

EXPLORING CONGRESS' FRAMEWORK FOR THE FUTURE OF AI

**THE OVERSIGHT AND LEGISLATIVE ROLE
OF CONGRESS OVER THE INTEGRATION
OF ARTIFICIAL INTELLIGENCE IN HEALTH,
EDUCATION, AND LABOR**



Senate Committee on

Health, Education, Labor & Pensions

Senator Bill Cassidy, M.D., Ranking Member

Introduction

Artificial intelligence (AI) is a transformational tool, carrying enormous power and potential to improve life for every American. As a foundational enabling technology, AI can be adapted for nearly any use to solve a myriad of problems. Health care is a prime example of a field where AI can do enormous good, with the potential to help create new cures, improve care, and reduce administrative burdens and overall health care spending. AI is also increasingly being adopted by businesses, consequently reshaping work, the workplace, and the labor market. But greater use of AI also carries significant risks. Experts exploring how the technology may affect the education field, for example, raise well-founded concerns about how AI might be used as a low-quality shortcut by both students and teachers, even as the technology might provide more personalized learning for students and reduce teacher workload. Our challenge as policymakers is to weigh the trade-offs inherent with any powerful technology and modify or create the legal frameworks needed to maximize technologies' benefits while minimizing risks.

To assess and balance the benefits and risks that AI creates, we must first define the term. Defining AI is challenging since AI experts have not arrived at a static definition of the rapidly-developing general-purpose technology. "Artificial intelligence" was coined in 1955 when the primitive computers of that time were often referred to as "thinking machines." This definition bears little resemblance to today's cutting-edge technology.¹ The working definition of AI for this paper, synthesized from others' definitions, is computers, or computer-powered machines, exhibiting human-like intelligent capabilities.² It is an umbrella term that encapsulates multiple distinct technologies and approaches. AI multiplies the availability of human-level intelligence that can be applied to solve problems. But like any technology, how it works, and the risks it creates, depends on how it is used.

As the U.S. Senate begins to consider legislation to address AI, we must account for the specific context in which AI's capabilities are applied. A sweeping, one-size-fits-all approach for regulating AI will not work and will stifle, not foster, innovation.³ To use an analogous example, there is no federal department of software, nor should there be: software is regulated based on how it is used, whether in power plants, airplanes, or X-ray machines. Likewise, we must adapt our current frameworks to leverage the benefits and mitigate the risks of how AI is applied to achieve certain goals. And only if our current frameworks are unable to accommodate continually changing AI, should Congress look to create new ones or modernize existing ones.

Congress' proactive consideration of AI's implications is encouraging—we need to pay attention to this fast-changing field to protect consumers and ensure that the U.S. maintains global technological leadership. However, Congress must be just as mindful of the risks of changes to the AI regulatory environment as we are to the risks from AI itself. Top-down, all-encompassing frameworks risk entrenching incumbent companies as the perpetual leaders in AI, imposing an artificial lid on the types of problems that dynamic innovators of the future could use AI to solve. Instead, we need robust, flexible frameworks that protect against mission-critical risks and create pathways for new innovation to reach consumers. As Ranking Member of the Senate Health, Education, Labor, and Pensions (HELP) Committee, I'm focused on making sure that we strike the right balance for Americans from the earliest stages of developing new products through deployment of an AI system

1 Stanford University. (n.d). *Defining AI*. <https://ai100.stanford.edu/2016-report/section-i-what-artificial-intelligence/defining-ai>

2 The definitions from which this one is synthesized include the following:

Oxford Languages: "The theory and development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages."

Oxford English Dictionary: "The capacity of computers or other machines to exhibit or simulate intelligent behavior; the field of study concerned with this." <https://www.oed.com/view/Entry/271625?redirectedFrom=artificial+intelligence#eid>.

Technologist Marc Andreessen: "The application of mathematics and software code to teach computers how to understand, synthesize, and generate knowledge in ways similar to how people do it." <https://a16z.com/2023/06/06/ai-will-save-the-world/>.

3 Adam Thierer. (June 21, 2023). *The Most Important Principle for AI Regulation*. R Street. <https://www.rstreet.org/commentary/the-most-important-principle-for-ai-regulation/>.

or solution solving complex problems.

