
Committee Meeting

of

SENATE HIGHER EDUCATION COMMITTEE and SENATE LABOR COMMITTEE

“The Committees will receive testimony from invited guests on the impact of artificial intelligence on the economy and the workforce”

LOCATION: Committee Room 4
State House Annex
Trenton, New Jersey

DATE: June 8, 2026
1:00 p.m.

MEMBERS OF COMMITTEES PRESENT:

Senator Joseph P. Cryan, Chair
Senator Andrew Zwicker, Vice Chair
Senator Paul D. Moriarty
Senator Carmen F. Amato, Jr.
Senator Robert W. Singer

Senator Gordon M. Johnson, Chair
Senator Andrew Zwicker, Vice Chair
Senator Paul D. Moriarty
Senator Douglas J. Steinhardt



ALSO PRESENT:

John Guadoso
Sarah Haimowitz
Nicole Siracusa
Estela M. Zampardi
*Office of Legislative Services
Committee Aides*

Juan Flores-Serrano
Tom Little
*Senate Majority
Committee Aides*

Matthew Martins
*Senate Republican
Committee Aide*

***Meeting Recorded and Transcribed by
The Office of Legislative Services, Public Information Office,
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Chair

Andrew Zwicker
Vice-Chair

Paul D. Moriarty
Carmen F. Amato, Jr.
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SENATE HIGHER EDUCATION COMMITTEE

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COMMITTEE NOTICE

TO: MEMBERS OF THE SENATE HIGHER EDUCATION COMMITTEE
FROM: SENATOR JOSEPH P. CRYAN, CHAIRMAN
SUBJECT: COMMITTEE MEETING - JUNE 8, 2026

The public may address comments and questions to Sarah Haimowitz, Estela M. Zampardi, Committee Aides, or make bill status and scheduling inquiries to Diana Polo Flemm, Secretary, at (609)847-3850 or e-mail: OLSAideSHI@njleg.org. Written and electronic comments, questions and testimony submitted to the committee by the public, as well as recordings and transcripts, if any, of oral testimony, are government records and will be available to the public upon request.

The Senate Higher Education Committee and the Senate Labor Committee will meet jointly on Monday, June 8, 2026 at 1:00 PM in Committee Room 4, 1st Floor, State House Annex, Trenton, New Jersey.

The committees will receive testimony from invited guests on the impact of artificial intelligence on the economy and the workforce.

Issued 6/4/26

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SENATE LABOR COMMITTEE

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COMMITTEE NOTICE

TO: MEMBERS OF THE SENATE LABOR COMMITTEE

FROM: SENATOR GORDON M. JOHNSON, CHAIRMAN

SUBJECT: COMMITTEE MEETING - JUNE 8, 2026

The public may address comments and questions to John Gaudio, Nicole Siracusa, Committee Aides, or make bill status and scheduling inquiries to Cassandra B. Kohlmayer, Secretary, at (609)847-3845 or e-mail: OLSAideSLA@njleg.org. Written and electronic comments, questions and testimony submitted to the committee by the public, as well as recordings and transcripts, if any, of oral testimony, are government records and will be available to the public upon request.

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SENATOR JOSEPH P. CRYAN (Chair): Hello, everybody.

All right, folks, let's go ahead and get started.

Senator, good to see you.

SENATOR GORDON M. JOHNSON (Chair): (laughter)

Yes, a bit.

SENATOR CRYAN: All right, thank you all.

Wow, this is a big room.

UNIDENTIFIED SPEAKER: (indiscernible)

SENATOR CRYAN: No, you're good here; you're in a different committee.

So, first off, thanks everybody for coming to this joint hearing of the Senate Labor Committee and the Senate Higher Ed. Committee.

We thank you all, and we particularly thank the guests that have chosen to join us today. We're appreciative of your time very much.

In a few moments, after the roll, Senator Johnson will have an opening comment. I will have a brief one as well. If anyone else wants one, just say so; no shyness here.

And, then, we will introduce our first panel, who we are *very* grateful is already seated.

SENATOR JOHNSON: All right.

SENATOR CRYAN: All right.

SENATOR JOHNSON: Yes.

SENATOR CRYAN: So, with that in mind, I am going to ask for a roll first, and then turn it over to Senator Johnson for his opening-- Chairman Johnson, I should say, for here, of the Senate Labor Committee.

So, can we do a roll first?

MS. ZAMPARDI (Aide): Yes.

For the Senate Higher Education Committee.

Senator Singer.

SENATOR SINGER: Here.

MS. ZAMPARDI: Present.

Senator Amato.

SENATOR AMATO: Present.

MS. ZAMPARDI: Is here.

Senator Moriarty.

SENATOR MORIARTY: Here.

MS. ZAMPARDI: Is present.

Senator Zwicker will be here shortly.

And, Senator Cryan.

SENATOR CRYAN: Here.

And, I also want to thank and acknowledge Senator Steinhardt's presence today. We're grateful.

SENATOR JOHNSON: Yes.

SENATOR CRYAN: Thank you, Doug; thank you.

MR. GAUDIOSO (Aide): For Senate Labor.

Senator Polistina. (no response)

Senator Steinhardt.

SENATOR STEINHARDT: Here.

MR. GAUDIOSO: Senator Moriarty.

SENATOR MORIARTY: Here.

MR. GAUDIOSO: Vice Chair Zwicker.

SENATOR ANDREW ZWICKER (Vice Chair): Here.

MR. GAUDIOSO: Is here.

And, Chairman Johnson.

SENATOR JOHNSON: Here.

MR. GAUDIOSO: You have a quorum.

SENATOR JOHNSON: OK, thank you, Senator.

SENATOR CRYAN: OK, let's turn it over to Senator Johnson for some opening comments.

SENATOR JOHNSON: Good afternoon, everyone.

Thank you for joining us for this joint hearing of the Senate Higher Education and Labor Committees to examine the impacts of artificial intelligence on our colleges and universities, our workforce, and our economy.

When I first joined the Legislature -- which was quite a while ago -- we were still trying to wrap our heads around how the rapid expansion of the internet would transform the way we learn, work, and navigate our daily lives. Now, in 2026, artificial intelligence represents the next frontier -- one that has already reshaped industries; our academic institutions; and the future of work.

With a shift of this magnitude, there are different significant opportunities and important challenges for us to consider at the intersection of higher ed. and our workforce. Artificial intelligence has a potential to drive productivity, creating new career pathways; personalized learning for new skills; and expand accessibility for workers.

So, as we-- Together, these combined committees come together-- And, thanks for DOL to be here -- Department of Labor -- we will try to get some answers out of this and see where we're going; see what our future is.

And, I'll turn it back over to my colleague and friend, Senator Joe Cryan.

SENATOR CRYAN: Thanks, Chairman; thanks for your opening comments.

Very briefly, you know, we've talked about labor disruption over the centuries that humans have had work. Whether it's in terminal mills; whether it's in anything as recent as the internet and what it was just 25 or 30 years ago to today; and the cause and concerns of disruption in the labor market, and what it means from a higher education standpoint from one particular point of view from labor in another.

Very much looking forward to the discussion today as we continually evolve into this. As higher ed. perspective, this is the first class of graduating students that has actually dealt with artificial intelligence -- with AI as first a model of saying, "Don't use it; it's prohibited; it's cheating," to a model now today which we will certainly be more informed of, of where we embrace it, learn critical thinking, and see which ways it can make us more efficient.

I'm particularly touched by the idea that it has become such a social concern to the idea that Pope Leo has even weighed in. So, you know something is pretty important when the Pope's writing encyclicals about it.

But, in particular, for a perspective here, it's not only the higher ed. and how we adjust and what programs are available or will be for the future. As you all talk about it on the first panel -- workforce; where we are; where we're going -- is what does business want? And, I think that's been the question of this cycle that has been a -- certainly, I think, a fluid one in terms of understanding what kind of students can we produce, what kind of

adjustments can we make, when we don't really know what that consumer -- the workforce -- truly wants. Looking forward to that perspective as well.

So, one of the things I think we all understand is that we're going to need to be flexible. This won't be the first hearing on this; it hasn't been, but I suspect it won't be the last, either. And, the adjustments that we make as part of government in order to allow us to thrive as a society and as a state here in New Jersey will be of particular concern.

So, with that, let me introduce our first panel.

Does any other member have a comment?

SENATOR SINGER: Yes, I do.

SENATOR JOHNSON: Yes; sure, Bob.

SENATOR SINGER: Thank you so much, Mr. Chairman.

And, thank God you're not chastising me, as in the last committee, for my thoughts. We're not allowed to have thoughts by some people here.

I just-- I read a very interesting article recently about this that I just want to share with the Committee and the panelists, because they may want to comment on it.

And, the issue talked about how we should grasp AI in a positive factor for one reason. There were some 33 million small businesses throughout the United States. And, many of these are a mom-and-pop, under 50 employee type of things. And, we found with computerization that, you know, here's -- here's the program; make it adjusted to your business, because this is the program we present to you. AI is going to say, in some ways, "How do we adjust this, what you want in a program?" Not so much, "Here's our stock; make it fit." It's "what do you need to fit, and how we do it?"

And, they said an interesting thing in the article -- which was very amazing to me -- is the people that made and had plenty of jobs were not the people that invented electricity. It's the people that went to the small manufacturer, the small store, and said, "Here's electricity; here's how you use it; and how we can make it work for you."

So, I think we have to look -- from the article I gained, and some thoughts on that from you -- how do we make AI work for us in a positive way? Especially for the small business person. And, looking at technology, and how do we have it adapt to what *we* need? Not-- For example, in government, we use Edmond's for everything in my M.U.A., and you probably use it also, Senator Cryan. We have to adapt to what Edmond's does; Edmond's doesn't adapt to what we necessarily need. Maybe there's a better way to look at it.

So, that's something I hope you would comment on your thoughts, and something I thought was a very positive aspect we also have to look at.

Thank you, Mr. Chairman.

SENATOR CRYAN: Thank you, and it's a great segue-- Did you want-- Are you good?

SENATOR JOHNSON: No.

SENATOR CRYAN: OK.

Great segue into our first panel.

I'm going to introduce all three. I'm going to ask the members is, let's hear all the panel comments, and then do Q&A, if that's cool with everybody? That's cool?

SENATOR JOHNSON: Yes.

SENATOR CRYAN: So, all right, first is-- Very delighted, very honored to have our Acting Department of Labor Commissioner -- I should say Department of Labor and Workforce Development, especially -- here.

Kevin Jarvis.

Kevin, thank you; thank you for being here.

Lesley Hirsch. Lesley is the Assistant Commissioner for Office of Research and Information.

Lesley, thank you for being here.

And, Dr. Yolanda Allen, the Assistant Commissioner for Workforce Development.

Thank you also for being here, Doctor, as well.

We appreciate it.

I'm going to turn the panel over to you three, and after your comments we'll open it up.

KEVIN JARVIS, J.D.: Great.

Good afternoon, Chairman Cryan and Chairman Johnson; Vice Chair Zwicker; and members of the Senate Higher Education and Labor Committees.

Thank you for having me here today.

As you noted, I am joined by the Department's Assistant Commissioner for Workforce Development, Dr. Yolanda Allen, and the Assistant Commissioner for our Office of Research and Information, Lesley Hirsch. I am also joined by our Deputy Commissioner Michael Marich, and various other members of our very talented team.

I have specifically asked Assistant Commissioners Allen and Hirsch to join me today, as they have been on the front lines of the issues

which I anticipate are on everyone's minds. What are we seeing in the workforce, and how do we prepare for it?

From a workforce perspective, AI presents both tremendous opportunities while also raising legitimate concerns for working families, employers, and policymakers like yourselves. Even national thought leaders are hesitant to make predictions around how AI will reshape our workforce just yet. Some of that is due to the speed with which AI is advancing; however, another part of that hesitancy comes from the fact that many employers are still exploring if and how to integrate AI into their processes. Additionally, different industries and different employers have different needs, meaning that we may be more likely to see the adoption of AI in some industries and not others. One size does not necessarily fit all.

But, what we do know is that for workers who may have already been affected by AI, this isn't a theoretical concern; it's real. The New Jersey Department of Labor is monitoring these developments aggressively, and our goal is not simply to respond to labor market changes, but to anticipate them to the best of our ability. This, of course, is difficult. None of us has the crystal ball we wish we had, and, historically, such efforts to predict a changing economic landscape have been problematic, to say the least. I believe many underestimated the effects of globalization on America's workforce and our nation's ability to retrain millions of Americans from manufacturing jobs to jobs in the information economy.

We see the shatters of those miscalculations today, as we work to rebuild our manufacturing base. It's also important to remember that we cannot be so focused on the needs solely of employers that we lose sight of the effect on workers. We must develop sound policies to prevent another

generation of workers from feeling left behind. With that in mind, we are preparing for potential workforce changes so workers can adapt and reskill, and businesses can remain competitive as technology continues to transform industries and our society as a whole.

So, I would like to give you an overview of what we're seeing on the ground; how we're responding; and what we need to do to ensure working people and businesses thrive in an AI-driven economy.

Before we can develop tools to address our workforce needs, we have to understand the scope of the potential changes. It's too soon to tell exactly how AI will reshape New Jersey's labor market. Again, part of that is because even the employers we meet with do not always know what they need with respect to a workforce trained in AI, or how they will use AI in their business operations. Here's what we do know: Nationally, about one in five businesses are using AI right now, with about another 20% planning to use AI within the next six months. Bigger companies are adopting AI faster, and industries like finance and tech are leading the way. New Jersey's economy is heavily concentrated in sectors where AI is taking hold fastest -- financial services; professional services; IT; and healthcare, to name a few. Our workforce skews towards management, business, science, and arts occupations -- the exact roles most discussed in AI impact studies.

Our Office of Research and Information analyzed unemployment insurance claims going back to 2022, when ChatGPT launched, through today. Occupations where AI is prevalent have grown as a share of workers filing for unemployment insurance. *But*, we can't simply attribute that increase to AI. These occupations are also hit hard when interest rates rise or the economy slows. Much of what we saw early on in

the study was likely post-pandemic correction; not AI displacement. What's harder to explain is why the trend continued after that correction passed. Is this proof AI is displacing workers? No. Is it a signal we need to watch closely? Absolutely. Transformative technologies like AI need to be studied closely to understand the potential impacts both positive and negative; real and imagined. This is the kind of early intelligence that helps us provide the right programs, training, and support for working families.

