READING THE ROOM:
PREPARING WORKERS FOR AI

HEARING

BEFORE THE

SUBCOMMITTEE ON EMPLOYMENT AND WORKPLACE
SAFETY

OF THE

COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS

UNITED STATES SENATE

ONE HUNDRED EIGHTEENTH CONGRESS

SECOND SESSION

ON

EXAMINING PREPARING WORKERS FOR AI

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SEPTEMBER 25, 2024

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READING THE ROOM: PREPARING WORKERS FOR AI

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Wednesday, September 25, 2024

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 2:01 p.m., in room 562, Dirksen Senate Office Building, Hon. John Hickenlooper, Chairman of the Subcommittee, presiding.

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

OPENING STATEMENT OF SENATOR HICKENLOOPER

Senator HICKENLOOPER. The Subcommittee on Employment and Workplace Safety will come to order. We are here today to talk about preparing workers across America to effectively use AI in the workplace.

Ranking Member Braun and I will each give an opening statement, then we will introduce the witnesses. After witnesses give their testimony, each Senator, those of us here, watching online, or coming into the meeting will each have 5 minutes to ask their questions.

Last year, this Subcommittee heard from witnesses on the potential benefits of AI to our economy but concluded that those benefits will only become a reality if we have a well-trained workforce.

Since then, AI has only continued to explode with innovation and has remained at the forefront of conversations for both employers and workers, as new applications of AI continue to transform the workplace.

Unlike most previous technologies—like all previous technologies, previous technologies like personal computers or cell phones, they initially had substantial barriers that limited consumer access.

AI is already—has achieved wide access. AI powered applications are being used by students and workers and business owners all across the country. By some estimates, more than 60 percent of companies are exploring how to integrate some form of generative AI technology, even as we speak.

Additionally, some workers already have their own subscriptions to AI applications and are using them to enhance their work, to ac-

celerate their projects. Bottom line, AI clearly does have the potential to change how we all work.

While some tasks may become more automated, the majority of jobs will use processes that employ in some form of collaboration between AI and human run systems. Despite the clear interest in AI technologies from employers and workers alike, we have more work to do to create widely available AI literacy training opportunities to put everyone on an even playing field.

The rapidly changing landscape in AI technologies is making some employers and even some industries hesitant to invest in comprehensive training opportunities. They are not sure if what they are training will be useful and remain relevant in a relatively short period of time.

But we know that having a well-trained and informed workforce is a key—it is really essential to making sure that AI is used responsibly, and that both workers and businesses can reap the full benefits of the tools.

For example, human talent is needed to evaluate outputs generated by AI for accuracy or to tailor AI generated concepts into customized solutions that support their customers. AI literacy should also include an emphasis on methods to help workers identify AI generated content versus human generated content.

AI literacy training is going to help empower employers to choose the safest applications for their workforce and make sure workers can give well informed feedback about their experience with AI.

I think we have read the room and now is the time to make sure every worker has access to the professional development training that they need to succeed. That is why earlier this year, we introduced the Lifelong Learning Act with Senators Budd and Peters to make sure we can appropriately invest in training opportunities for current and future workers.

Senator Braun and I have also been working together to make sure that the Department of Labor, as well as other agencies, understand the urgent need for these programs and need to address the safety factors connected to that urgent need.

During today's hearing, we will hear from panelists from various sectors and communities who are providing or benefiting AI literacy training opportunities. As AI technologies and training programs change over time, we will need everyone, our union partners, employers, nonprofits, everyone to make sure that we get this right and we set ourselves up for success.

Before I yield to Senator Braun for his opening remarks, I would like to enter into the record a statement from the AFL–CIO Technology Institute about the importance of these partnerships, the importance of workers' voices as we scale training opportunities.

[The following information can be found on page 46 in Additional Material:]

Senator HICKENLOOPER. With that, I will turn it over to Ranking Member Braun for his opening remarks and to introduce our first witness.

OPENING STATEMENT OF SENATOR BRAUN

Senator BRAUN. Thank you, Mr. Chairman. Thank you to the witnesses for being here today. Since our Subcommittee's last hearing on this subject matter, AI technology has only advanced—its prevalence has only grown in the American workplace.

Today, we are going to take a look at AI technology, how it is affecting employers and employees, and learn what they should be prepared for down the road. Prior to becoming a Senator, I spent 37 years running a logistics and distribution company and we poured technology into it.

There is no doubt that when you use technology correctly, it gives you unbelievable benefits, but we have never seen this horizon before. Embracing technology should be beneficial to everyone. It generally has been.

But here, when the people that have brought it to the forefront have issued it with a stark warning, be careful, we would actually like it to be regulated. You have never heard that in the past about most things that come to the marketplace.

There is broad interest about this from across the political spectrum, and certainly it shouldn't be politicized along the way. If there is a role for Congress to play in regulating this technology, it should come from following careful consideration and informed recommendations from nonpartisan experts in all affected fields.

It is going to take a different type of framework to fully implement and regulate such advanced technology. However, in doing so, the goal shouldn't be to kill the technology by smothering it, because if we do that, we never get to the point of how it is going to be beneficial.

The past couple of years we have seen unprecedented development and adoption of it across industries. We must ensure that Government leaders are trained to keep up with the advancements in AI and recognize the benefits and risks of this powerful tool.

In this place, and most governments, have been the slowest to embrace normal technology along the way. So it is critical that if we are going to try to do something to create a framework, that we learn something about it.

Senator Gary Peters and I introduced the AI Leadership Training Act to create an AI training program for Federal supervisors and management officials. The aim of this bill is to help improve the Federal workforce's understanding of its applications and to ensure that leaders who oversee the use of these tools understand its full potential benefits and risks.

Legislation like this is a small step to improve our understanding of this technology and how it will impact our workplaces in the immediate future. Today, we are going to hear from witnesses who will shed light on some of those expectations and will also provide examples of how AI is already affecting the American workplace.

We should aspire to bring the technology to the point where it can create benefits for the workplace, but we should also continue to be mindful and have conversations about where this technology

can take us along the way. That is the purpose of the hearing, and I look forward to it.

Before I yield, Mr. Chairman, I would like to submit a letter from the National Retail Federation which outlines the views of the retail industry on this important matter.

Senator HICKENLOOPER. Great. And were you going to introduce the first witness, Mr. Meyer?

Senator BRAUN. After you say it is Okay to put this into the record.

Senator HICKENLOOPER. Without objection.

[The following information can be found on page 48 in Additional Material:]

Senator BRAUN. There we go. Okay. Thank you. My privilege to introduce Mr. Ken Meyer. Mr. Meyer is a Senior Director of Human Resources at Ryan Health, which is based in New York City.

He is an HR professional with nearly 40 years of experience and has served as a President of the New York City Chapter of the Society for Human Resource Management. We welcome your expertise here today. Thanks for being here.

STATEMENT OF KEN MEYER, SENIOR DIRECTOR OF HUMAN RESOURCES, RYAN HEALTH, NEW YORK CITY, NY

Mr. MEYER. Thank you very much, Senator Braun. Good afternoon, Chairman Hickenlooper and Ranking Member Braun. Thank you for bringing us together for this important conversation about preparing workers for AI.

My name is Ken Meyer, and I am the immediate past President of the New York City Chapter of SHRM, the Society for Human Resource Management. As the trusted authority on all things work, SHRM as the foremost expert, researcher, advocate, and thought leader on issues and innovations impacting today's evolving workplaces.

With nearly 340,000 members in 180 countries, SHRM touches the lives of more than 362 million workers and their families globally. I have over 35 years of human resources experience within the health care sector.

I currently serve as the Senior Director of Human Resources at Ryan Health, a Manhattan based community health center with nearly 500 employees. My testimony today is on behalf of SHRM and does not necessarily reflect the views of Ryan Health. SHRM's research shows that workplaces around the country are already using AI to enhance their organization's capabilities.

One in four organizations currently use AI to support HR related activities, with nearly two-thirds of these adopters implementing AI in HR within the past year. A SHRM survey from earlier this year finds that among HR leaders whose organizations are currently using generative AI, 75 percent report that it has enhanced efficiency, 69 percent say it has increased creativity, and 65 percent say it has improved work quality.

As more businesses embrace AI, American workers will need opportunities to learn, adapt, and use this technology to remain com-

petitive. SHRM's research shows that 30 percent of HR leaders already feel greater pressure to innovate, and 28 percent believe there is an increased need to upskill and reskill workers.

Because of this, AI curiosity and AI literacy are new, must-have skills for workers in nearly everywhere role. Workers, including their managers, need to understand both the opportunities and risks presented by AI.

This training helps managers identify when AI can enhance efficiency and when it is inappropriate or too risky to use so they can manage these risks. SHRM supports thoughtful legislation and regulation that promotes rather than stifles workplace and workforce innovation.

However, state and local legislative and regulatory efforts regarding AI are creating a confusing patchwork of obligations for employers, putting some AI applications out of reach of the small and medium sized businesses because of the cost and uncertainty of regulatory compliance.

Last year, New York City began imposing new requirements on employer uses of automated employment decision tools. The cost of complying with the new law and the uncertainty regarding AI regulation mean that employers, especially small and medium sized businesses, may choose not to use AI, which unfortunately may place them at a competitive disadvantage.

SHRM believes that overlapping laws and regulations regarding AI may lead to unintended consequences that create uncertainty and discourage workplace innovation. SHRM supports a uniform Federal standard that provides a clear framework for how employers should strive to prevent unlawful bias when using AI.

We also support Federal efforts to educate all stakeholders about the benefits and risks of AI in the workplace. As the trusted thought leader on all things work, SHRM is committed to helping employers responsibly navigate this new landscape, ensuring that AI enhances the workplace without compromising fairness, inclusion, and diversity.

We also stand ready to provide Congress with our expertise on workplace issues to ensure that you are fully informed about the potential consequences of forthcoming public policy and legislative efforts.

Thank you again for this opportunity to speak today and I look forward to hearing your questions.

[The prepared statement of Mr. Meyer follows.]

PREPARED STATEMENT OF KENNETH MEYER

Introduction:

Chairman Hickenlooper, Ranking Member Braun, and distinguished Members of the HELP Subcommittee on Employment and Workplace Safety, thank you for bringing us together for this important conversation about the impact of artificial intelligence (AI) on the workforce. My name is Ken Meyer, and I had the honor in 2023 of serving as President of the New York City chapter of the Society for Human Resource Management (SHRM). Today, I am here to share insights on behalf of SHRM, the foremost expert, researcher, advocate, and thought leader on issues impacting today's evolving workplaces.

As the trusted authority on all things work, SHRM is the foremost expert, researcher, advocate, and thought leader on issues and innovations impacting today's

evolving workplaces. With nearly 340,000 members in 180 countries, SHRM touches the lives of more than 362 million workers and their families globally.

I serve as Senior Director for HR for Ryan Health, a Manhattan-based community nonprofit healthcare provider with nearly 500 employees. I have over 35 years of human resource (HR) experience within the healthcare industry. My written testimony is on behalf of SHRM and does not necessarily reflect the views of Ryan Health.

The Intersection of AI and HR: The Benefits:

SHRM research[1] shows that **1 in 4 organizations (26 percent)** currently use AI to support HR-related activities, with **nearly two-thirds** of these adopters only implementing AI in HR within the past year. As the architects of talent and performance management, HR professionals are embracing AI to enhance their organizations' capabilities because AI offers a promising array of solutions to address the complex demands of the modern workplace. The top three areas where organizations are already using AI to support HR-related activities include recruitment, interviewing, and hiring **(64 percent)**, learning and development **(43 percent)**, and performance management **(25 percent)**.

Furthermore, the steady proliferation and integration of AI underscores the need for organizations to enhance AI curiosity and literacy to get the best return on investment. Another SHRM survey[2] conducted in January and February 2024 finds that among HR leaders whose organizations are currently using generative AI, **75 percent** report enhanced organizational efficiency, **69 percent** say it has increased creativity, and **65 percent** say it has improved work quality. SHRM's *AI in the Workplace* found U.S. workers recognize the need for various skills or competencies to effectively collaborate with AI technologies. U.S. workers identified "technical skills to navigate interfaces and tools" **(72 percent)**, "digital literacy" **(68 percent)**, and "critical thinking skills" **(68 percent)** as the top three competencies needed to effectively collaborate with AI technologies in the workplace.

Three in four HR professionals believe that advancements in AI will increase the importance of human intelligence in the workplace over the next 5 years. SHRM believes it is essential to approach AI's adoption responsibly, and we are helping our members address ethical considerations, ensure transparency, and provide appropriate training. All are crucial aspects of a successful AI integration strategy that helps to reduce the risk of algorithmic discrimination.

AI + HI [Human Intelligence] Equals ROI [Return on Investment]

As organizations eagerly adopt AI technologies, grasping their potential to create value will be essential for making informed decisions. To successfully navigate workforce changes during this significant technological transformation, individuals at all levels of the workforce must learn how to[3]:

- **Manage disruption and empower innovation**. Work is where markets, people, and disruptive technologies intersect with the challenges of human intelligence. As generative AI becomes more integrated into our daily lives, we will learn how to unlock potential, spark innovation, and discern our unique human qualities from AI.
- **Augment the power of people to drive the world forward**. To flourish in the AI era, we must rethink work, workers, and workplaces—reimagining a world of work where human intelligence and ingenuity are upskilled, not replaced.
- **Engender a culture of change and invest in human catalysts**. Studies show human catalysts are key to successful AI integrations. Or-

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[1] SHRM's 2024 Talent Trends Survey was conducted in January 2024 and collected responses from over 2,300 HR professionals representing organizations of all sizes and across a variety of industries in the United States. A summary excerpt of these research findings is available at *https://shrm-res.cloudinary.com/image/upload/AI/2024-Talent-Trends-Survey—Artificial-Intelligence-Findings.pdf*.

[2] SHRM conducted additional research, collecting 1,220 responses from HR leaders completed between January 25, 2024, and February 7, 2024. The survey was fielded electronically using the SHRM Voice of Work Panel to U.S.-based HR leaders who hold a title of Director or higher and engage in HR activities. A copy of an article further summarizing this research is available at *https://www.shrm.org/executive-network/insights/new-shrm-research-shows-how-hr-leaders-really-feel-about-ai*.

[3] *AI in the Workplace Playbook*, SHRM, 2024

ganizations must invest in their people to empower the mindsets, skill sets, and toolsets to drive thriving, responsible workplace transitions.

As SHRM President and Chief Executive Officer Johnny C. Taylor, Jr. has said, "The opportunities AI presents are limitless. When combined with human ingenuity (HI), this synergy has the capacity to transform your organization while maximizing human potential. AI + HI = ROI." SHRM believes that while AI can help augment and automate routine tasks, we will reach our fullest potential by combining AI with human intelligence and oversight. Through this combination of technology with human intelligence, HR professionals are achieving positive outcomes. Below are examples of how SHRM's members are combining AI with HI across a wide range of HR applications and industries:

"We were having a hard time filling lower-skill-level positions [...] due to the requirement that these workers needed a high school diploma. By having AI scan for experience instead of just a high school diploma, we were able to increase our applicant pool and fill positions we were having a hard time retaining. Our retention level in these jobs has risen, and we have eliminated the requirement of a high school diploma for these positions."

—Large employer in the Health Care industry

"Recruiting is one instance. AI may identify a passive candidate that we were unaware of. We have chosen to interview and hire someone that has come to our notice this way."

—Large employer in the Retail industry

"Chatbots are creating 24/7 access to answers, which improves the candidate experience and frees up the recruiter to actually recruit."

—Large employer in the Child Care, Community, or Social Services industry

"AI has provided us with ways to deepen our outreach when recruiting, which, combined with the expertise of our recruiters, has allowed us to find candidates we might have never reached previously."

—Small employer in the Professional and Civic Associations industry

"We use AI to recommend learning pathways for our staff based upon the types of trainings that they are watching/learning from. We use human intelligence to conduct a gap analysis of what might be crucial learning that is overlooked because of how the AI provides pathways for people and then find ways to push those overlooked training topics to relevant people."

—Extra-large employer in the Professional, Technical, and Scientific Services industry

"We've utilized AI for comprehensive job descriptions and to create a defined role that provides clarity and structure within the organization. This has helped new hires understand the position and expectations and has also allowed us to promote individuals with clear intent on their expanding function."

—Large employer in the Real Estate industry

"We integrated our [human capital management] software with an AI-based engagement tool. It uses AI to recommend ways to improve our engagement score in areas that are low. This is being used by managers once they get their results to implement change, based off of AI recommendations, to improve our scores."

—Extra-large employer in the Manufacturing industry

The Increased Demand for AI Literacy and Upskilling

As more businesses embrace AI, American workers will need opportunities to learn, adapt, and use AI to remain competitive in the global job market. SHRM's research[4] shows that **30 percent of HR leaders** already feel greater pressure to

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[4] SHRM conducted additional research, collecting 1,220 responses from HR leaders completed between January 25, 2024, and February 7, 2024. The survey was fielded electronically using the SHRM Voice of Work Panel to U.S. based HR leaders who hold a title of Director or higher and engage in HR activities. A copy of an article further summarizing this research is available at *https://www.shrm.org/executive-network/insights/new-shrm-research-shows-how-hr-leaders-really-feel-about-ai*.

innovate, and **28 percent** believe there is an increased need to upskill and reskill workers. AI curiosity and AI literacy are becoming essential skills for employees in nearly every role in the workforce.

