at 5.00 p.m. So ordered. The Committee now stands adjourned.

ADDITIONAL MATERIAL

STATEMENT FOR THE RECORD FROM IBM CORPORATION

Chairman Hickenlooper and Ranking Member Braun.

On behalf of IBM, thank you to the Senate Health, Education, Labor, and Pensions (HELP) Committee for convening a hearing on artificial intelligence (AI) and the future of work. This is an important and timely discussion, and IBM is pleased to share our perspective on the role of AI in shaping the future of the workforce.

The future of work is here, and it redefines what work gets done, who does it, how they do it, and will require people working with technology. We—the private sector, government, educators, and workforce stakeholders—must collectively act now to ensure every American is prepared to work alongside digital tools, take on higher-level and more meaningful work, and thrive in lifelong careers.

When harnessed and deployed responsibly, with ethics at its core, AI has a tremendous opportunity to enrich and advance human ingenuity to help solve the most challenging and pressing problems of our time. IBM shares the following experiences and considerations as Congress deliberates AI-related legislation in the context of workforce and urges the United States to take a risk-based approach to AI.

Responsible Deployment of Technology

The recent rise of generative AI catapulted this technology into the mainstream with dialog about the impact on society and the world of work, but AI innovation has been going on for decades. AI is not new for IBM, a leader in AI research and development since the 1950's.

In recent years, IBM has been applying AI in our business processes, and today, support clients' digital transformation and deployments of generative AI tools. IBM recognizes AI is a powerful technology that must be deployed responsibly. We prioritize AI ethics and governance by adhering to long-held *principles* of trust and transparency. And IBM is clear that the role of AI is to augment and not replace human expertise and judgment.

IBM believes the future of work is hybrid and flexible, based on a partnership between humans and digital tools. To advance this vision, IBM has advocated for regulating the use of technology, not the algorithms themselves, since 2020. Legislation based on end uses and in-context risks to consumers is the only way regulation can keep pace with the rapid evolution of technology. Our full perspective on the "precision regulation" of AI can be read *here*.

Preparing Workers for Jobs Augmented by AI

IBM has long asserted that technology and automation will change today's jobs in some manner—new jobs will be created, many jobs will be transformed, and some tasks will transition away. And we are optimistic about the impact of AI on jobs.

The *World Economic Forum's (WEF) 2023 Future of Jobs report* found that 50 percent of companies expect AI to create job growth, while 25 percent expect it to create job losses. WEF's study also estimates AI will disrupt 85 million jobs globally through 2025—and create 97 million new job roles. The IBM Institute for Business Value's recent *survey* of executives, "Augmented work for an automated, AI-driven world," paints the same picture—87 percent of executives surveyed expect job roles to be augmented, rather than replaced, by generative AI. To further the point, the International Labor Organization also found that, "the most important impact of the technology is likely to be of augmenting work—automating some tasks within an occupation while leaving time for other duties—as opposed to fully automating occupations."

As AI applications continue to infuse into our daily lives, Americans are becoming more familiar with the technology and starting to understand AI is a tool that can be used in many ways to support human decision-making. As our economy begins to transition to leverage AI across industries, new roles will be created, and many roles will be transformed by AI tools that help free human professionals to focus on higher-value and more meaningful responsibilities. This new dynamic will create opportunities for employers across industries to create environments where employees shift their focus to more rewarding work while letting technology do the more repetitive, administrative tasks.

We, collectively, as industry leaders have a responsibility to help prepare the American workforce on how to capitalize on the benefits of AI. We also encourage policymakers to ensure that our public education and workforce systems are aligned to help individuals attain the skills needed to work with AI technologies.

In 2021, IBM made a global *commitment* to help skill 30 million people by 2030. And recently, we committed to train two million learners in AI by the end of 2026—with a focus on underrepresented communities—through collaborations with global universities and new generative AI coursework through *IBM SkillsBuild*.

Upskilling, Reskilling, and Lifelong Learning are key to Success

As new technologies like generative AI begin to transform industries, critical skills and competencies will continue to play a crucial role in meeting the talent needs of employers. The WEF predicts that 44 percent of workers' skills will be disrupted between 2023 and 2028—up 9 percentage points from its last 5-year projection. Similarly, research conducted by the IBM Institute of Business Value *shows* C-suite executives estimate that 40 percent of their workforce will need to reskill for AI and automation over the next 3 years.

However, a new skills paradigm is emerging. As the IBM study points out, "STEM skills are plummeting in importance, dropping from the top spot in 2016 to 12th place in 2023." It's not because STEM skills are no longer needed. Instead, executives surveyed for the study expect a basic level of technical acumen to work alongside AI and digital labor. Their top priorities now are people skills needed for higher-value jobs because the half-life of technical skills is less than 3 years. Technology's ubiquity and ease of use essentially democratizes basic STEM skills, making it possible for today's high-demand technical skill to be tomorrow's commodity.

That's why IBM places talent and skills at the center of our people strategy. For instance, IBM requires employees to complete at least 40 hours of learning annually and provides the tools for learning. IBM's integrated digital career experience platform—YourLearning—helps IBMers reflect on their skills, develop in their role, grow mentoring relationships, and advance in their career. Last year, each IBMer completed an average of 88 hours which is 22 million learning hours collectively. Furthermore, employees with the highest learning hours (at least 200) are 20 percent more likely to move to a new role and 44 percent more likely to get a promotion. By providing continuous learning opportunities, including on topics like generative AI, IBMers can stay ahead of market demands and learn valuable technology career skills.

Earlier this summer, over 160,000 IBMers participated in a company-wide, global challenge to experiment with watsonx, a data and AI platform powered by IBM's foundation models. The challenge provided IBMers the opportunity to get hands-on experience with watsonx while helping us enhance the platform for clients and partners.

IBM H.R. Case Study

IBM's Human Resources function was an early deployer of AI in 2016, adopting a model of employee-driven innovation. IBM trained H.R. specialists in AI topics like data analysis, behavioral psychology, prompt engineering, and ethics. Now, almost 70 percent of the ideas for new applications of AI in H.R. come from those employees. Before, most projects were driven top-down by management. As a result, we saw tangible outcomes of their efforts including:

- Saving 50,000 hours of work in one business unit's promotions process, and saving 40 percent of their time overall during the process
- Automating over 100 standard H.R. processes, and
- Saving our recruiters 6.5 hours of administrative work per week.

On average, our employees in Compensation, Payroll, and the H.R. Help Desk are now at least one job band higher, reflecting their higher value skills and work. We redefined their jobs around higher value-added tasks while letting AI do the repetitive work.

Recommendations to Congress

As generative AI transforms industries and the workplace, more Americans are looking to obtain in-demand skills and career opportunities. Congress must work to improve alignment between our education and workforce systems, ensure critical public workforce programs are rooted in quality and outcomes, and establish responsive data systems. This can be accomplished by modernizing several Federal laws, including the Workforce Innovation and Opportunity Act, expanding Pell Grants for short-term and high-quality skilling programs, and scaling successful earn-while-you-learn opportunities by updating the National Apprenticeship Act of 1937. IBM recently shared best practices for employers and Federal policy recommendations in its *Workforce Technology Playbook*.

Thank you, again, for holding this important hearing on the impact of AI on employers and workers. IBM looks forward to continuing to work with the HELP Committee to align America's education and workforce systems with in-demand skills—for now and for the future.

For any questions or follow-up information, please contact Yelena Vaynberg, IBM's Government and Regulatory Affairs Executive.

NATIONAL SAFETY COUNCIL,
October 31, 2023.

Hon. JOHN HICKENLOOPER *Chair*,
Hon. MIKE BRAUN *Ranking Member*,
U.S. Senate Committee on Health, Education, Labor, and Pensions,
Subcommittee on Employment and Workplace Safety,
Washington, DC.

DEAR CHAIR HICKENLOOPER AND RANKING MEMBER BRAUN:

The COVID–19 pandemic changed the way we work in many ways and sped up technology and other transitions across workplaces. The National Safety Council (NSC) has been engaged in these transitions from the perspective of how technology impacts workplace safety and health. Through the NSC SAFER and Work to Zero initiatives, we have captured thoughts and reactions of workplaces and workers across the country on these changes and would like to share these findings with the Health, Education, Labor, and Pensions (HELP) Committee, Employment and Workplace Safety Subcommittee for the hearing "AI and the Future of Work: Moving Forward Together." NSC believes the impacts of the pandemic that slingshot advances in technology, like AI, are only part of the makeup of the "Future of Work," and we believe that work changes brought by the pandemic and technology implementation are more related to influence the success or failure of each other. We would like to offer an overview on the topics being considered with links to the full reports for the Subcommittee's consideration.

NSC is America's leading nonprofit safety advocate and has been for 110 years. As a mission-based organization, we work to eliminate the leading causes of preventable death and injury, focusing our efforts on the workplace and roadways. We create a culture of safety to keep people safer at work and beyond so they can live

their fullest lives. Our more than 13,000 member companies represent nearly 41,000 U.S. worksites.

Before sharing our report findings, there are a few key points to raise for your consideration.

1. Many cases of bias in technology and especially "learning" technology like AI have been found.[1] Technologists, employers, policymakers and others should take every step to ensure bias is not part of machine learning.

2. Incorrect information and data are always present online. For workplace safety and health programs, incorrect information can be the difference between life and death. People will be necessary for the foreseeable future to validate AI data.

Our first report, "State of the Response, The Future World of Work," recognized that not all workers experienced the pandemic in the same way. Front line workers, construction workers, healthcare workers and other employee groups continued to go into workplace settings to ensure seamless operations. Likewise, new technologies and other innovations have impacted workplaces differently depending on the sector. This report also highlights how new technology was more quickly integrated into workplace situations because of the pandemic. Cameras, healthcare screening devices and augmented reality replaced some of the interactions that had previously been done between people.

This report highlights the following topics:

- Operations—Moved to remote work arrangements for as many employees as possible
- Human Resources—Provided flexible work arrangements (e.g., hours, days, scheduling)
- Stress, Mental Health and Well-being—Promoted or increased employee assistance plans (EAP) benefit offerings
- Communications—Provided regular communication via multiple channels
- Organizational Culture—Increased focus on safety and health using COVID–19 as a catalyst
- Technology—Increased use of mobile app software
- Sustainability—Rethought need for physical space and travel

NSC issued "SAFER Recommendations for Moving Past the Pandemic" earlier this year on moving past the pandemic with a section on the future of work. This report built upon the way work changed during the pandemic to be more remote and with a greater use of technology. The report provides recommendations for how employers can proceed in a way that keeps workers engaged, safe and healthy. NSC recommends employers can prepare their organization and workforce for continued change from automation and AI by doing the following:

1. Invest in Training and Upskilling: Provide opportunities for workers to learn new skills that align with emerging technologies and trends. Offer training programs that help them adapt to changing roles and responsibilities, enabling them to stay relevant and valuable.

2. Foster a Learning Culture: Create an environment where continuous learning is encouraged and celebrated. This could include providing resources for self-paced learning, hosting workshops and offering incentives for workers to gain new skills.

3. Promote Critical Thinking and Problem-Solving: Emphasize the importance of critical thinking and creative problem-solving. Encourage workers to think outside the box and come up with innovative solutions, which are skills less likely to be automated.

4. Facilitate Collaboration: Develop team-based projects encouraging collaboration and diverse skill sets. Cross-functional teams can work together to tackle complex challenges requiring both human expertise and technological support.

5. Flexible Work Arrangements: Allow for flexible work arrangements, including remote work and flexible hours, to accommodate different employee needs and enhance work-life balance.

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[1] https://www.nist.gov/news-events/news/2022/03/theres-more-ai-bias-biased-data-nist-report-highlights.

6. Provide Clear Communication: Keep employees informed about the organization's strategies and plans related to technology adoption. Openly discuss the potential impacts on jobs and responsibilities and provide a clear vision of how the changes will benefit both the company and the workforce.

7. Support Well-being: Acknowledge the potential stress technological changes can bring and offer resources to support workers' mental and emotional well-being. This can include stress management programs and access to counseling services.

8. Redesign Job Roles: Analyze current job roles to identify tasks that can be automated and determine how human skills can complement automation. This can lead to the creation of new hybrid job roles leveraging the strengths of both humans and machines.

9. Empower Individual Autonomy: Give workers the autonomy to explore new technologies and suggest ways to implement them for improved efficiency. Empower them to be proactive in adopting new tools and methods.

10. Leadership and Vision: Leadership plays a crucial role in guiding the organization through change. Leaders should set a clear vision for the future, communicate it effectively and demonstrate their commitment to supporting workers throughout the transition.

11. Monitor and Adapt: Regularly assess the impact of technological changes on the workforce and adjust strategies accordingly. Flexibility and adaptability are key in navigating the evolving landscape.

For companies that are ready to implement more advanced technology, NSC issued guidance to help implement AI systems to improve workplace safety outcomes. "Using Data and AI to Gain Insights into Your Safety Program" examines how these technologies may be used by organizations of all sizes and identifies both potential benefits and drawbacks. Findings in this report include the following:

1. Data collected across an industrial enterprise in various forms (i.e., written reports, forms, images, video and audio) can all be used by modern data analytics and AI systems to derive powerful insights and deliver actionable risk predictions.

2. AI-assisted computer vision offers automated object recognition from images and videos for uses including spills, fires, personal protective equipment (PPE) adherence and site inspections. The technology can be further combined with EHS software and other safety workflows.

3. Natural language processing can rapidly summarize written reports and extract quantitative insights and sentiments to help EHS personnel perform incident analysis and make quicker decisions.

4. Predictive and prescriptive analytics engines can use large datasets to review permit-to-work requests, predict the risk for future incidents and deliver suggested solutions based on best-practice guidelines and historical data.

5. Drawbacks include high costs for building models from the ground up, bias exacerbation due to learning from world-scale datasets, data privacy issues, lack of general intelligence and tough tradeoffs between effectiveness, cost and complexity.

People must be the center of any conversation surrounding the future of work. Workers should be part of any effort to integrate technology into workplaces. They should be brought in early as a normal part of the process to gain additional perspectives and share potential concerns about a technology's use. In this process, technology developers should be forthright about what technology can and cannot due, thus maintaining safety as a priority for both the worker, organization and wider community. Included is an overview of NSC recommendations for implementing workplace technology.

I am available to discuss this topic more as it is central to work NSC is doing to prevent injury and deaths in workplaces—a goal I know Members of the Employment and Workplace Safety Subcommittee share. Thank you for the opportunity to share the work of NSC with the Subcommittee.

Sincerely,

LORRAINE M. MARTIN,
President and CEO.

National Safety Council

WORKtoZERO

an nsc program

Eliminating fatalities in the workplace through emerging technology.

Every worker deserves to return home safely, yet **each year approximately 5,000 US workers lose their lives.** Although workplace injuries have been decreasing over the past decade, the number of fatalities remain relatively stagnant. The National Safety Council (NSC) Work to Zero initiative believes technology can help eliminate workplace fatalities in our lifetime. Early tech adopters are not only reporting health and safety performance improvements but also increased operational efficiencies from implementing technology.

In 2020, NSC conducted initial research, identifying and mapping the top workplace hazards, contributing risk factors and viable technology solutions. This research has helped guide the Work to Zero program in supporting businesses in adopting lifesaving technologies.

Review the full report, *Safety Technology 2020: Mapping Technology Solutions for Reducing Serious Injuries and Fatalities in the Workplace*, to learn more.

Safety Technology 2020 Key Findings

Top 5 Hazardous Situation	% of Non-Roadway Deaths
1. Work at Height	22.59%
2. Workplace Violence	13.27%
3. Repair and Maintenance	12.40%
4. Construction and Installation	12.24%
5. Logging Equipment Operation	5.67%

Examples of Situational Risk	Examples of Systemic Risk
Falls	Lack of Training
Falling Objects	Fatigue
Struck by an Object	Poor Safety Culture
Electrocution	Adverse Weather
Fire	Worker Wellbeing

Most Commonly Used Tech	% of EHS Participants Used
Robotics	71%
Sensors/detectors	47%
Software	35%
Wearables	20%
Equipment	24%
Content	18%
Mobile Apps	18%
Analytics	12%
Data Management	6%

To learn more about NSC Work to Zero, our research and growing suite of free tools and resources visit: nsc.org/worktozero. Start by reviewing the ***Safety Innovation Journey*** and ***Implementation Roadmap***.

SAFETY INNOVATION JOURNEY

The Safety Innovation Journey, a key resource developed by Work to Zero, is a free interactive webtool that organizations can use as a customized step by step guide to successful adoption of technology solutions.

1. Assess Your Risk

Start by assessing the level of risk in the workplace. NSC has developed a risk assessment tool to help identify the primary workplace hazards associated with serious injuries and fatalities and which to prioritize solving through innovation.

2. Identify Technology Solutions

NSC can connect you to key resources such as webinars, white papers, investment calculators and case studies to explore technology solutions that can be used to address workplace hazards.

3. Determine Your Readiness

NSC provides a free online assessment to determine an organization's readiness for implementing technology. The assessment report outlines the five phases of digital readiness for safety technology (observing, experimenting, adopting, integrating, and transforming) and provides guidance for organizations as they progress.

4. Make The Business Case

NSC developed calculators to help organizations make the business case for innovation solutions and start the conversation about investing in safety technology. These calculators allow comparison between business as usual versus adopting technology solutions.

5. Your Roadmap

NSC has created a guide to help organizations plan, prepare, evaluate and innovate work practices within an organization.

Work to Zero is funded by the McElhattan Foundation

NSC WORK TO ZERO
SAFETY TECHNOLOGY PILOT AND IMPLEMENTATION ROADMAP

NSC believes the best way to protect workers is to eliminate, substitute or engineer out potential hazards, and implementing safety technology solutions can help. Recommendations below come from the ***Safety Technology Pilot and Implementation Roadmap: Making Innovation Accessible*** report. This report discusses challenges to innovation and provides a roadmap to assist employers on their innovation journey. This four-stage tool includes a series of continuous improvement action steps for employers to follow for successful digital transformation.

Step 1: PLAN

☐ **Define values and business goals.**
- Articulate values, goals and strategic vision.

☐ **Consider the Management of Change (MoC) process to assess business impact.**
- Align on values and communicate the collective 'why'.
- Step back to assess how technology interacts with and impacts the various users and stakeholders, including employees, through its lifecycle.
- Identify what supporting elements need to be put in place to fully leverage and realize its value (e.g., IT infrastructure, talents, functions, activities, resources, process changes).
- Clarify expectations, anticipate errors and assess the potential unintended consequences.

☐ **Ensure organizational readiness.**
- Assess and discuss the organizational and digital readiness level, with management, employees, customers and other stakeholders.
- Develop consensus on business goals and strategic vision.

Step 2: PREPARE

☐ **Build a coalition of digital champions representing all employment levels and revisit readiness.**
- When forming the coalition, consider:
  - What purposes may the technology serve?
  - How will the business need and the technology evolve?
  - Who interacts with the technology and how?
  - Who is affected by this technology?
  - What may need immediate attention?
  - What likely upskilling will connect with employees?
  - What are the hidden safety and security risks?
  - What skills and expertise are needed?

☐ **Determine data structure and reporting alignment.**
- Consider the following fundamental questions:
  - What data are needed to fulfill the purpose?
  - How is that data captured?
  - Who contributes to that data?
  - How is the data processed and how will it be used?

☐ **Revisit the MoC Process.**
- Reassure innovation aligns with business goals.

Step 3: EVALUATE

☐ **Examine the Return on Investment (ROI) of technology.**
- Consider the costs and value involved in business-as-usual compared to the costs and value of innovation.

☐ **Review case studies.**
- Case studies or use cases from like businesses can serve as useful points of comparison and analysis to make a technology solution fit-for-purpose.

☐ **Design/select possible technology solutions.**
- Consider a set of comprehensive criteria, such as:
  - Scalability
  - Ease of use
  - Data quality and transferability
  - Minimal business interruption
  - Security
  - Compatibility
  - Technology maturity

Step 4: INNOVATE

☐ **Roll-out technology.**
- Engage affected groups for technology and support readiness. Consider assessing their:
  - Acceptance and willingness
  - Skill and problem-solving abilities
  - Cultural appetite for change
- Consider launching a pilot project with a small group of team members.

☐ **Evaluate data integrity and performance.**
- Consider digital objectives and business goals.

☐ **Enact continuous improvement and monitoring.**
- Follow MoC principles.
- Conduct regular assessments regarding technology use and data produced.
- Commit to continuous improvement and monitoring.

PREPARED STATEMENT OF MATTHEW SCHERER

Matthew Scherer: The Promise and the Peril of AI in the Workplace

Testimony before the United Senate Senate Health, Education, Labor, and Pensions Committee
Subcommittee on Employment and Workplace Safety
Hearing: "AI and the Future of Work: Moving Forward Together"

October 31, 2023

Chair Hickenlooper, Ranking Member Braun, and Employment and Workplace Safety Subcommittee members—good morning. My name is Matt Scherer, and I am Senior Policy Counsel for Workers' Rights and Technology at the Center for Democracy & Technology. CDT is a nonprofit, nonpartisan organization that advocates for stronger civil rights protections in the digital age. CDT's Workers' Rights project examines, among other workplace technologies, automated employment decision tools, or AEDTs; as well as electronic surveillance and automated management systems, or "ESAM."

I was disappointed to see that the witness list for today's hearing did not include any civil society representatives, representatives of labor groups, or individuals who focus on workers' rights. A hearing without the voices of workers and their advocates will necessarily paint an incomplete picture of the impacts of artificial intelligence (AI) in the workplace, and it risks underplaying the threats workers face as employers increasingly deploy these technologies. As stated in the White House Executive Order on AI, which was fortuitously issued yesterday:

> As AI creates new jobs and industries, all workers need a seat at the table, including through collective bargaining, to ensure that they benefit from these opportunities . . . . AI should not be deployed in ways that undermine rights, worsen job quality, encourage undue worker surveillance, lessen market competition, introduce new health and safety risks, and cause labor-force disruptions. The critical next steps in AI development should be built on the views of workers, labor unions, educators, and employers to support responsible uses of AI that improve workers' lives, positively augment human work, and help all people safely enjoy the gains and opportunities from technological innovation.