So, what is NJDOL doing now? We're acting now, and learning as we go. Our approach balances supporting employer innovation with protecting workers and ensuring oversight. We've designated an AI workforce coordinator within our Workforce Development Division to keep our finger on the pulse and keep us ahead of the curve. We're talking directly to employers. Our industry partnerships team engages with 2,000-3,000 businesses annually. We've held two major AI workforce forums, bringing together more than 300 employers, educators, and community partners. We're working with the NJ AI Hub to amplify their employer AI survey to about 11,000 employers across the state -- everyone from J&J to mom-and-pop shops -- asking how AI is changing their workforce needs, and what skills they're looking for.

We're building better displacement tracking. In mid-May, we updated our WARN notice to ask employers, "Are these layoffs due to AI?" We're working to get more detailed information from employers to report actual job titles when they file wage records. This will help us spot emerging and declining roles much faster. This kind of legislative support for enhanced data collection is exactly what we need to protect workers and respond quickly.

We're using AI ourselves responsibly. New Jersey has been a national leader on AI and State government. At the Department of Labor, we're using AI as a tool -- not as a replacement for human expertise. And, that's critical in this equation. AI must always be viewed as a tool to be used by workers; not a replacement for workers. The tail must never wag the dog. We've used it to assist with translations of our unemployment insurance and TDIFLI outreach materials into other languages. We built an AI drafting assistant to help our appeals examiners write decisions more efficiently. *Mycareer.nj.gov* uses AI to match jobseekers with careers in training, with over 1.6 million unique users since launching in March of 2024. When we use AI, we learn where it helps and where humans need to remain in charge. This human-centered approach better positions us to guide workers and employers.

We're also making AI literacy and upskilling a priority. The U.S. Department of Labor recently released an AI literacy framework that encourages states to expand AI education and training across the public workforce system. But, AI literacy isn't one size fits all. As lower-demand routine duties get automated, we're focused on helping workers move into higher-level roles that require judgment, creativity, and problem solving -- skills AI cannot replicate. Our strategy embeds AI literacy into the actual work people do. This may be the key to unlocking the full potential of AI while preparing workers for the next generation of job skills they will need. Waiting until a person is in the workforce looking for a job to train them in AI is too late. Rather, we may need to look at a multi-pronged educational approach to embed AI basic literacy and understanding in our K-12 school curricula; higher education, including county colleges, vocational schools,

four-year universities, and our training programs. I've already met with the Commissioner of Education and the Secretary of Higher Education to begin these discussions.

In addition to what the higher ed. sector is doing on the ground -- what I'm sure they will share with you today -- you should know that OSHE, in partnership with the NJ AI Hub -- excuse me -- conducted a survey evaluating how AI is reshaping academia, with a focus on AI literacy, faculty readiness, and workforce alignment. And, they will be highlighting that later this month. That being said, specific to workforce training, we're partnering with the Board of Public Utilities on their broadband program to boost digital skills and AI literacy training. We started to incorporate AI literacy language into our notice of grant opportunities to support AI skills development for participants in our training programs.

We partnered with the New Jersey Consortium of County Colleges for the state's first registered data scientist AI apprenticeship, launched earlier this year. Our industry partnerships team is working with the Department of Education on AI career pathway programs. We are also exploring how we embed AI basic literacy and tools into existing investments and programs. We're making sure that every eligible training provider in our system has support to weave AI into their curricula, so workers can leverage AI, not be replaced by it. Overall, we are looking to make additional investments in areas within our scope, and we are actively having those conversations now, with OSHE; DHS; DOE; and many others.

We're not just reacting to what's happening today; we're also building the infrastructure to stay ahead. One of the biggest challenges is the speed. As you know, AI is moving fast, but training programs take time to

design and approve, and labor market data can lag months at times. We need to be agile, flexible, and responsive. Internally, we're launching a monthly AI and workforce meeting so our teams can share intelligence across divisions. We're also exploring a biannual summit with our sister agencies and authorities to coordinate across State government.

New Jersey is one of three states participating in Industries of Ideas -- this is a National Science Foundation-funded project that detects emerging AI skill requirements before they show up in traditional labor market data, kind of like an early warning system. We're developing research on how AI is affecting different occupations, populations, and regions of the state. And, we're upgrading our labor market information systems to match training supply with employer demand in real time. This work is about ensuring working people are not left behind and employers have the tools and pipeline of talented workers that they need.

In closing, we're learning as we go, and we're acting on what we learn. New Jersey's labor market fundamentals remain strong. Employment levels are stable; unemployment insurance claims are steady. Our goal is to balance innovation with protection; opportunity with oversight; and economic growth with workforce stability. Our job is to ensure that every New Jersey worker and business has the skills, support, and opportunity they need to succeed -- AI or not -- and we'll keep doing just that.

So, with that, I thank you, and we're happy to answer any questions the Committee may have.

SENATOR CRYAN: All right.

SENATOR JOHNSON: OK.

SENATOR MORIARTY: Thank you, Acting Commissioner, and all of you for being here today.

I just have one question. Often, when we have these disruptive technologies or changes, new jobs emerge. You know, I'm thinking like, coal miners become -- make solar panels.

What's the next job-- What are the next jobs from AI?

LESLIE HIRSCH: Good afternoon.

So, I think, at the moment, what Commissioner -- Acting Commissioner -- Jarvis mentioned is that we are trying to have a windshield out into the future and understand -- rather than looking at past trends, try to understand and predict what future trends are.

At the moment our-- The most promising tools that we have under development and that we already use are something called real-time labor market information, where we track emerging occupations and emerging skills. And, I'd love to tell you a little bit more about that if we go into more depth about our full array of research approaches to keep an eye on the labor market.

SENATOR MORIARTY: So, I didn't hear. Is there a new job that you've identified that--

MS. HIRSCH: Not yet--

SENATOR MORIARTY: --would emerge?

MS. HIRSCH: I think I heard in the-- I've heard journalistic accounts of prompt engineers. Quite honestly, I think AI can probably do the prompt engineering for us. So, I think it's a little bit too early to tell.

As Acting Commissioner Jarvis mentioned, right now only about 15-20% of all businesses are even incorporating AI, and what they're

incorporating, largely, is large language models in the form of ChatGPT or Gemini or Claude, for that matter. And, in terms of the other forms of AI, embodied AI; scientific AI; protein folding, and so forth; that is still very, very new. So, we don't have the names of those new occupations.

SENATOR MORIARTY: I think that's one of the fears of a lot of people, is that they can identify the job titles that may be eliminated, but we haven't yet been able to see into the future as to what job titles might be created.

MS. HIRSCH: Yes--

SENATOR MORIARTY: And, that's certainly a concern of mine--

MS. HIRSCH: Absolutely--

SENATOR MORIARTY: --and, many other people.

Thank you.

MS. HIRSCH: Sure.

I think-- If you would allow, I think, let me just give you a quick overview of this three-pronged approach that we have to keeping an eye on the labor market.

Right now, economists have been working on this for the past five years or so, and really sped up their work on reviewing exposure to AI as the sort of -- the term of art that economists use: exposure, and complementarity. So, exposure, meaning how many of the tasks that you do can be done by AI? But, that doesn't really speak to the question of whether those tasks will be taken over -- substituted by AI -- or whether it will be a complementarity. So, there's another strain of research on the

complementarity, so to what extent are you going to be able to use AI, and adapt to using AI to do your job differently?

So, that is our first stab at this analysis, is-- We've done an analysis already of our occupational employment, looking at what are the ones that economists think -- again, best guess -- think will be exposed or possibly augmented by AI. We're using that as a -- in order to train our, let's say our binoculars or our microscope, on certain occupations. And, watching those occupations, as Acting Commissioner Jarvis mentioned, on UI claims; on WARN notices; and on the new separations data. And, that's information that we can give to OSHE; to DOE; to New Jersey Council of County Colleges; in order to let them know what is -- where are areas that are a little bit more sensitive to or reacting to the advent of AI.

And, then, our third piece is more forward looking, and that's the piece I really think will answer your question. And, that is this Industries of Ideas project that we have through the National Science Foundation, where we're able to -- we will be able to tool up and look at what are emerging skills and emerging occupations. So, we're working with the University of Michigan, NYU, and this NSF consortium, and we are one of three states that's involved in developing these tools, which, clearly will have an impact on our ability to see what's actually coming out. They're still in development.

The last piece, I just wanted to add, is the *mycareer.nj*, which actually uses machine learning and other forms of causal modeling to inform people about, based on their skills and education, what are the jobs that they are most likely to be able to pivot to based on data that we have, that we have a richness of data at the New Jersey Department of Labor. So, we're able to

provide recommendations for trainings, for jobs available now, and for career transitions in case people need to pivot.

So, that's already live, and that's been live for two years.

YOLANDA H. ALLEN, D.P.A.: And, so, I'll just add that, from an industry partnership in workforce development -- to sort of go a little further in terms of what Assistant Commissioner Hirsch was saying -- in workforce development, we are, through our industry partnership unit, we are meeting with businesses regularly to better understand what the skills are needed in order to train our workforce, to ensure that, you know, with the advent of AI technology, that we are reskilling and upskilling and putting out funding to ensure that employers have the resources that they need in case they need to upskill their existing employees -- their existing employees -- to prevent any type of disruption.

In addition to that, we are putting out grants, digital literacy grants, to ensure that individuals that are in our One-Stop, that they are also trained on basic foundational AI.

So, we're concerned not just those who -- with not just those who are employed, but those who are not employed, in ensuring that they, too, have access to digital learning, upskilling, and foundational AI.

SENATOR STEINHARDT: Chairman, thank you very much.

Just first, briefly, I'd like to introduce Grace (indiscernible). She's interning at my Senate office this summer. She was-- I'm happy to have her with me today.

I have a couple questions. Three, actually.

So, Commissioner Jarvis, first, thank you for your testimony; appreciate it very much.

Assistant Commissioner Hirsch, thank you for your explanations. I think I'm going to touch on some of those, but maybe dig a little bit deeper.

And, Dr. Allen, thank you for your follow-up.

Commissioner, you talked first about -- in your comments -- about oversight. A lot of the workforce reports that I've seen or read focus on jobs eliminated. But, AI often changes tasks as much as it eliminates entire occupations. How is DOL, or your partners, (indiscernible), or your partners, measuring task level displacement and augmentation? And, what metrics should a joint committee like this be watching that we're currently either missing or might not be aware of?

MS. HIRSCH: I have a little bit on this; I wish I had more for you. But, I think we actually-- Nobody really has more on this.

There were three ways of looking at AI exposure: One of them is this sort of exposure index, which looks at the number of tasks that actually can be done or substituted by AI; but, as I mentioned, that index is somewhat agnostic as to whether AI will substitute or AI will augment.

There's another way that we were looking at this, and it's another-- We're happy to share some of the wonky names of these indices. They're nerdy names, but there's a second one that looks at complementarity. And, that complementarity really does break down occupations or jobs to a task level. And, that one we are looking at as well, to see whether-- There are some that are particularly highly educated and high-wage jobs that appear to be -- to have very high exposure to AI, like financial analysts, for example. However, they also have high complementarity, because financial analysts,

most likely, are going to be able to adapt and change their process in order to use AI as a tool. So, we need to look at both at the same time.

And, there's a third one that does also break down in terms of tasks. So, we're looking at that. But, I think the non-wonky answer to that is this other focus that we have that -- I'm actually attending a conference tomorrow in Washington about -- we need to look at skills; we need to be letting people know what skills. Or, if you want, to your term, "task abilities" or "tasks" that are raising up in demand and declining in demand. And, I think this conversation among State leaders tomorrow and among philanthropies from around the country, and some of the private sector vendors who are in this space, are actually talking about, what is the proper role of the Federal government and the State governments to actually get a handle on what those task abilities are, and how do we build something that is not just something New Jersey does, or Ohio does, or Arkansas does, but something that we have an infrastructure nationally that we can do across the country.

So, it's--

SENATOR STEINHARDT: I appreciate that.

MS. HIRSCH: Sure.

SENATOR STEINHARDT: Through the Chairs, if I could, I am happy to read any wonky stuff that you want to provide.

So, I'll take it. I am fascinated by the advances of technology, of course, but our moral and I think societal responsibility to make sure that we're doing enough to protect workforces as well.

My second question: You were talking about the balance between employers and employees. As employers increasingly deploy AI for

hiring; for scheduling; for performance management; even termination decisions, where do you see the line being drawn between automation and, say, mandatory human oversight? Have you given that any thought, are you reading anything, has the Commission -- the agency -- actually thought about how it might address such issues?

MR. JARVIS: Yes, thank you for the question, Senator.

And, it shows great foresight on your part. Because, at this point, the data -- we're unclear of exactly how it's going to affect. But, at the end of the day, I think we're all on the same page in that we want to help our employers while protecting our workforce, right.

The guidance from USDOL, all the papers I've read, to the extent I've read any of the wonky stuff that Assistant Commissioner Hirsch has -- and, I do my best to keep up -- all talk about the need to maintain that human-centered approach; that those decisions, at the end of the day, need to continue to be made by humans. AI is, at its core, a tool for humans to use to try to improve things. It is not a replacement for human thought.

I don't know that there's a black and white, bright line answer to your question, right. I think it's a conversation that we have to continue to have as AI develops, because we want to make sure that, certainly, decisions about hiring and firing and discipline-- And, look, the background I come from, that's what I did for a living, right. And, so, I don't ever want the fate of a worker to be left in the hands of an artificial intelligence machine. Because, what it doesn't have is human empathy and human understanding. And, so, there is a recognition in the literature that I have read that we have to maintain that kind of ethical, human-centered thought process and control over AI when it comes to that.

But, again, I think that's-- That's going to be a subject for continuing conversations. And, we are thinking about that.

SENATOR STEINHARDT: Commissioner, thank you.

And, I want to thank the Chairmen for having the foresight to pull this Joint Committee together.

And, I have nothing but respect for both of you. I will implore both of you to stay ahead of that topic so that we're always ahead of -- to the extent we can be -- the technology and protecting our workers.

And, I'm going to avoid the dirty word "incentivize," and instead opt for "expect." Last question, keeping with that same last -- that same theme. Should employers who achieve significant productivity gains through AI -- so, obviously increased their output -- be expected -- and, as I said, I want to avoid incentivized -- so, expected to invest some of those gains into workforce training or upskilling programs? And, how would you advise the Joint Committee, or have you given thought yourselves, to what we can do in terms of trying to ensure that, as those entities increase their profits, those profits are being invested in a workforce? So, again, we're able to look out for the state's workforce going forward.

MR. JARVIS: So, I think that's almost a broader economic question; not necessarily specific to AI. I mean, I come from the school of thought that believes any kind of improvement should be kind of reinvested--

SENATOR STEINHARDT: Well, not to interrupt you-- I agree with you, but it's -- historical context for me is like the Industrial Revolution, right--

MR. JARVIS: Yes--

SENATOR STEINHARDT: -- as being a student of history; industry; and then the computer age, we start to eliminate positions.