- The increased demand for AI literacy and upskilling is critical to the modern workforce. As AI continues to transform workplaces, it is essential for employees to develop the skills needed to work alongside these technologies. A SHRM Current Events Pulse [5] survey in August 2024 revealed that most workers are still at the start of their AI journeys. For example:
  - **80 percent** of U.S. workers classify their *understanding* of AI as either beginner or intermediate, while only **20 percent** say they are at an advanced or expert level.
  - **Nearly a quarter** of U.S. workers (**22 percent**) lack any *experience* with AI, while **63 percent** classify their AI proficiency as beginner or intermediate. Only **15 percent** of workers say they have advanced or expert-level experience with AI.

Moreover, SHRM's research shows that the increased demand for AI literacy and upskilling is disproportionately borne by older generations, who are significantly more likely to say they are at a beginner or intermediate level of AI understanding compared to younger workers.

By investing in training programs and promoting AI literacy, organizations can ensure that their workforce remains competitive and can leverage AI to drive workplace innovation and productivity.

To address the growing need for AI literacy, many companies are investing in upskilling and reskilling initiatives, using the technology to create personalized learning and development opportunities. These programs are designed to help employees develop the skills they need to work alongside AI technologies. Training helps managers identify when generative AI can enhance efficiency and when it is inappropriate or too risky to use.

SHRM has been actively preparing employers and HR professionals to navigate the implementation of AI in the workplace. By providing comprehensive resources and expert guidance, SHRM helps organizations understand the potential of AI to enhance productivity and innovation. This includes:

- **Developing a robust toolkit for using AI in employment**: [6] SHRM offers resources that help HR professionals understand how to integrate AI into various HR functions, such as talent acquisition, education and development, employee engagement, and performance management.
- **Creating a comprehensive AI specialty credential**: [7] This 6-week training program helps HR professionals learn to utilize AI and create an AI implementation plan.
- **Collaborating with industry experts**: SHRM works with experts to develop best practices for integrating AI into HR functions, ensuring that organizations can harness the benefits of AI while mitigating risks.

Legislative and Regulatory Considerations:

SHRM is working to educate its members regarding both the benefits and the risks of AI, and steps that should be taken to mitigate these risks. SHRM supports thoughtful legislation and regulation that promotes, rather than stifles, workplace and workforce innovation. State and local legislative and regulatory efforts regarding AI are creating a patchwork of obligations for employers, putting some AI applications out of reach for small and medium-sized businesses due to the cost and uncertainty of regulatory compliance.

For example, small and medium-sized organizations operating in New York City are navigating unique regulatory environments. Last year, New York City Local Law 144 became effective, imposing new requirements when an employer uses "automated employment decision tools." The cost of complying with New York City's new law and the uncertainty regarding AI regulation mean that small and medium-

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[5] August 2024 Current Events Pulse, SHRM, 2024

[6] https://www.shrm.org/topics-tools/tools/toolkits/using-artificial-intelligence-employment-purposes.

[7] *https://www.shrm.org/topics-tools/news/organizational-employee-development/shrm-ai—hi-specialty-credential—ushering-in-a-new-era.*

sized businesses may avoid leveraging AI's potential until there is stability, placing them at a competitive disadvantage.

SHRM is concerned that a patchwork of state and local overlapping laws and regulations regarding AI may lead to unintended consequences that create uncertainty and discourage workplace innovation. SHRM supports a uniform Federal standard that provides a clear framework for how employers should strive to prevent unlawful bias and promote responsible workplace applications of AI. We also support Federal efforts to educate stakeholders about the benefits and risks of AI in the workplace.

Conclusion

The rapid evolution of AI brings both incredible opportunities and significant challenges. Lawmakers must work with multiple stakeholders to identify ways to meet these challenges, and to create a regulatory landscape that enables workers and businesses to achieve the benefits of AI responsibly and consistent with our shared values. SHRM hopes that lawmakers, employers, workers, and other stakeholders can work together to achieve these goals and address these concerns.

SHRM is committed to helping employers and HR professionals responsibly navigate this new landscape, ensuring that AI enhances the workplace without compromising our shared values. We stand ready to provide Congress with our expertise on workplace issues to ensure you are fully informed about the potential consequences of forthcoming public policy and legislative efforts. Thank you for the opportunity to submit this testimony to the Employment and Workplace Safety Subcommittee about this critical issue.

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Senator HICKENLOOPER. Thank you, Mr. Meyer. Now, it is my pleasure to introduce our next witness, Dr. Karin Kimbrough, national expert on skills attainment.

She is the Chief Economist at LinkedIn. And at LinkedIn, she is at the helm of LinkedIn's workforce research team, which assesses trends in skills training, demand, and attainment.

Dr. Kimbrough.

STATEMENT OF KARIN KIMBROUGH, CHIEF ECONOMIST, LINKEDIN, SUNNYVALE, CA

Dr. KIMBROUGH. Chairman Hickenlooper, Ranking Member Braun, and Members of the Subcommittee, thank you for inviting me to testify today. My name is Dr. Karin Kimbrough, and I serve as the Chief Economist at LinkedIn.

I appreciate the opportunity to share our insights on how AI is impacting the economy, including skills, jobs, and industries. We believe that AI holds great promise and potential to enhance the productivity of workers and to allow them to focus on more meaningful aspects of their jobs.

With AI tools becoming accessible to the workforce at large, the impact will be widespread. AI is here and it is changing the way we work. Today, I want to discuss three key trends from our data.

First, we are already seeing early influences of AI on jobs and skills. Second, employers are increasingly placing a premium on hiring and training AI talent. And third, workers are realizing the value and benefits of acquiring AI skills.

Finally, I will touch briefly on the global AI talent marketplace and offer ideas and policy suggestions for this Committee to consider. At LinkedIn, we think about AI talent in two ways, the technical builders who are developing AI tools and the general users that will need to be AI literate.

The earliest indicators of how firms are responding to the technological promise of AI comes from our hiring data. So far this year, the demand for AI skills has increased. For example, we have seen a 30 percent increase in the share of job postings for AI technical talent compared to 2023.

The increase in demand has been even faster in the technology industry. This increase in demand for AI technical talent is also shifting the skills needed for today's jobs across all industries.

Since 2015, the skills for the average job have changed by about 25 percent, and we expect this change to accelerate. By 2030, two-thirds of what we do at work every day will look very different. Despite this rapid change in skills, companies that use AI are not just hiring new workers with these skills but are also initiating internal training programs to upskill their own workers.

One example of this employer provided training is NIQ, a U.S. based marketing research firm. It has been using LinkedIn learning for employee training, including AI. More than 1,900 employees participated in NIQ's AI learning challenge, logging over 18,000 hours of AI learning content in the last year.

Additionally, employers are looking to do more training. The Census Bureau has found that one in five companies using AI had recently trained its staff to use it, and nearly half of other companies plan to offer training in the next 6 months.

Workers are also taking the initiative. They are upskilling on their own and going beyond what employers are providing as they begin to identify the opportunities of AI in their own work.

Over the last 6 months, we have seen a 160 percent increase in non-technical professionals who are taking LinkedIn learning courses to grow their AI literacy. These are workers in roles like project manager, architect, administrative assistant, and more than half of a million learners have enrolled in our professional certificates for AI.

In a competitive labor market, workers see the value of making their new AI skills known, and around the world there are now 142 times as many members with AI literacy skills than there were just late last year.

All of this matters on a global scale. For example, the U.S. has a third of the world's AI technical talent and a third of the world's workers with AI literacy skills. However, other countries like India are developing their AI talent at a faster rate and are catching up.

As this Committee looks ahead at policies to prepare workers for AI, there are four areas on which I would encourage you to focus. First, continue the bipartisan efforts to promote policies which expand skills based hiring in this country.

Second, consider ways in which the reauthorization of WIOA can help meet the needs of workers in the new economy. Third, support efforts to encourage and enable employers, specifically small businesses, to upskill their workers.

Finally, ensure that Federal labor data are able to capture the impact of AI on our Nation's workforce accurately and in a timely manner, including by leveraging public-private partnerships.

Thank you for this opportunity to share more about LinkedIn's insights, and I look forward to your questions.

[The prepared statement of Ms. Kimbrough follows.]

PREPARED STATEMENT OF KARIN KIMBROUGH

Chair Hickenlooper, Ranking Member Braun, and Members of the Subcommittee: thank you for inviting me to testify today.

My name is Dr. Karin Kimbrough, and I am the Chief Economist at Linkedln. I lead a team of economists and data scientists dedicated to understanding how the world of work is evolving through what we call the Economic Graph Research Institute (EGRI). We study workplace trends and shifts in the macro economy, identify opportunities for professionals in a wide range of roles and occupations, and strive to understand the relative demand for work across multiple industries worldwide. I have worked in the public and private sectors on macroeconomic research and finance for over 20 years, including nearly a decade at the Federal Reserve Bank of New York, where I was a vice president in the Markets Group.

I appreciate the opportunity to share our insights on how the increased deployment of artificial intelligence (Al) applications in nearly every industry is affecting the workforce and work. Linkedln is the world's largest professional network with more than 1 billion members in more than 200 countries and territories worldwide. Our data provides us with real-time, granular insights that enable us to conduct extensive research on Al as it relates to jobs, skills, workers, and the emerging global Al economy.

We believe Al holds great promise and potential to enhance the productivity of workers, and to allow workers to focus on more meaningful aspects of their jobs.

There are three broad points which I would like to highlight from our insights and other research, which are relevant to today's hearing.

First, our early observations suggest Al is already impacting jobs and skills; second, employers are placing a premium on Al talent and employer-driven Al training; and third, workers are increasingly realizing the value and benefits of acquiring Al skills.

Finally, I will touch upon the global context of Al supply and demand, and the policies we encourage this Committee to consider to further expand access and opportunities for Al skilling.

I. Al is Impacting Jobs and Skills

Almost a year ago, this Subcommittee held a hearing focused on Al and the future of work, with the expectation that Al, and Generative Al in particular, would have a growing impact on jobs and workers. Over the past year, we have seen this become a reality.

Al is here, and it is changing the way we work. The earliest indicators of this evolution come from our data around the hiring of Al technical talent—meaning those with Al engineering skills, who are critical to enabling companies to build the right tools for Al implementation and adoption at scale.

LinkedIn hiring data show that there was a 6 percent increase in hiring for Al technical talent in the United States in the first 12 months after ChatGPT launched. This reflects an acceleration in demand for Al expertise and is an important initial step in firms' success in deploying Al more broadly.[1] This hiring increase coincided with a hiring slowdown in the Technology industry at large (-10 percent y/y), and the United States overall (-10 percent y/y).[2] Further, data over the last 8 years show that hiring for Al technical talent has increased by more than 300 percent globally.[3]

Beyond demand for Al technical talent, we see an emerging impact of Generative Al and Al tools on the broader workforce. In particular, the wider accessibility of these new technologies to a non-technical workforce using equipped smartphones

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[1] Linkedln Economic Graph Research and Insights. *See also* Stanford University, *Artificial Intelligence Index Report 2024*, *https://aiindex.stanford.edu/wp-content/uploads/2024/05/HAI—Al-lndex-Report-2024.pdf*, and OECD, *OECD.AI Policy Observatory*, *https://oecd.ai/en/data'selectedArea=ai-jobs-and-skills&selectedVisualization=ai-talent-concentration-by-country*.

[2] *Id.*

[3] Microsoft and Linkedln, *2024 Work Trend Index Annual Report*, May 8, 2024, *https://www.microsoft.com/en-us/worklab/work-trend-index/ai-at-work-is-here-now-comes-the-hard-part*.

and laptops suggests that the speed of diffusion will be faster than prior techno-logical innovations. In other words, the impacts of this technology will be wide-spread, crossing industries, jobs, and skills.

The extent to which Al has penetrated the global workforce is quite remarkable. Microsoft and Linkedln released the 2024 Work Trend Index Report, which surveyed 31,000 people across 31 countries, and found that 75 percent of global knowledge workers report using Generative Al at work. Equally striking is the speed at which this is happening. The survey found that 46 percent of those Al users report that they started using it less than 6 months ago.[4]

As Al is becoming more ingrained in our daily work, we're seeing new jobs being created and the skill sets for roles shift. The number of companies with a "Head of Al" position has tripled in the past 5 years and grew by more than 28 percent in 2023. Globally, 12 percent of recruiters now say they are creating new roles tied specifically to the use of Generative Al.[5] As an example of how jobs are changing, our data show the skills needed for the average job have changed by 25 percent since 2015. By 2030, we expect skills to change by more than two-thirds, with tools like Generative **Al** accelerating this change.[6] In other words, for many of us, two-thirds of what we do at work every day will look very different in just a few short years.

We also expect Al and Generative Al to impact a wide number of the jobs and occupations held by workers today. To better understand what this impact is likely to look like, we have analyzed data across our platform to estimate the percentage of occupational skills that are complemented by Al and the percentage of skills that are replicable by Al. What we found, as highlighted in the chart below, is the impact Al will have on jobs will vary considerably. Some jobs, like translator, are likely to experience disruption because a significant portion of the skills can be replicated by Generative Al. As a result, these workers will need extensive training to develop new Al-related skills to effectively integrate Al into their workflows. On the other hand, workers in other occupations, like physical therapists, will be largely insu-lated from Generative Al because many of the skills they use are complemented by Al, but not replicated by it. However, over time, we do expect that the vast majority of occupations—even ones that appear insulated for now—will eventually incor-porate Generative Al into their tasks, with some occupations transforming more than others.[7]

Exhibit 3. Occupational composition by GAI-replicable and GAI-complementary skills
Normalized percentage GAI-replicable and GAI-complementary skills by occupation

Source: LinkedIn Economic Graph Research Institute
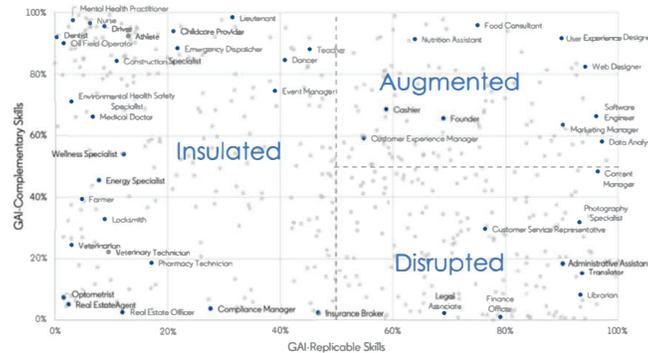
By extension, this also means the workforces of certain industries are likely to be more directly impacted by Al than others. For example, we found that 50 percent

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[4] Microsoft and Linkedln, 2024.
[5] *Id.*
[6] *Id.*
[7] Karin Kimbrough and Mar Carpanelli, *Preparing the Workforce for Generative Al*, August 23, 2023, *https://economicgraph.linkedin.com/content/dam/me/economicgraph/en-us/PDF/preparing-the-workforce-for-generative-ai.pdf*.

of workers in the Financial Services industry are likely to face Al disruption in their jobs, compared to 36 percent of workers in the Technology industry and just 18 percent of workers in Accommodation and Food Services.[8] This points to the need for and value of working within sectors not only to better understand the potential impacts of Al, but to address worker needs, which I will discuss further below.

Despite these projected disruptions, to date, recent Federal data suggest that the augmentation and disruption of these skills is not necessarily leading to people losing their jobs. According to recent U.S. Census Bureau data, employers in the U.S. have few plans to reduce their total employment due to Al. In fact, the percentage of employers anticipating an increase (6.5 percent) in employment edges out those anticipating a decrease (6.1 percent).[9]
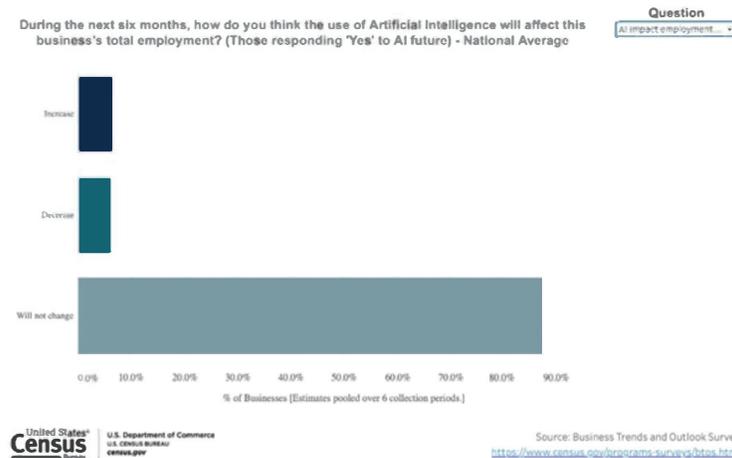
Consistent with these findings, our *research* shows that the adoption by firms of GitHub Copilot, a Generative Al powered code completion and automatic programming tool, boosts hiring by about 3 percentage points, particularly for entry-and senior-level engineers, with firms hiring more software engineers overall. It also leads to a 7 percent increase in job postings for software engineers on Linkedln, without displacing existing workers.[10]

II. Employers are Placing a Premium on Al Talent and are Focusing on Training

Employers are starting to see the advantage of Al and its capacity to increase productivity and, therefore, the need to hire workers with technical and broader Al literacy skills, by which we mean the familiarity with and ability to use Al tools. The 2024 Work Trend Index found that 66 percent of business leaders with decision-making authority said they wouldn't hire someone without Al skills, and 71 percent said they'd rather hire a less experienced candidate with Al skills than a more experienced candidate without them.[11]

If these global survey results hold true in the coming years, we expect to see the demand for those with Al skills, both in engineering and literacy, to quickly outpace supply given the labor pool largely lacks these skills.