History shows that while technology has the potential to make work and workplaces safer, fairer, and more accessible, not all new technologies live up to their hype, and in certain cases they have even caused great harm. The stakes are especially high with automated decision and management systems, which already impact the careers and livelihoods of untold numbers of workers. While these tools can improve productivity and efficiency, they also present risks for workers' health, safety, privacy, dignity, and legal rights. Strong regulation providing bright-line protections, meaningful transparency, and true accountability is needed to protect workers from these risks.

To that end, I urge the Subcommittee to take up Senator Casey's No Robot Bosses Act (S. 2419), which would regulate AEDTs; and Stop Spying Bosses Act (S. 262), which would regulate ESAM.

I am also attaching two documents, which I request be entered into the record for this hearing, that provide additional information on the risks associated with the use of automated systems in the workplace:

- Attachment 1: The *Civil Rights Standards for Twenty-First Century Employment Selection Procedures*, which provides a framework for managing the risks associated with AEDTs
- Attachment 2: Comments that a coalition of labor and civil rights groups sent the OSTP this past summer on ESAM

Automated Employment Decision Tools (AEDTs)

On the topic of automated employment decision tools, or AEDTs—as the Committees are aware, more and more employers are using AEDTs to make critical employment decisions. These technologies are frequently referred to as "automated *hiring* technologies." But, as Professor Ifeoma Ajunwa has noted, this is something of a misnomer. AEDTs are rarely used to identify the single best candidate for a position and make a *hiring* decision. Instead, they are most often used to evaluate large numbers of candidates and decide which of them are *not* worthy of further consideration.

The fact that these tools are used to screen *out* candidates *en masse* is deeply problematic because today's automated tools rarely, if ever, make an effort to directly measure a worker's actual ability to perform the essential duties and tasks of a job. Some vendors claim to assess workers based on "personality" or other subjective characteristics untethered from actual job duties. Others use correlation-driven machine-learning methods that can lead the tool to focus on irrelevant and potentially discriminatory characteristics.

Such tools pose a risk of discrimination against already-disadvantaged groups of workers, who are often underrepresented in the data used to train AEDTs and whose relevant skills and abilities may not be as obvious to an automated system. And they do so on the basis of characteristics untethered from the specific duties or essential functions of the jobs for which candidates are supposed to be evaluated under the law. That is bad for both workers *and for businesses*, since employers may miss out on unique candidates who would make great hires. That is precisely the sort of arbitrary and unfair barrier to employment opportunities that civil rights laws are designed to eliminate.

I want to emphasize that the approach taken by New York City's LL 144, which purported to regulate AEDTs, is wholly inadequate to the scale and depth of the risks posed by automated decision and management tools. Despite considerable media hype, the reality is that the LL 144 creates no clear protections for workers, does not require companies to provide meaningful disclosures to candidates nor to ensure that their tools comply with most anti-discrimination laws—and it does not apply to automated management systems at all.

Electronic Surveillance and Automated Management (ESAM) Systems

Turning to electronic surveillance and automated management, or "ESAM" systems. Employers today are using a diverse and expanding array of surveillance technologies to track and control workers. These include remote monitoring, location tracking, keystroke and mouse-click loggers, sophisticated camera and sensor technologies, and scientifically dubious systems that purport to measure emotional states and vocal characteristics. While surveillance of worker activity has a deep and long history in the United States, the advent of new technologies makes it easier for employers to not just monitor but effectively control workers' behavior without expending much time or effort. For that reason, many advocates have taken to referring to ESAM systems as *bossware*.

ESAM practices are increasingly prevalent in white-collar jobs, particularly as a result of the pandemic-induced work-from-home revolution, but it is low-wage and hourly workers who are most frequently subjected to monitoring. These workers are also often from marginalized populations historically facing higher levels of scrutiny and surveillance. Consequently, ESAM systems, like AEDTs, threaten to entrench existing inequities that already afflict our workplaces and labor markets.

In addition to the threat of discrimination and unprecedented invasions of workers' privacy and autonomy, ESAM can be used in ways that seriously threaten workers' health and safety. Many companies use bossware to enforce a dangerously fast pace of work and crack down on breaks and other forms of employee downtime. These uses of ESAM have a number of negative effects on workers' health and safety, including by:

- Discouraging and even penalizing lawful, health-enhancing employee conduct, including taking breaks to rest when needed to avoid fatigue or to use toilet facilities;
- Enforcing a faster work pace and reducing downtime, which increases the risk of physical injuries, particularly those stemming from repetitive motion;
- Increasing the risk of psychological harm and mental health problems for workers, particularly due to the effects of job strain, which occurs when workers face high job demands but have little control over their work. Extensive research shows that job strain can lead to anxiety, depression, cardiovascular disease, ulcers, and a number of other negative health effects associated with stress.[1]

The Need for Strong Regulation

The pervasiveness of ESAM and the rising use of AEDTs is a result of cheaper and omnipresent technology, declining levels of worker power, and, critically, weak workplace regulation. This is exacerbated by companies' near-complete lack of transparency regarding

[1] *See, e.g.*, Schnall, Peter L., Paul A. Landsbergis, and Dean Baker. "Job strain and cardiovascular disease." *Annual review of public health* 15.1 (1994): 381-411; Madsen, Ida EH, et al. "Job strain as a risk factor for clinical depression: systematic review and meta-analysis with additional individual participant data." *Psychological medicine* 47.8 (2017): 1342-1356; Babu, Giridhara R., et al. "Republished: is hypertension associated with job strain? A meta-analysis of observational studies." *Postgraduate medical journal* 90.1065 (2014): 402-409.

their use of these tools; workers frequently do not even know when they are being evaluated, monitored, or managed by an automated system, and almost never have details on what data employers collect about them or how an employer uses that information to make decisions. While existing laws provide some (mostly indirect) protection, the legal landscape desperately needs clarification and refinement to address these concerns.

In the context of AEDTs, this means that the Senate should pass legislation in line with the *Civil Rights Standards for 21st Century Employment Selection Procedures*, which were adopted last year by a broad coalition of civil and workers' rights groups including CDT. As the *Standards* state, effective governance of employment decision tools means:

- Requiring that all selection tools be clearly linked to essential job functions;
- Mandating pre-deployment and ongoing audits to ensure tools are non-discriminatory and assess job-related skills and traits;
- Ensuring that employers select the least discriminatory assessment method available; and
- Prohibiting certain tools that pose a particularly high risk of discrimination or lack scientific validity, such as facial analysis and personality testing.

It also means creating transparency and accountability by:

- Adopting multiple layers of disclosure requirements, ensuring that candidates and regulators alike have access to relevant information regarding decision tools;
- Ensuring candidates can communicate their concerns and seek redress; and
- Mandating clear procedures for disabled candidates to access accommodation.

More information about the *Standards* can be found at cdt.org/civilrightsstandards.

On ESAM tools, the Senate should pass legislation that requires employers to inform workers of the nature and extent of electronic surveillance, and that prohibits the use of ESAM systems that threaten workers' health or safety, or that violate their legal rights, including the right to organize and engage in union activity. Additionally, such legislation should ensure that employers only deploy ESAM tools if certain conditions are met, namely:

1) They have a legitimate and important purpose for doing so, such as:
    a) Enabling workers to perform the essential functions of their jobs;
    b) Ensuring the quality of the company's goods and services; or
    c) Complying with applicable laws.
2) The use of the technology is narrowly tailored toward achieving that legitimate and important purpose; and
3) The benefits of using the technology outweigh the risks they pose to workers.

I am particularly encouraged by Senator Casey's pending bills on AEDTs and ESAM, S. 2419 and S. 262, respectively. Those bills include the strong disclosure requirements that are needed for AEDTs and ESAM tools, as well as bright-line protections against harmful uses of

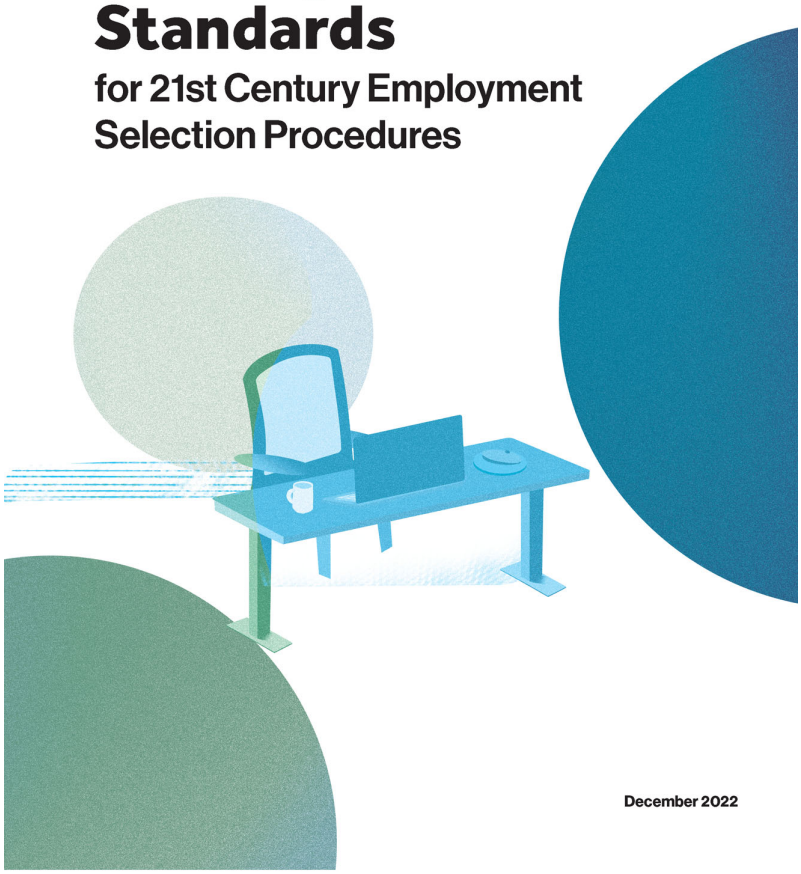
these technologies. I urge the members of this Subcommittee to take action on these bills in this session.

And more generally, I urge the Subcommittee to use its platform and authority to ensure that workers, not machines, remain at the center of the future labor market. The rights of workers, particularly vulnerable and marginalized workers, must not be trampled or glossed over for the sake of convenience or efficiency. Thank you.

Attachment 1: Civil Rights Standards for 21st Century Employment Selection Procedures

Civil Rights Standards

for 21st Century Employment Selection Procedures



December 2022

Civil Rights Standards for 21st Century Employment Selection Procedures

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American Civil Liberties Union (ACLU)
The Leadership Conference on Civil and Human Rights
National Women's Law Center
Upturn

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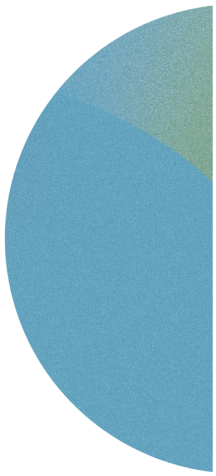
December 2022

Endorsements

Center for Democracy & Technology (CDT)
American Association for People with Disabilities (AAPD)
American Civil Liberties Union (ACLU)
Autistic People of Color Fund
Autistic Self Advocacy Network (ASAN)
Autistic Women & Nonbinary Network (AWN)
Bazelon Center for Mental Health Law
Color Of Change
The Leadership Conference on Civil and Human Rights
National Employment Law Project (NELP)
National Women's Law Center (NWLC)
TechEquity Collaborative
Upturn

Table of Contents

Introduction



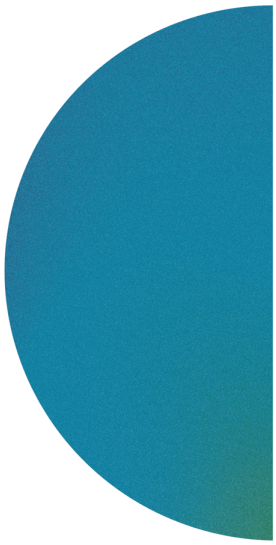
More than ever, employers are implementing new selection methods for virtually every stage of the employment process, from candidate sourcing and recruitment to employee evaluation and termination. Workers that face these tools are at an extreme information disadvantage, with little insight into how they are assessed or whether they face a risk of an unfair or discriminatory decision. In 2020, a broad coalition of civil rights and technology policy organizations published the Civil Rights Principles for Hiring Assessment Technologies (the "Principles") in an effort "to guide the development, use, auditing, and oversight of hiring assessment technologies, with the goals of preventing discrimination and advancing equity in hiring." In the two years that have followed, an increasing number of cities and states have considered legislation or regulations on hiring technologies that fail to implement – or even actively undermine – the Principles.

The Civil Rights Standards for 21st Century Employment Selection Procedures (the "Standards") were drafted to operationalize and expand on the Principles. The Standards provide a concrete alternative to recent proposals that would set very weak notice, audit, and fairness standards for automated tools. They also map out a more rigorous and rights-focused approach as compared to the outdated rules that currently govern how employers assess whether their selection procedures are discriminatory and whether they actually measure the worker characteristics they claim to measure. The Standards have been drafted so that policymakers, industry groups, and employers alike can reference them when determining what information candidates should receive, how selection procedures should be audited, and how to ensure accountability when selection procedures threaten workers' civil rights.

The Standards are the culmination of a year-long collaboration among a number of civil society groups. The coalition behind the Standards includes organizations that focus on racial justice, disability rights, digital rights, workers' rights, and a number of other civil rights and technology policy issues.

Workers that face these [new employment selection] tools are at an extreme information disadvantage, with little insight into how they are assessed or whether they face a risk of an unfair or discriminatory decision.

Executive Summary



Scope

The Civil Rights Standards cover all *workers* defined by Labor Department regulations as part of the labor force, regardless of whether they are classified as employees or contractors. Standard 2(ac). Consistent with existing antidiscrimination laws, they apply to all employers and employment agencies. The Standards cover the developers and sellers of selection procedures by explicitly classifying them as employment agencies. Standard 2(m). This reflects the fact that such vendors are increasingly filling roles traditionally performed by employment agencies.

Under the Standards, the definition of *selection procedure* (Standard 2(y)) includes every worker assessment that meets the following criteria:

a. It is sold by a vendor or other employment agency, or is used to assess at least 100 workers per year;
b. The score, recommendation, or other output it generates is primarily the result of automated, algorithmic, or deterministic processes; and
c. Its output is used as a basis, factor, or recommendation in connection with *employment decisions*.

While the rapid rise of automated selection procedures is a key motivator for the Civil Rights Standards, the Standards also cover other worker assessments so long as their scores, recommendations, or other outputs are assigned through algorithms, standardized rubrics, or similar processes. The Standards cover traditional multiple-choice Scantron tests, for instance, because the output of such a

test is computed using a (non-computerized) algorithm, with the candidates' responses as inputs and the score as the output.

The Civil Rights Standards' definition of *employment decision* (Standard 2(n)) largely tracks with the definition in the Uniform Guidelines for Employee Selection Procedures (UGESP), which cover most major personnel decisions. The Standards expand the UGESP definition to include decisions setting terms or conditions of employment and selecting workers for targeted recruitment or advertising.

Nondiscrimination

The auditing standards (Standards 3 and 6) would require companies to take a proactive approach to mitigating discrimination risk by:

- Identifying and anticipating discriminatory barriers throughout a selection procedure's lifecycle;
- Exploring alterations, accommodation, and alternative selection procedures that might reduce or eliminate potential sources of discrimination; and
- Requiring companies to choose the least-discriminatory valid method for measuring candidates' essential job functions.

The Standards would further extend civil rights laws' prohibitions against selection procedures that constitute or contribute to employment discrimination. Specifically, Standard 9 would prohibit companies from:

- Using or marketing discriminatory selection procedures (including selection procedures that result in disparate treatment or disparate impact); failing to provide candidates with reasonable accommodation; and failing to choose the least discriminatory valid method of candidate assessment.
- Failing to alter a selection procedure or provide reasonable accommodation, where alteration or accommodation is necessary to ensure that the selection procedure validly measures candidates' ability to perform essential job functions.
- Retaliating against workers who request reasonable accommodation or otherwise exercise their rights under the Civil Rights Standards.

The Standards also call for a ban on certain selection procedures that create an especially high risk of discrimination. These include selection procedures that rely on analyzing candidates' facial features or movements, body language, emotional state, affect, personality, tone of voice, pace of speech, and other methods as determined by the enforcement agency. Standard 9(a)(11).

Job-Relatedness

Before using a selection procedure that might adversely impact members of a protected class, the Standards would require employers to demonstrate that the selection procedure is a *valid* method of measuring candidates' ability to perform the *essential functions* of each position for which it is used. *See* Standards 3(c)(3); 6(b)(3); 9(a)(3). An employer establishes the essential functions of a position through objective evidence, such as:

- Workers' past/present experiences and performance
- Time workers spend on each function
- Consequences of workers not performing the function

Regarding *validity* – that is, the extent to which a selection procedure is an accurate and effective means of measuring the essential job functions that it purports to measure – the Civil Rights Standards look to contemporary standards of social science, rather than the outdated UGESP. Standard 2(ab). They would preclude employers from establishing validity simply by showing that the selection procedure's output correlates with existing measures of job performance. Such exclusive reliance on correlational evidence has become increasingly common with the advent of automated selection procedures, but blind reliance on correlation can result in selection procedures that incorporate systemic biases or cultural norms that disadvantage vulnerable groups of workers, in addition to (or even to the exclusion of) characteristics that have a causal link to workers' ability to perform essential job functions.[1]

Auditing

The Civil Rights Standards provide for both a pre-deployment audit before a selection procedure is first used to assess candidates, as well as ongoing audits conducted at regular intervals for as long as the selection procedure is in use. Both types of audits would be conducted by an independent auditor certified by the enforcement agency.

Standard 3 spells out a thorough *pre-deployment audit* that would have to be completed before a company could use a selection procedure. The Standards place this responsibility jointly on employers and vendors to encourage all parties involved in the development and use of a selection procedure to work together to ensure it is audited for the specific context(s) in which it will be used. The audit itself is conducted by an independent auditor, who would:

1 In one instance, a vendor developed a resume screener that determined that the two factors most indicative of job performance were whether the candidate's name was Jared and whether the candidate had played high school lacrosse. Dave Gershorn, Companies are on the hook if their hiring algorithms are biased, *Quartz*, Oct. 22, 2018, https://qz.com/1427621/companies-are-on-the-hook-if-their-hiring-algorithms-are-biased/.

- Identify existing and potential future sources of discrimination;
- Evaluate the selection procedure's job-relatedness/validity for each position for which the selection procedure will be used;
- Determine what alterations or accommodation might be required to ensure the selection procedure fairly assesses all candidates; and
- Explore potential alternative approaches to candidate assessment to determine if a valid and less-discriminatory alternative is available.

The auditor would also examine the company's existing employment decision practices to identify existing sources and patterns of discrimination.

After a selection procedure is deployed, Standard 6 would require companies to conduct ongoing audits at least annually. The components of ongoing audits largely mirror those of the pre-deployment audit, except that the auditor would review the selection procedure's impact and validity in light of the real-world performance data and candidate feedback received since the last audit. The ongoing audit also analyzes any changes made to the selection procedure or to the essential functions of the position(s) for which it is being used.

Notice and Explanation

The Civil Rights Standards contemplate three levels of disclosure and transparency:

- Short-form disclosures (Standard 4);
- Detailed summaries of all audits (Standard 7); and
- Comprehensive recordkeeping (Standard 8).

The short-form disclosure is a candidate-facing document that is designed to help alleviate the severe information disadvantage that workers currently face when employers subject them to selection procedures. This disclosure would provide workers with key information about both the selection procedure and how workers can exercise their rights under the Civil Rights Standards and antidiscrimination laws. The proposed short-form disclosure would include:

- The position(s) for which the selection procedure is used, the characteristics the selection procedure is supposed to measure, and how those characteristics relate to the position's essential functions;
- Potential sources of discrimination identified during prior audits of the selection procedure;
- How candidates can raise concerns about the selection procedure and/or request accommodation; and
- A link where candidates can review the detailed audit summaries required by Standard 7.

Standard 7 would require employers to prepare and publish detailed summaries of each pre-deployment (Standard 3) and ongoing audit (Standard 6). These audit summaries are designed to provide enforcement agencies and workers' advocates with enough information to determine whether an investigation or complaint regarding a selection procedure is warranted. To that end, the audit summaries would:

- Describe the audit's methodology, findings, results, and conclusions for each element specified in the audit;
- Explain any changes made to the selection procedure during the course of the audit; and
- Be posted on the employer's website, filed with the relevant enforcement agency, and linked in the short-form disclosure that Standard 4 requires.

Standard 8's comprehensive recordkeeping requirements provide the final layer of disclosure and transparency. Employers would retain "all data, code, and other information necessary to allow for subsequent independent audits and investigations regarding the lawfulness and validity of the selection procedure," and provide those records to the enforcement agency or an assigned auditor upon request. Covered information would be retained for five years or for as long as the selection procedure is used, whichever period of time is greater.

Oversight and Accountability

The Standards call for strengthening oversight and accountability of selection procedures by giving candidates greater input and a right to an explanation in the selection process (Standard 5), and by providing a strong regime for enforcement and remedies (Standards 9-11).