So, I'm just, again, trying to think outside the box or broader in the context of the age of the robber barons, you know -- and, we've certainly seen our share in the 21st century, too. But, making sure that those profits are being spent in a productive way so that we're not putting an entire workforce out of business, Commissioner.

MR. JARVIS: Yes, no, look, I agree with you.

From an economic standpoint, when those-- If those improvements are going to lead to savings for businesses, I am always a fan of those kinds of profits being reinvested into the workforce system to help workers; to help retool and upskill existing workers; and also help us train people for the new emerging industries -- to Senator Moriarty's question -- for jobs that we don't even know what they are yet.

And, so, I'm all for that, and I think that that's going to be part of -- going forward -- a broader discussion I'd love to have with you, because I think we are all in agreement that that's the positive way to use AI to continue to help our workforce.

SENATOR STEINHARDT: Chairman, thank you very much.

SENATOR ZWICKER: Thank you; thank you all for being here.

I had a serious question. I actually wanted to go back to Senator Steinhardt's last point -- because I think it's a really important one -- and just point out-- And, I make the connection really, now, but, earlier in this room, we had the Senate Economic Growth Committee meeting, talking about employee stock ownership. Basically, the ability for employees to own a piece of the companies they work in, which gets to a natural expectation -- as

opposed to an incentive -- along with higher productivity; job satisfaction; innovation; et cetera.

So, I think there were a bunch of possible ways that we can be looking at how to, holistically, make as many -- make it as possible here so that as many people get reskilled -- not laid off, but within their current employment. There's also possibilities of just -- I think what you were trying to avoid, the tax credits to try to--

SENATOR STEINHARDT: One hundred percent--

SENATOR ZWICKER: --to ensure that. (laughter)

But, I want to go back to some of the data, and some of the things that, Commissioner, you're talking about with the WARN Act, et cetera.

So, as you know, and you alluded to it, it depends upon which economists you ask; it depends upon which policy expert you ask. AI is either going to be a disrupter like we've never seen before, or AI is going to be like other disrupters where we will adapt. For me -- and, I'm just parroting what some economists believe -- the speed of AI is unprecedented in human history. The fact that, Commissioner, you said that ChatGPT has been here for three, four years, but we've really only been talking about it for a couple of years; these large language models have been around in the scientific community for decades. But, it is now, I think, virtually impossible for anyone to do a query on their phone and not be invoking AI.

Senator Steinhardt is not here, he had to step out for a second, but when it comes to the paralegal profession; when it comes to court stenographers; when it comes to first-year associate lawyers, there's a tremendous concern about how that will get displaced -- radiology; et cetera. Some of those adaptable, as you pointed out; some of those are certainly not.

So, I guess that was my preamble to get to-- We need data. And, we need data immediately, because you said, "Well, unemployment claims are currently more or less where they are;" sure, but if we don't get ahead of this, then it's going to be much too late.

So, first question is what are you-- In terms of the WARN Act, right now, what, from your perspective, are you asking for? How do you get a sense of compliance to this? What else can we-- What else can and should we be doing to try to get data as early as possible?

MS. HIRSCH: So, NJDOL rapid response added a question to WARN notices, asking whether layoffs are AI related. To date, there's only one employer who's actually responded reporting displacement due to AI, in AI adoption and back-office functions. One filing in three weeks is not a trend yet. And, for the reasons described-- Well, reasons why I think a lot of companies will be saying that they are laying off due to efficiencies or productivity gains, but the evidence doesn't really suggest that that's been happening yet, but I-- So, I would say the WARN notices and that answer should be taken with a grain of salt.

The other one is, I think just-- As many of you may know, I can't help myself but to be a little bit instructive here that the WARN notices often are not terribly related to what actually happens afterwards. They're done, and then when we take a look at what actually happened months later, the layoffs that companies are saying that they're going to do, they don't actually do.

There's also a new employer separation form, and we're really excited about this. So, I'm so happy that you're excited about data, because I get to talk about it. In addition, we're now requiring every separation for

an employer who already is sending us quarterly records -- wage records -- and telling us how much they're paying every single person. When they separate somebody, they're going to be required to answer a number of questions, and we just added two questions to that. It's not live yet, but the two questions are: Did the adoption or use of artificial intelligence cause or contribute to this separation? And, if yes, what best describes why that happened?

So, there are a number of questions or answers to that, like, "We automated this person's work and substituted it;" "We automated portions of the work;" "We found productivity gains through changing our business process," or, "We altered our products and services -- our product and service line." So, those are a couple of ways. I hope that's responsive to your question.

SENATOR ZWICKER: No, certainly, and that's good to hear.

I mean, part of what we're hearing -- what I'm hearing -- from the business community sometimes, and I think what you're alluding to, is the fact that it's not necessarily, "Oh, I turned AI on here, and then I made a layoff over here." And, so, how to understand that connection and get that good data is not an easy thing to do.

MS. HIRSCH: Right.

SENATOR ZWICKER: Pivoting a little bit, we clearly, though, are going to need reskilling, upskilling, in many different ways. And, all three of you alluded to that.

I'm curious your thoughts though-- How can we be most adaptive to that? We're not talking about making the next Ph.D. computer scientists working on the large language model; we're talking about someone

whose job -- a forklift operator who may soon see it being fully automated because of AI. What are your thoughts in terms of-- How do we start to really-- We're known for moving slowly. Commissioner, you alluded to that. How can we move quickly, and how do we do it now, while we're still ahead of the curve?

DR. ALLEN: Yes, so, I think a critical component of that is listening. We have to listen to business. Because the changes in AI, as you alluded to, is by sector; by region. And, we have to always be ready to assist with whatever changes that are needed in terms of our workforce. And, so, that's what I think is critical. What are you seeing; what are the changes when we are around those business tables or those industry tables listening to businesses? What are their needs in employees, and then what are their business needs?

And, so, I just think that that is what's most critical for us as we engage businesses, is listening.

MR. JARVIS: And, I think -- if I may, Senator -- the other piece to that is beginning the process now of embedding basic AI literacy into the existing and future job training programs we have. So that, to your point, that forklift driver who maybe their job becomes automated somehow because of AI is not, for the first time after that, going to a One-Stop and learning about AI and stuff like that, right. If we begin embedding it and incorporating it into everything like I said before -- from our K-12 curricula, to higher education; vocational schools; apprenticeships -- so that they already have a basic understanding of AI, kind of like we all did-- I'm old enough to remember, I was in seventh grade the first time we had a class about how to use a personal computer, because that's when they were--

That's when they were coming out. And, we began learning about these to the point now where we all kind of use them without even necessarily thinking about it. And, I think part of it is to get people today who are either not in the workforce yet; already in the workforce; having everybody understand AI and its potential effects so they're already trained and skilled up on it, so that that person -- if and when he or she gets laid off because of automation -- already understands the AI universe and may be able to transition to something because of the knowledge he or she already has.

SENATOR ZWICKER: And, finally for me, under the worst-case scenario, if mass layoffs are coming in the next three to five years, is our UI system ready for that, both administratively and financially?

MR. JARVIS: Yes, so, as you know from our prior conversations and my budget testimony, the Department has been modernizing its UI system for the last several years. That work is continuing; it's already bore substantial fruit; and the system is already functioning better than it was, certainly, during the time of COVID. And, we continue to make those advancements. So, as the time goes on, we're going to continue investing in our modernization efforts; making that system better; trying to get us off the mainframe sooner rather than later.

And, so, I think, should that happen -- and, that is a worst-case scenario -- we'll be ready for it.

SENATOR ZWICKER: How about the implications on the budget? Under these worst-case scenarios, have you mapped any of that out?

MR. JARVIS: I think it's too early to tell. And, I don't know, Lesley, you can feel free to add. I think it's too early to tell the implications on the budget. Specifically to your question, which I think is directed

towards UI claims and the availability of the UI Trust Fund. At this point, the UI Trust Fund, we're at about \$3.6 billion. It's at a healthy fund level, certainly more than it has been for quite some time. And, we're going to continue our efforts to build that Trust Fund so that, hopefully, if that worst-case scenario ever happens -- and, we all hope that it does not -- there will be adequate resources in the Trust Fund.

But, as you know, the Trust Fund is funded by a statutory formula, and, so if, in fact, the number of claims begin to rise, and the level of the Trust Fund -- or the Trust Fund gets depleted, I should say -- there will be corresponding increases in the tax rate that are paid to replenish the Trust Fund.

SENATOR ZWICKER: Yes, certainly. And, it's also a question about part-time workers, low-income workers, in terms of being underinsured. So, it may be necessary to look at this. As you pointed out, the sectors are going to vary widely.

Very last question from me. In your crystal ball, how many years before AI replaces legislators?

(laughter)

MR. JARVIS: (laughter)

Never.

SENATOR ZWICKER: Thank you, Chairman.

MR. JARVIS: We need the human-centered design that comes from the creative thinking of our legislators.

SENATOR CRYAN: I think some of them think they can run better elections, anyway.

MR. JARVIS: Yes.

SENATOR CRYAN: So, kidding aside, first off, thank you all for your comments.

Senator Singer will go after me, just some finalize-- But, I do want to ask a few things.

I've seen studies that show-- For example, you've provided us some data, and we're very grateful for it. I was at a conference a couple weeks ago sponsored by BIA, I think, where 44% of all workers today touch AI on a daily schedule. And, that it is in fact a part of the workforce and continues to grow. And, in many cases, workers don't realize that. But, yet, I saw the Goldman article where the head of Goldman Sachs talked about, 25% of all them, all work hours could be potentially eliminated over the next decade or so, which is a frightening statistic, but, yet reminds -- reminds us in the same column that he wrote that we all thought we were all going to be more efficient, right. Email was going to make us more efficient; Excel was going to make us more efficient, more convenient, all these -- Zoom. And, I don't think any of us feel as if our day is more convenient with those things as part of our lives. Feel free to challenge that if you like.

So, technology does-- What concerns me there, when I saw that story, was two things: One is a Stanford study that showed that 16% of jobs are already eliminated in certain sectors based on AI. It talked about software engineering and customer service originally. Do we have anything that corresponds to that so specifically here in New Jersey?

MS. HIRSCH: So, I'm familiar with that study. It was the canaries in the coal mine study that came out a couple of years ago, by Erik Brynjolfsson. And, I hate to tell you, but it's actually been refuted by a

number of other economists, so, of course, this an ongoing -- an ongoing area of study.

But, what it turned out to do was it looked at ADP payroll accounts--

SENATOR CRYAN: OK--

MS. HIRSCH: --from March of 2022 forward, and they noticed that the hiring of entry-level software developers and customer service representatives and other high-exposure occupations, that that was really slowing down quite a bit. I was really taken aback and very convinced by that study.

However, other people have gone back and analyzed the data, and what they noticed is it actually happened before ChatGPT. So, those hiring slowdowns occurred around the same time that interest rates started spiking, and the business cycle started turning down. And, that's why Acting Commissioner Jarvis mentioned the same factors about our UI claims, and our UI claim analysis. It's really hard to tease out what's AI related and what isn't. But, they're very well respected, and I hope you don't take that as a criticism, but that was a really dramatic study.

SENATOR CRYAN: Yes, share the data, right -- that's why we're here, right.

MS. HIRSCH: Yes.

SENATOR CRYAN: And, the turbulence in the data is what makes it so uncertain, because Senator--

MS. HIRSCH: Right--

SENATOR CRYAN: --Zwicker was pointing to it, right.

I want to follow up on this idea of-- I mean, the guy's a CEO at Goldman, talking about 25% of all work hours being potentially eliminated; but, yet about efficiencies. And, you -- the panelists -- touched upon it, and I'm grateful.

I was wondering if you could explore-- I wonder about the employee that become efficient. And, the labor market itself is traditionally resilient. The American labor market, if I read that right, literally loses 25 to 35 million jobs every year, annually, and yet creates more jobs to recover that. And, then, obviously, it reflects a population growth as well, which are part of the challenges we have.

How do you see those efficiencies, or what forecast should we look at for that worker in terms of the efficiency model, what they need to prepare for or what things-- Do you see any trends or things we should be aware of?

MS. HIRSCH: I was hesitating, because I think I'm going to give you a stereotypical economist answer and have three hands. So, on the one hand; on the other hand; and on the third hand. I think--

SENATOR CRYAN: That can make you a legislator.

MS. HIRSCH: Right. (laughter)

(laughter)

MS. HIRSCH: We'll have to discuss that afterwards.

So, one thing that comes to my mind right away-- First of all, I just want to piggyback on what Dr. Allen said earlier, is that no two industries are going to be alike, and no two companies are going to be alike. And, so, it's going to be very important for us to have very close conversation and close

eyes on what's actually happening to business process company by company and sector by sector.

One instructive example that I came across in recent years, preparing for this AI -- potential AI apocalypse -- was a study by an economist who talked about the advent of ATMs. And, I don't know if any of you are familiar with this. So, when ATMs were adopted -- you've probably heard about this -- now we have more bank tellers than ever. Because when ATMs opened, it became cheaper to run a bank -- a banking branch -- so more branches opened. And, then, more tellers were needed to be able to populate and be employed within those branches. And, bank tellers have different jobs today; they are about relationship building, and that one-on-one that you can't get from an ATM, because an ATM is programmed. So, I think that's just an instructive anecdote that will tell us we're going to have to look at the business process, and how the business processes are changing on a sector-by-sector basis.

So, that was only one hand. I hope you appreciate that I didn't introduce you to my other two.

MR. JARVIS: The other key I'll just mention on that -- and, it's a great question, Senator -- is that, as we see those efficiencies happen and worker productivity increase, the thing to keep an eye on is to make sure that the wages increase commensurate with the worker productivity. If you look historically at the trends, worker productivity has increased exponentially since 1980, but the wages have not always kept pace. And, just from the perspective of making sure that the worker isn't forgotten and is protected in this, you want to keep an eye on that to make sure that as those productivity -- as the productivity increases, the wages keep pace with that.

SENATOR CRYAN: All right, thank you.

Two other quick-- By the way, one thing I hope we all end up doing is finding a way for AI to reduce property taxes.

(laughter)

SENATOR CRYAN: I will say that. And, I do think there are areas where that could actually happen, so hopefully along the way.

But, that's not why this subject is here. I've got to ask you about-- I mean, there's a lot of controversy these days about data centers; economics; and back and forth. Job; ROI; that sort of thing. It's a little bit out of the blue, but it is a very relevant discussion for us in New Jersey these days.

Do you have any views on ROI there? Is it too early to tell, kind of thing?

MR. JARVIS: Yes, Senator, thank you for the question.

We really look at the AI issue from a workforce development perspective, as opposed to return on investment for the data centers. I know the Governor recently introduced some guardrails on those. And, aside from those, the Department doesn't really have any kind of interplay with that or any comment on that.