In the face of this challenge, a growing number of employers are realizing the need not only to seek out new workers with Al skills, but more importantly, to develop their own Al workforce—including both Al technical and Al literate talent.

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[8] Kimbrough and Carpanelli, 2023.
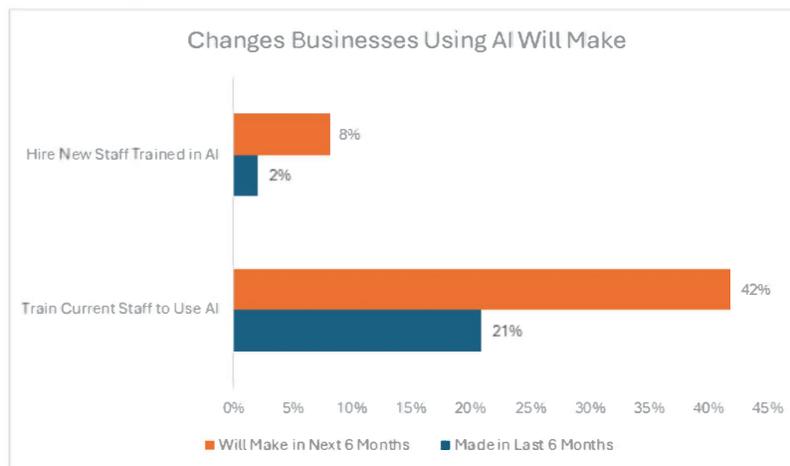[9] U.S. Census Bureau, *Business Trends and Outlook Survey*, 2024, *www.census.gov/programs-surveys/btos.html*.
[10] Matthew Baird, Mar Carpanelli, Brian Xu, and Kevin Xu, *GitHub Copilot and the Future of Work: A Working Paper*, September 2023, *https://economicgraph.linkedin.com/content/dam/me/economicgraph/en-us/PDF/github-copilot-working-paper.pdf*.
[11] Microsoft and Linkedln, 2024.

As an example, NIQ, a U.S.-based marketing research firm out of Chicago that uses LinkedIn Learning, has been working to train their workers on AI. In the last 12 months, NIQ employees have watched more than 73,000 total hours of LinkedIn Learning content and, when looking at the types of courses NIQ employees are taking, five of the top ten courses are on AI. Additionally, more than 1,900 employees registered for NIQ's AI Learning challenge—during which employees watched more than 18,000 hours of AI learning content.

Recent data from the U.S. Census Bureau point more broadly to this trend. The Business Outlook and Trends Survey found that the percentage of companies reporting plans to hire staff already trained in AI in the next 6 months will quadruple compared to those who reported hiring trained staff in the past 6 months. While this change is significant, this trend is dwarfed by the percentage of companies who report planning to offer AI training to their workers, which will double from 21 percent reporting having trained current staff in the past 6 months to 42 percent planning to provide training in the next 6 months. This tells us that companies know they need to train their own workers in AI because outside talent is still skilling up and not yet available in large numbers.[12]

Source: U.S. Census Bureau, Business Outlook Trends Survey[13]

While this data points to a positive trend, the fact remains that employers in the U.S. could be doing more to ensure their employees have the AI skills necessary to fully adopt AI into their work. In fact, we found that only a quarter of Learning and Development teams globally plan to offer training programs on how to use Generative AI this year.[14]

Business leaders who fail to devote the resources necessary to reskill and upskill their AI talent risk falling behind companies who are making these investments and seeing productivity gains from leveraging this technology.

Ill. Workers are Increasingly Seeing the Value of Acquiring AI Literacy Skills

Our data show that workers recognize the value of AI skills in an increasingly competitive labor market. We observe this keen interest by workers to upskill first-hand in our own LinkedIn Learning data. LinkedIn Learning currently offers over 1,000 courses on AI, from learning basic AI principles, concepts, and applications to advancing skills in machine learning. Since January 1, 2023, the number of people taking LinkedIn Learning courses on AI has grown by 13 times.[15] As of earlier this

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[12] U.S. Census Bureau, 2024.

[13] *Id.*

[14] LinkedIn Learning, *LinkedIn Workplace Learning Report 2024, www.learning.linkedin.com/content/dam/me/business/en-us/amp/learning-solutions/images/wlr-2024/LinkedIn-Workplace-Learning-Report–2024.pdf.*

[15] LinkedIn Learning, 2024.

year, the use of Linkedln Learning courses designed to build Al literacy skills spiked 160 percent among non-technical professionals, with workers in roles like project managers, architects, and administrative assistants looking to skill up the most.[16]

Workers recognize that acquiring Generative Al and other Al skills not only makes them more competitive but also can render work more productive, safer, and potentially more interesting. According to the Work Trend Index, workers who are using Al tools report that Al helps them save time (90 percent), focus on their most important work (85 percent), be more creative (84 percent), and enjoy their work more (83 percent).[17]

Workers also understand the value of making it known to their current or prospective employers that they have acquired these competencies. Our data show there are now 142 times as many members with Al literacy skills on their Linkedln profiles than there were last year.[18]

While it is encouraging that so many workers are able to seek out their own training opportunities, we know this is not enough. There are still barriers in place that prevent access to these opportunities across multiple occupations. We believe a more coordinated and widespread effort is necessary to ensure that all workers have the ability to gain the necessary Al skills.

The Global Context

With respect to Al skills globally, we see that the U.S. has 31 percent of the world's Al technical talent and that other countries are picking up the pace. For instance, the concentration of this talent in the U.S. increased by 13 percent from 2022 to 2023. Over the same period, the growth in Al technical talent was faster in the United Arab Emirates (29 percent y/y), India (24 percent y/y), Saudi Arabia (21 percent y/y), the United Kingdom (16 percent y/y), and Canada (15.4 percent y/y). The pace of growth of Al technical talent was relatively modest in Germany (9.5 percent y/y) and France (2.1 percent y/y).[19]

Similarly for members with Al literacy skills, over 30 percent of members with these skills are in the United States, closely followed by India at 29 percent.[20] We expect demand for this talent to continue to grow in the U.S. and around the world.

Policy Considerations

I commend this Subcommittee for seeking to better understand the impact and opportunities of Al. As you continue your work in this area, we would encourage you to consider policies that accelerate Al adoption across our Nation, and ensure it benefits those who don't have access to training or who need additional support to gain these skills.

The Committee's current effort to reauthorize the Workforce Innovation and Opportunity Act (WIOA) provides one way in which to support such individuals from across all sectors, as the economy shifts toward an Al-driven future.

Congress can also promote the adoption of skills-based hiring as a way to provide more opportunities to those who may have in-demand Al skills but may lack a traditional 2-or 4-year degree. Skills-first hiring allows companies to tap into a broader talent pool, including individuals who have gained relevant skills through non-traditional pathways such as bootcamps, online courses, or self-study. This approach can be particularly beneficial in rapidly evolving fields like Al, where the demand for specific skills often outpaces the supply of formally qualified candidates.

We appreciate the opportunity to work with Members of the Subcommittee on this and other legislation and look forward to collaborating on support for workers and employers who seek to take advantage of the benefits Al has to offer, including small businesses, many of which may benefit from the potential for Al tools to increase efficiencies and productivity.

Finally, we would encourage you to consider how to bolster Federal data, including through public-private partnerships, to better understand how **Al** is impacting the workforce.

Thank you for the opportunity to join you here today and I look forward to answering any questions.

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[16] Microsoft and Linkedln, 2024.
[17] Microsoft and Linkedln, 2024.
[18] Karin Kimbrough, *Al at Work Has Arrived*, May 8, 2024, *https:// economicgraph.linkedin.com/blog/ai-at-work-has-arrived.*
[19] Linkedln Economic Graph Research and Insights. *See also* Stanford University and OECD.
[20] *Id.*

Senator HICKENLOOPER. Thank you, Dr. Kimbrough. Now we will hear from Mr. Kotran. Mr. Kotran serves as the Chief Executive Officer for aiE-D-U. I guess you could say aiEDU, an education based nonprofit that partners with education and technology experts across the country to provide AI literacy training for our educators.

Mr. Kotran.

STATEMENT OF ALEX KOTRAN, CHIEF EXECUTIVE OFFICER, AIEDU, SAN FRANCISCO, CA

Mr. KOTRAN. Thank you. Good afternoon, Members of the Subcommittee. I want to—really appreciate the opportunity to testify today. My name is Alex Kotran and CEO of the AI Education Project.

We are a nonprofit and our mission is to bring AI readiness to classrooms nationwide by empowering our teacher workforce. Today, I appear before you today to underscore the urgent need to massively expand investment in teacher training and professional development.

We need to ensure that we are preparing students for the profound changes that are coming with the disruption that AI is going to bring to our society and indeed our workforce. aiEDU is a 501(c)(3) nonprofit.

We were founded 5 years ago, and we have been leading a national movement to advance AI readiness and AI literacy. We define AI literacy as the collection of skills and knowledge that a person needs to confidently understand, ethically use, and critically evaluate artificial intelligence in a world in which AI is becoming more and more ubiquitous.

We define AI readiness as the durable skills and the competencies that students, teachers, and school systems are going to need in order to apply AI literacy. Our work is anchored on a sophisticated national grassroots operation, and we partner with some of the largest districts and education systems in the country.

We stand at the dawn of a transformative era. The AI revolution is going to define the trajectory of an entire generation of students and workers, and it is going to fundamentally change the skills they need to compete in that workforce.

The urgency and the pace of this challenge is hard to overstate. Less than 2 years ago, large language models or LLMs were virtually nonexistent. And today, hundreds of millions of people are using them every day, and we are starting to see meaningful applications that are resulting in significant impacts on the future of work.

I am going to highlight one example. Last month, Amazon CEO Andy Jassy shared that their AI coding assistant, Amazon Q, made eye popping advances in replacing and augmenting the company's software engineers. They replaced the equivalent of 50 developer days for a very simple task uploading a Java 17 application.

In total, Jassy predicted that the tool has saved the equivalent of 4,500 developer years and more over 80 percent of the code that it writes does not require any editing by humans. Research into the

potential impacts of LLMs in the workforce suggests wide ranging applications and displacement, concentrated in some of the most common knowledge work careers in the U.S..

I think most concerning, the National Bureau of Economic Research has conducted a study that found that historically the pace of automation driven job displacement, it doesn't happen gradually, but rather it happens in these acute bursts in the months following recessions.

I fear that the next recession, whenever it comes, will be the moment that we must all truly face the music. So what do we do? Our organization has learned in more than 5 years of working with educators and school leaders across the country that there is no one size fits all approach.

We need to work state by state and in many cases district by district to create models that scale and massively invest in our teacher workforce.

We have also leveraged partnerships with state agencies, school districts, and community organizations, all with the goal of building capacity amongst the teachers, the administrators, and the systems that support them to build the capacity and the competencies that they need to actually deliver and build the skills that ultimately students and workers are going to need.

Our research underscores the urgency. What we found is that 72 percent of teachers when surveyed report only being moderately comfortable with AI at best. For our Country to build a base of new skills, we need to significantly increase—decrease that number, rather. The goal of our education system must be to include an expanded focus on durable skills.

We have to focus on critical thinking, communication, collaboration, resilience, adaptability, and digital citizenship, and these are best developed through live, engaging classroom activities facilitated by real educators. We believe that a range of AI competencies must be widely understood and achieved in our education system.

These include knowing the basics of AI, yes, but also being able to understand when to use AI, and when to bring in and leverage the human advantage.

In terms of recommendations, we really need to push forward a coordinated and concerted effort at the national, state, regional, and local levels to elevate the conversation and push for action around the skills and training for both teachers and students, and indeed our workers.

Congress can create the right conditions first and foremost by routing more funds and creating the supports and the necessary investments, in particular to provide schools with resources for teacher training and professional development.

Funding aside, the hyperlocal nature of this challenge demands a national movement to elevate the conversation about AI readiness, and I believe all of you sitting here today have the trust and influence at your disposal to champion this message, both here in Washington and at home.

I want to close by underscoring that while educators are understandably concerned about the implications of AI on their jobs, at

aiEDU, we firmly believe that teachers are critical to helping students build the skills they need to succeed.

Put simply, our teachers are at the very heart of any solution to the future of work. Thank you, and I look forward to your questions.

[The prepared statement of Mr. Kotran follows.]

PREPARED STATEMENT OF ALEX KOTRAN

Good morning, Chairman Hickenlooper, Ranking Member Braun, and distinguished Members of the Committee. Thank you for the opportunity to testify today on the critical topic of artificial intelligence in education.

I want to first applaud the Committee for its recent work advancing two bills—the Teachers LEAD Act of 2023 and the STEM Education in Accounting Act—which demonstrate a deep understanding, which I share, about the vital roles that teacher leadership and career exploration play in preparing students for the future. By supporting these initiatives, the Committee is taking important steps to enhance education quality and expand career opportunities, reflecting a strong commitment to strengthening our education system and workforce readiness.

My name is Alex Kotran, and I am the CEO and founder of aiEDU, an organization dedicated to bringing AI expertise to classrooms nationwide. I have been deeply involved in the AI space since 2015. I co-founded aiEDU in 2019, well before the public introduction of large language models (LLMs). Our vision is to ensure that every student is ready for the age of artificial intelligence.

Today, I appear before you to underscore the urgent need to massively expand investment in teacher training and professional development to ensure that our schools and educators have the capacity to prepare students for the profound changes and disruption that AI will bring to our society and economy.

The Reach and Impact of aiEDU

I'd like to begin this testimony with a brief summary of aiEDU's work, as our experience is highly relevant to the topic being discussed. Founded in 2019, The AI Education Project is a national 501c3 nonprofit organization that has been leading a national movement to advance AI Readiness and AI Literacy for all students through concerted efforts to build capacity with teachers and education systems.

We define AI Literacy as the collection of skills and knowledge that a person needs to confidently understand, ethically use, and critically evaluate artificial intelligence in a world in which AI is becoming more and more ubiquitous.

We define AI Readiness as being when students, teachers, and school systems have the ability and underlying skills to apply AI Literacy to professional and personal endeavors. A person is AI ready when they understand the interdisciplinary impacts of AI and how to apply their human advantage alongside evolving technology, to leverage collaboration, creativity, and self-advocacy alongside AI to achieve their life and career potential.

At aiEDU we've built a sophisticated grassroots operation that reaches tens of thousands of educators, anchored in partnerships with some of the largest districts and education systems in the country. This includes: Prince George's County Public Schools, the State of Ohio (via a coalition that includes the Lt. Governor's office and Dept. of Education), the State of Colorado (via the Colorado Education Initiative), and the National Rural Education Association (which reaches 9M students). Collectively, our reach is now impacting hundreds of thousands of students and tens of thousands of teachers in every single state in the U.S.

aiEDU has built a coalition of early adopters for AI Literacy in K–12 that are now leading the country with demonstrated models of tiered support enabling delivery of AI curriculum and professional development. We make an impact mainly through curriculum implementations and teacher trainings that directly impact students. We have focused on the K–12 space because it is possible to create equitable reach for all students via established systems, and is a natural middle ground between government, nonprofits, and industry. And, of course, because student success is inherently non-partisan.

We've developed a template in which aiEDU provides critical support to empower districts and non-profit groups: We supply the content, subject matter expertise, and training that empowers our partners to scale delivery of AI expertise and instructional support across their networks. Our focus on districts and large systems is also

fundamental to our mission to reach all students, as we intentionally select regions with large populations of students who are at risk of otherwise being left behind.

Our goal is to bring AI expertise to classrooms nationwide. Teachers and education leaders trust aiEDU because we don't build or sell AI products (of which there are now thousands). Instead, we help leaders close a critical gap that every major district or K–12 system in the country faces: Preparing teachers and students for the age of AI.

Over the past year alone, our organization has made significant strides in promoting AI education. We've conducted more than 120 events, including summits, workshops, and seminars, reaching more than 10,000 educators and administrators. Our aiEDU tools and curriculum have been downloaded by over 1,350 educators, impacting 231,000 students across all 50 states. We've launched major district programs in New York City and Prince George's County, expanded statewide initiatives in Ohio, Hawaii, and Colorado, and partnered with organizations serving rural and indigenous communities.

The Critical Importance of AI Readiness

We stand at the dawn of a transformative era. The AI revolution will define the trajectory of an entire generation of students and fundamentally change the skills they need to compete in the workforce. The urgency of this challenge is hard to overstate.

Early indications about the capabilities of large language models are startling and suggest that we are on the cusp of massive disruption to our workforce and social fabric in the coming decade. The pace of development is rapid, with a steady drumbeat of new models featuring increasingly massive training dataset along with powerful new AI graphical processing units (GPUs) that reflect the hundreds of billions of dollars of investment that has been pouring into the space.