Under Standard 5, employers and employment agencies would have to:

- Allow candidates to request accommodation or raise concerns regarding the selection procedure, and provide human review of such communications.
- Provide a post-assessment explanation that identifies the information that led to an adverse employment decision, and allow candidates to submit corrections or supplementary information in response.
- Provide accommodation, an alternative selection method, or reevaluation if necessary to avoid unlawful discrimination.
- Give candidates facing assessment by automated selection procedures the right to opt out and be assessed instead through human review, a non-automated selection procedure, or other alternative means.

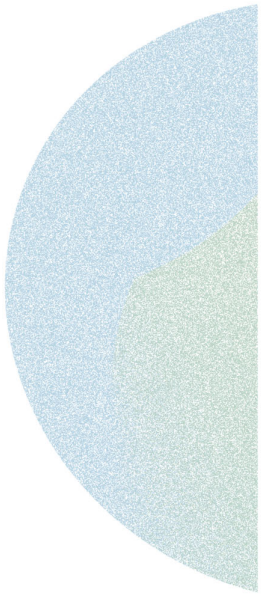
In addition to barring discrimination and retaliation (see *Nondiscrimination* section), Standard 9 calls for policymakers to make it unlawful for employers and employment agencies to:

- Fail to comply with the Standards' requirements pertaining to audits, notice, disclosure, and recordkeeping.
- Provide knowingly false or materially misleading or incomplete information in the Standards' required documentation.
- Extract a candidate's biometric data available through administration of a selection procedure, or disseminate such data without the candidate's consent for commercial third-party use.

The Standards call for enforcement and remedies to be made available through both civil and administrative actions. Enforcement agencies would be able to pursue civil penalties, injunctive relief, actual damages, and other remedies against employers and vendors, as well as against auditors where applicable under Standard 9, which would also create a private right of action for certain violations of the Standards.

Standard 10(e) calls for imposing joint and several liability on all employers and vendors involved in the development and use of a discriminatory selection procedure. This approach incentivizes both employers and vendors to proactively prevent discrimination resulting from their selection procedures, and also ensures that workers have a remedy in cases where a party is judgment-proof or a jury has difficulty allocating responsibility for discrimination.

Civil Rights Standards



Standard 1: Statement of Purpose

The policies specified in these Standards would:

a. Reinforce and elaborate upon state and federal civil laws' prohibitions against the use of employment selection procedures that have the intent or effect of discriminating against members of any protected class on the basis of a protected attribute;
b. Require designers, developers, vendors, and employers to ensure that selection procedures are audited, both prior to deployment and regularly during the course of their use, for all forms of unlawful discrimination, including but not limited to disparate treatment discrimination, disparate impact discrimination, failure to provide reasonable accommodation, and discrimination in advertising employment opportunities;
c. Establish notice, disclosure, and recordkeeping requirements for the users of selection procedures;
d. Ensure that selection procedures assess candidates solely on the basis of valid measurements of essential job functions using the least discriminatory method available;
e. Establish mechanisms for investigation and enforcement that vindicate the rights of candidates affected by the use of discriminatory selection procedures while encouraging transparency and cooperation by the users of selection procedures; and
f. Provide adequate remedies for members of protected classes who experience unlawful discrimination, or any other violation of their legal rights, as a result of a selection procedure.

Standard 2: Definitions

For the purposes of these Standards, the following terms have the following meanings:

a. *Accessibility*. The term "accessibility" means the degree to which workers with disabilities are able to access the functionality of, and benefits associated with, a device, good, service, or program, in a manner equally as effective as the access that others are able to utilize. In the context of selection procedures, this includes, but is not limited to, the degree to which:

   1. Workers with disabilities are able to acquire the same information, engage in the same interactions, and be assessed in a manner comparable to workers without disabilities, with substantially equivalent ease of use; and
   2. Potential access barriers for workers with disabilities have been avoided or eliminated in the design or administration of the selection procedure, or mitigated by making appropriate and effective accommodation available.

b. *Accommodation*. The term "accommodation" means, with respect to a specific selection procedure, the provision of tools or changes to the environment or the way in which the selection procedure is usually administered that a worker can request at or before the time the selection procedure is administered. An effective accommodation is an accommodation that allows a worker with a protected attribute to access the selection procedure and be measured by it in an equally effective manner as, and on equal footing with, other workers.

c. *Adverse impact*. The term "adverse impact" means a substantial difference in scores, selection rates, or other outputs or effects of a selection procedure that disadvantages members of any protected class in an employment decision.

d. *Alteration*. The term "alteration" means a change made to the design, structure, functioning, or content of a selection procedure.

e. *Alternative selection procedure*. The term "alternative selection procedure" means, with respect to a given selection procedure, a selection procedure that:

   1. Was developed or validated separately from the selection procedure at issue;
   2. Measures significantly different knowledge, skills, abilities or other characteristics; or
   3. Significantly differs from the selection procedure at issue in the method or process by which it measures the knowledge, skills, abilities, or other characteristics.

   This includes a selection procedure that has undergone such a significant alteration that it satisfies subparagraph (2) or (3) of this paragraph.

f. *Applicant.* An "applicant" is a candidate who meets the following criteria:

   1. The candidate submitted an expression of interest in employment with an employer or employment agency;
   2. The employer or employment agency considered the candidate for a particular position, for multiple positions, or for employment opportunities that may arise in the future; and
   3. The candidate had not removed themselves from further consideration or otherwise indicated that they were no longer interested in working for the employer or employment agency.

g. *Auditor.* An "auditor" is a person licensed by the enforcement agency pursuant to Standard 12(a)(3) to conduct the audits described in Standard 3 and Standard 6; who is independent of all employers, employment agencies, and other persons and entities that designed, developed, or used the selection procedure being audited; and whose methodologies for conducting such audits have been approved by the enforcement agency.

h. *Automated selection procedure.* An "automated selection procedure" means a selection procedure that is based in whole or in significant part on machine learning, artificial intelligence, computerized algorithms, automated statistical or probabilistic modeling, or similar techniques.

i. *Candidate.* The term "candidate" means any worker who is the subject of an employment decision made by a selection procedure, regardless of whether that worker applied for, expressed an interest in, or removed themselves from consideration for the position(s) for which the selection procedure is used.

j. *Candidate pool.* The term "candidate pool" means the population of candidates on which the selection procedure is being used or, for a selection procedure that has not yet been deployed, the population of candidates on which the selection procedure will be used.

k. *Deployed.* The term "deployed" means, with respect to a particular selection procedure, the period starting with the first time the selection procedure is used to make employment decisions for a position. "Pre-deployment" means the period before the first such use of a selection procedure, including but not limited to periods where the selection procedure is first being designed, developed, trained, tested, and validated for use for a position or multiple positions.

l. *Employer.* The term "employer" means a person who retains or accepts labor or services from a worker, including an agent of such a person, which is of sufficient size to be deemed an employer pursuant to relevant employment discrimination laws.

m. *Employment agency*: An "employment agency" is any person who procures workers for an employer; procures for workers opportunities to work for an employer; knowingly sells, offers for sale, or distributes assessments, software, or technology that is used to make or inform employment decisions; engages in a contract with an employer or another employment agency to provide services, software, or technology that collects, stores, analyzes, or interprets candidate information; or operates an online job board, platform, or other service that employers or employment agencies use to assist in the making of employment decisions. "Employment agency" also includes an agent of such a person, but does not include the developer or distributor of software or other technology if that person:

    1. Was not aware that the software or other technology would be used to make employment decisions; and
    2. Placed the software or other technology in the public domain without any license or reservation of rights, or made it available under a copyleft, GPL, BSD, or similar license that allows any member of the public to copy, distribute, or modify the source code or other technology without payment, royalties, or fees.

n. *Employment decision*. The term "employment decision" includes but is not limited to hiring, promotion, demotion, referral, retention, termination, compensation; setting the terms, conditions, or privileges of employment; selecting workers for recruitment, interviewing, or targeted job or career advertising; and licensing and certification, to the extent that licensing and certification may be covered by applicable federal, state, or local laws against employment discrimination. Other decisions, such as training or transfer, may also be considered employment decisions if they alter a worker's terms or conditions of employment or lead to any of the decisions listed in the preceding sentence.

o. *Enforcement agency*. The term "enforcement agency" refers to the office responsible for investigation and enforcement within the agency, department, or division of government responsible for interpreting and enforcing laws against employment discrimination.

p. *Essential functions*. The term "essential functions" means the fundamental job duties of a position and does not include the marginal functions of the position. Essential functions are to be determined based on objective evidence such as the amount of time workers spend performing each function, the direct consequences of not requiring workers in the position to perform the function, the direct consequences of a worker failing to perform or inaccurately performing the function, the terms of any applicable collective bargaining agreement, and workers' past and present work experiences and performance in the position in question. Past and current written job descriptions and the employer's reasonable, non-discriminatory judgment as to which functions are essential may be evidence as to which functions are essential for achieving the purpose of the job, but may not be the sole basis

for this determination absent the objective evidence described above. "Essential functions" does not include prerequisites that the employer establishes that do not relate to the work activities of the job itself, such as being able to work all shifts, to work overtime, or to arrive at work at a specified time.

q. *High-risk selection procedure.* The term "high-risk selection procedure" means a selection procedure that relies on analysis of a candidate's affect or emotional state; personality; facial features or movements, body language, gait, tone of voice, vocal pitch, or pace of speech; heart rate, respiration, or other bodily functions regulated by the autonomic nervous system; or any other technique or methodology identified by the enforcement agency as creating an especially high risk of unlawful discrimination.

r. *Interactive process.* The term "interactive process" means an informal communication or series of communications with a candidate with a disability to clarify whether the candidate requires accommodation or an alternative selection procedure under applicable law and to identify appropriate accommodation(s) or alternative selection procedure(s).

s. *Opt-out.* The term "opt-out" means a candidate's decision not to be assessed by an automated selection procedure, and to instead be assessed through human review or an alternative, non-automated selection procedure.

t. *Person.* The term "person" includes any natural person, entity, public body, trust, or unincorporated organization.

u. *Position.* The term "position" means a particular job or role at a particular employer.

v. *Protected attribute.* The term "protected attribute" means a personal characteristic or trait that is protected from employment discrimination under any applicable federal, state, or local law.

w. *Protected class.* The term "protected class" means a group or class of persons sharing one or more protected attributes in common.

x. *Proxy.* The term "proxy" in the phrase "proxy for a protected attribute" means a facially neutral attribute or set of attributes that are so closely associated with or predictive of a protected attribute that the selection procedure's use of the facially neutral attribute(s) has substantially the same practical effect on workers with the attribute(s) as use of the protected attribute(s) themselves.

y. *Selection procedure:* The term "selection procedure" means any measure, combination of measures, test, method, or process to assess workers that meets the following criteria:

1. It is:
   A. Sold or distributed by an employment agency; or
   B. Used to assess at least 100 workers per year;
2. It outputs a score, ranking, recommendation, evaluation, or other judgment that is primarily the result of:
   A. Automated processes, including processes that are based in whole or in significant part on machine learning, artificial intelligence, computerized algorithms, automated statistical or probabilistic modeling, or similar techniques; and/or
   B. Standardized processes, whether automated or non-automated, where outputs are generated algorithmically or deterministically; and
3. The output described in paragraph (2) is used as a basis for any employment decision, as a factor in any employment decision, to provide a recommendation with respect to any employment decision, or to assist, influence, or inform human decision-makers or automated systems in the making of any employment decision.

A group of two or more purported selection procedures, each of which satisfies both paragraph (2) and paragraph (3), is the same purported selection procedure for purposes of paragraph (1)(B) if they derive from the same development process; were tested, trained, or validated together; rely on common data; or are marketed under common trade or product names.

z. *Small employer*. The term "small employer" means an employer with fewer than 15 full-time equivalent workers.

aa. *Use*. To "use" a selection procedure means to utilize the selection procedure to make an employment decision about a candidate.

ab. *Validity*. The term "validity" means the extent to which a selection procedure is an accurate and effective means of measuring the essential job functions that it purports to measure, using the principles of test validation under contemporary standards of social science at the time the selection procedure is used, but a selection procedure is not valid for purposes of these Standards if the evidence for validity is based solely on correlation between the output of the selection procedure and measures of job performance, unless the employer or employment agency using the selection procedure supports the correlational evidence with theoretical, logical, or causal reasoning sufficient to explain why the specific attributes measured by the selection procedure should be predictive of the ability to perform essential job functions.

ac. *Worker*. The term "worker" means an employee, contractor, paid or unpaid intern, applicant, or any other person who offers or provides labor or services in exchange for compensation or other benefits. "Worker" also includes any individual who is

considered part of the labor force under the applicable standards and guidance issued by the United States Department of Labor's Bureau of Labor Statistics, regardless of whether the individual is currently working. In any proceeding involving the terms of these Standards or brought under any provision of these Standards, a plaintiff or complainant who claims to be a worker should be presumed to be a worker, and the employer or employment agency answering the complaint or other action should bear the burden of demonstrating that the plaintiff or complainant is not a worker.

Standard 3: Pre-deployment audits

An employer or employment agency should not use a selection procedure unless:

a. Prior to procurement or use of the selection procedure, an auditor has examined the employer's existing employment decision practices to identify disparities between protected classes, the use of proxies for protected attributes, and other potentially discriminatory patterns of disparate treatment and disparate impact on protected classes with respect to employment decisions. This requirement should not apply to small employers.

b. An auditor has conducted a pre-deployment audit on the selection procedure for each position for which the selection procedure is to be used. Each employer and employment agency that uses, sells, distributes, or develops the selection procedure should have a joint and non-delegable responsibility for ensuring that an audit compliant with this Standard is performed before the selection procedure is deployed. Such employers and employment agencies may enter into contracts assigning obligations, duties, and indemnification responsibilities relating to the conduct of a pre-deployment audit, but such contracts should not abrogate any party's duty to ensure that a proper audit is conducted or liability under these Standards in the event of non-compliance. The audit should:

    1. Identify and describe essential functions for each position for which the selection procedure will be used to evaluate candidates, explain why these functions are in fact essential, and demonstrate that the selection procedure is scientifically valid in measuring candidates' ability to perform these essential functions;
    2. Identify and describe the methods and techniques used to design the selection procedure, the attributes and criteria on which the selection procedure relies, and any other input or aspect of the design, development, validation, or testing of the selection procedure that the enforcement agency determines necessary;
    3. For any automated selection procedure, describe the sources of the training/modeling data, and the steps taken to ensure that the training data and samples are accurate and representative in light of the position's candidate pool;
    4. Determine whether the decisions, recommendations, scores, or other outputs of the selection procedure have an adverse impact on members of any protected class using at least one reasonable and appropriate test of statistical significance and one reasonable and appropriate test of effect size, describe the tests of statistical significance and effect size used to test for the presence and extent of such adverse impacts, and describe the nature and extent of any adverse impacts detected;
    5. Determine whether the administration of the selection procedure or its results limits accessibility for persons with disabilities, or for persons with any specific disability;

6. Explain whether and how the selection procedure reduces or otherwise addresses discriminatory outcomes identified under paragraph (a), or risks of such outcomes, in the employer's employment practices;
7. Consider and describe potential sources of adverse impact against protected classes that may arise after the selection procedure is deployed;
8. Identify and describe any attributes on which the selection procedure relies and determine whether the selection procedure engages in disparate treatment by relying on any protected attribute or any proxy for a protected attribute to make an employment decision;
9. Determine, for any adverse impacts or limitations on accessibility detected during the audit, whether alterations to the selection procedure can be made, whether effective accommodation can be provided, and whether less discriminatory alternative selection procedures or other assessment methods are available, that would mitigate the adverse impact or limitation on accessibility while retaining validity in measuring candidates' ability to perform essential functions;
10. Identify any other reasonable alterations needed to ensure that the selection procedure validly and effectively assesses the abilities of candidates from each protected class to perform each position's essential functions; and
11. Include any other information or sections required under the rules and regulations of the enforcement agency.

c. If the pre-deployment audit described in paragraph (b) of this Standard identifies any reliance on any protected attribute or proxy for a protected attribute, adverse impact, or limitation on accessibility:

1. The employer alters the selection procedure, and the auditor reasonably determines that the alteration eliminated the potential discrimination or inaccessibility;
2. In the case of reliance on a protected attribute or proxy for a protected attribute, the auditor reasonably determines that the use of the attribute or proxy is lawful pursuant to a valid affirmative action plan;
3. In the case of adverse impact or limitations on accessibility, the auditor reasonably determines that the selection procedure is both valid and the least discriminatory method of assessing the candidate's ability to perform the essential job function(s); or
4. In the case of limitations on accessibility, if the limitation cannot be eliminated by alteration, the employer or employment agency makes an effective accommodation available.

d. The employer incorporates and implements any reasonable alterations identified in paragraph (b)(10) and/or paragraph (c) of this Standard; and

e. The conditions and manner in which the employer uses the selection procedure, and purpose for which the employer uses the procedure, comport with the specifications of the selection procedure as implemented after the incorporation of alterations described in paragraph (d) of this Standard.

Standard 4: Short-form disclosures

a. Any employer or employment agency that uses a selection procedure should prepare a short-form disclosure for each such selection procedure that:

   1. States the positions for which the selection procedure is or will be used and what types of employment decisions will be made or informed by the selection procedure;
   2. Describes, for each position:
      A. The knowledge, skills, abilities, and other characteristics that the selection procedure measures;
      B. How those characteristics relate to the position's essential function(s);
      C. How the selection procedure measures those characteristics; and
      D. How to interpret the results or other outputs of the selection procedure;
   3. Identifies any reasonably foreseeable accommodation that candidates may require;
   4. States that candidates may, and provides up-to-date information on how to, request and access any accommodation or alternative selection procedures, communicate concerns regarding the selection procedure, file a civil or administrative complaint with the enforcement agency, or submit supplementary information, as set forth in Standard 5;
   5. For an automated selection procedure, specifies when and how the candidate may opt out of the selection procedure, as described in Standard 5(a)(4); and
   6. Clearly identifies a functional URL that links to the detailed summaries, described in Standard 7, of all prior audits and adverse impact assessments.

b. The short-form disclosure should be:

   1. Provided in English, in any non-English language spoken by at least one percent (1%) of the population of the relevant jurisdiction, and in any other language that the employer or employment agency regularly uses to communicate with workers or candidates;
   2. Written in clear and plain language;
   3. Made available in formats that are accessible to people who are blind or have other disabilities; and
   4. Otherwise presented in a manner that ensures the disclosure clearly and effectively communicates the required information to candidates.

c. An employer or employment agency should attach or conspicuously link an up-to-date short-form disclosure within each posting, advertisement, or recruitment communication regarding a position for which it may use the selection procedure.

d. Except as provided in paragraph (e) of this Standard, each employer or employment agency that uses a selection procedure should:

1. Provide the short-form disclosure to each candidate within a reasonable time prior to the use of the selection procedure;
2. Publish short-form disclosures for all selection procedures the employer uses on the employer's website and on any platform used to receive or process applications for a position or positions. The form should be posted in PDF or HTML format, or in another digital format if that format has been authorized by the enforcement agency.

e. When an employment agency uses a selection procedure on behalf of a small employer, the employment agency should be responsible for fulfilling the obligations set forth in paragraph (d) of this Standard.

Standard 5: Procedure to request accommodation, communicate concerns, or opt out; right to explanation for adverse actions

a. Prior to using a selection procedure on an applicant, an employer or employment agency should:

   1. Provide each applicant who may be subjected to the selection procedure a copy of the short-form disclosure described in Standard 4, and in accordance with the format and accessibility standards specified in that Standard;
   2. Provide the applicant with a meaningful opportunity to request accommodation or an alternative selection procedure or other assessment method, or to otherwise communicate concerns to the employer or employment agency regarding the selection procedure's ability to validly evaluate the applicant's ability to perform the position's essential functions;
   3. Engage in an interactive process with candidates with disabilities if the candidate requests accommodation or if the employer or employment agency knows of the candidate's need for accommodation; and
   4. If the selection procedure is an automated selection procedure, allow the applicant to opt out of using the selection procedure and assess the applicant through human review, a non-automated selection procedure, or other means of assessment, on equal footing with applicants who are assessed through the automated selection procedure.

b. After subjecting a candidate to a selection procedure, an employer or employment agency should:

   1. Provide an explanation that identifies the factors, candidate characteristics, and other information that led the selection procedure to render an adverse employment decision with respect to each position for which the selection procedure assessed the candidate; and
   2. Provide the candidate with a meaningful opportunity to submit corrections or otherwise provide supplementary information challenging factors identified under Standard 5(b)(1) and/or the selection procedure's overall ability to validly measure the candidate's ability to perform the position's essential functions.

c. Employers and employment agencies who receive requests, corrections, or other information from candidates pursuant to Standard 5(a)(2) or (b)(2) should be deemed to have knowledge of the information and requests for accommodation included therein and do each of the following within a reasonable amount of time after receiving the information from the candidate:

   1. Assign a natural person to review the information before the employment decision is finalized and determine whether provision of an accommodation, assessment of the candidate by alternative means, or reevaluation is warranted or needed to ensure compliance with applicable antidiscrimination laws;

2. Provide the requested accommodation, reevaluation, or alternative selection procedure or other assessment method if failing to do so would create a substantial risk of unlawful discrimination;
3. If the candidate made a specific request, provide the candidate with a decision on whether the candidate's request will be granted or denied, and the reasons for that decision;
4. Retain all information and documentation relating to the candidate communication in accordance with Standard 8; and
5. Review the information and requests as part of the next ongoing audit, as described in Standard 6.

d. A candidate's failure to invoke or utilize any of the rights or procedures described in this Standard should not:

1. Waive or affect the availability of any other rights, procedures, or remedies under these Standards or any other applicable law; or
2. Be used as evidence regarding the candidate's need for accommodation if the candidate is ultimately selected or hired.