SENATOR CRYAN: OK; thank you.

Senator Singer.

SENATOR SINGER: Yes; thank you.

First of all, I think Senator Steinhardt ran out because he's worried as an attorney, will he have a job?

(laughter)

SENATOR SINGER: Now that we do closings with title companies and everything else, have you thought at all about what our factors in minimum wage and prevailing wage affect what AI might -- people tend to turn to because of that?

MR. JARVIS: I'm not sure I understand your question, Senator.

SENATOR SINGER: Well, we're a prevailing wage state; we have a higher rate of cost factors because of minimum wage. Does that tend to push employers more to look as how AI can help them on that bottom line?

MR. JARVIS: Yes; thank you, Senator.

I mean, look, I think that's a debate that has gone on in the American economy for some time. I can tell you that, from a historical perspective, the Industrial Revolution predated any minimum wage or prevailing wage statutes by probably around 80 years. The Industrial Revolution in America and throughout Europe and throughout the world has always been about finding labor-saving devices for the purposes of saving on labor and making work more efficient and producing more product. Minimum wage in America wasn't even implemented until 1936, and we obviously had almost a century of industrialization and labor-saving devices before that.

So, I think you can probably find economists on either side of that item writing papers in support of or opposed to it. I think, from our perspective, we are looking at it from the perspective of workforce development and ensuring that people are going to be trained so that they can continue to upskill, and have family-sustaining jobs, and help them as this newest kind of innovation affects our economy.

SENATOR SINGER: You know, just to follow up, two quick things.

One is the mention about incentives. My middle daughter is an engineer, and she works for SpaceX at Cape Canaveral. They got options from the day they started there. That was the incentive to come work there; and they work 80-hour weeks, and 90-hour weeks, but-- And, they're not hourly workers. So, there are incentives out there with companies that want to do that. And, of course, with the IPO coming out, I maybe have to live off my daughter, I think.

MR. JARVIS: (laughter)

SENATOR SINGER: But, at the other aspect of things is, I think that necessity becomes the mother of invention. I-- At one of my leisure times -- which I don't have a lot of -- I play golf. And, I've been to the golf courses which now have robotic grasscutters all over the place, that cut the grass at night and times when there aren't anybody playing. And, there's three or four of them on the course, and they do an excellent job, but they eliminated the factor of someone being on the mower cutting the grass.

We've seen this more and more, but I don't know-- And, maybe you've looked at-- Does this mean that the minimum wage worker will be lifted up to a better position, or just totally eliminated?

MS. HIRSCH: So, I do want to share that I think, at the moment, the state of research is indicating that-- Early consensus in the state of the research is that it points to findings that are really counter to this narrative about job replacement, due to automation for low-wage workers. And, I think that's what you're asking about. At the moment, most of what

we're looking at are higher-wage, so-called "knowledge workers;" highly educated and higher-wage knowledge workers.

Not to say that won't happen for the forklift operator, or the picker packer in a warehouse along the Turnpike; it may happen. We also know retail sales and customer service may be possible replacement jobs that are possibly exposed to replacement. But, most of the jobs that we're looking at in terms of the ones that are at most risk or most highly exposed tend to be among the -- held by people who are highly educated and high wage.

SENATOR SINGER: Just one last question on that same follow-up on that.

My concern also is, as I grew up in life and we looked for our first job when we were in high school, or going to school in any formal way, we gravitated to those jobs that were part-time, whether it was working in a fast food place; whether it was stocking shelves in a store; all the work cutting grass, stuff like that.

My concern is we're eliminated those aspects. A perfect example: I walked into a McDonald's -- it's all kiosks today; there's no one behind the counter. All I'm saying is, are we taking a look also at how we help people? Remember, those part-time, minimum-wage jobs weren't their total career; but, it gave them the money that allowed them to function to get to there, that point. It allowed them to contribute to their household; it allowed them to be able to have spending money; it allowed them to be able to maybe afford a car. All these other aspects that young people needed, that we're seeing are being eliminated.

What are we looking at to say, "How do we help the entry-level person while they're going to school; while they're going to training; also find

jobs that are -- we'll pay them part-time to do?" Is there any room for them in the design? I understand the higher wages we're concerned about, but I'm also concerned about the younger people that need money to go out on a date; that need money to go to the beach; need money to go to a concert. Where do they get that money from, other than the parents?

MR. JARVIS: And, I think there's always going to be those entry-level jobs for the people who are working part-time in high school, or they're coming out of college.

The idea that the wages are just supposed to be enough to a little bit of extra spending money -- if you look at, historically, the implementation of the minimum wage at the Federal level, Franklin Roosevelt in his speech said that it's not supposed to be just a bare subsistence level, but a level at which people can actually live. And, that was the original intention. Despite the use of the word "minimum," he was very clear in many of his statements that it was the idea that it was to be a living wage. Because not everyone who is doing these minimum-wage jobs is just that high school kid looking for date money, or a college kid who is home for the summer.

For many people in our society, that has become their job. And, while we are always working to educate and upskill them and provide the training programs to help them move to a better life, we can't ever lose sight on the fact that a minimum wage is not designed to just be a bare subsistence. And, I think entry-level jobs are always going to exist to the extent that they depend on varying levels of skill and expertise, and maybe somebody doesn't necessarily have the higher skill level yet to do a higher level job, and, so, there's the entry-level job. Those have always been with us, and I think they always will be.

SENATOR SINGER: Thank you.

MR. JARVIS: Thank you.

SENATOR JOHNSON: Just a quick comment, or concern, I guess.

I haven't heard the -- heard about demographics in this country, or in this state, where we as a society, we're getting older. I realize in the DOL, WD is working on training young people, and those who are maybe about to change their careers because of whatever reason. But, long range are this older society we're turning into was-- How will that be affected, or will it be affected by AI, when it comes to opportunities?

I feel I'm beyond that; I'm an older guy, so I feel I'm beyond that issue right now.

MR. JARVIS: Yes, I'm waiting for the AI tool to help us get younger instead of older, but it hasn't -- it hasn't developed yet.

I think, as with what you've heard from us today, will all the data points-- It's a little bit early to be able to tell whether or not it's going to affect a certain age or demographic group more or less. To a certain level, to what Assistant Commissioner Hirsch was talking about, that we're actually seeing it in some of the higher-level positions, arguably, maybe that-- Maybe those are older workers simply because they've worked their way up through the ranks.

I don't know that we have -- and, correct me if I'm wrong -- I don't know if we have the demographic research yet at this point, just because of how early it is, to make a determination that it's affecting people based on age more so than other factors. The good news about that -- and, I wanted to say this, and tip my hat to the Chair for having this -- is while the data

isn't developed enough for us to know these answers, it's important that you had the foresight to convene these meetings and get us talking about it early in the game instead of late in the game when we've already seen the data is, you know, whatever it is. And, it's good; it's bad; it's whatever. The fact that we're having these conversations now helps us keep in front of it.

And, so, it's very important. And, so, we applaud you and thank you for doing it.

SENATOR JOHNSON: OK, Chairman Cryan, close us out.

SENATOR CRYAN: Thanks so very much.

Thank you.

MR. JARVIS: Thank you very much.

SENATOR CRYAN: Thanks all three of you.

We're very grateful for your time.

Thank you; thanks much.

Next up, we're going to ask Dr. Miklos to come on up.

And, Luke Koslosky. I butchered that.

SENATOR JOHNSON: Yes.

SENATOR CRYAN: Luke Koslosky; sorry, Luke.

Thanks again, Commissioner. We appreciate it.

MR. JARVIS: Thanks.

SENATOR CRYAN: Thanks, Yolanda. Thank you.

Thanks, Lesley. Thank you.

Thank you both for joining us.

And, as soon as you're ready, Luke, why don't you lead off; Dr. Miklos second.

SENATOR JOHNSON: Doctor who?

SENATOR CRYAN: Dr. Miklos.

Soon as you're ready, Luke, we'll hit the mic, and go ahead.

Or, did you guys have a worked out order? You good?

MIKLOS A. VASARHELYI, Ph.D.: First, thank you very much for inviting me.

And, I was a little bit worried about all the wisdom that came out about the labor markets, and et cetera, that my area of expertise is very technical. My-- I wrote six books about AI from '89 to 2005, and last year we came out with a big book about (indiscernible) variables, big data. So, it's more technical kind of area in AI.

The other comment about AI that struck me in this discussion was this generic idea that AI is one thing. AI is-- We had been writing dissertations -- I have two Ph.D.s -- to (indiscernible) and they -- we did neural networks in the 2000 AI priming in '98. And, what happened is generative technology -- meaning, this ChatGPT kind of thing -- just exploded interest on this. But, many computer applications have been around for a long time.

And, I was very interested on the (indiscernible) the discussion. And, I wanted to -- I thought, what should I talk about? And, obviously I won't talk about computer-enabled education with what you call AI. And, what I did is as following: I prepared some slides that you have, and then I went and asked, and I saw the questions that -- the areas that you were interested, and I put my opinions down. And, then I went to ChatGPT and formulated the questions that you were asking me on the sequence that was convenient to me, the way I taught. I taught about, first let's think how technology evolves, and how technology get absorbed.

And what you have is not my slides; it's the other one. You have all these pictures about the "cloud" coming in and changing everyone's life, and the printing press; electricity; the internet; computers, the internet; et cetera. And, now, this generic thing called AI. And, the questions I ask is how fast this is going to happen? How is it going to affect us? What are the questions to be asked?

And, my first two conclusions -- I actually decided to do what I do in Ph.D. defenses, I put my conclusions first, because, probably, there is no time for anything else. And, I said, "What are the four most important things to talk?" And, ChatGPT actually came out with three of them, and I did the fourth that where my first three agreed.

And, first, my area of interest -- education. Second part, on education, let me just kind of drill down on that a little bit. It is the metrics of education; the integration of education; the channels of education are going to change dramatically. And, you might think it's difficult a professor like me with tenure, a chaired professor, et cetera, there's going to be an affect on them. But, the democratization of education that's possible with these means is fantastic. I can teach my classes in 180 languages anytime I want, anywhere I want. And, now I have bots that kind of respond to questions maybe better than I would, because it integrates the questions of many other people.

So, the possibilities are marvelous. I am actually not so sanguine and worried about employment loss. *The Technology Review*, MIT's magazine, just issued, said, "We still can't quite see the numbers massive layoffs or problems with employment because of what's called AI today." I think there would be a substantial effect, and I always say that predicting technology is

not very difficult. Predicting the timing of technology is very, very difficult. And, in particular, this AI field which breaks down in so many other fields, will have a very heterogeneous development.

And, things like self-driving cars; automatic software; production; are going to have very rapid impact. They are 3 million that drive cars in the United States professionally. The moment self-driving cars are much more trustable -- which, they are pretty good already -- will affect that type of employment. Automatic coding -- it's a fantastic thing; it is already affecting employment in programmers. And, it will affect what my students want to go to do.

And, so, the first thing to think about is what I said, a statewide community college. And, you see, it put Rutgers in there. Why? Because ChatGPT knows me, and knows that I like Rutgers because I'm there, and I do a lot of AI. So, this-- One of the problems with these generative technologies, they try to please you too much, and they lie for that purpose. But, the generic idea that primary level, high school level, university level, post-graduate level, are all going to blend is a very clear one, because there's not going to be on a formalized economic manner of putting students together and teach them; but it will be very tailored to the student's abilities. And, the teaching methods are going to be developed with a big investment on marvelous types of education.

And, so, I think there is a need to think seriously in the State of New Jersey about some investment on this kind of ubiquitous multi-level education and the method to measure students for where to go-- And, to learning, and-- For example, my granddaughter is in a very good school in Manhattan; she's very good in math. And, so, she is advanced two grades --

they still have grades -- and I think this kind of generic education is going to be very, very important. And, with these packages of education all put together for different things, and constantly being updated commercially and not only commercially.

Second question is getting ready for displacement. I think that the probability -- although timing is impossible, and it would be very sectorial -- there would be substantial displacement by computer-enabled tools. And, I think we should associate the support by the State to the displaced people -- maybe support by the State and the displacer -- to education. You want-- You don't want a person to just sit at home and feel displaced, but you want them to be learning new skills that will work on this particular domain.

Thinking New Jersey-- And, my last question to ChatGPT was, "What can a state do differently than a Federal government; the President; the European Union; and et cetera?" And, obviously, it was mentioned here before, there are sectors in the economy that are very strong in New Jersey, and that's where we should put our (indiscernible).

And, finally, if we are investing on education, we should also invest-- Use this investment to generate some resources for ourselves. So, I was going to talk for very long. I actually-- I am a professor; I start speaking; I speak for 90 minutes. So, I was going to-- So, I just put my four, four major conclusions here, and I am very happy to answer any questions.

SENATOR CRYAN: Thank you, Doctor.

LUKE KOSLOSKY: Thank you for allowing me to be here.

I'm used to speaking a little bit off the cuff, but because of the auspicious nature of our setting, I've decided to read my written statement first, and then I can be off the cuff during the questions.

Chairman Johnson, Chairman Cryan, Vice Chair Zwicker, and members of the Committees, thank you for the opportunity to testify before you today.

My name is Luke Koslosky, and I am a Senior Research Analyst at Georgetown University's Center for Security and Emerging Technology. CSET is a nonpartisan research organization, and while the perspective I offer today is grounded in our empirical work, the views expressed here are my own.

I want to make three main points here today: First, AI's impact on workers is very real, but the exact shape of that impact remains uncertain. Second, preparing workers for AI requires durable skills and practical AI literacy, not just technical training. And, third, states can help workers adapt by strengthening connected education in workforce systems that are guided by better labor market data and clearer credential information.

So, on the first point, AI is already changing work, but no one knows with precision how large, how fast, and how concentrated those effects will be. Some research emphasizes broad exposure across many occupations; other research points to more concentrated effects in specific sectors and tasks in their early career roles. The uncertainty is not about whether AI is changing work -- it already is. The uncertainty is about how far those changes will go; how quickly they will spread; and which workers, sectors, and regions will feel them the most. That uncertainty can feel very paralyzing, but it does not have to be. Many of the strongest responses are things that would have been smart workforce policy anyways. Stronger foundational skills; better pathways between education and employment, or, work-based learning; more

opportunities for adults to upskill; and better information about what employers actually need.

Second, preparing workers for AI is not just about teaching technical skills. Technical skills matter, and New Jersey will need people who can build, maintain, evaluate, and secure AI systems. But, most workers will encounter AI differently. They will be using AI tools; they will be managing AI-enabled systems; or deciding how AI should be applied in the jobs that they already hold. For those workers, the key question is not whether they can code an AI model; it is whether they can use AI tools with judgment, understanding which tools can do -- what tools can do and what they cannot do; evaluating their outputs; and knowing when human expertise is required. That kind of literacy rests on skills that far predate AI.