- Earlier this month, OpenAI revealed its "o1" model family, which are designed to employ complex reasoning through a "chain-of-thought" process that, in short, has *enabled their newest LLM to exceed PhD-level accuracy* on benchmarks of physics, biology, and chemistry problems, as well as beat the vast majority of humans at competitive programming and math competitions.

Less than 2 years ago, Generative AI was virtually non-existent for consumers. Today, it is widely accessible, rapidly evolving, and starting to demonstrate meaningful applications that could result in significant impacts on the future of work:

Software Engineering: Last month Amazon CEO Andy Jassy *shared* that their AI assistant, Amazon Q, made eye-popping advances in replacing and augmenting the company's software engineers, with average time to upgrade an application to Java 17 dropping from 50 developer days to just a few hours. Jassy stated that this efficiency saved the company the equivalent of 4,500 years of developer work, and that nearly 80 percent of AI-generated code reviews were finalized without any additional changes.

Healthcare: There are myriad studies demonstrating LLM's ability to provide accurate diagnoses. A recent study by Google Research in collaboration with Google DeepMind revealed that an LLM developed with conversational and collaborative capabilities was able to improve diagnostic reasoning and accuracy by clinicians working on complex medical situations, with the performance of clinicians augmented with the LLM achieving 59.1 percent accuracy, compared with 33.6 percent of clinicians working unassisted.

Entertainment: The rapid advances in generative AI and diffusion models, which enable text-to-image, text-to-speech, and text-to-video content synthesis, have rocked Hollywood and the entertainment industry, with *a recent survey of 300 executives reporting* that 75 percent indicated AI tools will support the elimination, reduction, or consolidation of jobs at their companies. That same report estimates that 204,000 entertainment jobs will be affected by AI within the next 3 years alone.

Anecdotes aside, research into the potential impact of LLMs on the workforce suggest wide-ranging applications and displacement, concentrated in some of the most common knowledge work careers in the U.S.

A *study by OpenAI and the University of Pennsylvania* investigating the labor market impacts of LLMs identified a number of occupations with significant exposure to AI-enabled automation of tasks, including: Financial Analysts, Writers and Authors, Web and Digital Interface Designers, Accountants and Auditors, Engi-

neers, Clinical Data Managers, Legal Secretaries, Administrative Assistants, to name a few.

Pew *estimates that 19 percent* of American workers are currently employed in jobs that are "the most exposed to AI, in which most activities may be either replaced or assisted by AI." Researchers noted that "jobs with a high level of exposure to AI tend to be in higher-paying fields where a college education and analytical skills can be a plus."

In the years ahead, industries that employ the majority of Americans will improve their AI implementations to increase productivity and efficiency. This will change the skills workers need in order to keep up, compete, and thrive. Workers will increasingly have help from AI assistants, powerful new tools, and back-end process automation that displaces routine tasks. Historically, automation doesn't happen gradually; since 1980, the vast majority of job loss in occupations hit by automation *took place immediately following recessions*. Given it has been 16 years since our last serious recession, we should anticipate acute impacts from AI on employment whenever we experience our next one.

AI Readiness is important beyond preparing students to succeed in a changing world of work—AI is already having a profound, if under-appreciated, impact on our kids' social lives in ways we might not have anticipated.

Character.ai is now *the third most popular AI tool*, with millions of people spending multiple hours per day interacting with AI chatbots. This trend is deeply concerning at a time when we are dealing with an epidemic of loneliness, isolation, and depression among students. And we are yet to see the impacts that new voice-enabled products will have amid *warnings* from companies like OpenAI that anthropomorphism of AI could "reduce [users] need for for human interaction—potentially benefiting lonely individuals but possibly affecting healthy relationships."

Natasha Singer at the New York Times has *reported* on the even more disturbing phenomenon of schools encountering instances of sexual abuse conducted via nudification apps, which enable teens to "pervert real, identifiable photos of their clothed female classmates, shown attending events like school proms, into graphic, convincing-looking images of the girls with exposed A.I.-generated breasts and genitalia."

Michelle Culver, the founder of The Rithim Project, a nonprofit working to advance human connection for young people, recently *outlined the table stakes*: "In 2021, 22 percent of high schoolers reported that they had considered suicide; 4 in 10 said they experienced persistent feelings of sadness or hopelessness... only 27 percent of American men have at least six close friends; 30 years ago, that figure was more than twice as high. Some 15 percent report having none at all. Across the board, the trend lines are going in the wrong direction."

Preventing students from eschewing human relationships in favor of AI chatbots that will never reject them or make them feel awkward is likely as difficult as banning social media or gaming, which is to say, impossible. Likewise, deepfake tools are often run by shell companies with servers in opaque jurisdictions overseas that are difficult or impossible to block. Educators are therefore a critical component of any strategy to build emotional resilience, social skills, and knowledge that students will need when navigating the increasingly complex digital world.

Given these rapid changes, AI Literacy will be critical to building resilience and awareness among students. We've seen the impact of social media on society, and we must learn from those experiences as we navigate the AI revolution.

Building Capacity for AI Readiness Centers on Teacher Training and Professional Development

What our organization has learned in over 5 years of working with students across the country is that there is no one-size-fits-all approach to scaling AI readiness. However, building increased system capacity is key for all schools.

We need to work state by state and, in some cases, district by district, to create models that scale, ensuring all students, teachers, and school systems have access to quality AI curriculum and are prepared for what's ahead.

In Ohio, for example, aiEDU has built a partnership with the Department of Education and Workforce, the Governor's office, and hundreds of schools across the state in collaboration with educational service centers. This approach has allowed us to raise system capacity across the state in a way that makes sense for Ohio's specific needs.

Given the stakes, it is also all the more critical that we work to build capacity in even the most hard-to-reach communities.

aiEDU has leveraged partnerships with community-based organizations that work across state lines, including Indigitize, which is partnering with our organization to build capacity with indigenous students, and the National Rural Education Association to reach students in rural settings.

At the center of our approach to build capacity, and reach all students is teacher training and professional development. It is clear from our efforts and from our quantitative and qualitative research that teachers and administrators want—and need—support and access to professional development on AI.

While large language models are still maturing and may not yet be suitable for scaled implementation at the district level, systems can start by focusing on building AI literacy. This lays critical foundational groundwork that is essential to any successful implementation of AI tools or the policies that enable their safe and responsible use.

Our own research underscores the urgency of this need. The current and future workforce implications are significant given that about *13 percent* of the American workforce works in public elementary and secondary school. In a survey of thousands of teachers, we found that an overwhelming majority—more than 72 percent—said they were only moderately comfortable with AI tools. For our Country to build the base of new skills we need and to prepare our students, teachers and administrators adequately for what is ahead, this number must change dramatically.

Focusing on Durable Skills

The goal of our education system must include an expanded focus on durable skills that will be critical to enabling people to augment AI tools that are certain to become increasingly commonplace in the workplace. These skills—critical thinking, communication, collaboration, computational thinking, resilience, adaptability, and digital citizenship—are best developed through live, engaging classroom activities facilitated by educators.

In order to cultivate AI Literacy and build AI Readiness that will serve a generation of workers defined by AI technology, we believe that a range of AI competencies must be widely understood and achieved in our education system.

First, students must know the basics of AI—knowing what AI is, how to use it, understanding how AI works along with its foundations in computing, and perhaps most important to be continuously curious about AI.

Second, when they know the basics, students must be able to think critically with AI—spotting and questioning bias, examining AI's use, and being continuously curious about AI's influence their lives, careers, and society. In practice, that will mean things like identifying why outputs from AI tools have discrepancies (e.g., values and bias in creating data sets), critiquing AI systems for embedded biases and propose ways to make them more inclusive and ethical, and critically assessing AI outputs, considering potential biases and limitations.

Thirdly, a critical component for students and the workforce in an era defined by new technology to know and truly understand your human advantage. We must ensure that students are innovative and persistent in their pursuit of solutions, are able to synthesize interdisciplinary and AI knowledge to solve problems in a holistic way, and to leverage their own ability to collaborate and self advocate when they navigate their careers.

There are opportunities to connect durable skills and AI Readiness together—and it's important to make these connections accessible and to motivate educators to work with them. A growing number of teachers in our research—54 percent—recognize AI literacy as an important or essential skill for their students future. But fewer do so than other important life skills for students such as social emotional skills (92 percent) critical thinking and problem solving (95 percent) career exploration (88 percent) and digital citizenship and media literacy (75 percent).

Recommendations

We urgently need coordinated and concerted efforts at the national, state, regional, and local levels to elevate conversation and action around skills and training for both teachers and students. While there isn't a clear policy or approach at the Federal level alone which could address this challenge, Congress can nonetheless

create the conditions by elevating the conversation and routing more funds and support for states and districts to make the necessary investments.

We support several key policy changes:

1. Establishment of Federal AI standards to provide common benchmarks for AI literacy and implementation in education.

2. Development of aligned data standards to enable centralized tracking of progress in AI education.

3. Increased investment and support for upskilling educators in AI technologies and pedagogies.

It's crucial to note that while educators are understandably concerned about the implications of AI on their jobs, we firmly believe that teachers are critical to helping students build the skills required to succeed in an AI-driven world. Teachers must never be displaced by automated tools. This stands in contrast to the rhetoric coming from some in the tech community who envision a world where our education system is centered on ubiquitous AI tutors.

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Senator HICKENLOOPER. Thank you, Mr. Kotran. Finally, we have Mr. Denzel Wilson. Mr. Wilson serves as the Grassroots Community Manager for Seed AI, where he leads efforts to facilitate community based AI literacy training through a coalition of corporate and higher education partners. Mr. Wilson.

STATEMENT OF DENZEL WILSON, GRASSROOTS PROGRAM MANAGER, SEED AI, WASHINGTON, DC

Mr. WILSON. Thank you, Chairman Hickenlooper, Ranking Member Braun, and Members of the Subcommittee. Thank you for inviting me to testify today. My name is Denzel Wilson, and I am the Grassroots Program Manager for Seed AI.

I am grateful for the opportunity to speak on this critically important topic of preparing the American workforce for AI. Seed AI is a nonpartisan, nonprofit organization working at the forefront of AI policy and governance.

We work with policymakers, scientists, academics, and the private sector to design policies, programs, and tools to ensure AI benefits all Americans. Today's topic is a personal one for me because I grew up in Kankakee, Illinois, a county right outside of Chicago, where opportunities were scarce, and career options were limited.

After graduating high school, I faced several obstacles, including being laid off during the COVID–19 pandemic. That led me on an unexpected path. This setback sparked a pivotal career change. So in the fall of 2020, I decided to pursue my interest in AI by joining the AI program at Houston Community College.

My efforts culminated in becoming the first graduate of HCC associate's in Applied AI degree, a first not just for the college but for the entire State of Texas. This experience paved the way for my current role in Seed AI, which I joined in 2023.

Our goal with grassroots work at Seed AI is to turn anxiety and intrigue and turn that intrigue into opportunity. This work has revealed key lessons that can help prepare the American workforce for AI.

First, students from community colleges, Historically Black Colleges and Universities, and other underrepresented demographics are hungry and capable of harnessing the power of AI as their advantage. And second, when presented with new perspectives and

opportunities, students from these demographics thrive in environments that require resourcefulness and creativity.

We do this in several ways, including running our Hack the Future Initiative to inspire and educate participants about the potential of AI. These events have collectively reached hundreds of students, providing them with hands on experience and valuable insights to the world of technology and innovation.

Seed AI also helped conceive and organize the largest ever generative AI red team at the Hack Convention DEFCON in 2023. This featured over 2,000 participants, including 220 students and entrepreneurs from Tulsa, HBCUs, and community colleges flown in by Seed AI and our partners.

This unprecedented event demonstrated that there is a pathway for people from all walks of life to participate in shaping AI. Seed AI has also implemented a robust micro grant program to fill gaps we saw in the AI skill landscape.

By the end of 2024, Seed AI will distribute over 90,000 micro grants across nine community colleges and universities, directly investing in the future of AI education, and ensuring that a diverse range of students can participate in and contribute to the AI revolution. Lowering the barriers to acquiring AI skills is just one piece of the puzzle.

Skills alone will only go so far. We need to invest in creating the infrastructure that all who wish to can access computational and data reader sources necessary to meaningfully engage and co-create with AI.

We believe community colleges are uniquely equipped to create opportunities for people that are capable of succeeding as scientists and engineers, but do not have access to pathways that lead into those careers. What the NSF calls the missing millions.

This is why Seed AI is proud to partner with the NSF funded National Applied Artificial Intelligence Consortium, an initiative launched by three community colleges, all of which were awarded micro grants from Seed AI in 2024.

Applied AI skills are the key to unlocking the benefits of fundamental AI advancements, as well as well-paying jobs and sustainable careers for all Americans. Seed AI is also proud to participate in the Tulsa hub for Equitable and Trustworthy Autonomy, which was recently awarded $51 million by the U.S. Economic Development Administration.

We view partnerships like the Tulsa Hub and the National Applied AI Consortium as critical last mile components of things like the National AI Research Resource. These partnerships address the critical need to ensure that the research from the NAIR can be co-developed and leveraged by communities across the country.

There is both incredible appetite and untapped potential in American workers and students nationwide to participate in and benefit from AI. Seed AI is eager to work with Members of this Subcommittee to help realize the vision of preparing the American workforce for AI and leverage the lessons we have learned from our grassroots work.

There are several key opportunities we think would help make this happen as fast and as equitably as possible that I would be happy to discuss today. Most importantly, we encourage the Subcommittee to leverage its power of attention.

Progress on this topic requires robust public-private partnerships and tapping all stakeholders in the Government, industry, and academia to make changes to facilitate greater participation in and access to AI opportunities.

We can transform the AI ecosystem to one that is more inclusive and participatory, more geographically diverse, and more beneficial for all Americans. Thank you to Chairman Hickenlooper, Ranking Member Braun, and Members of the Subcommittee. I look forward to answering your questions.

[The prepared statement of Mr. Wilson follows.]

PREPARED STATEMENT OF DENZEL WILSON

Chairman Hickenlooper and Ranking Member Braun.

Thank you for inviting me to testify today before the Subcommittee. My name is Dezel Wilson, and I am the Grassroots Program Manager for SeedAI. I am grateful for the opportunity to speak on this critically important topic of preparing the American workforce for AI.

SeedAI is a non-partisan, non-profit organization that works at the forefront of artificial intelligence policy and governance, collaborating with policymakers, scientists, academics, and the private sector to design policies, programs, and tools to ensure AI benefits all Americans.

Ensuring that AI benefits Americans does not just mean that Americans can access the latest technologies. It means giving Americans the tools to participate in the development of AI, to harness the potential of AI for their empowerment, to democratize access to the skills necessary to make AI work for them, and to expand economic opportunities for new students and existing members of the workforce alike.

This topic is a personal one for me. I grew up in Kankakee, IL, a county outside of Chicago, where opportunities were scarce and career options were limited. Outside of football, technology was my passion growing up. Over the years, I witnessed firsthand how the steady evolution of technology was transforming the world around me and how the rise of AI has created so many unanswered questions in our world today. I am grateful to be a part of what some call the "Fourth Industrial Revolution," working to tap into our human instinct for innovation to ensure we create the necessary infrastructure, partnerships, and policies so that AI serves the needs of the many, not just the few.

I'd like to highlight three things in my testimony today:

1. How my personal journey illustrates what is possible when we prioritize expanding access to the tools necessary to prepare students and workers for AI

2. SeedAI's grassroots work provide AI skills to students across the country

3. How SeedAI is working to ensure all Americans can benefit from AI

1. My Journey

I always harbored a deep passion for technology and sports. However, after graduating high school, I faced several obstacles that led me on an unexpected path. Eventually, I found myself in Houston, Texas, working in the oil and gas industry. When COVID–19 hit, I was laid off, but this setback sparked a pivotal career change. In the fall of 2020, I decided to pursue my interest in artificial intelligence by joining the AI program at Houston Community College (HCC).

While at HCC, I immersed myself in the field by joining the Computer Science Association to find community during the pandemic. My dedication was recognized when I received the Pepsico Uplift Scholarship and was named President of the Computer Science Association club. Driven by a desire to create opportunities for others, I worked with a group of hungry students and faculty to initiate the HCC AI & The Future Conference, which has since evolved into the Gulf Coast Con-

ference on Artificial Intelligence. My efforts culminated in becoming the first graduate of HCC's Associates in Applied AI Degree—a first not just for the college but for the entire state of Texas.

This achievement, winning the Intel Global AI Festival National competition, and presenting the project to Intel CEO Pat Gelsinger, paved the way for my current role at SeedAI, which I joined in 2023.

2. Grassroots Work with SeedAI

My grassroots work at SeedAI has revealed key lessons about how we should think about better preparing the American workforce for AI. First, students from community colleges, Historically Black Colleges and Universities (HBCUs), and other underrepresented demographics are hungry and capable of harnessing the power of AI to their advantage. Second, when presented with new perspectives and opportunities, students from these demographics thrive in environments that require resourcefulness and creativity.

Enabling greater participation in AI means more than just making the technology perform more effectively for diverse populations. It means ensuring that the trajectory of the technology bends toward the needs of the many, not the few, and that all Americans can have a hand in shaping the future of AI.