Standard 6: Ongoing audits and adjustments

a. After a selection procedure has been deployed, the selection procedure should undergo ongoing audits at standardized intervals that ensure the selection procedure is audited at least once per year for each position for which the selection procedure is used. Each employer and employment agency that used, sold, distributed, or developed the selection procedure should have a joint and non-delegable responsibility for ensuring that ongoing audits compliant with this Standard are performed. Each ongoing audit should be conducted by an auditor who analyzes and documents in detail:

   1. Whether and how each position's essential functions, the characteristics of the candidate pool, or other features relevant to the validity of the selection procedure have changed since the pre-deployment audit and, if applicable, the last ongoing audit;
   2. If the parameters, training data, or other input components of the selection procedure have changed, whether and how the changes have affected the pre-deployment audit determinations identified in Standard 3(b);
   3. Whether and how the decisions, recommendations, scores, or other outputs of the selection procedure have had an adverse impact on members of any protected class, using the adverse impact testing standards and procedures specified in Standard 3(b)(4);
   4. Any new sources of adverse impact that may arise if the employer continues to use the selection procedure;
   5. The effectiveness of efforts to mitigate any potential adverse impacts identified during the pre-deployment audit;
   6. What new or additional reasonable alterations to the selection procedures or individual accommodation, if any, would improve the selection procedure's accessibility or its ability to fairly, validly, and effectively assess the abilities of candidates from each protected class to perform each position's essential functions without unlawful discrimination;
   7. The clarity and completeness of the adverse action notices and explanations described in Standard 5(b)(1);
   8. Whether less discriminatory alternative selection procedures or other methods of assessment are now available, using the standards specified in Standard 3(b)(9); and
   9. Any other information or issues required under the rules and regulations of the enforcement agency.

b. An employer or employment agency should cease use of a selection procedure for a position if the ongoing audit reveals:

   1. That the essential functions of the position have changed since the pre-deployment audit, in which case the employer should conduct a new pre-deployment audit;

2. Any reliance on any protected attribute or proxy for a protected attribute, unless it has been eliminated or the auditor reasonably determines that the use of the attribute or proxy is lawful pursuant to a valid affirmative action plan;
3. Any adverse impact or limitation on accessibility, unless it has been eliminated or:
   A. The employer demonstrates that the selection procedure is the least-discriminatory valid method for assessing candidates' ability to perform essential job functions; or
   B. In the case of a limitation on accessibility, if the limitation cannot be eliminated by altering the selection procedure, the employer or employment agency makes effective accommodation available; or
4. A need for a reasonable alteration as described in paragraph (a)(6) of this Standard, until the employer has implemented the reasonable alteration.

c. An ongoing audit that complies with this Standard should be conducted regardless of whether a selection procedure has been changed since the pre-deployment audit.

d. The enforcement agency should have discretion to require certain selection procedures to be audited more frequently than once per year, but nothing in these Standards should be construed as:

1. Suggesting that the enforcement agency allow any selection procedure to be audited less frequently than once per year; or
2. Preventing employers from auditing selection procedures more frequently than once per year, or more frequently than required under applicable rules and standards issued by the enforcement agency.

Standard 7: Audit summaries

a. For each pre-deployment or ongoing audit, the auditor should prepare a detailed summary of the results of each audit that:

   1. Includes the plain-language definitions of "audit" and "adverse impact" published by the enforcement agency;
   2. Explain that the selection procedure was audited and tested for adverse impacts and why;
   3. Describes the audit's methodology, findings, results, and conclusions for each element described in Standard 3(b) or Standard 6(a), as applicable;
   4. If the selection procedure has been changed pursuant to Standard 3(e), Standard 6(a)(6), or Standard 6(b)(2)-(4), or ceased pursuant to Standard 6(b), describes the nature of any changes and the reasons for any changes or cessation of use of the selection procedure; and
   5. Includes all other information required by the rules and regulations of the enforcement agency.

b. Each employer and employment agency should:

   1. If it has a website, post each audit summary on a dedicated and easily searchable page on its website, and keep the audit summary posted throughout the period of time that the employer or employment agency uses the selection procedure or any derivative of the selection procedure and one year thereafter; and
   2. File each audit summary with the enforcement agency, which should catalog audit summaries for each employer and employment agency and post them on the enforcement agency's website within seven days of filing.

Standard 8: Recordkeeping

a. For each selection procedure that the employer or employment agency uses, sells, or distributes, the employer and employment agency should retain all data, code, and other information in their possession or control necessary to allow for subsequent independent audits and investigations regarding the lawfulness and validity of the selection procedure, including:

   1. All documentation of impact and validity evidence for the selection procedure required under Section 15 of the Uniform Guidelines on Employee Selection Procedures, 41 CFR § 60-3.15;
      A. Subject to subparagraph (1)(B), an employer or employment agency with fewer than 100 full-time equivalent workers should be permitted to retain simplified records relating to a selection procedure, as specified in paragraph (A)(1) of 41 CFR § 60-3.15, except the records should include the simplified information about all protected classes, and should include information on all protected attributes shared by more than one percent (1%) of the labor force for which the selection procedure is used.
      B. An employment agency that sells selection procedures to employers; distributes selection procedures to employers; or administers, distributes, or uses selection procedures on employers' behalf, should retain full records of the impact and validity of the selection procedures, regardless of the size of the employment agency.
   2. Copies of every version of each short-form disclosure described in Standard 4 and every audit summary described in Standard 7;
   3. Records of each request for accommodation, request to be assessed by alternative means, or other communication received pursuant to Standard 5; the employer or employment agency's response to each such communication or request; and the reasons for its response;
   4. Records of each notice and explanation of adverse action described in Standard 5(b)(2);
   5. Any other information that the employer or employment agency relied upon when it decided whether to develop, procure, or use the selection procedure;
   6. Any other information that an auditor relied upon during a pre-deployment or ongoing audit; and
   7. All other data, code, records, or other information regarding the selection procedure required under the rules and regulations of the enforcement agency.

b. All documentation, data, results, and other records and information described in this Standard should:

   1. Be retained for as long as the selection procedure is used, or five years, whichever period is greater;
   2. Be secured during the retention period in a manner conforming to

contemporary cybersecurity industry standards, applicable health and personal information privacy laws, and any rules or regulations issued by the enforcement agency; and

3. Upon request, be securely provided to the agency or agencies responsible for enforcing laws relating to employment discrimination, as well as to any auditor duly retained to conduct an audit on a selection procedure to which the information is relevant.

c. To the extent that the records and information retained under this Standard include a candidate's personal information, the employer or employment agency should not sell, release, transfer, provide access to, or divulge in any manner the records or information to any third party, other than to an auditor in connection with an audit that is in progress, unless:

   1. The third party is an employer or employment agency that wishes to make an employment decision regarding the candidate;
   2. The employer or employment agency provides the candidate with a notice that discloses:
      A. The name of the third party to which the employer or employment agency wishes to disclose the candidate's personal information;
      B. The position(s) for which the third party wishes to make an employment decision;
      C. The type(s) of employment decision the third party wishes to make regarding the candidate; and
      D. The specific personal information that will be disclosed to the third party and the purpose that this information will fulfill in the third party's decision; and
   3. The employer or employment agency obtains separate, specific, and affirmative written consent from each such candidate with respect to each position with each third party.

d. Candidates should be protected from retaliation if they refuse to consent to the sharing of their data under paragraph (c) of this Standard.

Standard 9: Unlawful employment practices

Laws and regulations should be updated, amended, enacted, or promulgated to the extent necessary to ensure that the following are deemed unlawful employment practices under the laws of the jurisdiction in question:

a. For an employer or employment agency to use, sell, or distribute a selection procedure:

1. That contains technical elements, methods, or features that individually, or in concert, result in adverse impact for protected classes, unless the employer or employment agency establishes that the selection procedure was the least discriminatory valid method of measuring candidates' ability to perform the essential functions of the relevant position(s) at the time the employer or employment agency used the selection procedure;
2. That contains elements, methods or features that individually, or in concert, use protected attributes, or proxies of such attributes, to limit, segregate, classify, or deprioritize candidates for employment opportunities, including but not limited to selection procedures that use such attributes to make less available an advertisement for an employment opportunity on a physical or digital media platform or webpage, except pursuant to a valid affirmative action plan;
3. Without altering the selection procedure or providing reasonable accommodation, where such alteration or accommodation is needed to ensure that the selection procedure validly and effectively assesses the abilities of candidates from a protected class to perform each position's essential functions;
4. That, if used, would otherwise violate any prohibition on discrimination or lead to any unlawful employment practice under the laws of the United States or this jurisdiction;
5. That contains elements, methods, or features that cannot be adequately assessed for scientific validity, accuracy, or compliance with the provisions of these Standards;
6. That has not been subjected to the audits described in Standards 3 and 6 or that unreasonably continued to use a selection procedure without adequating addressing potential sources of discrimination or invalidity identified during such audits;
7. Without complying with the notice, disclosure, candidate communication, and other provisions of Standards 4 and 5;
8. For which compliant summaries have not been prepared, submitted, or published, as described in Standard 7;
9. Without maintaining all records, or without providing all relevant information to an enforcement agency or auditor, in accordance with Standard 8; or
10. That is a high-risk selection procedure.

b. For any person to retaliate or otherwise discriminate against a worker for:

   1. Requesting a reasonable accommodation;
   2. Opting out of an automated selection procedure;
   3. Otherwise exercising their rights under these Standards;
   4. Opposing any practice or conduct that the worker reasonably believes to be prohibited by these Standards; or
   5. Making a charge, testifying, assisting, or participating in any manner in an investigation, proceeding, or hearing under these Standards.

c. For an employer or employment agency to extract biometric data made available through a selection procedure or disseminate such data to unauthorized third parties for commercial purposes.

d. For an employer, employment agency, or auditor to include knowingly false, materially misleading, or materially incomplete information in an audit summary, notice, enforcement agency filing, or other documentation required under these Standards.

e. For an employer to use an automated selection procedure without first obtaining preclearance from the enforcement agency, as described in Standard 11(c).

Standard 10: Enforcement, remedies, and liability

Laws and regulations should be updated, amended, enacted, or promulgated to the extent necessary to ensure that the following enforcement mechanisms and remedies are available:

a. The enforcement agency should have authority to bring an administrative or civil action against an employer or employment agency for any unlawful employment practice described in Standard 9, paragraph (a) or (b). If the enforcement agency proves that the alleged unlawful employment practice occurred, the agency or court should:

    1. Assess a civil penalty for each calendar day that an employer or employment agency used the selection procedure that was the subject of the unlawful employment practice;
    2. Enjoin the employer or employment agency from continuing to use the selection procedure, or any related or derivative selection procedure, that was the subject of the unlawful employment practice;
    3. Issue any other such orders as the agency or court deems necessary to eliminate the effects of the unlawful employment practice and prevent future violations, including but not limited to the payment of actual damages to affected candidates.

b. The enforcement agency should have authority to bring an administrative or civil action against an auditor for any unlawful employment practice described in Standard 9, paragraph (d). If the enforcement agency proves that the alleged unlawful employment practice occurred, the agency or court should assess a civil penalty.

c. The enforcement agency should have authority to bring a civil action in any court of competent jurisdiction to enjoin the use, sale, or marketing of any selection procedure that the enforcement agency has reasonable cause to believe has resulted, is resulting, or will result in an unlawful employment practice.

d. Any person who has been subjected to any unlawful employment practice described in Standard 9, paragraph (a), subparagraphs (1), (2), (3), (4), (7), or (10), or described in Standard 9, paragraphs (b) or (c), should be able to file a complaint with the enforcement agency or a civil action in any court of competent jurisdiction.

    1. In any civil action under this paragraph, a prevailing plaintiff, or, in a successful class action, each member of the class, should be able to obtain, for each unlawful employment practice, the greater of:
        A. $500 per prevailing plaintiff or, in a successful class action, per each member of the class; or
        B. Actual damages.

2. In any civil action under this paragraph, a court should:
   A. Award a prevailing plaintiff costs and reasonable attorney fees;
   B. Enjoin the employer from continuing to use the selection procedure, or any related or derivative selection procedure, that was the subject of the unlawful employment practice; and
   C. Issue any other such orders as the court or agency deems necessary to eliminate the effects of the unlawful employment practice and prevent future violations.

e. In any civil action claiming that an employment decision made using a selection procedure has violated an applicable law against employment discrimination, each employer and employment agency that used, sold, distributed, or developed the selection procedure used in the employment decision should be jointly and severally liable to a prevailing plaintiff for all damages awarded to that prevailing plaintiff for the unlawful discriminatory practice and any liquidated damages awarded under paragraph (b) of this Standard, except that in instances where an employment agency knowingly sells, provides, or distributes a selection procedure to a small employer, the small employer should not be liable for any unlawful discriminatory practices or other unlawful acts of the employment agency.

Standard 11: Enforcement agency authority and responsibilities

a. The enforcement agency should promulgate rules:

1. Detailing the degree and content of human review required when an employment decision is made by an automated selection procedure;
2. Providing effective complaint processes for workers claiming to be aggrieved by an employer's use of a selection procedure;
3. Establishing certification procedures for auditors and their methodologies for conducting pre-deployment and ongoing audits, as well as the standards that auditors' methodologies must meet to obtain certification;
4. Establishing standards for what types and degrees of disparity constitute an adverse impact;
5. Specifying any situations other than those described in the text of these Standards under which a candidate may choose to opt-out of a selection procedure;
6. Specifying what additional information employers must include in the short-form disclosure described in Standard 4, and providing plain-language definitions of "audit," "adverse impact," and any other technical terms used in short-form disclosures;
7. Specifying what findings, data, conclusions, and other information must be included in the summaries described in Standard 7;
8. Specifying what information employers must retain as part of their recordkeeping obligations under Standard 8, as well as the cybersecurity and personal privacy standards governing any information retained under Standard 8;
9. Designating additional selection procedures as high-risk selection procedures beyond those specifically enumerated in Standard 2(q), but the enforcement agency's rulemaking authority should not extend to removing the high-risk designation from the types of selection procedures specifically enumerated in Standard 2(q);
10. Establishing reporting, investigation, and enforcement procedures that incentivize cooperation by employers, employment agencies, and other parties subject to these Standards and related laws against employment discrimination; and
11. Providing all other guidance, procedures, and interpretations necessary or beneficial to implementing and enforcing the provisions of these Standards.

b. The enforcement agency should publish example forms for the short-form disclosure, pre-deployment audit summary, ongoing audit summary, and any other documents, disclosures, or records that the enforcement agency deems necessary or beneficial, and should update such example forms when warranted.

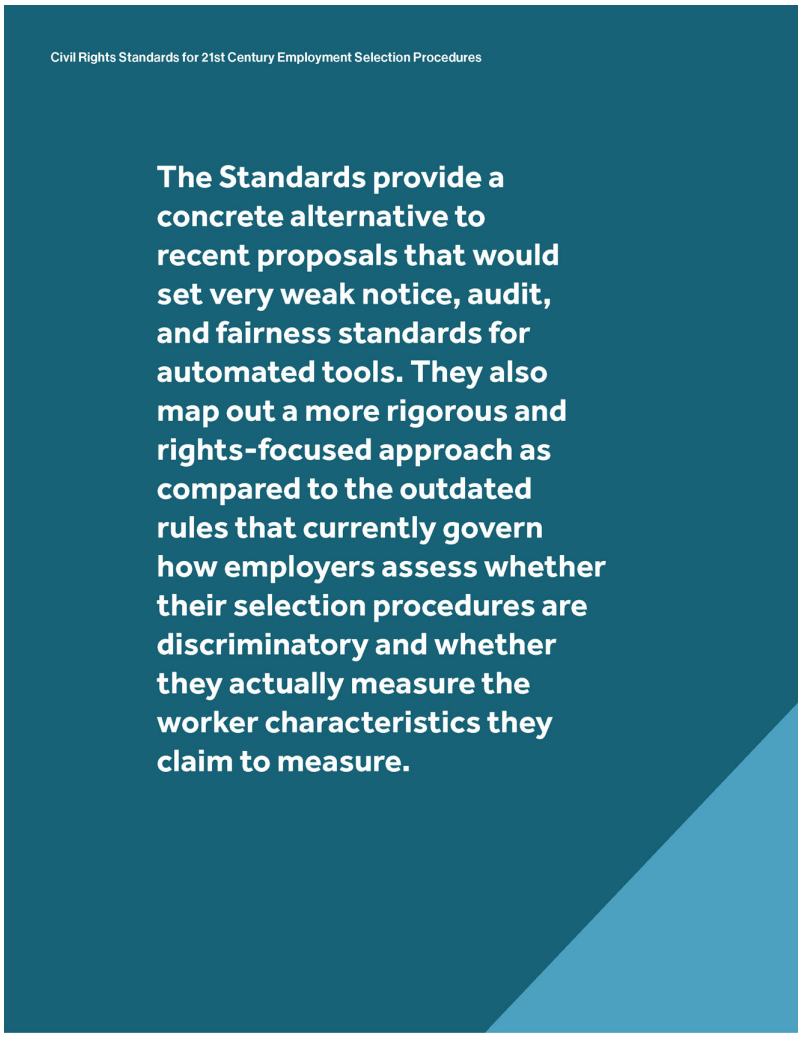
c. The enforcement agency should establish a preclearance process for automated selection procedures, under which employers must demonstrate that an automated selection procedure is the least discriminatory valid method of measuring essential job functions before it may be used for a particular position.

d. The enforcement agency should update its rules as appropriate to keep pace with changes in employment discrimination laws, technological advancements, the nature and content of selection procedures, and the social science of test validation.

Standard 12: Construction

a. The remedies described in these Standards are intended to be non-exclusive, and the provisions of these Standards should not be implemented in a manner that limits any preexisting right of any candidate to bring a civil action in any court of competent jurisdiction, limits the authority of appropriate agencies to enforce employment discrimination laws, or prohibits localities from enacting laws that provide greater or additional protection.

b. The existence of Enforcement Agency preclearance to use an automated selection procedure under Standard 11(c) should not alter, eliminate, or otherwise affect any person's liability or remedies under other applicable law, including but not limited to laws relating to employment discrimination, nor should evidence of preclearance be admissible in any action involving a claim of an unlawful employment practice, including but not limited to actions for employment discrimination.


Civil Rights Standards for 21st Century Employment Selection Procedures
The Standards provide a concrete alternative to recent proposals that would set very weak notice, audit, and fairness standards for automated tools. They also map out a more rigorous and rights-focused approach as compared to the outdated rules that currently govern how employers assess whether their selection procedures are discriminatory and whether they actually measure the worker characteristics they claim to measure.

For more information on this work, contact the Center for Democracy & Technology:

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Attachment 2: Comments to OSTP on Automated Worker Surveillance and Management

June 29, 2023

To: White House, Office of Science and Technology Policy
Executive Office of the President
Attn: Alan Mislove, Assistant Director for Data and Democracy
Eisenhower Executive Office Building
1650 Pennsylvania Avenue
Washington, D.C. 20504

Re: Comments on Automated Worker Surveillance and Management

The undersigned organizations respectfully submit these comments in response to the White House Office of Science and Technology Policy (OSTP) Request for Information on Automated Worker Surveillance and Management, dated May 2, 2023. We thank the White House and the OSTP for highlighting and seeking comment on this vital and increasingly prevalent issue.

Our comments address the risks that arise when electronic surveillance is combined with automated management (together, ESAM) to monitor and control workers. Our comments are organized around the different types of threats that ESAM poses to workers, specifically:

- How these tools threaten the health and safety of workers;
- How these tools are used in ways that discriminate against vulnerable workers and exacerbate structural inequalities in the workplace and labor market;
- How these tools can chill and infringe on workers' rights to organize and to engage in protected labor activities; and
- How companies use these tools to deprive workers of earned compensation.

These comments both describe the threats that ESAM poses in each of these areas and propose policy steps that federal agencies can take to prevent or mitigate those harms.

I. Definitions and Background[1]

A. Defining electronic surveillance and algorithmic management ("ESAM")

We use the definition of ESAM endorsed by National Labor Relations Board (NLRB) General Counsel Jennifer Abruzzo in an October 2022 memorandum: "a diverse set of technological tools and techniques to remotely manage workforces, relying on data collection and surveillance of workers to

[1] Much of Parts I and II of these comments is borrowed from a series of memoranda that many of the undersigned organizations, led by Governing for Impact and the Center for Democracy & Technology, sent to the Occupational Safety and Health Administration (OSHA) and National Institute for Occupational Safety and Health (NIOSH) in April 2023. The memoranda focus on the steps OSHA and NIOSH can and should take to address the harmful health and safety consequences of ESAM. *See* https://governingforimpact.org/wp-content/uploads/2023/04/Surveillance_Package.pdf.

enable automated or semi-automated decision-making,"[2] with "remotely manage" meaning that these tools allow employers to manage workers without the physical presence of a human supervisor. There are several categories of workplace surveillance technologies, including remote monitoring, location tracking, keystroke and mouse-click loggers, sophisticated camera and sensor technologies, and scientifically dubious systems that purport to measure emotional states and vocal characteristics. Modern ESAM allows companies to enforce pace-of-work policies that may be intentionally obscured from workers to create an atmosphere of urgency. Some employers also use gamification, which describes technology that is meant to solicit employees to work harder or longer "using video game elements, such as digital points, badges, and friendly competition."[3] Algorithmic management is the overarching system that takes input from surveillance technologies and other data sources and makes assessments – sometimes leading to disciplinary action – and adjustments to increase worker productivity.[4]

The types of technologies that enable ESAM include: handheld devices, point-of-sale systems, mobile phones, fingerprint scanners, fitness and wellness apps, cameras, microphones, body sensors, keycards, electronic communication monitoring, geolocation tracking, collaboration tools, and customer review solicitation.[5] While surveillance of worker activity has a deep and long history in the United States,[6] the advent of new technologies makes it easier for employers to keep close tabs on their workers without expending much time or effort.