CSET's workforce training research finds that technical skills account for only about 27% of in-demand skills in growing occupations, while foundational, social, and thinking skills together make up nearly 58%. And, while specific technical skills can become quickly outdated, these broader capabilities tend to hold their value over time. Skills like critical thinking, problem solving, communication, active learning, and domain expertise are what help workers ask better questions; collaborate between technical and non-technical roles; and recognize when an AI-generated answer is incomplete, misleading, or wrong.

The third point -- and, I really want to emphasize this one -- is that states have a very major role to play, because the systems that help workers adapt are largely built at the State and regional level. If AI's effects are uncertain and uneven, then the answer cannot be one-time training push for a single AI curriculum. The answer is a flexible system that can adjust as

skills needs change over time. The institutions that make up a state's education and workforce ecosystem all shape whether workers can move into emerging jobs or adapt in their current ones. This is where CSET's research on non-traditional pathways is especially relevant. We found that community and technical colleges have significant potential to expand and diversify the AI talent pipeline, especially because many AI-related roles do not require a four-year degree.

Our research on AI-related apprenticeships also shows that earn-and-learn models can work in AI-related occupations -- not just in traditional trades, as they're usually used. Those models matter not only for young people entering the labor market, but also for adults who are already working. Many workers cannot leave the labor force for two or four years in order to retrain; they need flexible, stackable, and workable -- and work-connected options that allow them to build new skills over time.

The challenge is that these pieces do not always connect. A training provider may be teaching useful skills, but employers may not recognize the credential they've received. Workers may want to re-train, but the available programs may not form a clear pathway from where they are to where the jobs are. And, without timely information about changing skilled needs, policymakers and training providers can struggle to target resources effectively. That is why coordination matters.

The State's strongest role is not to predict exactly what every job will look like 10 years from now; it is to help build a system that can respond as the labor market changes. That means aligning education and training providers, employers, workforce partners, and labor market data around real regional demand. It also means improving visibility into credentials and

skills. Workers need to know what a credential represents and where it can take them. Employers need to know what credential holders can do. New Jersey's existing work on credential transparency, and tools like Training Explorer, provide a useful foundation to build upon.

My bottom line is this: AI creates real uncertainty, but the response should be practical. New Jersey does not need to predict the exact shape of every AI-driven labor market change to act wisely. Many of the most important steps -- strengthening community colleges; expanding work-based learning; supporting adult upskilling; improving labor market data; and making credentials more transparent; and connecting employers with educators -- are valuable under a wide range of possible futures before us today.

Thank you again for the opportunity to testify, and I look forward to your questions.

SENATOR CRYAN: Thanks so much to both of you for your insight.

Anybody first?

Paul.

Paul and then Andrew.

SENATOR MORIARTY: Good afternoon; thanks for being here.

I have some concerns that I figure academics might be able to address these.

As I think about huge technological shifts that have come in my lifetime, I think about the internet, and I think about things like GPS -- these are big technological shifts; in many ways, make our lives easier. But, let's

talk about the internet. Who owns the internet? No one, right? Decentralized; nobody owns it; kind of neutral. GPS -- owned by the United States government, actually, but they provide it as a utility that anyone can use.

But, let's talk about AI. Who owns AI? This is not decentralized; this is not a free utility. This is owned by Big Tech -- a handful of companies. So, you're academics, you tell me -- is that something that we should be concerned about? Something that's going to be so immersed in our life, maybe life-changing for so many people that it's owned by just a handful of technological companies that all are traded on the stock market and have to show profits, and want to show the most profits, because that's what they're supposed to do?

Do you have any comment on that?

DR. VASARHELYI: I don't think that concentration of development is a real problem in large language models, et cetera. Maybe it's already substantial competition. And, actually, a lot of the implications are going to be at some level. What you describe there is really kind of the infrastructure. You need to be a pretty big company to develop a data center, or to create power generation in the sky like they're talking, data centers in the sky. You need to be very large company. But, there are already three, four, and government involved with that.

So, I think, unlike some other things like banking, or railroads -- which we had real owners -- I think we are reasonably good in technology. There is a lot of things you can do that's reasonably small, like small language models, (indiscernible) -- which is private databases. And, the Chinese already showed that you can create reasonably small algorithmic situations

that do reasonably well. So, that's not one of my big concerns. I think distribution of income effect might be serious effect here.

MR. KOSLOSKY: I think I have a little bit more worry about the situation, but with some caveats.

So, while the internet is not owned by any individual company -- it is a distributed network -- there are major internet players that do hold close to if not monopoly power within them. We've got the Big Tech companies that come to mind immediately. And, the other industry that I was going to mention is the banking industry. These are two industries that have incredibly powerful players, and one is highly regulated -- for good reason; we want our financial institutions to be regulated. Big Tech is less regulated, and we've seen movement towards more regulation, as kind of some of the negative social impacts of Big Tech's kind of unregulated operations have kind of come into fruition over the years. I'm thinking specifically of negative impacts of social media.

AI does have the potential to have large impacts on society, and thus there is room for regulation at the government level. My organization has a whole team dedicated to AI governance, and regulation of AI, and I would not be able to do their findings justice. But, it is a question that is well worth considering -- is being considered -- and, more action probably does need to be taken.

SENATOR MORIARTY: Yes, thank you for that.

I mean, as you said, the internet isn't owned by any individual company or companies, but there are players that are huge and oversized in the internet, and that are coming under more scrutiny because of the way they operate; their algorithms; certainly, social media. There are people that

are suing social media saying it's harmed them, or harmed a group of people. These are the same players that are in AI.

So, you do believe there's a role for government to play in regulating this unregulated and also commercial enterprise, as opposed to a utility? And, what types of things are -- is your organization working on, or-- You said you wouldn't be doing them justice, could you share some of that with us at a later time, or summarize?

MR. KOSLOSKY: I would be very happy to share it at a later time, because it's incredible research and I don't want to say it incorrectly.

SENATOR MORIARTY: We'll reach out to you.

Thank you.

SENATOR CRYAN: Well, ask for it through the Chair.

Thank you.

Andrew.

SENATOR ZWICKER: I was glad to hear you talk about the need to adapt in our higher education system and be nimble. I know we're going to hear from them directly shortly.

But you mentioned, in particular, AI apprenticeship. And, the consortium is working with the AI Hub in the Princeton Plasma Physics Laboratory to stand up a New Jersey-based AI apprenticeship -- I think it's the first one in the State; certainly one of the only ones in the country.

But, I'm curious your thoughts on what-- Maybe flesh it out a little bit more. What do you think is areas where we should -- specific to apprenticeship and AI -- where we should start to focus?

MR. KOSLOSKY: Sure. So, the-- I had a paper that came out two or three years ago about AI apprenticeships, and the finding was

basically-- The high-level finding was basically, from 2013 to 2023, apprenticeships in AI-related occupations went from basically zero to in the many thousands. So, there's been-- That's a clear proof point that these types of apprenticeships can work; they can happen--

SENATOR ZWICKER: Can you just-- What does that mean? Because, in 2013, AI was large language models--

MR. KOSLOSKY: Right, so there was--

SENATOR ZWICKER: (indiscernible), right. So, when you say that, what are you-- What occupation are you referring to?

MR. KOSLOSKY: Yes, so the way that we mapped AI-related onto occupations -- which is how we categorize AI-related occupations -- there's certain occupations that have many of the necessary knowledge skills and abilities to either work with, adapt, or kind of build upon an AI system. Those occupations already existed in 2013. They have evolved since then, but they're still housed in the same occupation category.

So, even in those occupational categories that did exist in 2013, there were very few apprenticeships. So, that's what I mean when I say AI-related apprenticeships, and that they've grown, because you're right -- LLMs did not exist in 2013 as we know them today.

So, the point being that they've grown a lot in the last decade -- over 200% from when they began to rise in 2016. That said, there are a very small fraction of total apprenticeships within the country, and the U.S., as a whole, has very few apprentices compared to our peer nations. I think, last I checked, U.S. had about .3 of total employed came from apprenticeships, whereas in comparable European nations and Canada, it was more in 3% to 4% of total labor force came from apprenticeships.

So, it's just a relatively underused employment pathway in the United States. And, because of that, there's less cultural awareness of it; there's less infrastructure support for it; there's less funding for it; there are less trade associations developed specifically for the development of apprenticeships. And, this is relevant to AI because if you don't have the underlying apprenticeship base that is standard in many other countries, it's harder to build new occupations and scale those quickly on top of it.

So, while we will see new roles appearing that are apprenticeable in AI occupations, that doesn't mean that we'll be able to generate apprenticeships and fill them quickly in our current system.

SENATOR ZWICKER: Can you be more specific? What roles do you see are AI -- very specifically, occupations that are AI apprenticeshipable? And, I don't mean building data centers--

MR. KOSLOSKY: Right--

SENATOR ZWICKER: --but, I mean-- What do you mean?

MR. KOSLOSKY: Yes, so, I mean things like data annotators; I mean things like computer scientists; I mean things like data architects, that build the scaffolding for the AI systems; I mean things like AI product managers and product engineers. So, people who integrate the AI system into their product development line.

These are all things that do not necessarily require a four-year degree; they can be an Associate Degree, or they can be an apprenticeship, where you have related technical instruction with classroom instruction. And, these are things that you can learn on the job, because it's very domain-specific, so you're embedding an AI system into the existing workflow. Let's use agriculture as an example: You have someone who is very familiar with

the agriculture industry, and they want to use an AI tool to measure water distribution across their crops. You need someone to then learn how to use the tool; learn how it works and how to embed it into their work flow; use the possible -- learn the possible failures of that system; and, then, also know how to work it into the agriculture business.

So, that's an AI-specific role with an existing industry that can be upskilled through an apprenticeship.

SENATOR ZWICKER: Thank you, Chairman.

SENATOR CRYAN: Thanks.

Senator Johnson.

SENATOR JOHNSON: You brought up one business sector-- How about advertising? Apprenticeships or training in advertising; AI in advertising?

MR. KOSLOSZY: Apprenticeship-- Well, I don't know much specifically about advertising. I was recently talking to somebody who works in marketing for an AI company--

SENATOR JOHNSON: Or marketing; or marketing, yes.

MR. KOSLOSKY: Excuse me?

SENATOR JOHNSON: Or marketing.

MR. KOSLOSKY: Marketing.

They were basically saying that the-- Using AI-generated content in marketing now is just table stakes -- everybody does it; it's easy. You can generate copy with the snap of a finger; you can flood people's feeds with AI-generated content. And, it's going back 10, 15 years to what you need as interpersonal communication. You need in-person dialogue with

stakeholders; you need, like, trade shows. It's much more about storytelling; crafting; understanding human connection--

SENATOR JOHNSON: Right--

MR. KOSLOSKY: --because the generation of the marketing content is, like I said, table stakes now. So, it's kind of going back to the storytelling aspect of it.

SENATOR JOHNSON: Right. You need that relationship between the customer or the audience that you're trying to sell to, and the product that you're trying to -- or, service -- that you're trying to sell. So, that's a connection between being involved personally with the people you're trying to get, but using AI to do that.

MR. KOSLOSKY: Yes.

SENATOR JOHNSON: I think I said that right. Close enough. But, thank you.

SENATOR CRYAN: Thank you.

Just a couple quick ones, and then we'll let you go.

But, Dr. Miklos, I want to say thank you for these -- for these incredibly thought-provoking points.

I can only imagine if we had the time in the hearing today to ask our good folks here about a Rutgers Community College, statewide only, how that would fly. Certainly would get some input on that, for sure.

I really wanted to-- You heard the Labor Committee, you heard the Labor folks speak earlier about this, where they are in the data points -- which is too early, essentially, was the summary. You mentioned retraining requirements to education, and I was hopeful you could just follow up on that particular point.

DR. VASARHELYI: This is part of a larger scope of educational rethinking, and I wanted to just go back to a former question, and I'll come here.

The former question was about traineeship and et cetera. We are doing three (indiscernible)-- My research center, our group is Number 1 in the world in account information systems, and we are doing projects on automating part of the audit. We call it One-Click Audit, and then we are doing projects with reconciliation and transaction identification in insurance company. We are creating agents for the government of Santa Catarina, Brazil, to rationalize procurement. And, so, the skills are very narrow type of skills that are probably very contingent on the process itself. And, we are going to have to do a lot of granular education development and tools for being able to satisfy this pretty much radical change on how you do things.

Now, the quantification of the levels of need of the different types of things is very difficult to be done. What I said -- one of the things that's in my comment is one very important thing for the State of New Jersey, is the monitoring -- trying to create methods whereby you discover, rapidly, what's happening and you can act.

SENATOR CRYAN: Well, I hope so, because I will tell you-- Like you mentioned in your example of the self-driving car. And, what I tie that into immediately is Amazon. And, the reason I do that is because we all got phones, and we all want things delivered in three hours. But, we all want our downtown to have shoe stores, and we want our downtowns to have all this proper mix that, frankly, the move to technology and that kind of distribution has made economically impossible in many communities.

And, frankly, as a Legislature, we've created programs and all sorts of things to say, "Oh, we need to create more downtown; we need you to do Main Street; we need you to do other things." The reality of it is we've allowed technology to change our communities without the forethought of what it could mean and its impact.

When I look at cars, for example -- and I'll say this -- I represent a whole lot of folks who drive a taxi cab, who drive an Uber, or drive a Lyft. And, I represent a whole lot of folks -- because I represent the Port of Elizabeth -- who drive trucks, whose economic impact in this state and beyond is significant. So, I would hope, to your point about what we look at, is how we can actually do it with forethought, as opposed to just saying, "This is the next technology; let's invest in it or do the pilots--" How about we understand it first, or have some sort of concept?

And, that, to me, is one of the things that's missing in a lot of these. We're supposed to embrace this technology, but not have any sort of understanding as to what its impact is. And, I will tell you that with downtowns that still to this day have 40, 50, 60% vacancy rates, that used to have the shoe store, all right, or used to be able to -- and the dress shop -- need to look ahead. And, we need to-- That's why I found your comment so thought-provoking.

And, I appreciate them very much.

I also wanted to-- And, I apologize, Luke, I'm calling you by your first name because I butchered your last, and I apologize. But, I wanted to close this with your comments about durable skills. And, what, as a committee-- And, I know you mentioned it, but I really would love your follow-up. You're sitting where we are -- what kind of durable skills do we

want to ask our folks in community colleges, and the Department of Labor, and in four-year schools, what kind of-- Because critical thinking is a broad comment, right. Can you hone it down a little bit for us, if you don't mind?