Hack the Future

Hack The Future (HTF), a flagship initiative of SeedAI has made significant strides in engaging students and technology enthusiasts across the Nation. To date, we have successfully hosted nine Hack The Future events, each designed to inspire and educate participants about the potential of AI and emerging technologies. These events have collectively reached over 250 students, providing them with hands-on experience and valuable insights into the world of technology and innovation.

Our impact extends beyond traditional educational settings. At DEFCON 31, the world's largest hacker convention, our HTF event engaged over 2,200 users, showcasing the broad appeal and relevance of our program. We've also organized specialized events such as Hack The Future: Greenwood, in collaboration with Black Tech Street and the White House Office of Science and Technology Policy, and Hack The Future @ SXSW 2024, where we facilitated the participation of 47 students from Houston Community College, the University of Houston, and Texas Southern University. Other notable events include Hack The Future Cleveland, which partnered with Case Western University and JOLTI Law Journal, and Hack The Future: Atlanta, collaborating with the Dream Machine. Looking ahead, we're excited to announce our tenth event, scheduled for October 11 in Houston, continuing our mission to democratize access to AI education and opportunities.

Public AI Red-Teaming

Red-teaming has been a key tool in security research for decades and typically requires specialized skillsets.[1] But this does not have to be the case with AI. With large language models, where the interface is typically plain language, the barriers to participating in red-teaming are dramatically lower. And when it comes to identifying shortcomings in model performance, the larger and more diverse cohort red-teaming a model, the better.

SeedAI saw this as an opportunity to pilot the idea that modern AI opens up opportunities for broad, diverse, and relatively unskilled folks. In early 2023, SeedAI began working with cybersecurity and AI experts at Humane Intelligence, the AI Village, the White House Office of Science and Technology Policy, the National Science Foundation, and the congressional AI Caucus to set our sights on an ambitious, large-scale public red-teaming event at the AI Village at DEF CON 31.[2]

As something like this had never been done before, SeedAI got to work to design what a public AI red team would actually look like in practice. SeedAI held the first pilot of a competitive AI red-team with Houston Community College students at South by Southwest in March 2023.[3] SeedAI then hosted a second pilot at Howard University in June to teach Howard students how to expose bias, potential harms,

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[1] *https://cset.georgetown.edu/article/what-does-ai-red-teaming-actually-mean/*.
[2] *https://www.hackthefuture.com/news/ai-village-at-def-con-announces-largest-ever-public-generative-ai-red-team*.
[3] *https://www.youtube.com/watch?v=nida-w1J9r4*.

and security vulnerabilities in generative AI models. [4] With DEF CON scheduled for just a few weeks away in August, SeedAI and our partners secured the participation of Anthropic, Cohere, Google, Hugging Face, NVIDIA, OpenAI, and Stability to provide model access to red-team participants.

With all of the major AI players involved, the AI red-team at DEF CON ended up being the largest ever generative AI red-team (public or private) by an order of magnitude with 2,244 participants. [5] SeedAI and community partners Black Tech Street and Houston Community College also brought 220 students and entrepreneurs from Tulsa, HBCUs, and community colleges to DEF CON to join in. Our goal was to ensure that the exercise would create a pathway for people from all walks of life to participate in shaping AI while demonstrating that including more diverse perspectives in red-teaming makes AI more resilient, reliable, and trustworthy for all Americans.

The lessons learned from the DEF CON AI red-team highlight that public red-teaming—while not replacing the need for robust internal testing and evaluation practice—is a valuable addition to the broader AI safety landscape and can shine greater light on harms related to demographics and lived experiences. [6]

While red-teaming is a natural entry point for greater participation in AI, policymakers, industry, academia, and civil society should seek to lower barriers to public participation in AI through as many domains as possible.

Microgrants for Direct Student Empowerment

As part of our mission to democratize access to artificial intelligence education and opportunities, SeedAI has implemented a robust microgrant pilot program to fill gaps we saw in the AI skills landscape. This initiative explicitly targets students and clubs at community colleges, HBCUs, and other minority-serving institutions across the United States. The program aims to provide crucial financial support to those who might otherwise lack access to resources in the rapidly evolving field of AI.

In a significant step toward realizing this goal, SeedAI forged formal partnerships with nine community colleges and universities. These partnerships create pathways for students to access a wealth of opportunities and resources in the AI domain. To date, SeedAI has distributed over $90,000 in microgrants across nine educational institutions, directly investing in the future of AI education and ensuring that a diverse range of students can participate in and contribute to the AI revolution.

The goal of these microgrants is to pilot a new model for lifting up students by lowering barriers to accessing AI skills. We are incredibly proud of this work, but we recognize that this is not a long term solution to addressing the needs of students across the country—to ensure we can reach as many people as effectively as possible, we are shifting our efforts to support national consortia. As we work with other groups and initiatives to scale our impact, we will continue to iterate on and prioritize the microgrants program and bring the lessons we learn to inform and work on the national stage.

3. Ensuring AI Benefits All Americans

SeedAI works to ensure that everyone across the geographic and economic spectrum—not just a select few—can influence and benefit from transformative AI technologies. We believe that this will lead to a fairer society, better AI policy, and a more robust and diverse workforce, enabling the United States to maintain its leadership position in driving technological innovation.

Expanding access to AI opportunities and preparing the American workforce for AI will be critical to America's AI competitiveness overall. Currently, the AI talent is concentrated in a handful of companies primarily located in Silicon Valley, and many talented researchers, workers, and entrepreneurs do not have access to the basic infrastructure and resources they need to develop and test their ideas and apply AI in their careers.

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[4] *https://www.hackthefuture.com/news/hack-the-future-at-howard-university*.
[5] *https://www.forbes.com/sites/thomasbrewster/2023/05/04/biden-white-house-backs-biggest-ai-hacking-event-with-google-and-chatgpt/*.
[6] *https://drive.google.com/file/d/1JqpbIP6DNomkb32umLoiEPombK2-0Rc-/view*.

Infrastructure

Lowering the barriers to acquiring AI skills is just one piece of this puzzle—skills alone will only go far. We need to invest in creating the infrastructure so that all who wish to can access the computational and data resources, testbeds, software, and tools necessary to meaningfully engage and co-create with AI. This infrastructure is what will enable us to move beyond just providing workers with access to AI to actually democratizing participation in shaping the technology.

To that end, SeedAI has strongly supported the creation and complete funding of the National AI Research Resource (NAIRR). The NAIRR pilot, launched in January 2024, is a proof-of-concept for the eventual full-scale NAIRR, which will create national infrastructure to connect U.S. researchers with the compute, data, and tools necessary to conduct valuable AI research. The NAIRR pilot is led by the National Science Foundation in partnership with 12 other Federal agencies and 26 non-governmental partners—an excellent example of the kind of public-private partnerships we desperately need to create the robust public infrastructure necessary for large-scale participation in AI.

Research from the NAIRR can be a powerful foundation of technology that can be applied and tested by people around the country. However the NAIRR itself is not yet fully funded. The bipartisan CREATE AI Act would formally authorize the creation of the NAIRR, which is a critical first step.[7] To be fully effective, The NAIRR Task Force estimated that the NAIRR will require $2.6 billion over a 6-year period.[8]

The National Applied Artificial Intelligence Consortium

In 2021, NSF Director Sethuraman Panchanathan laid out a vision for the future of science in the U.S. that tapped into the "missing millions"—people who are capable of succeeding as scientists and engineers but do not have access to pathways that lead into those careers.[9] We believe community colleges are the key to unlocking these pathways.

This is why SeedAI is proud to partner with the National Applied Artificial Intelligence Consortium (NAAIC), an initiative launched by Miami Dade College (MDC) in partnership with Houston Community College (HCC) and Maricopa County Community College District (MCCCD). The Consortium's mission is closely aligned with SeedAI's goals of ensuring broad participation in AI development and governance by building local AI hubs and engaging diverse communities. The founding schools all received microgrants from SeedAI in 2024.

The Consortium is a game-changer, not just for community colleges, but for the entire AI-driven economy. Applied AI skills are the key to unlocking the benefits of fundamental AI advancements, as well as well-paying jobs and sustainable careers for all Americans. We can have all the AI research in the world, but it doesn't make a difference if we don't have communities prepared to apply the technologies to the benefit of everyday Americans.

Tulsa Hub for Equitable & Trustworthy Autonomy

To that end, SeedAI is proud to support the Tulsa Hub for Equitable & Trustworthy Autonomy (THETA), which was recently awarded $51m by the U.S. Economic Development Administration (EDA).[10] SeedAI will work with Black Tech Street to provide strategic guidance and capacity building for the AI/AS Program for Innovation, Research, and Education (ASPIRE) initiative. This includes procuring high-performance computing resources and organizing underlying projects for community benefit.

We view partnerships like the Tulsa Hub and the NAAIC as critical "last-mile" components of the NAIRR. These partnerships address the critical need to ensure that research from the NAIRR can be co-developed and leveraged by communities across the country.

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[7] *https://www.Congress.gov/bill/118th-congress/senate-bill/2714.*

[8] *https://www.ai.gov/wp-content/uploads/2023/01/NAIRR-TF-Final-Report-2023.pdf.*

[9] https://www.aaas.org/news/nsf-director-lays-out-vision-future-us-science.

[10] *https://www.eda.gov/funding/programs/regional-technology-and-innovation-hubs/2023/Tulsa-Hub-for-Equitable-Trustworthy-Autonomy.*

Legislation to Increase Participation in AI

SeedAI also supports bipartisan legislation like the Expanding AI Voices Act, which aims to diversify AI research and workforce development.[11] This bill would support capacity-building in Minority Serving Institutions (MSIs), HBCUs, and Tribal Colleges. By expanding the National Science Foundation (NSF)'s ExpandAI program, the act ensures that the future of AI is inclusive and representative of all communities.

Another is the bipartisan Workforce for AI Trust Act, which aims to develop a multidisciplinary workforce that can advance the creation and deployment of safe, fair, and transparent artificial intelligence systems.[12] These proposals can leverage the lessons from work like ours for the broad benefit of Americans.

Conclusion

There is both incredible appetite and untapped potential in American workers and students across the country to participate in and benefit from AI. SeedAI is eager to work with Members of this Subcommittee to help realize the vision of preparing the American workforce for AI and leverage the lessons we've learned from working with students across the country. There are several key opportunities we think would help make this happen as fast and as equitably as possible.

First, we are eager to continue expanding our Hack the Future program to serve communities in your states and across the country. Please don't hesitate to reach out if that's of interest.

Second, we strongly support passage of the CREATE AI Act to authorize the NAIRR, and support its full funding of $2.6 billion a year for 6 years. We also support passage of the bipartisan Expanding AI Voices Act and the Workforce for AI Trust Act. The development and application of AI is an ecosystem, and we need to support each critical component.

Third, as one of the first graduates with an Associates Degree in Applied AI, I encourage Members of the Subcommittee to explore opportunities to eliminate counterproductive education requirements for entry level jobs related to AI. Skills are what matter, and creating programs to cultivate these skills in the American workforce only go so far when many jobs require 4-year degrees that prevent qualified workers from accessing these opportunities.

Fourth, most importantly, we encourage the Subcommittee to leverage its power of attention. Progress on this topic requires robust public private partnerships and tapping all stakeholders in the government, industry, and academia to make changes to facilitate greater participation in and access to AI opportunities.

By promoting these opportunities where they exist, incentivizing their creation, and providing them with the resources and infrastructure they need to be successful, we can transform the AI ecosystem to be one that is more inclusive and participatory, more geographically diverse, and more beneficial for all Americans.

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Senator HICKENLOOPER. Terrific. Thank you, Mr. Wilson. Let me start the questioning—am I missing anything? I always look to the Ranking Member because he really actually understands politics at much—at a deeper level than I do. When I am in trouble, he kicks me under the desk, or nudges, I should say.

Anyway, Mr. Kotran, aiEDU is launching AI literacy initiatives across the country including a recently launched partnership in Colorado. How do you work with local leaders and employers to help customize the training resources and ensure that they are responsive to local or regional training needs?

Mr. KOTRAN. Yes, thanks for the question. So our work is really different state to state. Colorado is an example of a state where we have actually found the opportunity to push forward a statewide initiative.

[11] https://www.Congress.gov/bill/118th-congress/house-bill/9403/text/ih.
[12] https://www.Congress.gov/bill/118th-congress/house-bill/9215/text.

In Colorado, we have worked with an organization called the Colorado Education Initiative, which actually aiEDU worked directly with school districts and spun out into an independent nonprofit. And we have essentially plugged in as a subject matter expert for CEI. CEI over the past year has convened hundreds of stakeholders across the education system, the workforce, and the political community.

This is really top down advocacy work to really create the demand and the awareness for not just the goalposts, which are how do we make sure that teachers are trained, and students are ready, but also creating awareness about what are the systemic components that have to be in place, which ultimately comes down to training and building capacity with teachers.

Senator HICKENLOOPER. Got it. Thank you. Mr. Wilson, as we undergo this new technological revolution, we want to make sure that workers aren't left behind.

How do you think the Federal Government can best position training resources to make sure that they reach traditionally underserved workers, including those in rural communities, those who might speak different languages, those completely outside the technology industry?

Mr. WILSON. Thank you for that question, Chairman. I look at it from the perspective of—I am looking at it from community college perspective. I think community colleges across the country are the most representative of communities and constituencies.

I think if we put focus on those 2 year programs and actually doing workforce related programs and putting funding toward those programs, it more so prepares students to be ready to work right after they get that 2 year degree instead of the traditional, you transfer from a 2-year and go to a 4-year and then try to get a career.

A lot of students at the community college level are actually equipped. And if there is just more funding put toward that, I think it would be very beneficial for students coming with a 2-year degree to get into the workforce.

Senator HICKENLOOPER. Great. Thank you. Mr. Meyer, as some employers have been experimenting with AI applications, we have seen that creating opportunities for workers to provide feedback is important.

What steps are you taking, or should others be taking, to collect feedback from workers about their experiences as they interact with these AI applications? And how would that feedback impact your efforts going forward?

Mr. MEYER. Thank you very much for the question, Senator Hickenlooper. First of all, employers, as they are doing, as most of them are doing right now, need to have their open door policies for their employees to come in and their workers to come in to tell them like, this is what my experience has been in this because we are going to—because employers then should take that feedback and use it to improve the employee experience.

Because just from a personal standpoint, as far as I see, the biggest value for AI is for people and organizations to focus on what is really important. Yes, WRI, what is really important.

Whatever your what is really important is or whatever organization you are at, using AI and having people who can use it will give them, give those individuals the time, the organizations, the time to focus on their WRI, what is really important.

You are never going to know what is really important unless you are speaking to your people.

Senator HICKENLOOPER. Great. Thank you. Dr. Kimbrough, we know that AI has the potential to impact workers across all industries, all levels of experience. What are some of the most in-demand technical and non-technical AI skills being sought out by employers?

Does LinkedIn's data mirror training participation for those skill sets or those workers across industries? Are they seeking out such training opportunities and are there perhaps some industries that are more engaged in training than others? I will say it nicely.

Dr. KIMBROUGH. Thank you, Chair Hickenlooper. I would say that in terms of the most in-demand skills that we see both for like technical talent and non-technical talent, starting with technical, it is very clearly things like generative AI, machine learning, generative neural networks, things like that are highly technical, and these are used by engineers who are forming and building these models and training them.

The non-technical AI skills for the average person who wants to build their literacy is more around use of tools in the workplace or at home. It could be things like Copilot or ChatGPT. So just basic applications. But if you go broadly and say, what is LinkedIn doing? I think that was another part of your question, is how do we think about what we see in our data.

There are industries that are adopting it more quickly than others. We do see industries such as retail, administrative and social—sorry, administrative services. And also I would say actually things—think about things like even in hotels, accommodation, restaurants, they are all starting to adopt generative AI tools.

Senator HICKENLOOPER. Interesting. All right, I am going to turn it over at my 5 minutes, but I will be back. We get to have second rounds, I suspect.

Senator Braun.

Senator BRAUN. Thank you, Mr. Chairman. Mr. Meyer, when I look at technology as it came on the scene decades ago, it scared certain generations. The ones that grew up with it seemed to embrace it, and it was like a second language or second nature.

When you compare that to AI currently, talk a little bit about the generational difference. In other words, kids that have grown up with technology, do they view AI as just a new horizon? And for the folks who didn't grow up with it, how do you explain this to them?

Mr. MEYER. You are right, it is—some of this stuff can be, in fact, really scary. I am just thinking about when my mom had to

use a computer for the first time when she was working in health care.

Because that is how I got my job in health care, just like a lot of people do. Their mother or father worked in health care and that is where you wound up. But I have to tell you, I think people are excited about this technology.

Something to think about, the most amazing thing about AI is that we look at it today and this is the worst it is ever going to be. It is only going to get better from here, and it is only going to get more advanced from here.

When we are looking at it now, in like three or 5 years down the road, it could be completely different, but you are right. We have been dealing with multigenerational workforces in HR for the last two decades, and this is certainly something that we are going to have to focus on to alleviate people's—alleviate people's anxiety when it comes to AI for those who may not be as tech savvy.