ESAM practices are increasingly prevalent in white-collar jobs, particularly as a result of the pandemic-induced work-from-home revolution.[7] But, as a recent Data & Society report explained:

> Low-wage and hourly work—including in restaurant, retail, logistics, warehousing, agriculture, hospitality, domestic work, and healthcare—is more susceptible to datafication because these jobs' tasks are easily measured. These workers are also often immigrants, women, and people of color, populations historically facing higher scrutiny and levels of surveillance and monitoring.[8]

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[2] GC 23-02, Electronic Monitoring and Algorithmic Management of Employees Interfering with the Exercise of Section 7 Rights 5 (Oct. 31, 2022) quoting Alexandra Mateescu & Aiha Nguyen, Explainer: Algorithmic Management in the Workplace, Data & Society Research Institute (Feb. 2019), https://datasociety.net/wpcontent/uploads/2019/02/DS_Algorithmic_Management_Explainer.pdf.
[3] Tae Wan Kim, Gamification of Labor and the Charge of Exploitation, Journal of Business Ethics 152(1), (Sept. 2018), https://www.researchgate.net/publication/307091399_Gamification_of_Labor_and_the_Charge_of_Exploitation.
[4] Matt Scherer, Center for Democracy & Technology, Bossware May be Hazardous to Your Health 8 (July 29, 2021), https://cdt.org/wp-content/uploads/2021/07/2021-07-29-Warning-Bossware-May-Be-Hazardous-To-Your-Health-Final.pdf (hereinafter "Bossware Report").
[5] Aiha Nguyen, Data & Society, The Constant Boss: Work Under Digital Surveillance 4 (May 2021), https://datasociety.net/wp-content/uploads/2021/05/The_Constant_Boss.pdf (hereinafter "Constant Boss Report"); Kathryn Zickuhr, Workplace surveillance is becoming the new normal for U.S. workers, Washington Center for Equitable Growth, 4 (Aug. 2021), https://equitablegrowth.org/wp-content/uploads/2021/08/081821-worker-surv-report.pdf (hereinafter "Equitable Growth Report").
[6] *See generally* Alex Rosenblat, et al., *Workplace Surveillance*, Data & Society Research Institute, Oct. 8, 2014, https://www.datasociety.net/pubs/fow/WorkplaceSurveillance.pdf.
[7] Jodi Kantor and Arya Sundaram, *The Rise of the Worker Productivity Score*, NY Times, Aug. 14, 2022, https://www.nytimes.com/interactive/2022/08/14/business/worker-productivity-tracking.html.
[8] Constant Boss Report at 4.

The datafication of work has opened up numerous new avenues for employers to surveil and remotely manage workers.[9]

B. ESAM is pervasive throughout the economy and is increasingly used in ways that threaten workers' health, safety, dignity, and legal rights

Large companies frequently use ESAM technology to monitor their workers, and the practice is increasingly prevalent throughout the economy. The pervasiveness of ESAM is a result of cheaper and omnipresent technology, declining levels of worker power, and weak workplace regulation.[10] While there are no scientific studies indicating how many companies are using these technologies – and companies are generally not required to report or disclose their use – a 2018 survey of 239 large corporations found that more than half were using "nontraditional monitoring techniques," and projected that the number would grow to nearly 80 percent by the end of 2020.[11]

The meatpacking and agricultural industries are both sectors in which ESAM is heavily employed to enforce intense line speeds and production quotas. Quotas and line speeds have long been tools of control for meatpacking management to keep an eye on production, but some of the largest companies are now investing in ESAM technologies like wristbands that track the movement of workers' arms as they make their cuts.[12] In the agricultural sector, guest workers, for example, face punishing quotas.[13] The penalty for failing to meet such quotas can be severe, including job loss and subsequent deportation.[14]

Amazon, the second largest private employer in the United States,[15] has heavily used ESAM to monitor its workers and ensure they meet demanding production quotas. In the company's warehouses, for example, workers are monitored by artificial intelligence-enabled surveillance cameras, which track their movements, and by item scanners, which measure the amount of time that passes between scans and discipline workers for time off task ("ToT") and for failing to meet their rate goal.[16] Outside of the warehouse, the company contracts out most of its delivery business to third parties.[17] Amazon uses

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[9] *See generally* Ifeoma Ajunwa, *The Quantified Worker: Law and Technology in the Modern Workplace* (2023).
[10] *Id.* at 6.
[11] Brian Kropp, *The Future of Employee Monitoring*, Gartner (May 3, 2019), https://www.gartner.com/smarterwithgartner/the-future-of-employee-monitoring/.
[12] Madison McVan, *JBS, Tyson Foods invest in smartwatch app that monitors workers*, Missouri Independent (Oct. 14, 2022), https://missouriindependent.com/2022/10/14/jbs-tyson-foods-invest-in-smartwatch-app-that-monitors-workers/.
[13] David Bacon, *Growing Pains: Guest Farm Workers Face Exploitation, Dangerous Conditions – Part 1*, Capital & Main (June 5, 2018), https://capitalandmain.com/guest-farm-workers-face-exploitation-0605.
[14] *Id.*
[15] April Glaser, *Amazon now employs almost 1 million people in the U.S. — or 1 in every 169 workers*, NBC News (July 30, 2021), https://www.nbcnews.com/business/business-news/amazon-now-employs-almost-1-million-people-u-s-or-n1275539.
[16] Annabelle Williams, *5 ways Amazon monitors its employees, from AI cameras to hiring a spy agency*, Insider (Apr. 5, 2021), https://www.businessinsider.com/how-amazon-monitors-employees-ai-cameras-union-surveillance-spy-agency-2021-4.
[17] Josh Eidelson and Matt Day, *Drivers don't work for Amazon but company has lots of rules for them*, The Detroit News, May 5, 2021, https://www.detroitnews.com/story/business/2021/05/05/drivers-dont-work-amazon-but-company-has-lots-rules-them/4955413001/. As discussed further below in Part III.C, the control Amazon asserts over these workers via ESAM severely undercuts the argument that these workers should be classified as independent contractors rather than employees.

extensive driver surveillance to maintain uniform operations.[18] Amazon imposes a variety of requirements on these drivers,[19] and enforces them through handheld devices that track package drop-offs and determine routes, as well as through artificial intelligence-enabled camera systems that monitor driving behavior.[20] Contract drivers have reported being fired via system-generated email.[21]

Of course, Amazon is not the only firm to engage in this kind of surveillance and automated management of workers. Walmart's Spark Driver program directs and monitors contract drivers through its mobile phone app, which plans a driver's routes, the order in which they traverse a store's aisles, and which parking spot a driver should use.[22] Rideshare companies like Via and Uber tightly control their drivers through ride and job assignments as well as speed-monitoring apps, customer reviews, and cameras.[23]

Outside of the independent contractor context, as early as the 1990s, franchisors were using point-of-sale ("POS") software to maintain tight control over the employees of their franchisees. 7-Eleven disclaims an employment relationship with these workers, taking the position that the workers are employees solely of the local franchisee and not of 7-Eleven itself, but exerts control over these workers by monitoring the amount of time spent at the cash register and the speed of the ordering process in order to discipline them.[24] By the 2010s, surveillance technology enabled Domino's and McDonald's to control their workforce in similar, but more sophisticated, ways.[25] In addition to disciplining workers for slow order processing, Domino's and McDonald's required their franchisees to use software that allowed the corporations to dictate worker schedules and screen applicants from headquarters.[26] In a lawsuit against McDonald's, the NLRB General Counsel detailed the company's use of technology to compare franchisees' labor costs to their sales and discipline franchisees accordingly.[27]

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[18] Josh Eidelson and Matt Day, *Drivers don't work for Amazon but company has lots of rules for them*, (May 5, 2021), https://www.detroitnews.com/story/business/2021/05/05/drivers-dont-work-amazon-but-company-has-lots-rules-them/4955413001/.
[19] Including minutiae like dress codes, hair styles, and deodorant usage. *Id.*
[20] Caroline O'Donovan & Ken Bensinger, *Amazon's Next-Day Delivery Has Brought Chaos And Carnage To America's Streets — But The World's Biggest Retailer Has A System To Escape The Blame*, Buzzfeed News (Sept. 6, 2019), https://www.buzzfeednews.com/article/carolineodonovan/amazon-next-day-delivery-deaths; Tyler Sonnemaker, *Amazon is deploying AI cameras to surveil delivery drivers '100% of the time'*, Business Insider (Feb. 3, 2021), https://www.businessinsider.com/amazon-plans-ai-cameras-surveil-delivery-drivers-netradyne-2021-2.
[21] Spencer Soper, *Fired by Bot at Amazon: 'It's You Against the Machine'*, Bloomberg (June 28, 2021), https://www.bloomberg.com/news/features/2021-06-28/fired-by-bot-amazon-turns-to-machine-managers-and-workers-are-losing-out.
[22] Video, drive4spark.com, (Accessed Nov. 21, 2022), https://drive4spark.walmart.com/. In some markets, Walmart partners with other companies like DoorDash to source independent contractor drivers. Those drivers routinely earn below Walmart's minimum wage for its own employees. Nandita Bose, *Why Walmart farms out same-day grocery deliveries to low-cost freelance drivers*, Reuters, Feb. 14, 2019, https://www.reuters.com/article/us-walmart-labor-outsource-focus/why-walmart-farms-out-same-day-grocery-deliveries-to-low-cost-freelance-drivers-idUSKCN1Q30JS. *See also* Ahia Nguyen & Eve Zelickson, *At the Digital Doorstep: How Customers Use Doorbell Cameras to Manage Delivery Workers* (Oct. 2022), https://datasociety.net/wp-content/uploads/2022/10/AttheDigitalDoorstepFINAL.pdf.
[23] Mary Wisniewski, *Uber says monitoring drivers improves safety, but drivers have mixed views*, (Dec. 19, 2016), https://www.chicagotribune.com/news/breaking/ct-uber-telematics-getting-around-20161218-column.html.
[24] Brian Callaci, Data & Society, Puppet Entrepreneurship: Technology and Control in Franchised Industries 6-7, 13 (Jan. 2021), https://datasociety.net/wp-content/uploads/2021/01/DataSociety-PuppetEntrepreneurship-Final.pdf.
[25] *Id.*
[26] *Id.*; Brishen Rogers, 55 Harvard Civ. Rights-Civ. Liberties L. Rev. 531, 572, 577-78 (2020).
[27] Jeffrey M. Hirsch, *Joint Employment in the United States*, Italian Labour Law e-Journal Vol. 13 at 57 (2020), https://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=1574&context=faculty_publications.

Despite the many known examples of intrusive ESAM, however, the full extent to which companies are engaging in such practices remains unknown and, at present, perhaps unknowable. That is because, outside of a handful of states,[28] companies are not currently legally required to disclose the nature or, in most cases, even the existence of workplace surveillance and monitoring. Consequently, the true breadth and depth of ESAM–and, by extension, the risks posed to workers–remains unknown to both workers and policymakers. In this regard, ESAM is a threat to workers that remains uniquely outside of their control and whose true effects may be largely hidden from regulators.

II. Risks to workers' health and safety & proposed policy interventions

Existing research and documented worker experiences indicate that ESAM has a variety of negative physical and mental health effects on workers. Across a wide range of workplaces, ESAM puts workers' physical safety and health at risk by increasing the pace of work to unsustainable levels, which results in musculoskeletal strain and an increased likelihood of accidents. Additionally, such technologies contribute to heightened levels of job strain, which has both mental and physical health manifestations. Due to the lack of transparency surrounding ESAM, however, there remains much to be learned about the prevalence of ESAM practices and the effects that they have on workers' safety and health.

A. ESAM threatens workers' physical health and safety

Workplaces with higher levels of ESAM deployment often experience an increase in the number of physical workplace injuries.[29] Risk of physical injury arises from the increased pace of work, a decrease in breaks and other forms of downtime that protect workers' bodies from physical strain, and the physical manifestations of the mental health effects of ESAM.[30]

First, ESAM increases the pace of work, which can be unsustainable and increase the risk of physical injury. Even though some forms of ESAM are marketed as facilitating worker safety by more closely scrutinizing workers' movements, ESAM tools that speed up processing demands increase the likelihood of injury. For example, Amazon uses ESAM practices to accelerate workers' pace. Recent surges in demand as a result of COVID-19 led to a series of investigations into Amazon's employment practices, which include variable quotas, monitoring employees through handheld devices and cameras, and limited breaks. In part as a result of these practices, the rate of serious injuries in some of Amazon's warehouses is over five times the average for similar workplaces.[31] Monitoring of Amazon-branded delivery contractors has allegedly contributed to traffic accidents and deaths.[32]

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[28] The California Consumer Privacy Act (CCPA) began applying to employee data in 2023, meaning that California businesses are now required to disclose any collection of "personal information" from their employees. *See* Cal. Civ. Code § 1798.100 et seq; *see also* 19 DE Code § 705 (2022) ("Notice of monitoring of telephone transmissions, electronic mail and Internet usage"); CT Gen Stat § 31-48d (2020) ("Employers engaged in electronic monitoring required to give prior notice to employees. Exceptions. Civil penalty").

[29] Bossware Report at 4.

[30] *Id.*

[31] Reveal, *Find out what injuries are like at the Amazon warehouse that handled your packages*, (Nov. 25, 2019), https://revealnews.org/article/find-out-what-injuries-are-like-at-the-amazon-warehouse-that-handled-your-packages/.

[32] Patricia Callahan, *The Deadly Race: How Amazon Hooked America on Fast Delivery While Avoiding Responsibility for Crashes*, ProPublica (Sept. 5, 2019), https://features.propublica.org/amazon-delivery-crashes/how-amazon-hooked-america-on-fast-delivery-while-avoiding-responsibility-for-crashes/.

Indeed, Amazon's record on workplace injuries is such that the company routinely ends up on the Council for Occupational Safety and Health's annual "Dirty Dozen" list of the least safe American workplaces.[33] The Washington State Department of Labor and Industries has cited and fined Amazon repeatedly for forcing its warehouse workers to work at punishing speeds that exacerbate the risk of injury.[34] In one such instance, the department concluded that "[t]here is a direct connection between Amazon's employee monitoring and discipline systems and workplace MSDs (musculoskeletal disorders)."[35]

Employers across other industries have likewise used ESAM technologies to speed up production with dangerous consequences for workers.[36] The meat industry, as noted above, has been able to dramatically increase line speeds in processing and packaging facilities, in part thanks to new surveillance methods.[37] These high speeds are part of the reason that the poultry processing industry has some of the highest injury rates in the United States economy.[38]

Restrictions on breaks and pace of work requirements also pose a significant threat to pregnant and breastfeeding workers who often need to take more time to rest, drink water, use the restroom, and express breastmilk. Such practices have the potential not only to discriminate against pregnant and lactating workers but also to contribute to adverse health and birth outcomes, including miscarriage.[39]

B. ESAM poses risks to workers' mental health

ESAM reduces worker control and increases physical and mental demands by requiring them to be busy at every moment, which extensive research has linked to job strain.[40] An influential 1979 paper by Robert Karasek first defined job strain as the combination of high "psychosocial workload demands" and low "decision latitude"[41]—a framework often referred to as the "demand/control" model of job strain. Extensive research has demonstrated that job strain is related to anxiety, depression, insomnia,

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[33] Jon Fingas, *Amazon makes advocacy group's list of most dangerous US workplaces, again*, Engadget (Apr. 27, 2022), https://www.engadget.com/amazon-cosh-most-dangerous-workplace-list-212035329.html.
[34] Lauren Rosenblatt, *Fine with fines? Amazon isn't making enough changes to protect warehouse workers, Washington state says*, TechXplore (Mar. 29, 2022), https://techxplore.com/news/2022-03-fine-fines-amazon-isnt-warehouse.html.
[35] Washington State Department of Labor and Industries, Citation and Notice: Amazon Services 2 (May 4, 2021), https://s3.documentcloud.org/documents/20787752/amazon-dupont-citation-and-notice-may-2021.pdf.
[36] Saima Akhtar, *Employers' new tools to surveil and monitor workers are historically rooted*, Washington Post (May 6, 2021), https://www.washingtonpost.com/outlook/2021/05/06/employers-new-tools-surveil-monitor-workers-are-historically-rooted/.
[37] *Id.*
[38] Human Rights Watch, *When We're Dead and Buried, Our Bones Will Keep Hurting* (Sept. 4, 2019), https://www.hrw.org/report/2019/09/04/when-were-dead-and-buried-our-bones-will-keep-hurting/workers-rights-under-threat.
[39] *See* Jessica Silver-Greenberg & Natalie Kitroeff, Miscarrying at Work: The Physical Toll of Pregnancy Discrimination, New York Times, Oct. 21, 2018, https://www.nytimes.com/interactive/2018/10/21/business/pregnancy-discrimination-miscarriages.html; Lauren Kaori Gurley, Amazon Denied a Worker Pregnancy Accommodations. Then She Miscarried., Vice, July 20, 2021, https://www.vice.com/en/article/g5g8eq/amazon-denied-a-worker-pregnancy-accommodations-then-she-miscarried; Alina Selyukh, Senators Want An Investigation Of How Amazon Treats Its Pregnant Workers, NPR, Sept. 11, 2021, https://www.npr.org/2021/09/10/1033247833/u-s-senators-call-for-probe-of-amazons-approach-to-pregnant-workers.
[40] Bossware Report at 4; Constant Boss Report at 12 ("A multitude of data sources drive automated decision-making systems, and such systems are designed to take choices out of workers' hands").
[41] Robert A. Karasek, Jr., Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign, 24 Admin. Sci. Qtrly 285 (1979).

and other negative health outcomes. The National Institute for Occupational Safety and Health (NIOSH) has stated that prolonged periods of job strain increase the "rate of wear and tear on biological systems."[42] This type of stress causes fatigue, and research has linked it to mood and sleep disturbances, upset stomachs and headaches, and chronic health problems like cardiovascular disease and musculoskeletal disorders.[43] In fact, health care expenditures are nearly 50 percent higher for workers who report higher levels of stress.[44]

A large body of research has shown that job strain is strongly linked to depression and anxiety. One 2018 study demonstrated that job strain was strongly associated with serious suicidal thoughts in workers.[45] Studies have also found that fatigue and stress are major risk factors to workplace accidents that can result in physical harm to both workers affected by stress and fatigue and to the workers around them, and that this risk increases the longer workers go without a break.[46]

The implications of this research are alarming given the expanding use of ESAM technologies. Many surveillance practices produce the exact risk factors for job strain: reducing worker control and increasing physical and mental demands by ensuring that workers are busy at every moment.[47] These technologies allow employers to maximize productivity and eliminate even brief periods of worker downtime by continuously monitoring and enforcing a faster work pace. An investigation into Amazon's surveillance practices concluded that the company's monitoring of Time off Task through handheld scanners "create[d] the psychological effect of a constant 'low-grade panic'" in the workplace.[48] The fact that employees did not know what productivity rate they needed to hit until they received a warning caused anxiety that followed workers home.[49] These practices worsen the job strain generated by other forms of ESAM, such as the use of scheduling algorithms that often produce erratic and precarious schedules that prevent workers from planning other aspects of their lives.[50]

As NIOSH has noted, job conditions – rather than characteristics of individual workers – are the main drivers of workplace stress.[51] State workers' compensation systems also recognize the impact of working conditions on mental health.[52] Workers surveyed by Human Impact Partners reported that

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[42] NIOSH, *STRESS…At Work*, (1999), https://www.cdc.gov/niosh/docs/99-101/#Job%20Stress%20and%20Health.
[43] *Id.*
[44] *Id.*
[45] *See* BongKyoo Choi, *Job strain, long work hours, and suicidal ideation in US workers: a longitudinal study*, 91 Int'l Archives of Occ. & Environ. Health 865 (2018).
[46] Philip Tucker, The impact of rest breaks upon accident risk, fatigue and performance: a review, Work & Stress, 17(2), 123-137.
[47] *See* Constant Boss Report at 12 ("A multitude of data sources drive automated decision-making systems, and such systems are designed to take choices out of workers' hands").
[48] Daniel A. Hanley & Sally Hubbard, Eyes Everywhere: Amazon's Surveillance Infrastructure and Revitalizing Worker Power 10, Open Markets Institute (Sept. 2020), https://static1.squarespace.com/static/5e449c8c3ef68d752f3e70dc/t/5f4cffea23958d79eae1ab23/1598881772432/Amazon_Report_Final.pdf.
[49] *Id.*
[50] *Id.* at 18.
[51] NIOSH, *STRESS…At Work*, (1999), https://www.cdc.gov/niosh/docs/99-101/#Job%20Stress%20and%20Health.
[52] *See id.*

"constant surveillance results in stress, anxiety, and depression."[53] In 1987, the now-defunct United States Office of Technology Assessment issued a report that highlighted how "monitoring contributes to employee stress by creating a feeling of being watched."[54]

ESAM may also increase the risk of both mental and physical health impairments because of the opaque and seemingly arbitrary nature of ESAM-driven disciplinary decisions. These characteristics of ESAM may impact organizational justice, a model of job stress that examines "the role of fairness perceptions, e.g., regarding the distribution of resources, the fairness of decision-making processes, and the fairness in interpersonal interactions."[55] Research indicates that poor organizational justice may increase both feelings of anxiety and depression and the risk of musculoskeletal disorders.[56]

Just as ESAM increases the risk of job strain under the demand/control model, it also increases the risk of job strain under the organizational justice model. When a worker is electronically monitored and is later disciplined or fired through an opaque ESAM-driven system, that reduces organizational justice and increases the risk of job strain--with all the well-documented mental and physical health consequences that follow.