DR. VASARHELYI: What I have been thinking about as a future of education is basically a loose set of educational materials and matter that are reasonably autonomous, and they are applicable at every level of the educational pyramid. And, the role of the State is to make very sure that people that get displaced, or partially displaced, are re-educated on a continuous basis.

And, the other thing is about educational materials itself. They have to adapt with the evolution of AI technology. Going my example of the One-Click Audit -- this is a way we are doing it, and there are certain ways to do it. But, other types of audit automation, or the fact that the audit authorities become a little bit less antiquated, you are going to have to add little modules to it.

So, I think this whole idea of first grade, second grade--

SENATOR CRYAN: Right--

DR. VASARHELYI: --graduate school, et cetera, have to be replaced.

And, one more point that I think is the most important, is what, in my Bell Labs days, I used to call post entry-level education -- PELE -- which is, you have to continue educating through the entire life. It's not only in college; it is not only what you learn in your work; but it is the constant education flow that needs to be provided to you, but is probably profitable, too.

SENATOR CRYAN: We'll all be lifelong students.

Thanks.

MR. KOSLOSKY: Yes, so the answer to the durable skills is really a pedagogical question spanning from K-12 all the way through post-secondary and re-training. And, it's embedding not just how to get the right answer, or what the answer is, but it's how you work through the process of thinking with an AI agent; with an AI model that you're working with; or with your fellows and with your teammates; communication; team building; that computational thinking of, how do you sit with the problem, think through it, and then learn how to think about things in that way, so that then you can use the AI tool in a way to help you answer the right question and understand what you're trying to ask, and if the answer is appropriate?

And, it's designing your curriculum, designing your trainings, around different methods of learning that emphasize that. So, that's project-based learning; that's team-based learning; that's experiential learning through-- Working with industry on real problems if you're working -- if it's a CTE class, or if it's a post-secondary class. Like, real-world examples that you can get your hands on, reason through, and then use AI tools to help you with the outcome of that project.

I was talking to-- I was listening to, basically, a job fair. And, it was a bunch of big companies -- financial firms, and banks, and tech companies -- and students kept asking, "What hard skills do you need me to know so that I can have a job," in not so many words. And, pretty much every hiring executive was like, "We want you to learn how to learn, and we want you to learn how to think." And, they were like, "Great, what class can I take," like, "How do I put that on my resume?" And, it was both a not-

helpful answer at all, but also a very illuminating answer, because it's kind of amorphous, but it's very important, and it comes from just learning.

SENATOR CRYAN: Is that what we're going to do, is get more philosophy majors now?

MR. KOSLOSKY: (laughter) Yes.

SENATOR JOHNSON: Yes.

SENATOR CRYAN: But, thank you both so much for your insights.

DR. VASARHELYI: Thank you very much.

SENATOR CRYAN: You're a very valuable part of the conversation; very grateful.

Thank you for the time.

DR. VASARHELYI: Thank you for inviting me.

MR. KOSLOSKY: Thank you.

SENATOR CRYAN: Thank you.

Our third group is from business-- Our third group today is from business and labor.

Althea and Jack from the BIA. Althea, I see you-- There's Jack.

Hilary -- Hilary, is it Chebra? Do I say it correctly?

SENATOR JOHNSON: Chebra.

SENATOR CRYAN: All right.

And, Eric Richard.

Hilary is from the South Jersey Chamber of Commerce, and Eric is from the AFL-CIO here in New Jersey.

Like we have with the others, we're going to ask you for your comments. You guys -- you've all been here before. I don't think you

need-- Tell us what you're thinking; tell us what it is, OK. And, then, we'll ask the questions as we finish up.

ALTHEA FORD: Indeed.

Thank you so much, Chairman.

Chairman Cryan, Chairman Johnson, Vice Chair Zwicker, and members of the Senate Joint Labor and Higher Education Committee -- Althea Ford with NJBIA. Also joined here by my colleague, Jack Ramirez.

We are pleased that we are having this conversation today, and are glad to be a part of it.

Just wanting to start by saying that we're hoping that through testimony particularly today that we can illuminate three points: One, that New Jersey should embrace the opportunities that AI presents; that investment in reskilling and upskilling our workforce and modernizing the educational system to prepare New Jerseyans for an AI-driven economy is critical; and, that policymakers must be careful not to slow innovation through policies that hinder technological progress and economic competitiveness.

So, I will turn it over to my colleague, Jack, here, and then I will come back to you with talking about workforce development.

JACK RAMIREZ: Thank you, Althea.

And, good afternoon Chairman Johnson and Chairman Cryan, and members of this Joint Committee.

My name is Jack Ramirez with NJBIA.

And, first, before I dive in, I just want to say thank you so much for the opportunity to testify and for this conversation that is extremely timely.

I want to begin by acknowledging something important. Concerns about artificial intelligence and the future of work are real. As someone who not only works closely with this technology, but who has also graduated recently from Rutgers University, I understand why people -- specifically my generation -- are anxious. For many recent graduates, finding a job is already difficult. If there is one experience that unites all young jobseekers, it is being told that an entry-level position will require three years of experience.

Given those challenges, it is understandable why many point the finger to AI; however, the reality is much more nuanced than this suggests. If AI were truly poised to eliminate jobs on a mass scale, we would already begin to see mass layoffs in industries built around repetitive and highly automated tasks. We'd be seeing widespread replacements of baristas, bartenders, hospitality workers, and other service employees being replaced with fast and efficient self-service technologies that incorporate AI. They would be our canaries in the coal mine.

But, that is not what we are seeing. The reason is simple: People value people. Technology can automate a transaction, but it cannot and will not fully replace hospitality; trust; creativity; judgment; and, most importantly, the human connection. And, what we see is that consumers continue to seek out experiences that involve -- that revolve around real human connection. The data also suggests that AI is acting more as a job creator than a job killer. Morgan Stanley research found that U.S. companies reported a net gain in jobs over the last year due to AI adoption, with new hiring outpacing -- replaced -- replacing -- outpacing positions eliminated or

left unfilled. Research from the Brookings Institute helps explain the why behind this research.

Companies that invest in AI tend to grow faster. That growth is often accompanied by growth in employment. Many businesses are already using AI to create new products, enter new markets, and expand operations -- not simply to replace workers. We are also seeing a strong demand for new skills. PWC found that jobs requiring AI expertise are growing significantly faster than overall job market. At the same time, industries most exposed to AI are experiencing high productivity growth. That productivity is not something to fear. Historically, productivity growth is what drives higher wages, stronger businesses, and new economic opportunities.

Most importantly, researchers from Yale's Budget Lab tracked the labor market for nearly three years following the release of ChatGPT, and found no significant relationship between AI exposure and unemployment. In other words, the large-scale job losses many feared have not materialized. Now, that does not mean there will be no disruption; there certainly will be. Entry-level roles are evolving; job descriptions are changing. And, this means workers will need new skills and new training opportunities. But, in the perspective of the business community, the answer is not to slow down innovation through restrictive policies that risk New Jersey's competitiveness. The answer is to prepare our workforce for the jobs that are being created tomorrow; invest in education and training; and ensure New Jerseyans remain the most skilled workforce in the next generation of technological innovations.

Now, I'll pass it back over to my colleague, Althea Ford.

MS. FORD: Now, with respect to workforce development, I think it's important, and I think that the conversation, especially from DOL, was very enlightening around the idea of teaching not only digital literacy, but -- and, the technical skills -- but also the skills that are uniquely human. So, if you think about leadership; communication; critical thinking; decision making; and coordination.

And, in the years ahead, we believe many workers will not just be competing against AI, they will be managing it. So, now, it's a conversation of thinking about what are the new skills that we need to embed in our workforce to manage technology? I know earlier there was conversation about the advent of the computer and how that training-- Utilizing and engaging in that tool happened at younger ages, so that it became something that you just do now without even thinking about it. And, AI generally, we believe, is very much the same way. It is ubiquitous. And, so, because of that, we need to make sure that we are engaging individuals at all areas and all levels.

Earlier testimony talked about lifelong learning, right -- this idea that we cannot just rest on teaching young people or teaching any age individual about the critical skills that are necessary to engage in AI as a one-and-done thing. We have to be in the-- We have to exercise and be in the mindset that lifelong learning is important, and, so, whether it's this new technology; whether it's a new skillset; whether it's a new mindset; we have to be more so invested in created culture around lifelong learning.

And, lastly, I'll say that we believe that there are some low hanging fruit items that the State could truly invest in and take a look at. For example, looking at the Basic Skills Fund. Currently, the State -- through

employer and employee tax contributions -- contributes to the Workforce Development -- excuse me, the Workforce Partnership Fund. And, part of that fund goes toward financing the basic skills. We should be thinking about, "Well, what are the new basic skills?" Currently, the definition of the Basic Skills Fund does not include media literacy; digital literacy; and AI literacy. So, could we do something where we are indeed utilizing an existing fund for the purpose of workforce development and incorporating what basic skills now looks like, which is incorporating these items.

Additionally, we think that there's some also -- also some opportunities for fortifying the work that has been happening in our state. I know we're going to have some higher ed. partners talking, but I think it's important to highlight the work that NJIT is doing around the AI literacy micro-credential, where they incorporate it, and it's available to all students regardless of the major that they're pursuing. And, it incorporates practical use of AI, ethics, and responsible deployment. So, embedding the conversation around AI and the access and training and development of AI not just to its own major or degree pathway, but ensuring that all students have access to a basic understanding of this technology, because we know it is something that is going to be utilized regardless of the field that they pursue.

Also, just wanting to highlight as well that the work of the New Jersey Council of Community Colleges and the Future Ready States Program, which provides New Jersey with a framework for identifying, measuring, and scaling workforce credentials that align with emerging labor market demands. So, as employees -- employers -- increasingly seek AI, data analytics, and digital technology skills, we believe this initiative can help ensure that the

State's investment in AI-related training programs deliver measurable value to both workers and businesses. So, there's a lot of work happening in New Jersey around AI. I think it's important for us to not think of it as just a linear conversation, but really looking at how we can strengthen the entire K-12, Pre-K through K-12, and beyond work ecosystem so that ultimately everyone is getting access to this new training platform.

So, thank you.

SENATOR CRYAN: Thanks so much for the insight.

Hilary.

HILARY CHEBRA: Thank you, Chairman Cryan; Chairman Johnson.

Hilary Chebra; I am the Director of Government Affairs for the Chamber of Commerce, Southern New Jersey.

I really wanted to thank you for putting together this Committee hearing. I know AI has been a topic of conversation for everyone recently, and we've certainly been having those conversations with our members as well. So, I think this is a really timely hearing to have.

I want to highlight that, for many of our members in South Jersey, they're only beginning to explore what AI can do to be incorporated into their operations. A significant portion of our membership, AI is an emerging tool rather than fully-integrated into their business practices -- which I think is a theme we've kind of heard throughout this hearing.

Another theme that I think I'm going to be echoing is that our members view AI as a tool to help their workforce rather than replace it. In the conversations that we've had with our memberships, the key phrase we've heard is, "They're only dipping their toes into it." They're seeing what AI is

able to do, and available to help improve their operations; to help with their competitiveness; and, they recognize that successful AI adoption is going to be working with their workforce to see what works and what doesn't.

So, at the same time, since they're in the exploratory phase, they're developing their internal policies. This means accessing cybersecurity -- what does that look like -- as well as the data privacy considerations. And, then, finally, when you guys are considering your policies, we hope that you will take a balanced approach. Again, this is an emerging technology, and as we've heard in the testimony earlier, we're not really sure what this is going to look like 10, 15, 20 years from now. So, making sure that our employers can remain competitive while we explore this is going to be really important to make sure that the economy in New Jersey and for us for South Jersey continues to be successful.

So, really appreciate your hearing today. Really appreciate the openness to include businesses in this conversation.

I heard earlier that one of the keys is going to be continuing this conversation with all of our members in the businesses in New Jersey. So, appreciate that.

Thank you.

SENATOR CRYAN: I appreciate the insight; thank you.

Eric.

Do you want a big introduction, Eric, or are you all right?

ERIC RICHARD: I'm sorry, sir?

SENATOR CRYAN: Do you want a big introduction, or are you all right?

I'm just teasing you, forget it.

MR. RICHARD: (laughter) Good afternoon, Chairman--

SENATOR CRYAN: (laughter)

MR. RICHARD: --Johnson; Chairman Cryan; members of the Committee.

Thank you for the opportunity to come before you.

My name is Eric Richard; I am the Legislative Director for the AFL-CIO.

And, first and foremost, organized labor-- This has long been, obviously, a big concern as it relates to technology, automation, and its impact on jobs. And, representatives of organized labor, we're on the front lines when the rubber meets the road in regard to job loss. We've been there before, and we know we're going to be there again. And, it's happened time and time again, and we're there when we see-- This doesn't happen in the abstract; these are folks' jobs. These are the folks that lose long-time jobs due to automation and are now collecting unemployment.

And, so, talking about how important that transition is from an educational perspective and from a job training perspective is really, extremely important. We're there, and we've seen it time and time again where hundreds if not thousands of workers lose their jobs within a span of a couple weeks due to automation. We've seen the toll collectors, when E-ZPass first came, and we had literally an 800-person union, local union, entirely wiped out over the course of three weeks when E-ZPass was implemented. When we see the electronic utility monitoring that has recently occurred, where trucks drive up and down the street now, rather than having an individual go and actually read your meter -- overnight, that was 600 of our members that lost their jobs once those utilities contracted with

those companies. And, so, the list goes on and on in regard to-- Everyone looks at automation in the supermarket industry. Two thousand members wiped out at a single supermarket when automation came to the checkout lines, and we began slowly reducing the number of workers, and then increasing the number of self-checkout lines.

And, so, these types of technological advances are very concerning for us, and we want to make sure that, as Legislators, you understand how rapidly this technology is changing and how quickly it's going to impact our members and workers in general. We have an opportunity -- we're at a crucial time right now where our elected officials have an opportunity to control AI and make sure it's done in a responsible way where AI is going to control us, and AI is going to control the workforce. And, it's happening so rapidly, I understand when we hear from representatives of the DOL and others that are saying, "We don't know yet; the data's not there yet." That's true, but we would ask that you would take action on a whole host of issues that we believe we do have enough data on, and we do understand the consequences.

There are a host of bills that have already been introduced this session, that relate to AI. But, I'd really like to bring your attention to one if possible that is really focused on the hearing that we're having today -- that's S4075. Kudos to Senator Zwicker for introducing this bill, which really pertains to human resource and AI decision-making. That bill sets reasonably guardrails on AI systems used in the workplace. The bill regulates AI tools used to collect and process extensive information about workers and their jobs. It regulates AI systems used in making employment-related decisions such as hiring, firing, and promotions. It also regulates AI systems used in

making decisions about providing public benefits and services, such as unemployment insurance applications.