Researching and Developing New Medicines

AI holds enormous potential to improve the speed and success of creating new medicines. For decades, drug development has begun with a laborious “discovery” process – researchers running painstaking experiments to assess one-by-one whether individual molecules have potential to treat disease. This process typically takes up to 26 months before clinical trials can begin.⁴ AI can help bring engineering principles to this guesswork-filled process, empowering researchers to predict which molecules make the best drug candidates, and increasingly design drugs to address specific targets, rather than discover them through slower, manual laboratory methods.⁵ It’s been reported that the first drug designed entirely with AI has moved into clinical trials in China.⁶ Investors have estimated that even modest improvements reaped through AI could create an additional 50 novel therapies over a decade.⁷ Not only can AI help create new therapies for patients, it could also help lower the costs of the time-consuming, expensive drug development process. Some estimates have found that leveraging AI could reduce development costs for manufacturers by up to \$54 billion annually.⁸

Our framework for preclinical and clinical investigation of new drugs, implemented by the Food and Drug Administration (FDA), is generally well-suited to adapt to the use of AI to research and develop new drugs. Indeed, FDA has done an admirable job facilitating the use of AI in early-stage drug development: in 2021, over 100 drug applications submitted to the FDA included AI components.⁹ In May 2023, FDA published two discussion papers on the use of AI in drug development and manufacturing, respectively.¹⁰ The agency is spearheading initiatives for industry, academia, patients, and global regulatory authorities to engage on how best to facilitate AI in this field. Congress should support continued growth in the use of AI for research and development, and encourage FDA to continue to spur the use of innovative approaches while ensuring that new technologies are properly validated and monitored. As AI leads drug development to become both more productive and more complex, FDA needs world-leading expertise to keep up. As drug developers use AI to design new medicines, FDA’s need to leverage experts in critical fields like computer science, biostatistics, biomedical engineering, and others will only grow. Congress needs to work with FDA on implementing last year’s user fee agreements, which included significant funding increases for new review staff. Congress should also explore how to help FDA address perennial challenges recruiting and retaining qualified staff, including through finding ways to use external sources to tap needed expertise and manage limited resources.

This can be assisted by FDA using AI to increase the speed and efficiency of the agency’s review process. FDA (and other agencies, like the National Institutes of Health [NIH]) can play an important role as early adopters and customers for new AI-powered research and development tools. Such tools could unlock enormous benefits, freeing FDA experts to focus on the tasks most critical to public health.

4 Garurav Agrawal et al. (February 10, 2023) *Fast to first-in-human: Getting new medicines to patients more quickly*. McKinsey & Company. <https://www.mckinsey.com/industries/life-sciences/our-insights/fast-to-first-in-human-getting-new-medicines-to-patients-more-quickly>.

5 Vijay Pande. (Nov. 12, 2018) *How to Engineer Biology*. <https://a16z.com/2018/11/12/how-to-engineer-biology/>.

6 Jamie Smyth. (June 26, 2023) *Financial Times, Biotech begins human trials of drug designed by artificial intelligence*. <https://www.ft.com/content/82071cf2-f0da-432b-b815-606d602871fc>.

7 Morgan Stanley. (Sept. 9, 2022). *Why Artificial Intelligence Could Speed Drug Discovery*. <https://www.morganstanley.com/ideas/ai-drug-discovery>.

8 Kevin Gawora. (December 7, 2020). *Fact of the Week: Artificial Intelligence Can Save Pharmaceutical Companies Almost \$54 Billion in R&D Costs Each Year*. Information Technology & Innovation Foundation. <https://itif.org/publications/2020/12/07/fact-week-artificial-intelligence-can-save-pharmaceutical-companies-almost/>.

9 Patrizia Cavazzoni, M.D. (May 10, 2023). *FDA Releases Two Discussion Papers to Spur Conversation about Artificial Intelligence and Machine Learning in Drug Development and Manufacturing*. Food and Drug Administration. <https://www.fda.gov/news-events/fda-voices/fda-releases-two-discussion-papers-spur-conversation-about-artificial-intelligence-and-machine>.

10 *Id.*

Diagnosing and Treating Diseases

Diagnostic and treatment applications of artificial intelligence are proliferating each year.¹¹ They hold the potential to expand health care access, improve outcomes, and increase efficiency. However, FDA's framework for regulating medical devices was not designed for devices that incorporate evolving AI – Congress may need to consider targeted updates to provide predictability and flexibility for AI-powered devices while ensuring that such devices are safe and effective for patients. Moreover, foundational questions about AI applications remain regarding the transparency of algorithm development, ongoing effectiveness of such applications, and who carries the liability if something goes wrong.