C. Proposed policy interventions

The federal government could take a number of steps to address the health and safety risks that ESAM poses to workers. Earlier this year, a coalition of organizations led by Governing for Impact and the Center for Democracy & Technology sent a set of memoranda to the Occupational Safety and Health Administration (OSHA) and National Institute for Occupational Safety and Health (NIOSH) that includes greater detail on the policy interventions suggested below.[57]

i. NIOSH: Funding research into the health and safety effects of ESAM

By all accounts, ESAM technology is rapidly spreading through workplaces around the country, making research into its effects on workers' safety and health a top priority. As regulators and legislators begin to take action, they must be able to do so based on scientific knowledge and understanding. Consequently, NIOSH should use its existing statutory authority to fund studies that examine: 1) the effects of ESAM on workers' mental health; 2) the effects of ESAM on workers' physical health; and 3) the effects of ESAM on accident rates. These studies should also address the effects of ESAM on workers who are disabled, pregnant, or otherwise protected by law.

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[53] Martha Ockenfels-Martinez, *Blog: Workplace surveillance harms essential workers*, Berkeley Othering & Belonging Institute (Jan. 21, 2021), https://belonging.berkeley.edu/blog-workplace-surveillance-harms-essential-workers.
[54] U.S. Congress, Office of Technology Assessment, The Electronic Supervisor: New Technology, New Tensions, OTA-CIT-333 (Washington, DC: U.S. Government Printing Office, Sept. 1987), https://ota.fas.org/reports/8708.pdf.
[55] Raphael M. Herr, et al., Three job stress models and their relationship with musculoskeletal pain in blue- and white-collar workers, 79 J. Psychosometric. Res. 340 (2015).
[56] *Id.*; Chester Spell & Todd Arnold, A Multi-Level Analysis of Organizational Justice Climate, Structure, and Employee Mental Health, 33 J. Mgmt. 724 (2007).
[57] Available at: https://governingforimpact.org/wp-content/uploads/2023/04/Surveillance_Package.pdf.

NIOSH has funded extensive research on both work-related musculoskeletal disorders and on the physical and mental health effects of job strain. For example, NIOSH-funded research found that job strain and long work hours contribute to significantly higher rates of moderate to severe suicidal ideation in working adults.[58] Other research indicates that job strain increases the risk of musculoskeletal pain by up to 62%,[59] and that job strain significantly increases the risk of requiring a disability pension due to musculoskeletal disorders.[60] This potential link between job strain and musculoskeletal disease underscores the need for additional research into the health effects of ESAM. To date, however, we are aware of only one study that examined the impact of electronic surveillance—and that study was limited to computer workers and conducted nearly three decades ago.[61]

NIOSH should conduct or commission research in several areas related to ESAM, answering some or all of the following research questions:

- ESAM and job strain
    - What are the conditions under which ESAM heightens workers' risk for job strain?
    - What types of ESAM practices and technology contribute to more severe job strain?
    - What are the rates of job strain and other mental health issues among workers who are exposed to ESAM?
    - What physical diseases, disorders, and manifestations arise in workers affected by ESAM-associated job strain?
- ESAM and repetitive stress injuries
    - What are the conditions under which ESAM heightens workers' risk for repetitive stress injuries and other musculoskeletal injury?
    - What features of ESAM technologies are the biggest contributors to this risk?
    - Does the risk of repetitive motion injuries suggest a clear limit on the "safe" pace of work for workers in particular industries or workplaces?
    - What are the conditions under which mental health and job strain effects of ESAM contribute to physical injury risk?
- ESAM and industrial accidents

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[58] Sarah Mitchell & BongKyoo Choi, Job Strain, Long Work Hours, and Suicidal Thoughts, NIOSH Science Blog, (Sept. 13, 2018), https://blogs.cdc.gov/niosh-science-blog/2018/09/13/suicide-prevention/.

[59] Sohrab Amiri & Sepideh Behnezhad, Is job strain a risk factor for musculoskeletal pain? A systematic review and meta-analysis of 21 longitudinal studies, 181 Pub. Health 158 (2020), https://www.sciencedirect.com/science/article/abs/pii/S0033350619303932.

[60] Anne Mantyniemi, et al., Job strain and the risk of disability pension due to musculoskeletal disorders, depression or coronary heart disease: a prospective cohort study of 69 842 employees, 69 Occupational & Environ. Med. 574 (2012), https://pubmed.ncbi.nlm.nih.gov/22573793/.

[61] Schleifer et. al., Mood disturbances and musculoskeletal discomfort: Effects of electronic performance monitoring under different levels of VDT data entry performance, International Journal of Human–Computer Interaction Volume 8, 1996 - Issue 4, https://doi.org/10.1080/10447319609526159.

- Under what conditions, if any, does increased pace-of-work lead to more frequent workplace accidents?
- Does the risk of workplace accidents suggest a clear limit on the "safe" pace of work for workers in particular industries or workplaces?

- Physical health and safety generally
  - How does employer use of ESAM affect access to reasonable accommodations in the workplace for workers who require and are entitled to such accommodation, including disabled, pregnant, and lactating workers?
  - Do employers' and vendors' claims that ESAM technologies reduce injury rates stand up to independent evaluation?
  - Does employer use of ESAM discourage workers from reporting workplace safety and health concerns?

NIOSH should fund both studies that examine how ESAM is impacting workers today, and also longitudinal studies that examine the cumulative effects of ESAM-driven practices over time.

ii. OSHA should issue regulations and guidance on potentially harmful uses of ESAM

OSHA should issue rules regulating the use of ESAM in the workplace, including but not limited to ending uses of ESAM that increase the risk of musculoskeletal disorders, job strain and associated health effects, and workplace accidents. OSHA has the legal authority to conduct ESAM rulemaking that covers each of these topics.[62]

OSHA should also incorporate discussion of ESAM into its sector-by-sector guidance on workplace injury prevention and issue new guidance that comprehensively identifies workplace injury risks and solutions in warehousing. OSHA has issued ergonomics guidance to advise employers in some sectors of best practices to prevent musculoskeletal disorders. However, none of these guidance documents discuss the role that ESAM can play in creating ergonomic risk. Additionally, there is not currently a comprehensive ergonomic guidance document for the warehousing sector, in which ESAM and musculoskeletal disorders are both especially pervasive. OSHA should update existing guidance documents for poultry processing and grocery warehousing to include a discussion of ESAM and issue a new guidance document on ESAM risks and solutions in warehousing.

iii. The EEOC and OFCCP should update existing regulations to address the impact of ESAM on disabled, pregnant, and lactating workers

As discussed above, intrusive uses of ESAM pose a particularly acute risk to the health of disabled and pregnant workers. Consequently, and as discussed further in Part III, the EEOC and OFCCP should issue regulations under the Americans with Disabilities Act (ADA) and Rehabilitation Act as well as the

[62] Governing for Impact, et al., Memorandum, OSHA's Authority to Begin a Regulatory Process on Workplace Electronic Surveillance and Algorithmic Management, *available at* https://cdt.org/wp-content/uploads/2023/04/Complete-Electronic-Workplace-Surveillance-OSHA-NIOSH-memo-package.pdf.

Pregnancy Discrimination Act (PDA) and the Pregnant Workers Fairness Act (PWFA) (which becomes effective on June 27, 2023), detailing employers' obligation to ensure that deployments of ESAM do not threaten disabled and pregnant workers' rights, including their right to reasonable accommodation, and prohibiting uses of ESAM that further harm or marginalize such workers. Similarly, the DOL should issue regulations clarifying employers' obligations to ensure that uses of ESAM do not threaten lactating workers' rights under the Providing Urgent Maternal Protections for Nursing Mothers (PUMP) Act.

III. Discrimination and structural inequalities in the workplace and labor market & proposed policy interventions

The increasing use of ESAM in workplaces threatens to dramatically worsen the barriers that workers from disadvantaged groups already face in the workplace and labor market.

A. ESAM practices threaten to further marginalize historically disadvantaged groups of workers

At a basic level, the sheer scale of data that employers collect through ESAM—often without informed or meaningful consent—gives them access to troves of sensitive personal information, including health data, religious practices, family structure, race, gender, sexuality, and nationality/immigration status.[63] For example, data collection on health can capture fertility, pregnancy or other private health data. It is not an unfounded fear that these tools may become additional opportunities for employers to discriminate in the workplace. ESAM has the potential to exacerbate harmful workplace dynamics for Black workers, women, people with disabilities, and other marginalized groups of workers who have long faced greater scrutiny.[64] But ESAM also increases the risk of discrimination and widens existing gaps in the workplace in less obvious but no less impactful ways.

The use of ESAM is heavier in industries where workers are disproportionately from marginalized groups, including people of color, women, and immigrants.[65] It also tends to be used in industries where workers rarely have union protection, leaving them less able to effectively confront exploitative practices.

Additionally, when ESAM is used to impose standardized expectations of behavior, or to identify and flag "atypical" patterns of behavior, workers from already marginalized or underrepresented groups are likely to suffer. A worker with a physical disability may move in ways that an automated video surveillance system identifies as suspicious. Immigrant workers in call centers monitored through speech-recognition systems may speak with accents that the algorithm may not accurately decipher. A tracking system using facial scanning may not function for workers with darker skin. A diabetic worker

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[63] Zickuhr, Equitable Growth Report.
[64] *See* Constant Boss Report at 4. *See generally* Simone Browne, Dark Matters: On the Surveillance of Blackness (Durham: Duke University Press, 2015).
[65] Constant Boss Report at 4.

in a warehouse may need to adjust their activity level or take unscheduled breaks or downtime to manage their blood sugar.

Similarly, ESAM tools also may internalize and repeat existing discriminatory stereotypes about how workers from protected groups "should" act or speak. One particularly troubling category of ESAM consists of so-called "emotion recognition" technologies, which have been built into hiring and employee assessment tools and purportedly "promise[] organizations the ability to better know, manage and monitor employees' interior states and traits."[66] Even leaving aside the deep privacy and dignity concerns that such tools raise, there is virtually no evidence that emotion recognition systems are scientifically valid,[67] and research indicates that these systems are both less accurate and more likely to assign negative emotional states when analyzing women and people of color.[68] Such tools thus may represent an automated form of the "tone policing" that occurs with women of color, and Black women in particular, and are likely to have outsized negative effects on women, people of color, LGBTQI+ persons, disabled workers, and other historically underrepresented and marginalized groups.

B. ESAM poses risks for disabled, pregnant, and lactating workers and threatens their right to accommodation under federal law

ESAM serves as a lever to further heighten the substantial barriers that disabled and pregnant workers have long faced. Disabled people—regardless of race or gender—are more than twice as likely to be unemployed in the United States as non-disabled people, according to the Bureau of Labor Statistics.[69] Disabled workers who work in low-wage and precarious jobs without other financial support are particularly vulnerable to exploitative and dangerous practices because of the need to keep a job, no matter how unsafe or unjust the working conditions—particularly since the ADA currently allows employers to pay disabled workers subminimum wages in some instances.[70] Disabled people of color who face the lifelong impacts of both ableism and racism are also more likely to face systematic employment and hiring discrimination, and to believe they have less bargaining power to ask and advocate for better working conditions.[71]

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[66] Kat Roemmich, et al., Emotion AI at Work: Implications for Workplace Surveillance, Emotional Labor, and Emotional Privacy, Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems, at 1 (2023).
[67] Kate Crawford, et al. AI Now 2019 Report, at 51, https://ainowinstitute.org/wp-content/uploads/2023/04/AI_Now_2019_Report.pdf; Greg Noone, *Emotion recognition is mostly ineffective. Why are companies still investing in it?*, Tech Monitor, June 30, 2022, https://techmonitor.ai/technology/emerging-technology/emotion-recognition.
[68] Zickuhr, Equitable Growth Report (citing Ruha Benjamin, Race After Technology: Abolitionist Tools for the New Jim Code (Cambridge, UK: Polity Press, 2019)); Lauren Rhue, Racial Influence on Automated Perceptions of Emotions (2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3281765.
[69] America's Recovery: Labor Market Characteristics Of People With A Disability, U.S. Bureau of Lab. Stat. (Oct. 2021), https://www.bls.gov/spotlight/2021/labor-market-characteristics-of-people-with-a-disability/pdf/labor-market-characteristics-of-people-with-a-disability.pdf.
[70] 29 U.S.C. 214(c).
[71] Nanette Goodman, Michael Morris & Kelvin Boston, Financial Inequality: Disability, Race, and Poverty in America, National Disability Institute (Feb. 2019) at 13-14, https://www.nationaldisabilityinstitute.org/wp-content/uploads/2019/02/disability-race-poverty-in-america.pdf; Rob Gould, Courtney Mullin, & Sarah Parker Harris, Race, Disability, and Employment: An ADA Knowledge Translation Center Research Brief, University of Illinois at Chicago Department of Disability and Human Development (2021); https://adata.org/sites/adata.org/files/files/Race_Disability_and_Employment_FINAL_LP.pdf.

Women—especially Black, Latina, and Native women, women with disabilities, and immigrant women—and LGBTQIA+ individuals have also long been disproportionately likely to experience poverty and hardship. As a result, many women may feel constrained fighting against discriminatory standards and seeking improved working conditions. Pregnant workers face numerous barriers to equal pay and treatment in the workplace. Despite the fact that Title VII and the recently enacted Pregnant Workers Fairness Act protect pregnant workers from discrimination, fully one-fifth of mothers report having experienced pregnancy discrimination in the workplace, and nearly a quarter of mothers have considered leaving their jobs due to a lack of reasonable accommodations or fear of discrimination during a pregnancy.[72] Women who are pregnant or are perceived as having the potential to be pregnant are at a significant disadvantage compared to men and also to women who are perceived to be past childbearing age.[73]

ESAM poses unique risks that threaten to exacerbate the disadvantages that pregnant and disabled workers already face. One of the most common uses of ESAM is to increase the pace of work, discouraging workers from taking breaks or downtime and often penalizing them for doing so. Such practices may discriminate against disabled and pregnant workers, who may be more susceptible to new and aggravated injuries and illnesses in the workplace and are expected to comply with arbitrary, automatically enforced standards that do not consider disability- and pregnancy-related needs that may require opportunities for rest, flexibility, and supportive work environments.[74] Workers with gastrointestinal and urinary tract disorders, for example, may need to use the restroom more frequently or at unpredictable times.

Likewise, many disabled workers, including those with arthritis, musculoskeletal disorders, chronic pain, ADHD, and heart conditions, as well as some workers who are pregnant or lactating, may need to take rest breaks more often. Eliminating breaks also tends to discriminate against neurodivergent workers and those with anxiety disorders, depression, and other psychiatric and cognitive conditions, particularly if combined with intense pacing requirements.[75]

Pregnant workers who need accommodations may also need more frequent breaks to use the restroom or to rest, and have suffered penalties for taking such breaks.[76] The lack of adequate break and rest time can have serious health and safety consequences for such pregnant workers, including an increased risk of miscarriage and adverse birth outcomes.[77] The PWFA and the PUMP for Nursing

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[72] Bipartisan Policy Center - Morning Consult, 1 in 5 Moms Experience Pregnancy Discrimination in the Workplace, Feb. 11, 2022, https://bipartisanpolicy.org/blog/bpc-morning-consult-pregnancy-discrimination/.
[73] Sascha O. Becker, et al, Discrimination in hiring based on potential and realized fertility: Evidence from a large-scale field experiment, 59 Labour Economics 139 (2019).
[74] Lydia X.Z. Brown, et al., Center for Democracy & Technology, Ableism and Disability Discrimination in New Employment 50 (May 23, 2022), https://cdt.org/wp-content/uploads/2022/05/2022-05-23-CDT-Ableism-and-Disability-Discrimination-in-New-Surveillance-Technologies-report-final-redu.pdf.
[75] Disability Discrimination in Surveillance Technologies at 53; Samuel B. Harvey et al., The Role of Job Strain in Understanding Midlife Common Mental Disorder: A National Birth Cohort Study, 5 Lancet Psychiatry 498 (2018), https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(18)30137-8/fulltext.
[76] See Alfred Ng & Ben Fox Rubin, Amazon Fired These 7 Pregnant Workers. Then Came the Lawsuits, CNET (May 6, 2019), https://www.cnet.com/tech/tech-industry/features/amazon-fired-these-7-pregnant-workers-then-came-the-lawsuits/.
[77] *See* Part II.A, *supra*.

Mothers Act, which built on the Break Time for Nursing Mothers Act, provide new protections for these workers, but workers may face obstacles accessing these protections in the face of ESAM's automatically enforced standards—workers might be automatically fired for taking breaks guaranteed for them by law. Moreover, ESAM policies and practices may discourage workers from exercising their rights, given the lack of transparency in ESAM systems and the concerns many workers may have regarding retaliation.

Increasingly, employers are setting productivity expectations based on the pace of non-disabled workers,[78] an approach that tends to disadvantage disabled and some pregnant and breastfeeding workers. This is particularly true if the employer does not provide reasonable accommodation, which the ADA requires for disabled workers and the PWFA for pregnant workers. Under the ADA and PWFA, employers must engage in an interactive process with workers who may require disability accommodation to determine "the precise limitations resulting from the disability and potential reasonable accommodations that could overcome those limitations."[79] The use of ESAM can short-circuit this interactive process.

For example, deaf and hard-of-hearing workers often require communication accommodations, such as ASL interpreters and text communication, that entail the use of intermediaries (whether human or technological). The use of such intermediaries often means that deaf or hard-of-hearing workers need additional time to complete tasks. ESAM systems are rarely designed with such accommodations in mind and, on the contrary, often instead penalize such workers for requiring extra time because automated systems do not account for the right to these accommodations.

Additional breaks are another widely accepted form of accommodation for workers with a wide range of disabilities,[80] but the lack of transparency surrounding ESAM and the productivity quotas that employers enforce through ESAM mean that workers often do not know what accommodations they might need, or are unable to obtain such accommodations in practice.

As a result, ESAM-enforced productivity management often has the effect, or even the purpose, of screening out workers because of their disabilities or pregnancy. Pregnant and disabled workers may be penalized or terminated for failing to meet arbitrary standards, set without regard to their accommodation rights. Some workers may avoid such jobs altogether knowing that they cannot succeed in these jobs without accommodations. In some contexts, such productivity requirements could also result in discriminatory impacts and harms to other protected workers, such as older

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[78] *See* Jenny R. Yang, Adapting Our Anti-Discrimination Laws to Protect Workers' Rights in the Age of Algorithmic Employment Assessments and Evolving Workplace Technology, 35 ABA J. Labor & Emp. L. 207, 234 (2021) (aggressive productivity targets could "operate to disproportionately exclude individuals based on protected characteristics," such as pregnancy, age, disability status, or religion).

[79] 29 C.F.R. § 1630.2(o)(3).

[80] *See id.*; 29 C.F.R. § 785.18; U.S. Dep't of Labor, Office of Disability Employment Policy, *Accommodations for Employees with Psychiatric Disabilities*, *available at* https://www.dol.gov/agencies/odep/program-areas/mental-health/maximizing-productivity-accommodations-for-employees-with-psychiatric-disabilities ("Breaks according to individual needs rather than a fixed schedule, more frequent breaks and/or greater flexibility in scheduling breaks, provision of backup coverage during breaks, and telephone breaks during work hours to call professionals and others needed for support.").

workers, women, or people with religious needs.[81] In some agricultural workplaces, for example, productivity standards are based on guestworkers,[82] who are almost all young men, and have contributed to discrimination against women and older workers.[83]

Employers are also gathering workers' health-related data through workplace wellness programs to try to incentivize workers to increase their productivity. Like some other ESAM practices, some wellness programs try to influence workers' health decisions through gamification methods, such as web-based challenges where workers receive rewards for completing certain tasks or reaching milestones.[84] Workers with certain disabilities and some older and pregnant workers may not be able to get the benefit of these programs when they are unable to fulfill the criteria or expectations set by these programs, so they are essentially punished for not being as "healthy" as workers who do successfully participate in these programs.[85]

C. Proposed policy interventions

Many of the applications of ESAM described above violate workers' rights under federal anti-discrimination laws. Employers that use electronic surveillance systems to purposefully single out workers from protected groups for particular scrutiny would violate Title VII, the ADA, the PDA, or the Age Discrimination in Employment Act, depending on the targeted group. Similarly, ESAM that disproportionately flags members of protected groups as engaging in suspicious or disfavored behavior, or that otherwise tends to generate unfavorable evaluations of or actions towards protected groups of workers, may lead to unlawful disparate-impact discrimination. The EEOC should issue regulations or guidance making it clear that ESAM practices that tend to disadvantage protected groups of workers can violate applicable anti-discrimination laws if they negatively impact the terms and conditions of affected workers' employment.

The ADA provides particularly robust protections for the millions of disabled workers who it covers. An employer that leverages ESAM to automatically penalize disabled workers for taking breaks would likely violate the ADA unless the employer offers an alternative form of accommodation to those disabled workers who generally require more frequent breaks. Likewise, if an employer adopts a faster pace-of-work standard and enforces it rigidly, even against workers with conditions that the increased pace would aggravate, the employer could run afoul of the ADA's prohibition against "standards, criteria, or methods of administration . . . that have the effect of discrimination on the basis of

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[81] *Id.*

[82] Specifically, workers engaged in temporary agricultural work under an H-2A visa. *See* Farmworker Justice, H-2A Guestworker Program, https://www.farmworkerjustice.org/advocacy_program/h-2a-guestworker-program/.

[83] See, e.g. Washington State Office of the Attorney General, Sunnyside mushroom farm will pay $3.4 million for violating the civil rights of its workers, News Release, May 17, 2023, https://www.atg.wa.gov/news/news-releases/Sunnyside-mushroom-farm-will-pay-34-million-violating-civil-rights-its-workers; Centro de los Derechos del Migrante, Ripe for Reform, 2020, https://cdmigrante.org/wp-content/uploads/2020/04/Ripe-for-Reform.pdf.