This is something that's been left to the side; it hasn't had a lot of input at this point, but AI is now being used to make a determination on whether or not a worker is eligible for unemployment. And, there are inherent biases to some of the data that's collected when making those determinations. And, so, what is the proper course of action for a worker that has been denied unemployment insurance by a computer? That worker has been denied unemployment insurance based upon a decision made solely by artificial intelligence. Does that worker have an opportunity to appeal that in some way? Does that worker even understand that that decision wasn't made by a human, that it was made by a computer?

And, so, how do we regulate this in a responsible manner? Unregulated, AI systems are not accountable. Information from hundreds of sources -- sometimes inaccurate -- or incorporating longstanding biases can cause serious economic harm to workers and to claimants. Affected individuals rarely have access to this information, and they don't understand that it was even used to make a determination.

I would hope you would look at Senator Zwicker's bill, and if you like what you see, consider becoming a co-sponsor. We believe this hearing is a good step towards better understanding AI's impact, but we urge lawmakers to act quickly to address many of the adverse impacts it'll have on workers and jobs. AI is developing quickly, and is being implemented rapidly. If lawmakers don't make this a top priority now, workers will suffer and policymakers will be far behind in regulating an industry that will have a profound impact on the future of work.

Thank you.

SENATOR CRYAN: Thanks, Eric.

Thank you all.

Members?

SENATOR JOHNSON: I'm good.

SENATOR CRYAN: We're good?

I think you guys made the points--

SENATOR JOHNSON: Yes--

SENATOR CRYAN: --pretty -- pretty collectively.

We're very grateful for the insight.

Thank you all very much.

All right--

SENATOR JOHNSON: Last but not least--

SENATOR CRYAN: --our higher education panel for today.

Folks, come on up.

Merodie Han-- Dr. Hancock, from Thomas Edison; Meg McMenamin from Union College; Mildred -- is it Mihlon, do I say it correctly?

UNIDENTIFIED SPEAKER FROM AUDIENCE:
(indiscernible)

SENATOR CRYAN: All right. Felician.

And, Aaron, you're coming up, is that right-- Oh, there you are.

All right. So, you guys have seen the movie. Give us the insight, and then we'll do some Q&A afterwards.

Let me just begin with a very grateful thank you.

And, the fact that you hung out for a couple hours, too. Hopefully -- hopefully you can build upon some of the comments we've heard as well.

And, very, very grateful for your time and trouble today.

Any way you want to start; any way you want to go, please.

MILDRED MIHLON, Ph.D.: Good afternoon, Chairman Cryan; Chairman Johnson; and members of the Joint Committees.

Thank you for bringing us together here for this conversation.

To your point, Senator Cryan, I think my remarks may have been slightly different had I heard these conversations prior.

We are genuinely grateful that the Legislature is convening higher education, labor, and industry leaders for a critical endeavor. The challenges and the opportunities created by AI are bigger than any one sector. So, the fact that you are hosting this dialogue underscores how essential a coordinated, ongoing partnership will be.

As stated, I'm Mildred Mihlon. I am here on behalf on my university, Felician University, as well as the 12 nonprofit public (indiscernible) institutions that make up the independent colleges and universities of New Jersey.

Across our campuses, state students are already living with AI, as you've heard, in their daily lives. They may not frame it as a question, but they certainly feel the shift, and they are looking to us, their institutions, their state, and future employers to help them navigate it with confidence.

Higher education can, of course, deliver on that promise, but through a dynamic partnership between State Government, industry, and our

institutions. From our perspective, four priorities really need to move forward together if we're going to meet the moment.

The first priority should be a sustained, strategic alignment with business and industry. As we have heard, AI is reshaping every major sector of New Jersey's economy to varying degrees, from healthcare to education; small and mid-size businesses. Independent colleges are ready to educate those professionals and prepare them for those industries. What we need, really, though, is ongoing structured alignment with industry. Employers are telling us that our graduates need to use AI tools responsibly; know how to critically think about AI-generated information; solve problems in complex tech-enabled environments.

In response, at my own institution and other peer institutions, we have begun embedding AI literacy into general education, into their majors, and we have launched new concentrations. These steps reflect what we're hearing from employers, but we know that we need to keep listening and keep adjusting.

Second, I believe we need a coordinated investment in capacity so that AI integration and the equity that must accompany it can be achieved across all of our institutions. When we talk about capacity, we're talking about the infrastructure that allows students -- particularly first-generation and lower-income students -- to access AI meaningfully and responsibly. And, this is where equity and cost come into play. Historically, as we know, technological shifts had widened gaps for low-income students and students of color. Independent colleges served the very populations that are most vulnerable to be left behind. Ensuring equity means ensuring access, and access requires investment.

To give a sense of scale, a modest GPU-enabled teaching lab will cost about \$150,000 to \$300,000. Annual licensing for various AI tools and secure cloud environments runs between \$50,000 to \$100,000 per year. Faculty training, instructional design, and cybersecurity upgrades add another \$75,000 to \$150,000 each year. These I can tell you are not research luxuries; they are the baseline cost of preparing students for an AI-driven workforce.

At Felician and at PURE schools, we are reallocating resources; shifting our priorities; and actively seeking funding to meet these needs. But, small tuition in all institutions cannot do this alone. If our state, New Jersey, wants equitable AI opportunity, a shared investment is certainly essential.

Third, as you've heard, we need to focus on talent and our faculty development. No matter how powerful the technology becomes, AI readiness ultimately depends on humans; people; the faculty who teach, guide, and mentor our students. Our faculty want to help students use AI responsibly and effectively. They want to integrate it into their coursework in ways that strengthen, not replace learning. But, that requires ongoing structured professional development. We are moving in that direction -- in fact, ironically, today, the same day as we sit here and testify, Google is on our campus providing a full-day, in-person AI training for all our faculty, free of charge, through a competitive grant.

It is a helpful example of the kind of partnership that supports faculty as they prepare to integrate AI into their full courses. But, this is just one example. What we will need is a sustained, statewide approach to development -- one that brings together higher education, industry, and State leadership to ensure educators stay current with AI endeavors.

Lastly, we need regulatory nimbleness. If we want to keep pace with industry, we need a regulatory environment that allows institutions to move at the speed of innovation. New Jersey's curriculum approval process is thoughtful and well-intentioned, but it's not built for the pace of AI. We are not asking to bypass quality or oversight, but we're asking for timely and responsive pathways that allow institutions to add new courses, concentrations, and credentials as the workforce evolves. Other states are moving quickly; New Jersey can, too.

In closing, at Felician and across all ICU NJ institutions, we see AI not as something to fear, but as a tool that can enhance learning, productivity, and innovation. But, technology alone is not enough. The future workforce will require individuals who combine the technology proficiency with wisdom, ethics, leadership, and human insight.

Thank you again for hosting this conversation and for inviting us to be a part of it.

SENATOR CRYAN: Thanks; thanks so much.

SENATOR JOHNSON: Thank you.

A A R O N R . F I C H T N E R , P h . D . : Good afternoon, Chairman Cryan; Chairman Johnson; members of the Committee. Great to be with you.

And, thank you very much for convening this critically important conversation with all of these really important partners.

I'm Aaron Fichtner, President of the New Jersey Council of County Colleges. And, I'm here with President McMenamin of UCNJ, one of our 18 member colleges. As you all know, our 18 community colleges provide high-quality, affordable education to over 255,000 students across

the state of all ages and backgrounds, including close to half of New Jersey's undergraduates. And, we're committed to being part of the solution to the challenges that we're talking about today.

Our opportunity agenda, which is our collective blueprint for action across our 18 colleges -- that did result in five new pieces of legislation that all of you enacted during the lame duck session, so, thank you -- commits us to working together to help our students and our communities adjust to the changes coming from AI. And, we are committed to doing that together.

We are focused on four really important themes that I think align with much of what we've heard today, which is exciting to see the alignment of priorities.

The first is to build the partnerships and the information with employers and experts to make sure that we have the best information -- timely information -- on how to respond to the changing AI world. Number 2, to embed AI and data literacy across the curriculum. Three, to connect our students with applied AI work-base learning opportunities. And, four, to elevate the unique human skills, the durable skills that are so important for people to be able to adjust to a changing world.

Through our Pathways to Career Opportunities Initiative supported by the Legislature and the Governor in multiple State budgets, we have partnered with NJBIA and 1,800 other employer labor unions and education partners to build a mechanism for ongoing partnership with the business community and the labor unions. That is an important foundation of information and partnership that we are using to better understand the changes in the AI world.

We were signatories to the MOU, with the NVIDIA corporation, along with the AI Hub Rutgers, Princeton, Rowan and NJIT and Stevens. We look forward to working with the administration and NVIDIA to make sure that we're learning how we can make sure that we're responding to the changes.

We have built a very, very strong and important partnership with the New Jersey AI Hub, and tomorrow we'll be announcing a new, broader partnership with the AI Hub called AI Ready New Jersey that will -- I'll talk about in a minute, as we go through our remarks. But, very excited to be working with the AI Hub on that work.

And, finally, we're proud of the important partnership we continue to build with the State Department of Labor. Great to see Commissioner Jarvis and the leadership here talking about the work that they are doing to bring better data to all of us, and we look forward to partnering with them on that important work.

So, we are working to ensure that we're integrating AI into the curriculum. Eleven of our community colleges have courses and degrees that prepare students in AI and data science -- many of those were developed throughout our Pathways Career Opportunities Initiative. Several community colleges have workforce and non-credit options to prepare incumbent workers, and those are growing every day as our colleges continue to respond. And, starting in Fall 2026, through our Pathways Initiative, we'll be launching some initiatives to support our faculty in AI literacy and AI in disciplines.

We're committed to building the AI capacity of our faculty. We've already convened a teaching and learning in the age of AI, convening

a hundred faculty across the state, in partnership with the AI Hub in February 2026, hosted by UCNJ. And, through our new partnership with the AI Hub, we'll be awarding AI readiness faculty mini grants to a hundred faculty across the state to help them integrate AI into their curriculum. And, we're working with our colleges to support governance strategies on campus.

As we heard earlier, we are also committed to expanding applied AI work-base learning opportunities early this year, and I think we heard from Senator Zwicker's question -- thank you, Senator Zwicker -- Camden County College and the County College of Morris officially launched the state's U.S. DOL-registered apprenticeship and machine learning, data science, and AI. And, that will be an important step in using apprenticeship to expand opportunities to students. Through the new announcement we'll make tomorrow with the AI Hub, we're also expanding opportunities for micro-internships for our students so that they can get the work-based learning that will compliment their in-class experience.

And, finally, we have launched, in partnership with NJEDA, the AI for Impact Community College Student Fellows Program, where we have community college students working in State government to help bring AI innovations to State government, while also helping them develop important AI skills.

And, then, finally, as I said before, it is important that we continue to focus on human skills and durable skills. Althea Ford mentioned our New Jersey Future Ready New Jersey coalition, where we have committed with partners from 35 different statewide organizations to make sure that more New Jerseyans have the credentials and degrees that will help them thrive and survive in an AI economy. We are committed to helping 75% of

New Jerseyans earn a credential-er degree that's relevant in the changing economy. So, we believe that one of the most important solutions is to continue to make the investments to get more people in New Jersey the post-secondary credentials and degrees that will give them the durable skills to help them continue to learn, continue to grow, and adapt to a world that, quite frankly, we don't really fully understand where we are going, but if we have the partnerships; the curriculum; the expertise; the work-based learning models; and a commitment to getting more people post-secondary education with durable skills, it is our best strategy.

So, we look forward to working with these Committees and State Government to make sure that all New Jerseyans have access to the kinds of training and education that will help them adapt, thrive, and adjust to a changing world.

Thank you.

M E R O D I E A . H A N C O C K , P h . D . : All right, good afternoon, Chairman Cryan, Chairman Gordon, and members of the Senate Higher Ed. and Labor Committees.

I wasn't going to read these, and then I've listened so much to what people have said that I'm going to try and skim through my comments that reiterate so much of what has been said in this afternoon's session.

First of all, for those who don't know me, I'm Merodie Hancock, the President of Thomas Edison State University, New Jersey's unbiasedly premiere public institution dedicated to serving adult learners through flexible, online, and knowledge-assessed education.

I'm honored to join my colleagues from across New Jersey's universities and colleges to discuss how we are preparing graduates for the

labor market that is rapidly transforming due to the exponential growth of artificial intelligence.

New Jersey has built one of the strongest education systems in the nation, and our regional public colleges and universities play a central role in extending that success, translating educational excellence into workforce readiness; economic growth; and opportunities for residents across 21 counties. Regional public institutions like those in the New Jersey Association of State Colleges and Universities, including Thomas Edison; TCNJ; NJCU; Ramapo; Stockton; William Paterson; and Kean are vital to our state's economy, workforce, and communities. Collectively, we serve as anchors in our communities, providing affordable high-quality education while delivering the workforce pipeline on which New Jersey's economy depends. We educate first-generation students, adult learners, and working families, while aligning our academic programs with the needs of employers.

At Thomas Edison, most of our students -- 98% of our students -- are working adults balancing jobs, families, military service, and other responsibilities. For our students, the impact of artificial intelligence is not hypothetical or far off. AI is already present in their workplaces, in the tools their employers use, and in the services they provide -- and in the decisions they are expected to make. Every day we are focused on preparing working adults to stay competitive and advance in an AI-enabled economy. Further, we're helping New Jersey employers access a workforce that is AI literate, ethically grounded, and able to adapt to AI progression rather than simply learning a single tool or method that may be obsolete in a year or two. And, that ties to the durable skills you've heard repeatedly.

As we talk about skills, and training, and competencies, one of the things that continues to set higher education across is that critical thinking canon; that core of education. And, that's what makes our students collectively able to adapt to change. So, I want to really put an emphasis on what we heard throughout several panels in that regard.

To meet the responsibility of this change, Thomas Edison is integrating AI throughout both our academic programs and our student support ecosystem. Recognizing that AI is transforming nearly every industry, Thomas Edison adopted a three-prong developmental framework that moves students along a continuum of exposure, literacy, and competency -- ensuring graduates can both understand and apply AI reasonably in professional settings, and responsibly. The exposure focuses on foundational knowledge, including ethical and responsible use; critical evaluation of AI-generated content; awareness of bias and limitations; and effective use of AI to drive productivity and impact. AI literacy focuses on the ability to appropriately utilize AI across content areas within the curriculum. And, AI competency is developed within specific disciplines where students demonstrate the ability to apply AI tools, analyze AI-supported information, and make informed, professional judgments in real-world context.