Using AI-Enabled Tools to Detect, Diagnose, and Treat Disease

Consumers, patients, and health care providers use AI-enabled products throughout the patient lifecycle. AI is used to detect the earliest signs of medical conditions in otherwise healthy people, accurately diagnose patients when they get sick, and treat deadly diseases. In 2022 alone, FDA authorized 91 AI-enabled medical devices, after authorizing a record 115 devices in 2021.¹² Many of these devices leverage advances in sensor technology and imaging and data analytics to examine symptoms of a particular condition and use extensive datasets to inform diagnosis or treatment.¹³ These devices range from Apple's atrial fibrillation sensor built into its watch and image reconstruction algorithms used in radiology and cardiology to detect cancers and lesions to clinical decision support software to predict a patient's risk of developing sepsis.

AI-enabled diagnostic tools synthesize large amounts of data and perform pattern analysis to help detect a diagnosable condition, like a tumor.¹⁴ Diagnostic AI tools are used across a variety of fields where the pattern-matching capabilities of AI can compare images from X-rays, CT scans, and other devices against massive databases of similar images to identify outliers that may indicate a disease or condition. These tools have shown the capability to increase the accuracy and efficiency of diagnosing patients. One application that has demonstrated incredible effectiveness is the use of AI for early screening for signs of diabetic retinopathy.¹⁵ There are very few trained eye technicians who are able to expertly diagnose the condition compared to the vast number of diabetic patients who need screening. Automated analysis software that uses AI helps increase the accuracy of diagnosis and expand the number of clinicians who can do this important screening. More diagnoses are made earlier, helping more patients avoid blindness.

The utility of AI-enabled devices depends on clinician adoption—no patients are better off if these tools sit on a shelf. To a greater degree than traditional devices, AI-enabled products raise novel questions about supplementing, or even supplanting the clinician's role: the same tool that could reduce error could also miss outlier symptoms. In order to best leverage the utility of AI-enabled devices, clinicians need to be effectively trained, including in how to reduce the risk of misdiagnosis and mistreatment. In order to have a robust and effective framework, standards to demonstrate clinical validity will need to be developed and testing to proper safety standards will need to be implemented.¹⁶

11 Ben Leonard et al. (June 29, 2023). *Big bets on health care AI*. Politico. <https://www.politico.com/newsletters/future-pulse/2023/06/29/big-bets-on-health-care-ai-00104020>.

12 Elise Reuter. (November 7, 2022). *5 takeaways from the FDA's list of AI-enabled medical devices*. MedTechDive. <https://www.medtechdive.com/news/FDA-AI-ML-medical-devices-5-takeaways/635908/>.

13 *Id.*

14 United States Government Accountability Office. (September 29, 2022). *Artificial Intelligence in Health Care: Benefits and Challenges of Machine Learning Technologies for Medical Diagnostics*. <https://www.gao.gov/assets/gao-22-104629.pdf>.

15 SK Padhy et al. (July 2019). *Artificial intelligence in diabetic retinopathy: A natural step to the future*. Indian Journal of Ophthalmology. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6611318/pdf/IJO-67-1004.pdf>.

16 See, Artificial Intelligence in Health Care.

Adapting the FDA Framework for AI

AI poses two foundational challenges to FDA's current regulatory framework for medical devices. First, products that incorporate AI-enabled software face varying degrees of premarket regulatory scrutiny, based on whether they meet the statutory definition of medical device or are subject to either a statutory carve-out or FDA's policy of enforcement discretion for certain products. Second, FDA's review of the safety and effectiveness of devices inherently applies to a specific product at a specific moment in time, meaning that FDA's review, and the statutory requirements it implements, was not designed for products that incorporate AI to improve over time.