[84] Joseph Sanford & Kevin Sexton, Opinion: Improve Employee Health Using Behavioral Economics, CFO, Feb. 3, 2022, https://www.cfo.com/human-capital/health-benefits/2022/02/employee-health-wellness-medical-claims-behavorial-economics/; Zirui Song & Katherine Baicker, Effect of a Workplace Wellness Program on Employee Health and Economic Outcomes,321 J. Am. Med. Ass'n 1491 (2019) https://jamanetwork.com/journals/jama/fullarticle/2730614.

[85] Disability Discrimination in Surveillance Technologies at 54-55.

disability."[86] The EEOC and DOL should issue regulations acknowledging these realities and clarifying that employers should not use ESAM to establish or enforce standards that inherently disadvantage disabled workers.

Like the ADA, the PWFA requires employers to provide workers affected by pregnancy, childbirth, or related medical conditions with reasonable accommodations. Title VII, the PUMP Act, and the ADEA also offer protections to women, older workers and other protected workers who may be harmed by ESAM. The EEOC and DOL should issue regulations and guidance addressing the potential of ESAM to discriminate against such workers.

In the absence of formal rulemaking, informal agency guidance could provide signposts for courts deciding discrimination cases and assist and encourage employers to proactively account for the needs of disabled and other protected groups of workers when deciding whether and how to use these emerging technologies and techniques. The EEOC has issued such guidance with respect to automated decision-making systems for the ADA and Title VII, but that guidance focused primarily on systems that make decisions or recommendations during hiring and promotion processes. This guidance should be updated or supplemented with material that specifically addresses the ADA risks that ESAM poses, as well as employers' obligations under Title VII, the PWFA, and the ADEA when deploying ESAM or implementing associated practices.

The five principles within the Blueprint for an AI Bill of Rights (AI BoR) also provide the EEOC with a framework to address ESAM practices that disadvantage protected worker groups.[87] The AI BoR states that AI systems must be safe and effective, not discriminate, protect privacy and security, be transparent, and generally allow for the possibility of human alternatives or fallbacks.[88] Marginalized workers should not serve as guinea pigs, and some systems should be prohibited from use outright. If a system is used, it must be vetted by outside audits to evaluate whether it could have a discriminatory impact.

Finally, the administration must prioritize research to better understand and address the impacts of ESAM on the workplace. Greater information is needed about how ESAM is being used and developed; its impact on the workplace and workers generally; how ESAM-driven practices impact protected groups of workers; and what practices and protections best protect workers' rights and dignity. Research should also identify ways in which ESAM can protect workers' rights, such as by using ESAM to detect or prevent workplace discrimination and harassment.

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[86] 42 U.S.C. § 12112(b)(3)(A).
[87] "Blueprint for an AI Bill of Rights," White House Office of Science and Technology Policy (Oct. 2022), https://www.whitehouse.gov/ostp/ai-bill-of-rights/.
[88] *Id.*

IV. Interference with union organizing and workers' labor rights, and proposed policy interventions

A. How ESAM practices are encroaching on workers' right to organize

In addition to using ESAM to control workers' behavior in minute detail, companies are using ESAM to identify and disrupt workers' efforts to organize themselves and push back against harmful workplace practices. Amazon, for example, has sought to hire analysts and purchase software that would allow it to monitor "labor organizing threats" and analyze data on unions.[89]

The increasing use of ESAM also undermines workers' labor rights in more insidious ways. As noted in a report published by the Washington Center for Equitable Growth, "the normalization of workplace surveillance weakens worker power by allowing more avenues for companies to justify their anti-union surveillance while also creating a general atmosphere where workers know they are always being watched."[90] Workers' increasing use of employer-owned computers and mobile devices has blurred the line between work and home life for many workers, which increases the risk that employers will monitor protected organizing activities even when workers are supposedly off-the-job.[91]

NLRB General Counsel Abruzzo's October 2022 memorandum directly addresses the threat that electronic surveillance poses to workers' rights under the National Labor Relations Act (NLRA).[92] In it, she identified a number of applications of ESAM and employer actions surrounding their use that could interfere with workers' right to organize:

- Using surveillance specifically to monitor protected activities;
- Introducing new monitoring technologies in response to protected activities;
- Disciplining workers "who concertedly protest workplace surveillance or the pace of work set by algorithmic management";
- Using a hiring or management algorithm that discriminates against workers that engage in protected activity (or based on a prediction that they might do so);
- If workers are unionized, failing to provide information about tracking technologies or failing to bargain over them; and
- Using electronic surveillance and a "breakneck pace of work" that "severely limit[s] or completely prevent[s] employees from engaging in protected conversations about unionization or terms and conditions of employment."[93]

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[89] Annie Palmer, *How Amazon keeps a close eye on employee activism to head off unions*, CNBC, Oct. 24, 2020, https://www.cnbc.com/2020/10/24/how-amazon-prevents-unions-by-surveilling-employee-activism.html.
[90] Zickuhr, Equitable Growth Report.
[91] *Id.*
[92] Jennifer A. Abruzzo, Memorandum GC 23-02, Electronic Monitoring and Algorithmic Management of Employees Interfering with the Exercise of Section 7 Rights, Oct. 31, 2022.
[93] *Id.*

B. Proposed policy interventions

We endorse General Counsel Abruzzo's useful multi-pronged test for determining whether an employer's surveillance and management practices violate the NLRA:

- Determine whether the practices, "viewed as a whole, would tend to interfere with or prevent a reasonable employee from engaging in activity protected by" the NLRA. If not, then, the memo implies, the practices would not violate the NLRA.
- If the practices would tend to interfere with Section 7 rights, then the employer must establish several things before use of the technology is permissible under the NLRA:
    - "[T]hat the practices at issue are narrowly tailored to address a legitimate business need—i.e., that its need cannot be met through means less damaging to employee rights";
    - That the business need "outweighs employees' Section 7 rights"; and
    - That the employer discloses to employees "the technologies it uses to monitor and manage them, its reasons for doing so, and how it is using the information it obtains."
        - An employer can only withhold such notice if it "demonstrates that special circumstances require covert use of the technologies."[94]

This standard is both sensible and straightforward to apply. The NLRB itself should adopt Abruzzo's analysis and use its authority to provide redress when employers use ESAM to interfere with workers' organizing rights. This would significantly curtail many of the most harmful applications of ESAM.

Additionally, the NLRB initiated rulemaking in late 2022 on a standard for determining joint-employer status.[95] Joint-employer status occurs when two (or more) businesses both act in the capacity of an employer with respect to a particular worker. When this occurs, both companies must adhere to federal labor laws. The crux of the NLRB's proposed standard is whether each purported employer possesses the "authority to control" or actually exercises the "power to control," whether directly or indirectly, the terms and conditions of a worker's employment.[96] In the final rule or a future revision, the NLRB should make clear that the use of ESAM to monitor and manage workers can be evidence of control and thus of employer status.[97]

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[94] *Id.*
[95] Fed. Reg. No. 2022-19181 (to be codified at 29 C.F.R. pt. 103) (proposed Sept. 6, 2022).
[96] Proposed 103.40(c).
[97] *See generally* Amaury Pineda & Reed Shaw (Jobs With Justice & Governing for Impact), Letter to NLRB Executive Secretary Roxanne Rothschild re Comments Regarding NLRB's Notice of Proposed Rulemaking on the Standard for Determining Joint-Employer Status, Dec. 5, 2022, https://governingforimpact.org/wp-content/uploads/2022/12/Jobs-With-Justice-Governing-for-Impact-NLRB-Joint-Employment-Comment.pdf.

V. Wage theft and proposed policy interventions

Companies are increasingly using ESAM systems in ways that may violate workers' rights under federal wage and hour laws, both by denying workers their lawfully earned wages and by exercising control over workers that companies classify as "independent contractors."

A. Employers are using ESAM to dock workers' pay for taking short breaks or for declining to subject themselves to surveillance

The increase in remote work since the start of the COVID-19 pandemic has led to a proliferation of tools that employers use to monitor the productivity of remote workers. Certain ESAM vendors have offered products that integrate with timekeeping and payroll systems, giving employers the ability to automatically dock workers' pay for time spent away from the computer.[98] Protected workers who may need more frequent breaks, such as certain workers with disability or women who are pregnant or breastfeeding, could be disproportionately impacted by such ESAM-driven practices. Workers may also incorrectly have time deducted for doing work away from their computer, or work that is not readily legible to these tracking systems.

Sadly, there are already examples of ESAM that could be used to deprive workers of earned compensation. Time Doctor, a suite of desktop software with both activity monitoring and time management features, takes periodic screenshots of workers' computer screens so that employers can determine if the worker is on-task. Time Doctor lets workers delete those screenshots, but according to the software's FAQ, the time period during which the deleted screenshots were taken will be deducted from the worker's work hours.[99] In other words, if used as the FAQ suggests, the worker would not be paid for the period during which a deleted Time Doctor screenshot was taken. Docking workers' pay for short periods of inactivity violates workers' rights under the FLSA, which allows workers to take breaks of up to 20 minutes during the workday without losing pay.[100]

Recent Medicaid requirements regarding electronic visit verification (EVV) have resulted in many home health care workers facing not only increased surveillance, but also lost or delayed wages. Most of these care workers are women, and often women of color or immigrants.[101] Further, the EVV systems

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[98] Despite employers' obvious ability (illustrated here) to track working time to the nanosecond, they also continue to game antiquated FLSA regulations permitting rounding and automatic break deductions to the detriment of workers' paychecks. *See* Elizabeth Tippett, How Employers Profit from Digital Wage Theft Under the FLSA, American Business Law Journal 55(2):315-401 (July 2018), https://www.researchgate.net/publication/325201518_How_Employers_Profit_from_Digital_Wage_Theft_Under_the_FLSA.

[99] FAQ - Time Management Software, Time Doctor, https://www.timedoctor.com/faq.html (accessed May 15, 2023) ("If your manager is using the 'screenshots' feature, you'll also be able to see all screenshots that were taken while you were working, and can delete any screenshots that you choose (the associated time would also be deducted from your work hours).").

[100] *See, e.g.*, 29 C.F.R. § 785.18 ("Rest periods of short duration, running from 5 minutes to about 20 minutes . . . must be counted as hours worked."). This issue is discussed further in the policy interventions section, below.

[101] Lydia X.Z. Brown, EVV Threatens Disabled People's Privacy and Dignity — Whether We Need Care, or Work as Professional Caregivers, Mar. 22, 2022, https://cdt.org/insights/evv-threatens-disabled-peoples-privacy-and-dignity-whether-we-need-care-or-work-as-professional-caregivers.

require workers to manage a demanding technology—time for which they may not be paid—on top of their challenging jobs.[102]

B. Some companies are using ESAM to obfuscate and mislead gig workers regarding their compensation

Compensation for gig workers is opaque and confusing to begin with; a 2021 report by the Pew Research Center found that fewer than half of gig workers understood how the companies for which they work determine how much they get paid.[103] Some gig platform companies use ESAM in ways that both increase this information asymmetry and exploit it to reduce gig workers' pay and lure workers into jobs that pay far less than promised or advertised.[104] Companies also use algorithms to engage in algorithmic wage discrimination, using data mining and ESAM to estimate and pay the lowest amount the system estimates an individual worker will accept to engage in desired behaviors.[105] The underlying algorithms are opaque and error-ridden.[106]

Such practices sever the longstanding relationship between time spent laboring and income earned. In addition to the concerns that algorithmically determined wages will not meet a minimum wage, an unpredictable (to the worker) and opaque wage calculation mechanism deprives the worker of any insight into how the firm values their labor and of any predictability in their ability to earn a sufficient sum. Some gig-economy platforms exploit this ambiguity by combining low overall pay with volume and time-based incentives that maximize workers' time on the platform while minimizing workers' take-home pay.[107]

C. Employers are increasingly using ESAM to exert control over workers (mis)classified as "independent contractors"

Some of the companies behind gig economy platforms also pioneered ESAM systems to manage their workers. Many of those same companies attempt to classify their workers as independent contractors rather than employees, in an effort to avoid the legal obligations that arise from the employer-employee relationship. But the use of ESAM can be evidence that such employers actually exert a high level of control over workers and have misclassified them.

Under the FLSA, the employer's right to control a worker's on-the-job activities is "strong evidence suggesting the existence of an FLSA employment relationship."[108] Installing location trackers, cameras,

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[102] Virginia Eubanks & Alexandra Mateescu, *'We don't deserve this': new app places US caregivers under digital surveillance*, The Guardian, July 28, 2021.
[103] Monica Anderson, et al., Pew Research Center, The State of Gig Work in 2021: How gig platform workers view their jobs, Dec. 8, 2021, https://www.pewresearch.org/internet/2021/12/08/how-gig-platform-workers-view-their-jobs/.
[104] *See* Dan Calacci & Alex Pentland, Bargaining with the black-box: Shipt shopper pay, Oct. 13, 2020, https://gigbox.media.mit.edu/posts/posts/bargaining-with-the-black-box-shipt-shopper-pay/.
[105] *See generally* Veena Dubal, On Algorithmic Wage Discrimination, Jan. 23, 2023, *available at* https://ssrn.com/abstract_id=4331080.
[106] *Id.*
[107] *Id.*; *see also* Veena Dubal, The House Always Wins: The Algorithmic Gamblification of Work, LPE Project Blog (Jan. 23, 2023), https://lpeproject.org/blog/the-house-always-wins-the-algorithmic-gamblification-of-work/.
[108] U.S. Department of Labor, Wage and Hour Division, Independent Contractor Status Under the FLSA: Withdrawal, 86 FR 24303 (May 6, 2021) (citing Razak v. Uber Techs., Inc., 951 F.3d 137, 145 (3d Cir. 2020)).

and digital monitoring equipment and software that continuously track a worker's activities and assess performance dramatically increases a company's right (and practical ability) to control the timing and manner in which the worker completes their tasks. Companies who engage in such practices while continuing to treat their workers as "independent contractors" are trying to have it both ways--exercising the control of employers while avoiding the legal responsibilities and obligations to workers that come with that status.[109] This practice often deprives workers of crucial protections under employment laws, such as minimum wage and family and medical leave, and anti-discrimination laws as well as essential employment-based benefits, like healthcare coverage.

D. Proposed policy interventions

i. The DOL should issue regulations prohibiting automated time-docking for ESAM-detected breaks

The FLSA prohibits employers from requiring employees to clock out or docking their pay if they take brief breaks during the workday, briefly engage in non-work-related activities, or have short periods where they are not at their assigned workstation.[110] The Department of Labor's (DOL's) FLSA regulations state: "Rest periods of short duration, running from 5 minutes to about 20 minutes . . . must be counted as hours worked."[111] While the FLSA does not require employers to allow employees to take rest or bathroom breaks and generally allows employers to discipline employees for taking unpermitted or excessive breaks, the employee must still be paid for any brief breaks taken during the workday, regardless of whether those breaks are required by law or permitted by company policy.[112]

Unfortunately, and as the continued public marketing of features like Time Doctor indicates, the illegality of ESAM-driven practices contrary to these established rules does not appear to have deterred some employers from adopting them. DOL should issue FLSA regulations addressing time docking for periods where an ESAM system perceives a worker as temporarily inactive or because workers decline to subject themselves to surveillance.

ii. DOL and NLRB should issue rules or guidance stating that the use of ESAM is evidence of employer status

DOL is currently reviewing comments in response to a Notice of Proposed Rulemaking (NPRM) published in October 2022 regarding employee or independent contractor status under the FLSA.[113] The

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[109] *See* Matt Scherer, Center for Democracy & Technology, Bossware Makes It Difficult to Classify Workers as Contractors, Aug. 16, 2021, https://cdt.org/insights/bossware-makes-it-difficult-to-classify-workers-as-contractors/.

[110] 29 C.F.R. § 785.18 ("Rest periods of short duration, running from 5 minutes to about 20 minutes . . . must be counted as hours worked.").

[111] *Id.*

[112] *See, e.g.*, Sec'y United States DOL v. Am. Future Sys., 873 F.3d 420, 426 (3d Cir. 2017) (employer violated FLSA when it required workers to log off for any breaks during workday, and docked workers' pay if they logged off for more than 90 seconds); U.S. Dep't of Labor, Wage & Hour Div., Opinion Letter Fair Labor Standards Act (FLSA), 1996 DOLWH LEXIS 39, 1996 WL 1005233, at *1 (Dec. 2, 1996) (work breaks are paid time even if taken "for a myriad of non-work purposes – a visit to the bathroom, a drink of coffee, a call to check the children, attending to a medical necessity, a cigarette break, etc . . . without regard to the relative merits of an employee's activities.").

[113] U.S. Department of Labor, Wage and Hour Division, Employee or Independent Contractor Classification Under the Fair Labor Standards Act, 87 FR 62218, Oct. 13, 2022. *See also* Center for Law and Social Policy & Governing for Impact, Comments Regarding DOL's Notice of

DOL's proposed rule explicitly stated that the use of electronic surveillance to monitor workers' activities constitutes evidence of control, and therefore weighs in favor of employee status.[114] DOL should similarly update its joint-employer standards to clarify that the use of ESAM to control workers weighs in favor of a finding of employer status.

A recent NLRB decision tightened the standard that that body will use to determine employee status under the National Labor Relations Act, returning to a common-law standard that considers factors such as the employer's exertion of control and whether work is performed without supervision.[115] The NLRB should clarify in future decisions that the use of ESAM is strong evidence of control and supervision, and thus indicates that a worker is an employee rather than an independent contractor.

iii. The FTC should issue rules prohibiting gig platform companies from leveraging ESAM to engage in misleading or opaque pay practices

Last year, the FTC issued a policy statement stating that its unfair or deceptive acts or practices authority could apply to the use of automated systems to limit gig workers' compensation.[116] The FTC should build on this policy statement with formal rulemaking and enforcement action targeting opaque and arbitrary ESAM-driven pay practices that mislead workers and reduce their pay. Similarly, the FTC should use its enforcement authority to penalize companies whose recruitment, advertising, and marketing materials misrepresent workers' actual pay as a result of the use of ESAM.

The FTC also recently provided a policy statement on biometric information.[117] The policy statement notes that failure to accurately disclose biometrics being used or to assess reasonably foreseeable harms may constitute an unfair or deceptive practice.[118] Because many ESAM technologies collect and use biometrics, and ESAM-driven practices pose a wide range of potential harms to workers, the FTC should scrutinize employers' ESAM practices as part of its biometrics enforcement.

Proposed Rulemaking on the Employee or Independent Contractor Classification Under the Fair Labor Standards Act, RIN 1235-AA43, Dec. 12, 2022, https://governingforimpact.org/wp-content/uploads/2022/12/CLASP-Governing-for-Impact-DOL-Independent-Contractor-Rule-Comment.pdf.

[114] DOL, Notice of Proposed Rulemaking on the Employee or Independent Contractor Classification Under the Fair Labor Standards Act, 87 Fed. Reg. 62218, 62275 (Oct. 13, 2022) (discussing facts relevant to "nature and degree of control" including "whether the employer uses technological means of supervision (such as by means of a device or electronically)."); *see generally* Emily Andrews, Lorena Roque & Reed Shaw (Center for Law and Social Policy & Governing for Impact), Letter to DOL Director of Regulations, Legislation, and Interpretation Amy De-Bisschop re Comments Regarding DOL's Notice of Proposed Rulemaking on the Employee or Independent Contractor Classification Under the Fair Labor Standards Act, Dec. 12, 2022, https://governingforimpact.org/wp-content/uploads/2022/12/CLASP-Governing-for-Impact-DOL-Independent-Contractor-Rule-Comment.pdf.

[115] *In re Atlanta Opera, Inc.*, 37 NLRB No. 95 (June 13, 2023), *available at* https://www.nlrb.gov/news-outreach/news-story/board-modifies-independent-contractor-standard-under-national-labor.

[116] Fed. Trade Comm'n, Policy Statement on Enforcement Related to Gig Work, Policy Statement on Enforcement Related to Gig Work, Sept. 22, 2022, https://www.ftc.gov/legal-library/browse/policy-statement-enforcement-related-gig-work.

[117] Federal Trade Commission, Policy Statement of the Federal Trade Commission on Biometric Information and Section 5 of the Federal Trade Commission Act, May 18, 2023, https://www.ftc.gov/legal-library/browse/policy-statement-federal-trade-commission-biometric-information-section-5-federal-trade-commission.

[118] *Id.*

VI. The federal government should restrict harmful uses of ESAM within the federal government and by federal contractors

The federal government has the ability to restrict harmful uses of ESAM by ensuring that the millions of citizens employed by federal agencies and contractors are not subjected to ESAM practices that threaten their health, safety, dignity, and legal rights. The Office of Personnel Management (OPM) and Office of Management and Budget (OMB) should conduct a study to determine how the various arms of the federal government and their contractors currently use ESAM to monitor and manage federal workers. Those agencies should then issue rules and guidance to ensure that federal agencies refrain from potentially harmful uses of ESAM, unless such uses are necessary due to transparency laws, national security requirements, or other compelling interests.

In those instances where the use of ESAM is deemed necessary, rules and personnel policies should ensure that federal workers are given adequate notice of the nature and purpose of any surveillance or data collection, as well as information regarding how any information collected by ESAM is used in personnel decisions. Under no circumstances should discipline or termination decisions be made based on ESAM-collected information without adequate human review.

Similarly, DOL's Office of Federal Contractor Compliance Programs (OFCCP) should prohibit federal contractors from using ESAM in a manner that undermines workers' health, safety, dignity, or legal rights, and should issue rules ensuring adequate transparency and accountability when contractors do use ESAM. Last fall, OFCCP proposed revisions to its audit scheduling letter that called for employers to provide "[d]ocumentation of policies and practices regarding all employment recruiting, screening, and hiring mechanisms, including the use of artificial intelligence, algorithms, automated systems or other technology-based selection procedures."[119] OFCCP should adopt the revised scheduling letter and update the letter further to require employers to submit information on any ESAM systems and practices that the contractor uses to monitor, manage, or direct workers.