But also on the flip side of that, it is also a great reverse mentorship opportunity for organizations where you have younger generations in the workforce actually mentoring older generations of the workforce. It is actually pretty cool to think about stuff like that going on.

That is something where we at SHRM and my colleagues who are in the HR profession, we have been dealing with this for the last—like I said, definitely for the last two decades. And a lot of us are looking forward to the opportunity.

Senator BRAUN. Thank you. Mr. Wilson, would you want to weigh in on that as well, and with emphasis especially on the generation that is still trying to learn technology—has been thrown in their lap. They didn't grow up with it.

Mr. WILSON. Yes, a great question, Senator. From my perspective, I grew up in the generation with technology, obviously. So this isn't really a new phenomenon. We grew up watching many robotic movies and AI taking over the world, so it is kind of something we have been primed for.

Whereas my parents and my uncle's generation, they kind of were more uneasy about it. And I think that is where the AI anxiety portion that I talked about previously comes in because we know there is a lot of anxiety around what the possibilities AI are.

I think it is important that both parties, all age groups, all generations get a clear understanding and foundational knowledge of how AI can be beneficial, but also the risks. And I think just with the older generation, we have to push that message a little more just because it is something they are not used to.

But I do think that message needs to be consistent so we can get to the injury portion where people aren't so afraid of what AI can do.

Senator BRAUN. Thank you. Dr. Kimbrough, recently, we have seen some states, localities attempt to implement policy in the AI space. New York City enacted a law regulating employers use of automated employment decision tools in hiring and promotions, requiring employers to audit their HR Technology systems for bias and publish their results.

In California, the Governor signed an Executive Order directing state agencies to adopt a proactive approach to AI regulation, and to leverage the state's procurement power to promote so-called trustworthy AI principles.

Are we at the point where we know what trustworthy AI principles are? And based upon what you have seen early out of the gate, what do you think of actions like we have seen here in New York and California?

Dr. KIMBROUGH. Thank you, Ranking Member Braun. Well, I would say from my perspective as an economist at LinkedIn, I think we are all searching to commit ourselves to an area where we have the most responsible AI principles. At LinkedIn, this is exactly how we operate.

We seek, for example—what I can speak to, we seek to put our members first. So, where we can uphold trust, where we can promote fairness and inclusion, where we can be extremely transparent, those are the kinds of principles that we adhere to in our own work at LinkedIn, to put members first and kind of create this vision of inclusion.

I think it also empowers people when they understand how it is being used. They feel more empowered and there is more trust there. Thank you.

Senator BRAUN. Thank you. And Mr. Kotran, so much of this arena is a competition with other places that will find a way to use it more productively, or on the other side of the spectrum, maybe come at you with it from a less wholesome point of view. What do you worry about?

How do you see kind of the way we handle it vis-a-vis what other countries are doing, and you can see where they would want to probably be on the leading edge of it ideally to make their economies more productive.

Or do you fear that this will be something we are going to battle similar to what we do with the malfeasance that we have got in our own technological world where you have got folks out using it with ransomware and other ways where they would use it as a negative tool. Where do you see AI on that kind of a pivot point of good versus evil?

Mr. KOTRAN. Yes, I think I mean, you mentioned——

Senator BRAUN. I saved the best question, I think, for you, Okay.

[Laughter.]

Mr. KOTRAN. Thank you, Senator. Look, there is a lot of examples of bad ways that bad actors can use AI. I think, when I look at what other countries are doing relative to the U.S., I am concerned about the fact that we are really on the back foot in terms of being ready for the economic displacement that is going to come from these tools.

Like make no mistake, AI may not be coming for teachers jobs. It is coming for doctors, lawyers, designers, mathematicians, engineers, data scientists, paralegals, assistants, customer service managers, marketing managers, advertising managers. These are all careers that the University of Pennsylvania identified as being

nearly fully exposed to large language models over the next 5 years.

Again, this is not necessarily going to happen gradually and comfortably. It is going to happen all at once. If you are a company with $5 billion—$5 billion in revenues, your revenues are down—your profits are down $1 billion in the middle of a recession and your margin is 20 percent.

You can increase sales by $5 billion, or you can cut costs by a billion. Companies are going to cut costs. They are going to use these tools to make up the difference as they lay off workers. And what I am concerned about is the fact that in the U.S. we do not have a plan to make sure that we are talking not just to the current workers, because that is a huge issue, but also to students who are making big decisions about what career path do they go.

Which college career do I invest in? Should I spend $200,000 to go and get a law degree or a computer science degree? And you have the smartest experts in the field saying those jobs are going away. And at the same time, that conversation is happening in places like this in Silicon Valley. It is not happening in schools, and that is really concerning to me.

Senator BRAUN. Thank you.

Senator HICKENLOOPER. I think one of those vulnerable jobs might be that of a U.S. Senator. You never know.

Senator Kaine.

Senator KAINE. Thank you, Mr. Chairman. And thanks to the witnesses. So, if I am a 30 year old Virginian watching this, I would—wow, I should become AI literate. I should improve my employability and future career by gathering skills. But it is not just about getting skills. It is about getting skills that come with a credential.

Whereas if I moved to Virginia, to Vermont or to Vegas, I am bringing a skill, but I am also bringing a credential that an employer will recognize, Okay, yes, you have got the skill. Are there industry standard recognized credentials in the AI field that are portable like that where I could gain their credential and move somewhere else in the United States and an employer human resources professional to look at it and say, yes, that—Okay, we understand that. I see you shaking your head no, Mr. Kotran.

Mr. KOTRAN. I think the—thank you. Senator. There is often this reflexive reaction to say, well, yes, can we create an AI credential? What are the AI jobs of the future? And when you talk to folks, some people say, well prompt engineer is the job of the future.

To me that is as ludicrous as going back to 1998 and saying a Google search engineer is going to be a job of the future. We do not know what the jobs of the future are. If you are 30, the real question is, how are you going to build the soft skills, the critical thinking, the ability to work in teams collaborative——

Senator KAINE. You call those durable skills in your opening testimony. I like that better than soft skills.

Mr. KOTRAN. I think that is right. And I think that is actually a really big area that we need to focus on, is how do we actually codify what these skills would look like, especially in a world where

the workforce is going to change faster than these credentials and frankly our education system is going to be able to change.

This is a really big blind spot that we have. This is like a huge tanker ship we are trying to now navigate down River Rapids. And the best answer that I can come up with is the teachers, the professors, the schools, the folks who are really thinking about training our teams, they are on the front lines.

To me, it is really scary the fact that a company can depreciate an investment in an AI tool and get a tax—a favorable tax treatment for that. They can't depreciate an investment in employee upskilling.

Senator KAINE. Yes, yes. Dr. Kimbrough, you used the phrase, we should expand skills based training, in your testimony. So obviously we are moving from a world where it is about degrees, to degrees are great, but also skills credentials, as long as they are valid, are great. What did you mean when you said things we can do is to expand skills based training.

Dr. KIMBROUGH. Thank you, Senator Kaine. When I was talking about skills based hiring in particular, if I may use that term, I was thinking a lot about the data that we see at LinkedIn, which if we think about what are required skills for a job and push away the idea of like what credential do you have, even if it was a degree, a former title, prior experience, and you say, what skills are you able to perform?

What we find is that for any role on average, you can increase the pool of eligible candidates sometimes by as much as 20 times. And so, if I may, I would just say what I think can happen is ideally we would be promulgating more pathways for employers, for recruiters, for state, and local, and Federal Government roles to be skills based as opposed to, let's say, degree based or prior experience, because you pull in many more people.

I would just add one last point, which is that what we found in our own data is when you expand that talent pool by thinking about what people either can do or potentially can do as a skill, you actually include more underrepresented people.

For example, women are 20 percent—26 percent more represented when you look at a skills based pool than a non-skilled based pool.

Senator KAINE. We have a lot of work to do here in Federal policy. Senator Braun and I are working on this. We think Pell Grant should not be just limited to college degrees. Why not high quality career and technical education? And yet we have had a long bias against career and technical education.

It should be high quality, but why would we benefit college and not that? The military has tuition assistance programs for active duty. My son used to be a marine officer. He could approve somebody in his platoon for up to $4,500 bucks a year for a college class.

But if he had an ordinance specialist who was trained like in welding and all he needed was $300 bucks to take the American Welding Society certification exam, which is a credential that is completely portable, he would have to say, no, I can't give you $300 because it is not college.

Mr. Wilson, I will finish with you if I can real quick. Community college. I think this is a key part of this. And I mentioned a lot of the folks who gain these skills at a community college. They are there to gain the skill, not necessarily the associate degree.

Sometimes the best way to gain the skill is in a short term, high intensity class that isn't a 15 weeklong semester and hence is not eligible for Pell Grant. Am I right about that?

Mr. WILSON. I believe our program was available for Pell Grant, Senator. Now, what I will say is the workforce element at the community college level, I think is what really—we should really pay attention to.

It is a 2-year format where you are actually working on what you are going to be doing once you graduate instead of taking that first 2 year to do general education classes. You are actually doing the hands on work, and that is why the applied in the Applied degree comes into play because you have actually applied the skills to something.

Whether it is in your last class that you have to take or whether it is an internship you got to do over the summer, you have actually experienced that and you are more equipped to actually get into the workforce. And I think if we pay attention to these degree programs, there are a lot of community colleges around the country.

Houston Community College is a great example, Miami Dade College, Chandler Gilbert Community College. These are community college that took the initiative to start AI workforce programs at their school, and now some of them have been able to turn it into a bachelor's at the community college level, which many people didn't know was possible. So I think it is very beneficial.

I have seen the students coming out of these programs. I am one of them. A lot of them are very well equipped. A lot of them are very sound in what they know, and they are very hungry. They just need—many companies maybe change their hiring practice or human resource departments to take off the master's or bachelor's degree requirement because they know they are already capable with their 2 year degree that they got.

Senator KAINE. As I hand it back to the Chairman, we are looking at the same thing with Federal hiring. Do you have to have a college degree to get a lot of Federal jobs? And the answer is no. Do you have to have a college degree to be assigned by a Federal contractor to work on a contract with the Federal Government? If you have the skills to do the job, it shouldn't be restricted to those with college degrees when we are in a skills based world these days. Thank you. I will yield back.

Senator HICKENLOOPER. Yes, I couldn't agree more. We did, back when I was Governor of Colorado in 2017—I guess 2016 and 2017, we went back and looked at pretty much every job that we offer and basically downgraded almost half from saying you had to have a college degree, to saying what you really need to be successful in this job.

Oftentimes we would put the college degree in there because it was part of that emblem of achievement that made people feel that

the person was responsible and a good worker in some way, whereas that really was no reflection of the skills necessary for that job. And I think that is a good point, obviously.

Senator Budd.

Senator BUDD. Thank you, Chairman. I thank the Ranking Member as well. And I appreciate what each of you all bring to this conversation as we wrestle with this in the Senate and Congress in general.

I think this is an issue which I think in your term, Mr. Wilson, brings anxiety for many, and eagerness and anticipation for a lot of others. So I am on the optimistic side, but though I acknowledge the whole spectrum here.

I am a believer in the promise of innovation here in the U.S.. I think that the advancements in AI are going to change how jobs are done, some of you mentioned that, and not necessarily eliminate them in total.

Dr. Kimbrough, given LinkedIn's unique insights into employment trends, what kind of changes do you think AI is going to make to the types of jobs, not that are going to be eliminated, but the ones that are going to be in demand over the next 5 to 10 years?

Are there specific industries or sectors where you foresee job growth due to the advancements in AI?

Dr. KIMBROUGH. Thank you, Senator Budd, for that question. It is a really hard question, actually, and I am sympathetic to it, Mr. Kotran said——

Senator BUDD. We are betting on what you have to say.

[Laughter.]

Dr. KIMBROUGH [continuing]. Nobody—I recognize that. I am starting to sweat here. Yes, what I would say—well, one I would say is, it is really hard to know what the jobs of the future are. I will give you an example of why I say that. Every year, LinkedIn puts together a list of the fastest growing jobs that we see on our platform, and there are millions of jobs on that platform.

This year, two-thirds of the jobs on that list did not exist 20 years ago. So I am very humble as an economist that it is hard to forecast. But I want to answer your question, so what I would say is some of the things that I think are likely to be actually most in demand are some of what we are calling the durable skills or the human skills.

Oftentimes people ask me, what should my child be learning or studying? And I am like, abstract problem solving critical thinking, communication. Some of these skills are the most in-demand skills every year on our platform, communication, collaboration, leadership strategy. So these are the things that I don't expect AI to replace. Thank you.

Senator BUDD. Sure, sure. Maybe some of the community college skills. I was thinking of the heat generated through some of this computing, and that involves a lot of plumbing and processing and HVAC. So there is a lot of skills like that perhaps.

Dr. KIMBROUGH. We do actually—sorry to interject. We do see a lot of demand for electrical engineers, electricians, mechanical engineers, plumbers, truck drivers.

Senator BUDD. Yes, absolutely. In a landscape where AI is becoming more widely used in the workplace, it is more important than ever to be able to quickly reskill and upskill workers, as many of you are talked about.

That is why I introduced both the Pell Act and the Employer Directed Skills Act. The Pell Act would allow Pell Grants to be used for short term programs. I think like the welding program that you mentioned.

This would allow job seekers to enter the workforce faster and make their skills align with the current needs in an AI driven world. The Employer Directed Skills Act will give employers more resources to prepare job seekers for open jobs.

This is another way to make sure that we are leveraging workers to fill changing roles as AI changes the demands of the workforce. Dr. Kimbrough, can you share how you think that some of these legislation, not just these but maybe some others even, will help job seekers and employers prepare for jobs that are going to change as a result of AI?

Dr. KIMBROUGH. Yes. So from our data at LinkedIn, what we see is there is a huge scarcity of AI literacy talent or AI technical talent. There just isn't enough. There is much more demand than there is supply for this. And I don't think that we are going to replicate or close that gap very easily.

It is just really critical to have as many pathways as possible to create opportunities for America's workforce to reskill and upskill in a continuous fashion, not just a one off. I go to a community college, and I am done, or but really—and not to put down the idea of community college. Very supportive of it.

But really opportunities of small learning. And so one of the things that I would say is we very much support anything that extends the pathways, even if there is the short term programs where people can quickly get credentials to be ready to work in the workforce, to meet this—the scarcity, this huge demand for AI literacy that isn't being met.

Senator BUDD. Thank you very much. One comment—several comments I wanted to make. I know your parent company, Microsoft, recently announced a deal to restart—this is really outside of maybe some of your projections, but they restarted the Three Mile Island nuclear power plant in Pennsylvania.

The power plant would develop data centers which have a growing demand as AI develops and is used more widely. Just one query in ChatGPT is estimated to use 10 times as much energy as a simple Google search.

For the first time in decades, our power resource—our power requirements are going to increase. But I am very concerned. I mean, I see articles like in today's Wall Street Journal and it continues on about the need for more clean energy, or the steps to get to clean energy. So I am very concerned about the current Adminis-

tration and their positions in regards to clean energy. They don't support it.

Vice President Harris, she has been on the record supporting banning fracking. A lot of that out of Pennsylvania, which has allowed us to be a net exporter of energy. We need all forms of energy, including natural gas, which has 50 percent fewer carbon emissions than coal. Our biggest competitor, China, is going to be using.

We are not talking that they are going to be using clean coal technologies either. And you can bet that China will make sure that they have the energy that they need to surpass us in AI. So as we think to the future, in the near future, I hope that we keep that in mind regarding our energy needs here in America. Thank you.

Senator HICKENLOOPER. Thank you, Senator Budd.

Senator Markey.

Senator MARKEY. Thank you, Mr. Chairman. And thank you so much for having this very important hearing. We have heard extensive discussion today about the importance of educating and training the workforce for the increasing use of AI, but we must also prepare the workforce by protecting workers from the potential harmful and discriminatory impact of workplace AI tools.

Over the past decade, companies have increasingly integrated AI into their hiring. Their firing, and their worker management. And time and time again we have seen how the biased and discriminatory algorithms powered by AI are used to hire, to assess, and to set working conditions that can hurt workers.

Here are some of the examples. Algorithms that match candidates with job opportunities that refer more to men than women for open roles. Generative AI chat bots that systematically weed out resumes from Black men, from the LGBTQ community. And AI that surveils call center workers and grades their performance that are more likely to sanction Black women for the tone of their voice.

AI, the sinister side of AI, that is unacceptable. To each of the witnesses from left to right, yes or no, do you agree that algorithms used to hire and make employment decisions should be free from bias and discrimination? Dr. Kimbrel, all the way down.

Dr. KIMBROUGH. Yes, at LinkedIn, we are committed to upholding the principles of responsible AI—yes.

Mr. KOTRAN. Yes.

Mr. MEYER. Yes.

Mr. WILSON. Yes.

Senator MARKEY. That is why yesterday I introduced my AI Civil Rights Act of 2024, comprehensive legislation that would prevent discriminatory algorithms from being used in critical decisions, including employment, because we cannot prepare our workforce without protecting our workers simultaneously.

This technology is Dickensian. It is the best of technologies and the worst simultaneously. It can enable. It can ennoble. It can degrade. It can debase. It can do it all. And we want the best, but

we also build in safeguards to protect workers from being discriminated against.