One concrete example is our required undergraduate course, SOS 1100, Fact, Fiction or Fake: Information Literacy Today. This course was originally created to help students develop the ability to question everything, including sources, claims, and even their own assumptions. When generative AI tools became widely available, the course was uniquely positioned to respond. We moved quickly to add a dedicated AI module that asks students to engage directly with various AI tools; compare AI-generated outputs to

traditional sources; reflect on what AI gets right, and what it gets wrong, and why; and articulate personal guidelines for ethical and responsible AI use in their academic and professional lives.

Students are not just told about AI; they engage with it directly; critique it; and learn to question it. The feedback we've received from students saying, "This changed my life," or how they now feel empowered rather than intimidated, is evidence that broad-based AI literacy can be transformational -- especially for adults who may feel left behind by rapid technological change.

Preparing New Jersey's workforce for AI is not just about what happens in the virtual classroom -- it's also about how we as an institution use AI responsibly to serve our students and steward public resources. Thomas Edison has 296 employees serving 11,000 students. We are using AI to leverage our human capital through integration of our institutional infrastructure. For example, we're using AI to scale our fraud detection for fraudulent applications and system integrity; identifying suspicious patterns and applications; financial transactions; and academic submissions. TSU is in the midst of a comprehensive rebuild of our digital campus identity, starting from -- well, the whole virtual campus.

Rather than updating individual systems in isolation, we're rethinking how adult-serving public universities should function in a digital AI-enabled era. We're utilizing AI to help students discover programs and courses aligned with their career goals while tracking and aligning with workforce needs. At the end of May, we met with acting Labor Commissioner Jarvis and key staff to discuss the implementation of Create NJ, the center for career-relevant education and talent of New Jersey, which was signed into

law in 2024. Create NJ is being built on an AI-empowered workforce transcript and portal, connecting New Jersey's working adults to current and emerging labor market opportunities. Throughout this work, our guiding principle is clear: AI isn't a thing; it's an environment. And, AI is certainly not a replacement for our people. It is a tool that, when implemented responsibly, allows our highly skilled staffs and mentors to have more information at their fingertips as they focus their time and expertise where human judgment, creativity, and care are irreplaceable.

Thomas Edison's commitment to AI literacy extends beyond our degree programs, and into New Jersey's broader educational community infrastructure. The New Jersey State Library -- an affiliate of Thomas Edison -- is partnering with Library Link NJ and the AI Hub on a statewide pilot initiative to build AI literacy, workforce readiness, and small business capacity throughout New Jersey's public library system. Additionally, the New Jersey State Library has joined with the state libraries of Hawaii and Montana in a grant application to the Federal Institute of Museum and Library Services. If funded, this project will pilot a participatory community-based approach to using AI to address local challenges. These efforts recognize that AI literacy cannot be limited to college campuses or to technology-focused degree programs. Public libraries are trusted, accessible institutions and communities across New Jersey, and they are powerful partners in closing the AI literacy gap for residents, job seekers, and entrepreneurs.

In closing, Thomas Edison is not waiting for AI to disrupt education and the labor market; we are already working to stay ahead of it. We are embedding AI exposure, literacy, and competency into academic

programs across all disciplines. We're using courses like SOS 1100 to make AI literacy a universal expectation, not a niche specialization. And, we're leveraging AI in our own operations to enhance student support, maintain career-relevant academic programming, protect public resources, and redesign our digital campuses for the realities and opportunities of an AI-enabled economy. And, we're extending AI literacy and workforce readiness beyond our student body through the statewide work of the New Jersey State Library and its partners.

Thank you.

SENATOR CRYAN: Thank you, President Hancock; thank you very much.

Dr. McMenamin.

M A R G A R E T M. M c M E N A M I N, Ph.D.: Good afternoon, Chairman Cryan; Chairman Johnson; members of the Joint Committee.

Thank you for the opportunity to speak today.

I serve as President of UCNJ, Union College of Union County New Jersey, a nationally recognized community college, and an Aspen Prize finalist, serving approximately 10,000 students.

Today, when people talk about artificial intelligence, the conversation often focuses on research universities; major technology corporations; and the next breakthrough innovation. Those institutions are essential, but if New Jersey wants AI to strengthen our workforce and our economy, the most important question is not who invents AI; the most important question is who teaches millions of people how to use it? That's where community colleges come in.

We are the institutions that educate recent high school grads; incumbent workers seeking new skills; displaced workers looking to reenter the labor market; and employers searching for talent. We have the scale, the accessibility, and the workforce focus needed to bring AI literacy and AI skills to the broader population.

At UCNJ, we made a deliberate decision not to treat AI as a future issue; we are preparing students for an AI world right now. We recently hired a Dean of AI Innovation. We launched an artificial intelligence option within our Computer Science degree. We have invested heavily in faculty development so that our instructors understand both the opportunities and the challenges of AI. We are integrating discussions about AI and the labor market needs into our advisory committees and our workforce programs. We partnered with the Council of County Colleges and the New Jersey AI Hub, and hosted statewide convenings on teaching and learning in the age of AI. And, we're incorporating responsible AI use into student research, entrepreneurship, and classroom instruction.

Most importantly, we believe AI preparation cannot be limited to computer science students. Every student, whether studying business; healthcare; education; manufacturing; criminal justice; or just liberal arts must understand how AI will affect their profession, and how to use these tools ethically, responsibly, and effectively. The challenge before us is significant. Technology is changing faster than our curricula have traditionally changed. Our faculty need training; our students need access; and our employers need workers who can adapt continuously throughout their careers.

But, the opportunity is even greater. If we get this right, New Jersey can become a national leader in preparing a workforce that is not displaced by AI, but is empowered by AI. At community colleges, we are uniquely positioned to make that happen because we reach the students, the workers, and the communities that will determine whether AI's benefits are broadly shared. AI will not succeed or fail in New Jersey because of what happens at Princeton or Rutgers; it will succeed or fail because ordinary workers and students across all 21 counties have access to AI skills. Community colleges are that delivery system.

Senators, thank you for your leadership and for your commitment to ensuring that New Jersey's workforce is prepared for the future.

SENATOR CRYAN: Thanks so much; thank you all.

SENATOR ZWICKER: Thank you.

President McMEnamin, right to your last point. So, Union County College is one of the most diverse of our community colleges. You have been working for years with your students -- award-winning work, right now. What have you learned from that? Because, as you pointed out -- and I agree with you -- this is not about what happens at Princeton or Rutgers; it's what happens at our community colleges.

So, what have you learned, and what do we need to know about equity when it comes to AI?

DR. McMENAMIN: Well, we need to talk about it. Our students are using it, and they're thinking that perhaps that the faculty, and that their administrators don't want them to use it. So, what we've done is

we've opened the door, saying, "We know you're using AI; we want you to use AI; and let's help you use it responsibly, ethically, and effectively."

So, first, opening the doors; opening the windows; and talking about it. We found that communicating with our students about AI use is the first and most important threshold step. But, our students need access to more than just a free ChatGPT. And, that's where the -- the struggle comes for students like ours, who don't have the resources. So, we want to make AI and advanced use and development of AI available not just for the students in the research universities, but access to that for students across all demographics, all majors, and all socioeconomic groups.

SENATOR ZWICKER: We talked about broadband access, and the need to-- The positive impact of broadband access, and the need to ensure that families of limited means have access to broadband. Sounds like what you're suggesting is we want to make sure for equity that, as we all learned, the free versions of these various tools will tell you very quickly that you've run out of your limit for the day -- at whatever time it is -- to push us to then buy a subscription.

So, what I hear you suggesting is that we should be looking at-- Same way we look at broadband, we should be looking at equitable access to AI at a level where students or whomever can do the work that they're trying to do with that AI.

DR. McMENAMIN: We found that during COVID-- During the pandemic, we found that a majority of our students didn't have access to even-- We consider high-speed internet a basic need in these days. So, we want to make access first at our campuses, and then help get access throughout the community through community colleges. And, certainly,

through libraries is another way to do it. We're using thin-client technology so that our students can have access to complex software programs while they're at home; they don't need to purchase the software program at home. So, we're using some of those technologies to make access available for these students at home.

But, we-- With four campuses across a densely populated Union County, we're hoping that the more access we can provide them on campus, the better.

SENATOR ZWICKER: Thank you.

Thank you, Chairman.

SENATOR CRYAN: Thank you.

I just have a couple, and then I think we'll finish up.

All of you -- just about all of you -- had graduating classes in the past couple weeks. What are your students-- I know.

(laughter)

SENATOR CRYAN: What are your students talking to you about with AI?

DR. McMENAMIN: Students are worried that it's going to make them unemployed. They're wondering how they can become AI-proof in their professions. So, we're trying to help them learn how to use it now, and use it to predict how it will impact their careers in the future.

DR. HANCOCK: I was going to say, we all had graduation in October. But, one thing we're hearing from the employers is even though they don't know what they're doing with AI, they only want to hire people with AI knowledge. And, so, that's really where we're working with our students, is your employer may not know they need it, but the idea that

you're educated in it and you're learning more is what's making them more employable.

So, we're turning it a little bit, but to the extent that every student can put some AI bullet on their resume is what's helping to make them employable for the employers who don't know what they're doing with it yet.

DR. MIHLON: And, we hear concern around pursuing certain professions and careers if, in the future, it may be replaced by AI -- accountancy, or some other progression. So, there's concerns about which direction do I pursue, because what is that going to look like five years from now, given the rapid pace of change?

SENATOR CRYAN: Have you seen growth, or changes in majors, based on AI and the limited experience that this class has had?

DR. McMENAMIN: We saw a decrease in computer science majors.

SENATOR CRYAN: And, have you seen a growth in a particular industry? Just out of curiosity, based on, again, our new AI type model?

DR. McMENAMIN: No.

SENATOR CRYAN: No?

DR. MIHLON: Our students are gravitating towards degrees in data science, data analytics. So, we have seen a rise in those -- those areas. But, in terms of other majors, they've pretty much stayed pretty steady in the past -- recent years.

SENATOR CRYAN: We've heard the term "nimble" has come up quite a bit today about how to react; how to move. And, I'll be candid

here. Higher ed. institutions like the independents, like community colleges, and the rest.

But, Maggie, you said, not Princeton, not Rutgers, but the AI Hubs are in New Brunswick and Princeton. OK, just, where we are. So, we've got to make sure we are nimble in that regard.

But, I am particularly concerned about certifications and things that can make adjustments, versus -- versus a more private institute, a private college, or for-profit college, and things like that. And, I don't know if I have the exact wording to my question right, but are there things that we do or require that can affect that nimbleness for you to be able to adjust in what's clearly going to be a very flexible and fluid market?

DR. McMENAMIN: Most of the curriculum decisions are made locally, so I do not see any problem with you guys making -- intervening. It's more our curriculum committees needing to interweave some of this -- these things into their programs.

DR. FICHTNER: The one thing I would add is you had a long conversation with Commissioner Jarvis about the importance of data--

SENATOR CRYAN: Right--

DR. FICHTNER: --and I think we would echo that. The more that we can -- can partner with the business community and with the Labor Department to get good data in the hands of those who make decisions on our campuses, the better. And, we're working to start to do that, but that is -- certainly needs to be a focus going forward.

SENATOR CRYAN: Does a lack of data now prohibit you from-- Again, I'm not sure how to word this. Like, Dr. Hancock, you talked about S1100 right -- that requirement early on. Is there concern that we

don't have enough data yet and we're falling behind because we don't, when others are -- for lack of a better way to put it -- jumping deeper into the pool? Or, am I off on that?

DR. HANCOCK: I think this is a concern across higher ed., across the country, is-- We're building the train while it's heading down the track, because our employers are learning as they go and changing as they go. So, we're trying to pump out these graduates with certificates, degrees, and with the idea that they can jump on that train and keep running.

So, we need the data, but then we need to be able to immediately-- And, I'll tell you, at Thomas Edison, we're using AI every time we rebuild a course; we use AI because now it can instantaneously go pull out what employers are looking for. So, it's a tool on both sides; we're teaching and we're using it, but we're trying to keep up with the train that's changing, and the workforce. So, the more real-time data we have, the more we can change our curriculum.

SENATOR CRYAN: OK, my last -- my last line of questions. And, that goes to the comment I made earlier about the hubs. Do the hubs provide you any real-time feedback? Any-- What's the relationship between the folks of higher education and these hubs? What information is being shared? What do you get? What adjustments can you do?

DR. FICHTNER: So, I mentioned in my comments that we have a very strong partnership with the AI Hub at Princeton, and they have been very, very helpful in bringing expertise. So, President McMenamin talked about the convening that we had at her college -- that was in partnership with the AI Hub. They brought experts from Microsoft who shared information.

They have been very, very helpful and will continue to be helpful, I am sure, to help make sure that we are connecting.

So, while I would 100% agree that the solution is going to be at the community level, the community college level, the public college level, we need the expertise from Princeton and from Rutgers and from some of those others to translate onto our level. And, so, the AI Hub has been a really important partner, and I think they will be so going forward.

SENATOR CRYAN: Can I ask the presidents -- not you, (indiscernible); sorry. Can I ask the other -- the four-year presidents, for lack of a better way to put it?

DR. MIHLON: We've had some interaction with the hub. Thus far, though, it hasn't translated into anything significant. I recognize that it's moving and evolving, so we do anticipate that we will have a robust relationship that will be reciprocal, beneficial for institutions and our students.

SENATOR CRYAN: That's the answer--

DR. HANCOCK: I would mimic that. We've had some interactions; I don't think we've seen a lot come out of it. In Thomas Edison's case, the hub is a very traditional-- I mean, it's Rutgers and it's Princeton; it's very traditionally focused.

SENATOR CRYAN: Right.

DR. HANCOCK: So, for us and perhaps with the county colleges, our world's a little bit different in the rate of change and acceptance.

So, we've had some interactions, mostly through the New Jersey State Library, but our world's a little bit -- we are not in the pure research field where they are more focused.

SENATOR CRYAN: And, you all mentioned it with some level, Princeton, a little bit of it. Anybody anywhere in New Brunswick yet? Just out of curiosity. (no response)

OK, how about Newark? Any of that stuff up in there? (no response)

Anybody have any-- Members, anything else? (no response)

I can't tell you how grateful we are, first for your patience. Thanks a lot.

And, thanks for the insight. It's immensely helpful. This is a hearing I think--

SENATOR JOHNSON: Yes--

SENATOR CRYAN: --at least for myself has been immensely helpful in terms of things to do.

SENATOR JOHNSON: You can include me.

SENATOR CRYAN: And, you can include Chairman Johnson. And, can I include Chairman Johnson in bringing the hearing to an end?

SENATOR JOHNSON: Yes, you may.

SENATOR CRYAN: We adjourn.

Thank you all very much.

(MEETING CONCLUDED)