Conclusion

While there are, as yet, no federal laws that directly address the use of ESAM in the workplace, existing federal statutes and regulations provide the Administration with ample authority to address the risks that ESAM poses to U.S. workers. In addition, proposed legislation such as S.262, the Stop Spying Bosses Act, which was introduced in the Senate earlier this year, would bring some much-needed transparency to employers' use of ESAM and place some important guardrails around ESAM-driven practices. We urge the Administration to consider supporting this important legislation. But the administration need not wait for Congress to protect our workers. It can and should take concrete steps, such as those outlined in these comments, to ensure that technological advances are not used in ways that harm workers, particularly those who are already vulnerable and marginalized.

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[119] *See* OFCCP, Agency Information Collection Activities; Proposals, Submissions, and Approvals: Supply and Service Program, Fed. Reg. No. 2022-2511, Nov. 20, 2022, https://www.regulations.gov/document/OFCCP-2022-0004-0001. The proposed scheduling letter itself is available at https://www.regulations.gov/document/OFCCP-2022-0004-0003.

We thank you for your attention and look forward to engaging with the Administration further on these issues in the future.

Respectfully submitted by:

Center for Democracy & Technology
Governing for Impact
Accountable Tech
American Civil Liberties Union
Communication Workers of America
Jobs With Justice
The Leadership Conference on Civil and Human Rights
National Employment Law Project
National Women's Law Center
Open MIC
Service Employees International Union
TechEquity Collaborative
United Auto Workers
Upturn

RESPONSE BY MR. TYRANCE BILLINGSLEY TO QUESTIONS OF SENATOR LUJÁN

SENATOR LUJÁN

Topic (1): Mr. Billingsley, I appreciate the important work you're doing to ensure that the tech sector is inclusive. New Mexico is filled with smart young people who have a lot to say about how technology and AI should affect them. Many of these young people attend Tribal Colleges and Universities, and other MSIs such as Hispanic-Serving Institutions, which are often left out of conversations on emerging tech.

Question 1. Why is it important to involve TCUs (Tribal Colleges and Universities), HBCUs (Historically Black Colleges and Universities) and MSIs (Minority-Serving Institutions) like HSIs (Hispanic-Serving Institutions) in research and development for responsible AI?

Answer 1. There are two key aspects of how and why TCU's, HBCU's and HSI's should not only be included but heavily leaned on as it relates to the development of, education around and adoption of artificial intelligence:

1. Research and development impact

2. Sociocultural systems and infrastructure related to AI

Research and Development

Artificial intelligence will remake the world as we know it, and the most obvious danger or implication of minority communities being left out of the conversation on AI's research and development is the outcome of bias in AI. AI is trained by data, and at this point, most of the lay AI world is familiar with the concept of "garbage in, garbage out" as a way to say that if the data that is used to train these models is subpar in terms of its inclusion of different and informed perspectives, the models will be biased in a way that only exacerbates existing inequities by baking them into the model's decision-making process, whose negative impact will then scale more quickly and totally to wider society.

Whether this be the criminal justice system, healthcare, financial institutions or beyond, biased AI could exponentially poison the well of some of the most critical areas of life whose broken systems are already core to the reasons that marginalized communities find themselves behind socioeconomic 8-ball. By having institutions heavily involved in the research and development of AI, we can ensure more diverse perspectives are being imputed as it relates to the training and development of AI models. As a result, we will see less bias and crippling effects from the algorithms.

Sociocultural Systems and Infrastructure Around AI

Equally (if not more) important as the conversation regarding diverse involvement in research and development is the sociocultural systems and infrastructure around AI in marginalized communities. Adoption of any new trend or resource starts with a narrative and culture being built around said thing being for and beneficial to a group of people. This holds especially true for marginalized communities and it is even more so as it relates to new technology within marginalized communities.

If we are to create a new sociocultural paradigm for marginalized communities that sees them embrace AI and the opportunities that it presents, such a shift will start with the education institutions in said communities. AI pathways at HBCU's and other institutions leading to high earning and high impact opportunities in AI will serve as a real world model for people in these communities to display why the technology should be embraced. This will in turn spark excitement and curiosity amongst community members, which will lead to a culture developing around wanting to succeed and innovate in/with AI, which will help ensure that communities of color are aggressive in securing their position in the AI revolution.

Additionally, these institutions often have strong ties to their respective communities, enabling them to facilitate a two-way flow of information and insights between AI researchers and the communities they serve. This engagement ensures that the development of AI is grounded in real-world contexts and addresses the actual needs and concerns of diverse populations.

Question 2. What should Congress and companies be doing to help drive more investments and resources for AI research and development at these Institutions?

Answer 2. For Congress and companies to effectively drive more investments and resources for AI research and development at tribal colleges and universities, his-

torically Black colleges and universities, and Minority-Serving institutions like Hispanic-serving institutions:

- **Direct Funding and Grants**: Congress should allocate specific funds for AI research and development at these institutions. This could be in the form of grants, scholarships, or endowments designated for AI-related projects. Similarly, companies can establish partnerships with these institutions to provide direct funding for research initiatives, labs, and technology upgrades. Most critically, perhaps, efforts should be put into developing one or two of the existing institutions in each category into an R1 research institution around AI.
- **Legislation Encouraging Private Investment**: Congress can pass legislation that incentivizes private companies to invest in AI research at TCUs, HBCUs, and MSIs. These incentives could include tax breaks, public recognition, or other benefits for companies that partner with these institutions.
- **Collaborative Research Opportunities**: Encourage and facilitate partnerships between these institutions and major tech companies or research organizations aimed at applying AI to issues most critical to their respective communities. These collaborations can provide students and faculty with access to cutting-edge technology, mentorship, and real-world AI project experience.
- **Infrastructure Development**: Beyond just funding, there's a need to develop the physical and digital infrastructure necessary for cutting-edge AI research. This includes state-of-the-art laboratories, high-speed internet access, and access to advanced computing resources (returning to the R1 institution conversation).
- **Curriculum Development and Faculty Training**: Support the development of AI-focused curricula and provide resources for faculty training and development in AI and related fields. This ensures that students are receiving education that is current and relevant to the industry's needs.
- **Internship and Job Placement Programs**: Companies can establish internship and job placement programs specifically for students from these institutions. This not only provides students with invaluable industry experience but also helps diversify the AI workforce.
- **Policy Advocacy and Awareness**: Both Congress and companies can play a role in raising awareness about the importance of including TCUs, HBCUs, and MSIs in AI research and development. Congress and the private sector could partner to spearhead public campaigns, forums, and discussions that highlight the importance of over indexing the involvement of these institutions in the development of AI.

By implementing these strategies, Congress and companies can build the correct infrastructure to ensure that these institutions become the backbone of the AI revolution in marginalized communities and are avenues for economic prosperity for decades to come.

Topic (2): The emergence of artificial intelligence is not the first time our workforce has had to catch up to the pace of evolving technologies.

Congress can help provide opportunities for our workforce to learn the skills they need to be prepared for the jobs of tomorrow. This body recognized this need when we included the Digital Equity Act in the Infrastructure Investment and Jobs Act 2 years ago. Private companies also have a responsibility to create workforce development and training programs to support the workforce through technological transitions. This public and private investment is vital to close gaps in digital literacy and give historically underrepresented communities a chance to compete for good-paying jobs in tech—especially as artificial intelligence increasingly becomes a part of our day-to-day life.

Question 3. How can increased training and education in AI help our workforce to meet the needs of tomorrow?

Answer 3. Once again, the infrastructure and training framework designed to ensure that America's economy maximizes on the AI revolution will make all the difference. In terms of ensuring that our workforce is capable for the new world that this technology will help develop, there are 5 key areas and ways that I see training and education benefiting the American economy via a diverse and AI fluent workforce:

1. **Economic Empowerment and Job Creation**: AI and related technologies are creating new job categories and transforming existing ones. By focusing on AI training for communities of color, we ensure they are not only consumers of AI technology but also creators, leaders, and decision makers within this field. This empowerment leads to better job opportunities, economic growth, and a more equitable distribution of the wealth generated by AI innovations.

2. **Diversity in AI Development**: A workforce trained in AI that is diverse in terms of race, ethnicity, and cultural background brings a multitude of perspectives to AI development. This diversity is crucial for creating AI systems that are fair, unbiased, and representative of the broader population. It also ensures that AI solutions are designed with a deep understanding of different cultural contexts and needs.

3. **Innovation and Creativity**: Diverse teams are known to be more innovative and creative. Training people of color in AI taps into a vast pool of untapped talent, fostering innovation that can lead to breakthroughs in AI technology. This is not just beneficial for these communities but enriches the AI field as a whole.

4. **Social Impact and Community Engagement**: Educating communities of color in AI can lead to the development of AI solutions that address specific challenges faced by these communities. This grassroots approach ensures that AI technology is used to make a positive social impact, from improving healthcare and education to addressing economic disparities.

5. **Policy Influence and Advocacy**: A well-informed and AI-literate workforce can better advocate for policies that ensure the ethical use of AI. By understanding the technology, communities of color can more effectively push for regulations that protect against biases, privacy breaches, and other potential harms of AI.

These 5 points represent the key areas we will see the overall Future of Work benefit from a diverse and educated AI workforce. They also serve as the foundation for how we can ensure that workforce will be adaptable to unforeseen challenges that may arise as it relates to AI in the workforce or its effects on communities.

RESPONSE BY MR. JOSH LANNIN TO QUESTIONS OF SENATOR LUJÁN

SENATOR LUJÁN

Topic (1): Mr. Lannin, I know Workday is committed to responsible AI, as am I. I introduced the TEST AI Act, which creates testbeds for the U.S. government to test and evaluate AI systems. And I was happy to see this idea was included in the White House Executive Order on AI as well. Companies must integrate AI workplace tools in a responsible way that protects workers from privacy violations, bias, discrimination, and other harms.

Question 1. What types of evaluations and assessments does Workday conduct to safeguard workers before integrating AI productivity tools in the workplace?

Answer 1. Workday invests in rigorous technology governance so that our solutions are in line with our values and can earn and retain the trust of our enterprise customers. This is why Workday put in place a robust *responsible AI program* that includes: (1) an advisory board of senior company leaders led by our General Counsel; (2) a responsible AI team with dedicated resources and cross-company support; (3) guidelines and review processes that turn Workday's *AI ethics principles* into documented practices and assessments; and (4) disclosure that equips our customers with a clear understanding of how our AI tools are developed and assessed.

Workday's AI tools are assessed from the earliest stages of development. If a tool may implicate a consequential decision, such as a decision about hiring or promotion, it is flagged as high-risk and evaluated for impermissible bias in accordance with existing and emerging legal requirements. High-risk tools are required to conform to responsible AI guidelines that ensure documentation for fairness and bias mitigation, explainability and interpretability, and disclosure. Workday's lifecycle review for impermissible bias helps improve product quality and supports our commitment to ethical AI. In keeping with our unwavering *commitment to privacy*, Workday integrates privacy-by-design principles into our product development and governance framework.

Workday views AI governance as a partnership between *developers*, or organizations that produce or design AI tools, and *deployers*, which use AI tools and interact

with end users. We provide our customers, who are deployers, with clear documentation that describes how our AI tools are built, how they work, how they are trained and tested, and how they are monitored through our ongoing testing and evaluation practices. We also provide our customers with the means to access their data for bias testing and the choice of whether to use an AI tool at all.

Workday is an active contributor to the emerging field of AI governance. We were an *early champion and adopter* of the National Institute for Standards and Technology's AI Risk Management Framework. To advance the responsible development and use of AI in the workplace, we partnered with the Future of Privacy Forum to co-develop the *Best Practices for AI and Workplace Assessment Technologies*. These practices leverage Workday's experience with responsible AI and technology governance, as well as the guidance from U.S. regulators, such as the Equal Employment Opportunity Commission.

Topic (2): A just and gradual transition is critical to protecting workers as AI becomes a valuable workplace productivity tool. Part of that transition must include worker training and skills development.

Question 2. Mr. Lannin, as you and your customers roll out AI tools for use by workers, what skills gaps are you seeing in workers' ability to use and adapt to these new productivity tools? What training and upskilling programs are you or your customers creating to reach workers who need them most?

Answer 2. Workday sees problem solving and strategic planning high on the list of in-demand skills, which suggests that core soft skills will be an enduring need despite changes driven by AI. We also see hard skills like computer and AI literacy high on the list of skills needed for today's jobs, which we expect to grow in the future. These trends validate our approach of focusing on AI tools that augment, rather than replace human decision-makers. While technical skills will need to grow in order for the U.S. workforce to effectively leverage AI, we expect core judgment and analytical skills to remain vitally important for workers.

Workday's approach to training and upskilling programs internally is twofold: First, to fully leverage our employees' existing skills, identify and grow what they do best, and give them the ability to advance their careers using newly learned skills. Second, we're aiming to create a more agile and dynamic workforce; one that is resilient in the face of changing labor markets, and can be redeployed to tackle shifting organizational priorities. Our initial phase focused on laying a skills foundation for the company. Now we are actively building skills into our talent practices that employees and people leaders engage with the most, including mobility and advancement, hiring, and upskilling and reskilling.

With more than 2,000 Workday customers using AI, including more than 25 percent of *Fortune 500* companies, we believe *Skills Cloud* allows employers and employees to understand the skills and capabilities of an entire workforce, create targeted talent strategies, drive upskilling and reskilling, plan for skills, flex around skills and much, much more. This includes suggestions for employee growth plans for career development based on data to identify in-demand roles and skills.

RESPONSE BY MARY KATE MORLEY RYAN TO QUESTIONS OF SENATOR LUJÁN

SENATOR LUJÁN

Topic (1): AI has the potential to help people work faster and more efficiently. It can also relieve workers of simpler tasks and help them work smarter. But workers must be engaged early on to ensure that AI rollouts are not leaving workers behind.

We are already seeing the harmful effects of not engaging workers in the AI transition in the entertainment sector. The Writers Guild of America negotiated a contract with the AMPTP where the use of AI was one of the main sticking points. The WGA contract says that AI is not a writer, but writers can use AI to help their writing process.

As the actors' strike continued, I sent a letter with Senator Heinrich and Chair Hickenlooper to AMPTP urging the producers to come to a fair resolution with SAG-AFTRA as well. SAG-AFTRA won critical concessions on AI as well, requiring consent and compensation when studios use digital likenesses of actors. As technology evolves, worker protections must evolve with it.

Question 1. Ms. Morley Ryan, how are employers ensuring workers are engaged in companies' integration of AI into workflows?

Answer 1. Integrating workers in the design of workflows that incorporate AI is not only the ethical thing to do, it's also the most valuable way to deploy this technology. Thoughtfully investing in people alongside data and technology, yields a top-line productivity premium of up to 11 percent that creates a better output for the company, for people, and for the use of the technology. [1]

When employees fully understand how AI applies to their role, the adoption of the technology is two times more likely to be successful. [2] Part of the strategy to increase transparency is with responsible AI frameworks that involve employees throughout. The framework should for example detail how a participative decision culture should guide the design, development, and deployment of AI. However, just 6 percent of organizations have built a responsible AI foundation and put its principles into practice. [3]

That said, at this time most employers are at the starting line of integrating their workforce into AI workflows; [4] however, most firms don't yet have the prerequisites to deploy AI right now. For instance, you can't deploy AI without good data, data-based processes (including decision-making), or infrastructure. A company that's exclusively run by paper and excel will struggle to integrate most of the benefits from AI tools.

Part of Accenture's $3 billion AI investment announced earlier this year includes plans to add 80,000 workers in part to help support companies' initial efforts to get their arms around their data so they can scale AI and do it responsibly.

Roughly 60 percent of organizations are optimistic about the impact that generative AI will have on their people, including the overall work experience. Approaches include improving job satisfaction by reducing time spent on routine tasks and enabling individuals to engage in more meaningful and innovative tasks. [5]

Companies should focus on how to train the workforce of the future to optimally interact with AI tools. In fact, according to Stanford University's Erik Brynjolfsson, for every dollar spent on new technology, companies should invest an additional nine dollars in talent and related processes, such as helping people develop the right skills. Distinctively people-centered tasks and higher-order cognitive work like moral reasoning and innovative thinking, gain a premium in a world of AI. New tasks also emerge, like adjusting system design outputs with feedback, monitoring data privacy and bias, or optimizing AI tool inputs. With continuous learning, employees can embrace new ways of working, ultimately helping organizations diversify skills across the workforce and ensure their people—and their business—not only stay relevant, but also grow through change.

Topic (2): A just and gradual transition is critical to protecting workers as AI becomes a valuable workplace productivity tool. Part of that transition must include worker training and skills development.

Question 2. What kinds of workforce development programs is Accenture creating to ease the transition to using AI tools in the workplace, and how is it ensuring all workers can access these opportunities?

Answer 2. We invest heavily, $1 billion annually, in reskilling, training and leadership development for our people to ensure that our workforce is best positioned to work with AI tools now and in the future. At the foundational level, we start by providing our employees with grassroots-level training. Everyone at Accenture is required to take our Technology Quotient (TQ) training, a technology learning program that we have been using for the last few years. We continuously update the platform, content, and infrastructure, to include adding a generative AI course, so that our workforce stays current with technology trends.

We also leverage our partnerships with top academic institutions. For example, we partnered with Stanford University to create a Foundation Model Scholar Program. We completed our inaugural program this past July.

To expand our talent pipeline from non-traditional recruiting sources, Accenture launched its own apprenticeship program in 2016, alongside the launch of our Apprentice Network, which has since expanded to 10 locations with 195 unique em-

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[1] *https://hbr.org/2023/03/generative-ai-will-enhance-not-erase-customer-service-jobs*.

[2] *https://www.accenture.com/content/dam/accenture/final/a-com-migration/thought-leadership-assets/accenture-built-to-scale-pdf-report.pdf*.

[3] *https://www.accenture.com/us-en/insights/applied-intelligence/professionalization-ai?src=SOMS*.

[4] The recently signed Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence urges companies to include workers in the development phase, an important part of responsible AI.

[5] *https://www.accenture.com/us-en/about/company/pulse-of-change*.

ployers across North America. Accenture has set a goal for apprentices to make up 20 percent of North America entry level hiring from apprenticeship applicants. Accenture has hired over 2,000 apprentices to date in over 40 cities. Our apprenticeship program applicants are only required to have a high school degree. To further emphasize our skills-based hiring approach, we made the decision to reduce the number of entry-level positions that require a 4-year college degree. As of fiscal year (FY) 2023, nearly half of Accenture's entry-level positions in the U.S. are open to individuals who do not have a 4-year college degree.

Externally, Accenture is a proud partner with *Code.org* to support Hour of Code, aiming to empower every student to succeed in a digital world.[6] Hour of Code is a free introduction to computer science through fun activities and videos for learners of all skill levels. This year's events will take place from December 4–8, 2023, in K–12 schools across 10 cities.

Over 700 high school and post-high school students participated in our Skills to Succeed internship and Learning to Lead program in 2022. Both programs work with organizations to break down barriers to employment and expand job opportunities to motivated, high-potential underrepresented talent who have traditionally lacked access to the digital economy.

We also offer the Skills to Succeed Academy, a free highly interactive online training program that helps learners build the skills and confidence they need to make smart career choices and find and succeed in employment.[7] In addition to soft skills, the Academy includes over 40 technology-related modules ranging from internet navigation to coding and data interpretation.

Question 3. How can Congress incentivize companies to provide equitable upskilling as AI is integrated into the private and public sectors?

Answer 3. As the digital economy transforms the way we live and work, Congress can help incentivize better collaboration between the public and private sectors to ensure upskilling is accessible to everyone.

Building a strong educational foundation for continuous learning and upskilling is critical. We can start that process by:

- Creating a stronger dialog between businesses and institutions to establish a workforce where people are prepared for their careers.
- Providing options for micro-credentials, badges, programs, and certificates as interest is rising among American students.
- Helping students identify and more easily demonstrate to employers what job-ready skills they've developed as part of their education and training, rather than focusing on the two-or 4-year degree or credential as the output.

As students make the transition into the workforce, we can reinforce continuous learning and upskilling by:

- Expanding access to the tools and skills needed to succeed in future-proof jobs, including through expanded career and technical education (CTE), apprenticeships, and partnerships between educational institutions and the private-sector.
- Providing sufficient resources to support the demand for sector-based workforce training and reskilling programs that help bridge skills mismatch, including workers' digital skill needs, while promoting more equitable economic mobility.
- Expanding workforce training capacity by providing incentives for training programs led by industry, educators, and non-profit organizations and embracing flexible short-term and online training in key digital and emerging, in-demand skills.
- Driving informed training by growing real-time labor force data identifying economywide trends focused on emerging roles and the skills needed for in-demand jobs and high-demand sectors and measure the equitable impact of public investments.
    - The real time labor market data for in-demand and high-demand sectors should be developed at not just the local level but the global, national, regional, state and local level to have a better understanding of the true labor market supply and demand.

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[6] *https://hourofcode.com/us*.
[7] *https://s2sacademy.org/*.

- Creating a culture of lifelong learning and making it easier for workers to invest in their futures, including by providing incentives and tools for upskilling, and modernizing our Federal workforce development and worker displacement programs. Specifically, the Workforce Innovation and Opportunity Act (WIOA) can incentivize employer upskilling in the workforce development system by:
  - Enhancing WIOA's definitions related to "basic skills deficient," "training," and "individual with a barrier to employment" to include digital literacy.
  - Incentivizing states to offer reciprocity to high-quality training providers to streamline the Eligible Training Provider List (ETPL) application process for multi-state providers and prioritize those programs that have a strong return on investment, with an emphasis on providers that have a robust upskilling curriculum.
  - Providing the established infrastructure (2,200 American Job Centers) to upskill at scale jobseekers and employers, particularly on AI and digital skills.

[Whereupon, at 11:34 a.m., the hearing was adjourned.]

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