I would also like to take this opportunity to seek unanimous consent to enter into the record a letter from the National Nurses United, if I may, Mr. Chairman.

Senator HICKENLOOPER. Without objection.

[The following information can be found on page 49 in Additional Material:]

Senator MARKEY. As the letter states, the development of clinical algorithms, "involves significant use of judgment by their creators and creates the opportunity for creative bias, from conflicts of interest, limited perspectives on the lives of racial minorities, or implicit racial bias to be introduced into the algorithm."

That is why my AI Civil Rights Act would require companies to test these algorithms for discriminatory impact before their use, preventing biased AI from being incorporated into resumes screening, job recommendations, worker performance, and even health care decisions.

Make no mistake, we can have an AI revolution, while also protecting the civil rights and liberties of everyday Americans. We can support innovation without supercharging bias and discrimination in our society. And we can prepare workers while safeguarding their rights. And I might also add, well, talking about the fact that a ChatGPT search consumes ten times more electricity than a Google search.

Yes, we are going to need more electricity in our society, but the industry is going to have to build in more efficiency into their AI technologies. They are promising to find the cure for cancer. Well, let's figure out how to make the industry more efficient. Can't be having a search consume 10 times as much energy as a Google search.

Do that work. Use AI, I guess, because you are promising to find the cure for cancer. How about finding a way to do all this much more efficiently? What are the algorithms you are using to do that?

In addition, it is very disheartening for Donald Trump to promise to repeal the IRA. To repeal the wind and solar and battery storage technology subsidies that are transforming our Country, which can make the use of electricity much more benign in terms of greenhouse gases.

He did say to the natural gas industry, if they give him $1 billion, he would repeal the IRA. Well, that is the way in which we can make AI compatible with the climate goals that we have simultaneously.

I just, I heard an earlier comment, and I'll just throw that in, that we just can't say it is going to be coal and natural gas because we know that we have a renewable revolution that is also happening, and we can't stop that. We can't slow it down. We have to make sure that we move forward. Thank you, Mr. Chairman, very much.

Senator HICKENLOOPER. Thank you.

Senator Casey.

Senator CASEY. I have nothing for today. We can go ahead.

Senator HICKENLOOPER. Senator Braun—he has to run. Do you have additional questions?

Senator BRAUN. Yes, I want to—since we didn't pass into another question, I want to go back to the original or the ending conversation we had.

Geopolitical competition to me is so important and we are at that kind of point in time where there is so many things at stake and we have got this new, and I think the point has been made, we are going to see what opportunities and challenges are created by it.

For anyone that would have a view on it, I would like to know what areas of commerce, industry, and then what countries have gotten out fastest using this. And has there been any malicious use of it to date or has it all been beneficial?

I mean, because we watch this, we hear about it. Do you keep track of it? Who has been out on the leading edge either in an economy, a country, or a sector of commerce or industry? We start over here, Dr. Kimbrough.

Dr. KIMBROUGH. Yes. So I really can only speak to the kind of data that we see on our platform at LinkedIn, so I am really speaking about talent trends here.

But in terms of building up capacity for skilling, I would give one example, which I think is a very interesting one, perhaps not scalable for the U.S., where in Singapore, for example, there has been—the Government has actually provided training funding for every single citizen of Singapore so they can upskill in AI.

I know that is a smaller country than the U.S., but that is one example. Another example I would just point to is we see very fast growth in AI literacy and technical skills in countries like India and Israel. And so, there are a range of places where the technical training is just growing much quicker than it is in the U.S.

Senator BRAUN. They are already ahead of us.

Dr. KIMBROUGH. Well, I would say the U.S. has the most—in terms of level, the U.S. is very competitive. We have a third of the AI technical workers in the U.S., that are here, and a third of the AI literacy skills are workers in the U.S.. So we have quite a bit, but the growth is faster in other countries.

Senator BRAUN. Mr. Kotran.

Mr. KOTRAN. I mean, really, the—I mean, this is a game between the U.S. and China. I think we are still—as far as I understand, we are still in the lead, although what we are seeing from China is interesting. One of the things that they just have an advantage over us is with respect to the actual regulation of the technology.

One of the things that they recently announced is a requirement for AI generated images to be tagged as such. And this is happening at a time when in the U.S., there has been rampant issues of students making use of notification apps, which are basically AI apps that can take an image of somebody and de-clothe them.

This is happening in high schools all over the country. And the companies are based in places like Belarus, so we don't have the ability to shut these companies down. And in the U.S. and in the

West in general we are hampered by the democratic system and the fact that we have to sort of iteratively build the regulations around as the technology evolves. There is advantages and disadvantages to that.

Senator BRAUN. Mr. Meyer.

Mr. MEYER. I don't have any intimate knowledge of your question. However, I do say at SHRM, one of the things we believe in is AI, artificial intelligence, plus HI, human intelligence, equals ROI, return on investment.

I think we are ahead, but I think other folks are catching up. And I think it is really important. But one of the things is that, and I just want to add this, is that when it comes to catching up or staying ahead, one of the great things about AI is the individuals have the ability through AI to exercise a lot more of their own ownership over their own professional development.

I think that is the really amazing thing about HI, is that you can really own your own development. And that is how organizations and individuals will be growing with this technology, so.

Senator BRAUN. Mr. Wilson.

Mr. WILSON. Yes, thank you for that question, Ranking Member Braun. I don't have any information in front of me today to really give you a solid answer, but I would like to follow with your office with some more information later.

Senator BRAUN. Thank you.

Senator HICKENLOOPER. If he leaves, then I have got you all to myself. This is every Senator's dream. I thought it would be interesting—and I won't keep you too long, I promise.

But I think that this notion of where do we get our standards, how do we codify, what is the appropriate way to do this, it ties back into that—a little bit of that disadvantage that we have compared to totalitarian countries where they could just decide that everything is going to be somehow watermarked or that transparency on what is and what is not AI.

Personally, I think that is one of the—should be one of our absolute imperatives with a greater sense of urgency. But I would love to hear each of you just talk about where do you think, how should we go about finding the standards, the guidelines for this?

Dr. Kimbrough, I was also going to ask you just because I am so out of touch. How big is—like, how many members do you—you were talking about your members. How many members do you have?

Dr. KIMBROUGH. Worldwide, LinkedIn has over a billion members.

Senator HICKENLOOPER. Oh my goodness.

Dr. KIMBROUGH. They are not all online at the same time. But yes, we have a billion members. In the U.S., it is just about 200 million.

Senator HICKENLOOPER. Gosh, talk about energy usage. Anyway, so what's your slant on this notion of how do we codify standards? Where do we get standards and how do we codify them?

Dr. KIMBROUGH. Chairman Hickenlooper, I am a macro econo-mist, so I am not going to—I don't want to wiggle out of the an-swer, but what I was——

Senator HICKENLOOPER. I am an out of work geologist and they expect me to have an opinion on these things.

[Laughter.]

Dr. KIMBROUGH. I am sure you are way smarter than I am. What I would say is I think that where we stand at LinkedIn is really thinking about how do we embrace accountability for what we do?

How do we ensure that we are transparent about what we do? How do we make sure we put our members first, which is para-mount for us. And starting with those kinds of principles, every-thing we build, every design choice we make is around ensuring that we are providing value to the member first and protecting them.

Senator HICKENLOOPER. Okay.

Mr. Kotran.

Mr. KOTRAN. Yes, I am also going to differ on talking about spe-cific policies. What I will say is, I think it is folly for us to ever imagine that we can regulate away the risks that AI poses.

I think there is like soft examples of like a worker making a deci-sion to use an AI tool to screen an applicant or even to like write interview questions, and it would be very hard for us to really think about what would even look like to have regulation that com-pletely blocks that.

Then there is also logistically things like a watermark, a digital watermark. I mean, it just may be impossible for us to truly block all the companies that are going to provide people with the ability to create AI images, because many of them will be overseas and out of jurisdiction.

But I will say that whatever the standards are, you have to have an informed and educated populace and we have to actually build social norms. And the same, the social norm, like nobody has their phones out on the table.

That is something that when you go to dinner, people don't sit and that you turn your phone over. I think there needs to be a norm where someone shows you a generated image of somebody and you almost respond like aghast, like oh my god, did you ask permission to create their image.

I think right now, we haven't really quite figured out what is the role of even just sort of these social norms or these soft standards, let alone the hard ones.

Senator HICKENLOOPER. Yes. Although those norms are depend-ent upon somehow some standards, some regulations in place. And you—we know we are not going to get to everybody who runs the stop sign, right, or slides through a yellow light, runs a red light, right. But we still have those regulations.

If we had watermarks, certainly we are not going to get every-body, but once you set the rules, you are going to get 98 percent, and you will at least have an avenue to go after the people that abuse the system.

Mr. KOTRAN. If I may, so I actually started my career in AI, working on ethics and governance. And we worked with NIST on how do you set standards for the use of AI in the legal system.

Senator HICKENLOOPER. Well just parrot back some of that stuff. Come on.

Mr. KOTRAN. Well, so what I would say is any conversation about AI ethics, and you are going to hear the same things. You are going to hear; algorithmic bias is something we need to deal with. You are going to hear about how do we make sure there is a human in the loop.

I have heard this rhetoric for now, six, seven, 8 years. And so none of this is new. I mean, we actually know, roughly speaking, what we need to aim toward. And others like very tactical, practical policy questions of do we create laws and enforcement mechanisms?

If not, then I think we have to answer the question of like, well what are the other incentives that we can create, whether it is for businesses or otherwise? But I just don't know that we can—I don't think business standards by themselves are sufficient.

Senator HICKENLOOPER. Right. Well, we will have—we can discuss that more fully later. Mr. Meyer, what is your stance on some of these—this notion of standards?

Mr. MEYER. I guess the standards that are going to be set essentially are going to come from you, Senator Hickenlooper, and others like you. But here is the thing, and this is the most important thing, there needs to be a balance between responsible use. And responsible use should be paramount.

These tools need to be developed, they need to be used without bias. And they need to be developed, and they need to be used without hallucinations. Those are the two big things. However, we also need to not have rules—that eliminates the use of this technology from employers and organizations like, say, my community health center.

For every dollar we spend on new technology, that is a dollar that we are taking away from patients, but we do understand, we have to have a balance in our finances. But in New York City layering on top and on top of the decision we make to spend the money on the technology, then to have to now spend the money on the auditing and all of this.

Essentially, New York City made the decision for us not to use that technology. That is what happened because it is just too darned expensive. And I think that there were over one million nonprofits in the entire country, a million, and many of these serve underserved communities.

The thing is, this technology can really help us serve people better. I would just think there needs to be a balance in whatever standards, rules, laws, regulations are developed that allow for organizations to use and develop technology while at the same time—while at the same time protecting people from bias and from hallucinations that come along with the technology.

I do not envy your job. That is going to be very, very difficult. We understand that. But that is where we fall. That is where——

Senator HICKENLOOPER. I won't complain. I mean, my grand-father told me when we were little, if you are lucky enough to sleep in the bed that you made, don't complain. So, I won't do that. But I do think it is interesting to get different viewpoints on where, should the standards come from.

Should it be NIST? Should it be some other maybe even more global entity that whereby forces people to come together and make some of the accommodations and assumptions that allow us to get to a place where, as you are saying, even as we are continuing to improve those standards, we have got pioneers out there experimenting and creating new innovations.

Mr. WILSON. But Senator, on the plus side, and I mean on the really good side is you have people like us that are willing to help you out with it.

Senator HICKENLOOPER. Exactly.

Mr. MEYER. We at SHRM, we are fully prepared to help you out with it.

Senator HICKENLOOPER. That is why I am asking.

Mr. MEYER. Yes.

Senator HICKENLOOPER. Mr. Wilson.

Mr. WILSON. Yes, sir. It is a great question, Chairman. Let me throw you a bone here. So, Seed AI strongly supports the NIST AI risk management framework, as well as other entities like the AI Safety Institute and the National AI Research Resource.

We believe that if these entities were funded and given the lee-way to actually build and test and develop the standards, that is the direction that we should go for.

Senator HICKENLOOPER. Youth. I have got lots of youth on the panel. And Mr. Wilson we didn't get a chance to get to it, but I thought your story in Houston of how you—the community college and how you kind of found a whole new avenue through—why don't you tell a little bit of your story? I don't want to embarrass you, but you put it in you statement, so.

Mr. WILSON. Yes, it is no problem, sir. Yes, so growing up, I was more so focused on like football. I am a huge football guy. I played football 20 years of my life. And I was always sort of ashamed of showing that I was intelligent.

I was the honors kid in high school, but I had to keep the, a certain image of, a captain of football team. So once I graduated, I kind of was able to get more so into what I actually was passionate about, which is technology and helping people.

When I got to Houston after moving around through four of the states, it was a new start for me. And I saw that it was an environment that allowed people to thrive. It was a healthy innovation environment.

There were a lot of hungry people. And I don't know if it was by luck, but when COVID hit and I was laid off and Houston Community College magically had just started an AI program, I think it was just a match made in heaven.

I took it and ran with it, and I wanted to galvanize other students around the same thing. So we built a pretty large community

out there around AI. We actually, me and some of the students started an AI conference at the school, and the school ended up picking it up, and they do that event every year now.

There is a lot of good things that came out of that program. We just kind of want to spread it across the country and kind of get everybody on the same page as far as what we need to do.

Senator HICKENLOOPER. That is something we can all promote— I love that story. Certainly the potential of AI to create that catharsis in people I think is tremendous. And however we work with teachers and teachers unions to make sure that we accelerate and amplify those opportunities is going to be powerful.

Whether—I mean College Board, I know that they look at a different types of AP tests now that might be skills based and might move in a different direction than what you traditionally think of as AP chemistry or AP biology. I think AI is going to allow for that.

We have had several hearings here on apprenticeships and how important it is to have a lifetime learning. I think almost all of you said something either in your statements or today where you referred to that sense that we got to—we are going to be learning new skills.

Everyone is going to be learning new skills for their whole lifetime, and how do we facilitate that? In other words, we need apprenticeships for people of all ages where you can go and work part time in a different role so that you can acquire new skills. And that is the, I own—my little secret.

I don't always blurt it out, but we got so excited about someday having a centralized place with all the skills and figuring out how do you—how do you have a set of standards about—if you have got this patch mark, what skills have you got? How can you demonstrate you are competent with those skills? But I own and I am donating. This is not a for profit thing, but I own *myshot.com*.

If you have ever heard the musical Hamilton where he says, I am not throwing away my shot, I am not throwing away. Well that is where *myshot.com* is going to take all the work that all of you are doing and have it in one place and allow that lifetime learning, that application of a lifetime learning to really, really grow.

Because I think that is the only way we are going to deal with this. This is going to be a transition over the next 20 years. Look at clean energy. All these things are happening at once and we are going to look back 50 years, 80 years from now, going to look back at this as the beginning of the great transition.

Anyway, you guys are all part of that. Thank you so much for coming and spending your time. I have got to read my closing statement, so I don't legally forget something. If anybody has final statement, something you think the U.S. Senate should absolutely know? I guess I have worn you out.

In that case, this will end today's hearing. I want to thank again all of our colleagues who were able to join us in-person, people watching online, and especially I want to thank our witnesses, Ms. Kimbrough, Mr. Kotran, Mr. Meyer, Mr. Wilson. Thank you for your participation. I know you are all just as busy as we are and

you took time out of your lives to be here for—well, for our Country.

Any Senators who wish to ask additional questions, questions for the record will be due in 10 business days, so on October 9th by 5.00 p.m.. The Committee now stands adjourned.

ADDITIONAL MATERIAL

THE AMERICAN FEDERATION OF LABOR AND CONGRESS OF INDUSTRIAL ORGANIZATIONS

Thank you Chairman Hickenlooper and Ranking Member Braun for the opportunity to provide a written statement for the record for your Subcommittee hearing "Reading the Room: Preparing Workers for AI." The American Federation of Labor and Congress of Industrial Organizations (AFL–CIO) is a voluntary, democratic federation of 60 affiliated unions representing more than 12.5 million workers in all sectors of our economy. Our core mission is to ensure that working people are treated fairly and with respect, that our hard work is rewarded with family supporting wages and benefits, and that our workplaces are safe. We also provide an independent voice in politics and legislation for working women and men and make their voices heard.

We appreciate the Subcommittee's attention to engaging labor unions and their members in the policy-making process to ensure that workers shape the future of work. Workers should be protected and positioned to thrive as artificial intelligence (AI) becomes more widespread in the workplace. The AFL–CIO looks forward to the HELP Committee building on this hearing to take a greater role in the work that is needed to legislate and advance critical policies on AI.

We know that AI systems will have a profound impact on American society, on the workplace and on the workforce. AI has the potential to enhance workplace safety and help workers do more meaningful work. It will also potentially bring great changes to the way many people perform their work. AI will affect job quality, including technical standards and best practices, wages and benefits, hiring and retention, worker rights, safety and well-being, and workforce development. Therefore, this topic should be of primary importance to the HELP Committee and its Subcommittees to ensure workers are engaged and protected from harm and share in the benefits of AI. As the Federal agency focused on workplaces and workers, the Department of Labor (DOL) should be heavily engaged in promoting and enforcing AI regulations and policies.

The AFL–CIO believes that the most beneficial way to prepare the workforce for AI is to advance a worker-centered approach that ensures workers are at the hub of AI design, development, implementation, and the formulation of AI policy that governs its deployment. A worker-centered AI agenda takes seriously the many ways AI already impacts workers and gives workers a say over how AI affects workplaces and jobs. It also ensures AI empowers and benefits workers, safeguards civil rights and democracy, promotes human-centric creativity, and guarantees workers access to the training, wraparound support, and career pathways they need to succeed. Central to this approach is promoting policies that prioritize and remove legal impediments for workers to organize, form unions and collectively bargain. Increasing worker power will positively affect how AI is designed, developed and implemented and it will ensure that policies related to worker concerns are addressed: for instance, identifying who is liable if the technology has negative outcomes or whether there is sufficient transparency and opportunity for workers to understand and opt out of data collection.

It is also crucial for policymakers to implement worker-centered, union-led workforce training so that workers have a direct say in shaping their future. They must have a voice in AI skills development, efforts to address job quality and security, safe and ethical AI implementation, and within meaningful partnerships with employers on sector-based AI skills strategies.

The AFL–CIO and the AFL–CIO Technology Institute have entered into an agreement with Microsoft where our affiliated unions and Microsoft can learn about the real-life, real-time implications of the deployment of AI. The partnership also includes a neutrality framework for worker organizing by AFL–CIO affiliate unions. In a recent summit, we were able to bring together high level decision-makers to have discussions about the ways that AI is affecting workers on the job and how technological innovation could be improved by consulting with workers in the process. Additionally, Microsoft is working with the American Federation of Teachers,

to leverage career and technical education work that can help prepare today's students for tomorrow's jobs. While we continue to work to ensure Microsoft and its subsidiaries treat workers with dignity and respect, we are excited about the possibilities of partnering with Microsoft to better understand how workers and corporations can collaborate to create better outcomes in the new technology development pipeline.

While AI, developed and implemented with workers at the table, may hold the potential to augment and enhance work, there are examples today of poorly conceived AI applications that not only harm workers but also the public at large. A role for worker voice and consent with regard to AI technologies is necessary to mitigate worker harms, ensure broad benefit, and safeguard against the use of AI that worsens already rampant inequality. For example, AI technologies could potentially increase workplace safety, but could also cause harm by putting workers under undue stress through work intensification and the override of human-derived decisions. Workers are on the frontlines of ensuring a safe, productive workplace and have the firsthand knowledge to inform how AI is best deployed. It is essential that worker input plays a significant role in the research and design, development, deployment and oversight of any AI system. Further, firms should partner with unions to leverage labor's expertise in developing workforce training programs, helping to recruit and retain workers, and using workers' frontline experience to improve the effectiveness and equity of technology deployment. Partnership with labor is also the best way to give workers a voice in how AI impacts their work and how the benefits of increased productivity are shared. We need a cohesive national approach to workforce development that centers labor-management partnerships and a national commitment to place-based economic development with labor at the table.

The AFL–CIO believes it is possible to be both pro-worker and pro-technology: because of this we believe the most ethical approach to the adoption and regulation of AI is through policy that requires the effects on workers be considered, and negative impacts, be mitigated on the front end. Nonetheless, without proactive policy guardrails, certain workers are likely to be hard hit by AI and Congress must act to protect them. A good example exists in the creative industries where the workers are experiencing unregulated AI, with some devastating effects, including the ingestion of copyrighted works without compensation or consent for training AI systems. This threatens the economic livelihoods of union creative professionals. These individuals will lose out on collectively bargained royalties, residuals, and contributions to their health care and retirement funds that come from the authorized sales and streaming of the creative works they helped make. Although many of these workers have taken matters into their own hands by striking for better protections and incorporating protections into collective bargaining agreements, these and many other examples across the private and public sector need the attention of Congress—and specifically this Committee—to ensure that workers are protected.

Hearings that consider the effects of AI on workers are a good first step to understand the guardrails we need but we must move beyond thinking that the way to address the issue is to simply prepare the workforce for the advent of AI. While this is of course an important part of the adoption of AI, workers have been building, and continue to build, skills to manage technology advances. To effectively manage AI, policies must also consider how best to create an environment that will protect workers from negative consequences like bias, unsafe workplaces, unfettered workplace surveillance and data collection, and the removal of worker privacy.

We welcome this hearing, and future engagement with the Committee, to make further progress toward addressing the potential harms, while capitalizing on the potential benefits, of AI. The expertise of the HELP Committee and DOL can be brought to bear on critical AI policy, design, development and implementation questions. We look forward to working with the Committee to advance our shared goal of developing robust AI policy that centers and benefits workers, their families, and the communities where they live and work.

NATIONAL RETAIL FEDERATION,
WASHINGTON, DC,
September 25, 2024.

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

Dear CHAIRMAN HICKENLOOPER, RANKING MEMBER BRAUN:

On behalf of the National Retail Federation (NRF), I write to thank you for calling today's hearing entitled, "Reading the Room: Preparing Workers for AI." I am pleased to share the views of the retail industry on this important matter. Retailers of all sizes legally and responsibly utilize automated systems to monitor, manage and evaluate their workers. NRF respectfully requests that this letter be made a part of the official record of today's hearing.

The National Retail Federation passionately advocates for the people, brands, policies and ideas that help retail succeed. From its headquarters in Washington, DC, NRF empowers the industry that powers the economy. Retail is the Nation's largest private-sector employer, contributing $5.3 trillion to annual GDP and supporting more than one in four U.S. jobs—55 million working Americans. For over a century, NRF has been a voice for every retailer and every retail job, educating, inspiring and communicating the powerful impact retail has on local communities and global economies.

Automated systems have become indispensable tools for the retail industry, offering benefits including enhanced workplace safety, productivity, compliance, and security. Retailers have found that such tools increase organizational efficiency, improve business operations, contribute to economic growth, and benefit the overall well-being of their employees.

Retailers' health and safety programs have also been enhanced by automated systems. For instance, sensors can monitor warehouse conditions, ensuring that equipment operates safely and temperatures remain at optimal levels. Wearable technology can reduce physical strain on employees by providing real-time feedback. In-cabin monitoring systems can alert truck drivers to fatigue or distractions, helping to prevent accidents and improve overall safety. Retailers have found that AI-powered safety platforms can significantly reduce the occurrence of accidents and unsafe driving incidents, potentially saving workers' lives.

Productivity monitoring systems can help manage remote workforces, allocate tasks effectively, and provide objective assessments of employee performance. These systems can also identify potential hazards, such as repetitive stress injuries, and help maintain appropriate staffing levels. By investing in automated systems, retailers can enhance employee efficiency and create a more productive work environment.

Automated monitoring systems can play a vital role in ensuring that workers are paid accurately for their time. By tracking work hours and minimizing "off-the-clock" work, these systems help employers comply with wage and hour regulations. This not only protects workers' rights but also reduces the risk of legal disputes and penalties.

Retailers' workplace security has been enhanced by automated systems. Video surveillance systems can deter theft, violence, and other security threats, protecting both employees and customers. Additionally, automated systems can help prevent unauthorized access to sensitive areas, reducing the risk of theft or loss. By implementing appropriate security measures, retailers can create a safer and more secure work environment for their employees.

In all these areas, retailers implement automated systems in compliance with existing laws and regulations. The current laws on the books are sufficient to ensure that automated systems protect employees.

Again, I thank you for calling this hearing and for your attention to this issue.

Sincerely,

DAVID FRENCH,
EXECUTIVE VICE PRESIDENT,
GOVERNMENT RELATIONS.

NATIONAL NURSES UNITED,
WASHINGTON, DC,
September 25, 2024.

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

Dear CHAIRMAN HICKENLOOPER, RANKING MEMBER BRAUN, AND MEMBERS OF THE COMMITTEE:

In light of the Committee's hearing today titled "Reading the Room: Preparing Workers for AI," I write to you on behalf of National Nurses United, the Nation's largest union and professional association of registered nurses (RNs). Our nearly 225,000 members primarily work in acute care hospitals, where they are already working with and experiencing the impacts of artificial intelligence (AI) and data-driven technologies at the hospital bedside. Given the lack of health care worker representation at the hearing, we wanted to share directly with you why it's essential that health care workers have the right to be consulted and engaged on all policies, procedures, and best practices surrounding the implementation of AI.

The health care industry has been implementing various forms of artificial intelligence and other data driven technologies for a number of years. The nursing workforce is therefore uniquely situated to provide feedback and analysis on the impacts that these technologies have had on workers and on patients. In the experience of nurses, the decisions to implement these technologies are often made without the knowledge of either nurses or patients and are putting patients and the nurses who care for them at risk. Technologies that have already been implemented include the clinical decision support systems embedded in electronic health records (EHRs), acute-care hospital-at-home and remote patient monitoring schemes, virtual acute-care nursing, automated worker surveillance and management (AWSM), staffing platforms that support gig nursing and understaff hospital units to unsafe levels, and increasingly, emerging technologies like generative AI systems.

Many of these technologies may be used to track the activities of health care workers and interfere in union activity. Automated monitoring technology feeds into algorithmic management systems that make unreasonable and inaccurate decisions about patient acuity, staffing, and care with the goal of lowering labor costs. As a result, nurses and other health care professionals are expected to work faster, accept more patients per nurse than is safe, and reduce nurses' use of independent professional skill and judgment, ultimately endangering patients. Studies show that when RNs are forced to care for too many patients at one time, patients are at higher risk of preventable medical errors, avoidable complications, falls and injuries, [1] pressure ulcers, [2] increased length of hospital stay, higher numbers of hospital readmissions, and death. [3]

Additionally, tracking nurse actions is designed to facilitate routinization—breaking the holistic process of nursing into discrete tasks—with the goal of replacing educated registered nurses exercising independent judgment with unlicensed or lower-licensed staff following algorithmic instructions to reduce labor costs. Registered nurses have extensive education and clinical experience that enables them to provide safe, therapeutic patient care. Even the simplest RN-patient interactions involve skilled assessment and evaluation of the patient's overall condition. Subtle changes in a patient's skin tone, respiratory rate, demeanor, and affect provide critical information about their health and well-being that can be easily overlooked or misinterpreted by those without an RN's education and clinical experience. Attempts to routinize and deskill registered nursing practice undermines safe patient care.

Employers generally assert that these powerful technologies are just updates of older technology that has long been in the workplace, such as treating computer-

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[1] Kim J, Lee E, Jung Y, Kwon H, Lee S. Patient-level and organizational-level factors influencing in-hospital falls. J Adv Nurs. 2022 Nov;78(11):3641–3651. doi: 10.1111/jan.15254. Epub 2022 Apr 20. PMID: 35441709; PMCID: PMC9790490.

[2] Kim J, Lee JY, Lee E. Risk factors for newly acquired pressure ulcer and the impact of nurse staffing on pressure ulcer incidence. J Nurs Manag. 2022 Jul;30(5):O1-O9. doi: 10.1111/jonm.12928. Epub 2020 Feb 25. PMID: 31811735; PMCID: PMC9545092.

[3] Increased LOS, Mortality and Readmission: Dierkes, A. M., Aiken, L. H., Sloane, D. M., Cimiotti, J. P., Riman, K. A., and McHugh, M. D. (2022). Hospital nurse staffing and sepsis protocol compliance and outcomes among patients with sepsis in the USA: a multistate cross-sectional analysis. BMJ Open, 12(3), e056802. *https://doi.org/10.1136/bmjopen-2021-056802.*

vision aided cameras the same as traditional security cameras, or EHRs as electronic versions of old paper medical records. However, these technologies are much more than modern iterations of well understood tools and are being introduced widely despite lack of robust research showing safety, reliability, effectiveness, and equity. Rather, AWSM technologies pull vast and diverse data from an entire ecosystem of monitoring equipment and process this information through opaque algorithms that then make clinical and employment decisions. **There is no current method for evaluating AI being used in nursing practice applications, and no requirement for external validation; it is clear to nurses that AI technologies are being designed to be a replacement for skilled clinicians as opposed to a tool that many clinicians would find helpful**.

The right for union workers to bargain over whether and how technology should be implemented in the workplace before it is selected or deployed must be protected. Workers have the right to understand how the decisions governing their working lives are made—including hiring—and patients have the right to understand how the decisions concerning their care are made, including insurance coverage determinations. Through our experiences working with and around these systems, it is clear to registered nurses that hospital employers have used these technologies in attempts to outsource, devalue, deskill, and automate our work. Doing so increases their profit margins at the expense of patient care and safety.

In our experience in the health care sector, labor-management partnerships do not serve the interests of patients or the workers who care for them, instead benefiting the employer. Proposals to utilize labor management partnership to self-regulate AI in the healthcare setting are insufficient and would be ineffective. They must not be used in place of comprehensive pre-market testing, approval and monitoring by a regulatory agency. **Congress must both ensure strong regulation of AI, while also strengthening the rights of workers to organize and bargain collectively**.

Nurses have grave concerns about the fundamental limits on the ability of algorithms to meet the needs of individual patients, especially when those patients are part of racial or ethnic groups that are less well represented in the data. Nurses know that clinical algorithms can interfere with safe, therapeutic health care that meets the needs of each individual patient. While clinical algorithms may purport to be an objective analysis of the scientific evidence, in fact their development involves significant use of judgment by their creators and creates the opportunity for creator bias—from conflicts of interest, limited perspective on the lives of racial minorities, or implicit racial bias—to be introduced into the algorithm.

In sum, we are deeply concerned about the use of AI in nursing practice in acute care hospitals. We appreciate the subcommittee's interest in examining the impacts of artificial intelligence (AI) and data-driven technologies on the U.S. workforce. As the Nation's largest union of registered nurses, we look forward to working with you on this important matter.

Sincerely,

AMIRAH SEQUEIRA,
NATIONAL GOVERNMENT RELATIONS DIRECTOR,
NATIONAL NURSES UNITED.

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QUESTIONS AND ANSWERS

RESPONSE BY DR. KARIN KIMBROUGH TO QUESTIONS OF SENATOR LUJÁN

SENATOR LUJÁN

Question 1. In your written testimony, you break down the labor impacts on AI and photography is given as an example of a profession that will be disrupted. How does your research team at LinkedIn foresee AI impacting the work of creatives (including visual artists, authors, photographers, filmmakers, screenwriters, musicians)?

Answer 1. All tech evolutions start with disruption, but in the aggregate the impact is likely to be net positive because for the vast majority of people, AI isn't replacing their job but transforming it, and their next job might even be a role that doesn't exist yet. Globally, when we look at our data, skills for the average job are projected to change by 50 percent by 2030 compared to 2016—and generative AI is expected to accelerate this change rate to nearly 70 percent.

While we don't discount the challenges disruptive technologies can create for workers, we do nonetheless expect to see job creation as a result of AI. History tells

us that new waves of technological innovation tend to create more jobs than they displace. Just as web developers, cybersecurity experts, social media managers, and content creators proliferated with the rise of the internet, new AI roles—across ethics, research, design and other fields—will emerge in the coming years.

With respect to the creative fields, it is, in fact, likely that jobs will be disrupted by AI. However, we don't see disruption as eliminating these jobs completely, but rather changing how jobs are done and the skills needed for these occupations. For example, authors may use AI to help them generate ideas, develop plot structures, and supplement background research for their work. Academic studies have shown that AI is useful in jumpstarting projects, but can struggle when generating truly novel ideas and struggle with tasks that are beyond the frontier of their training data.

Question 2. What can be done to ensure that creative industry workers whose work is disrupted by generative AI are not driven from their profession entirely?

Answer 2. At a high level, it is important for workers to understand both how their job will be impacted by AI (i.e. how the skills or technology they use will change) and what training is available to them to adapt and learn new skills that allow them to leverage AI and augment their work, rather than eliminating what they are doing. We also think that developers and deployers of AI tools should be thinking about this impact and incorporating worker voice in ways that not only improve the products and services being developed, but are also mindful of the impact they will have on workers.

Additionally, LinkedIn Learning offers a variety of courses to help creative professionals leverage AI in their jobs. From general courses like "*Integrating Generative AI into the Creative Process*" to courses aimed at specific creative professions, like "*Photoshop and Lightroom: Portrait Retouching in the Age of AI*" for photographers.

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RESPONSE BY MR. WILSON TO QUESTIONS OF SENATOR LUJÁN

SENATOR LUJÁN

Question 1. What impact does broadband access and affordability—and the current digital divide that exists in the U.S.—have on the efforts to accelerate AI preparedness for teachers, students and future workers?

Answer 1. Access to the internet is an essential requirement for any person—student, teacher, current and future workers, or otherwise—to meaningfully participate in an AI-driven economy. If a person cannot afford or otherwise access broadband, their ability to learn about and use AI, co-create with the technology, and seek new opportunities to gain and leverage AI skills will be severely limited.

Question 2. In your written testimony, you discuss the importance of building accessible and affordable AI infrastructure, including data, compute, models and training. In addition to these components of AI infrastructure, does Seed AI agree that high speed broadband access and affordability is a critical component that is necessary for enabling AI preparedness?

Answer 2. Yes, SeedAI agrees that affordable and accessible Internet access is a necessary part of a broader strategy to promote AI preparedness.

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[Whereupon, at 3:25 p.m., the hearing was adjourned.]

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