In light of these challenges, FDA is still figuring out how best to assess medical devices that use AI. It has attempted a pre-certification pilot for software treated as medical devices that would certify software developers as opposed to the products themselves. FDA also published an attempt at an AI framework through guidance in 2019 and subsequent action plans.¹⁷ Pursuant to policies enacted by Congress in December 2022, FDA has begun accepting predetermined change protocol plans in premarket product submissions where developers can outline anticipated modifications to avoid subsequent review and approval. Yet these efforts have presented more questions about how FDA will actually treat medical devices that integrate AI, and FDA (and others) acknowledge that Congress may need to consider updating the decades-old medical device framework.¹⁸

Considerations for Transparency, Effectiveness, and Liability

Ensuring that AI tools are trusted by all stakeholders is essential to support greater AI adoption and enable patients to receive maximum benefits. First, AI tools should be developed in a transparent way, so patients and providers can understand how they are meant to be applied to ensure appropriate use. One of the barriers to adoption of AI tools is a lack of understanding about how any given algorithm was designed. Improving transparency about how an AI product works will build stakeholder trust in such products.

Second, any framework must build in a clear method to measure effectiveness so AI products can be further improved. AI algorithms are trained on data sets which may only represent a specific population. Algorithms may not be appropriate for different populations from ones they were trained on, which can create bias and decrease effectiveness. Effective algorithms must also leverage accurate data sets to ensure that the information being used to make determinations is properly collected and inputted. Congress may need to consider how to best ensure that AI-enabled products do not give undue weight to potential biases.

Third, stakeholders need a clear understanding of potential liability around the use of AI. Like any medical device, failure of a product that incorporates AI could harm patients, such as through incorrect diagnoses (both false positives and false negatives). These risks are magnified with AI devices that are trained by additive data sets and evolve over time, and where later results may differ from earlier iterations. A predictable framework is needed to facilitate adoption of these tools, which requires determining where liability lies – the original developer, most recent developer, clinician, or other party.

17 Food and Drug Administration. (January 7, 2019). Developing a Software Precertification Program: A Working Model. <https://www.fda.gov/media/119722/download>. (AI/ML)-Based Software as a Medical Device (SaMD) Action Plan, Food and Drug Administration (January 12, 2021), <https://www.fda.gov/media/161815/download>.

18 The Software Precertification (Pre-Cert) Pilot Program: Tailored Total Product Lifecycle Approaches and Key Findings, Food and Drug Administration (September 27, 2022), <https://www.fda.gov/media/161815/download>; See also, Scott Gottlieb and Lauren Silvis, Regulators Face Novel Challenges as Artificial Intelligence Tools Enter Medical Practice, JAMA Forum (June 8, 2023), <https://jamanetwork.com/journals/jama-health-forum/fullarticle/2806091>.

Supporting Patients and Providers

A burgeoning application of AI is in the development of clinical decision support algorithms, which use data sets of patient data and an individual patient's own medical record to alert a clinician through their electronic health record software of a diagnosis, treatment, or predicted likelihood of developing a condition that they may want to consider. Hospital systems across the country use internally developed clinical decision support algorithms based off of their own patient population and patient data.

One leading electronic health record (EHR) vendor that developed an algorithm intended to predict whether a patient would develop sepsis came under scrutiny when the Journal of the American Medical Association found that it only accurately predicted the occurrence of sepsis seven percent of the time.¹⁹ This highlighted the risk involved if clinicians rely too heavily on algorithms. In response, FDA proposed a guidance for industry in September 2022 asserting authority over these algorithms and requiring them to go through FDA review as medical devices.²⁰

AI interfaces that engage directly with patients are also promising enhanced care and improving outcomes by predicting and catching conditions early.²¹ For example, patient-facing chat bots have reduced emergency department visits at one health system by five percent, saving \$1 million.²² Yet incorporating AI in patient care warrants caution. A recent study found that 60 percent of patients would be uncomfortable with a provider relying on AI when receiving care.²³ Patients are understandably concerned about how AI could result in a less robust patient-provider relationship. As we move forward, integrating AI into patient care will require both effective products, as well as the much harder task of building trust with patients.

Address Health Care Administration and Coverage

Administrative activities are a significant component of the health care system. These activities are responsible for executing the operations of health care, including practice management, payment processing, engagement with regulators, and integrating new tools to improve health outcomes. Approximately 15-30 percent of all health care spending is spent on administrative activities.²⁴ However, as health care has become more complex, administrative tasks take up an increasing part of providers' time, taking them away from patient care. Studies have found that physicians spend approximately 8.7 hours a week on administrative activities and must devote approximately 28 percent of a patient visit to administrative tasks, such as data entry into EHR systems, filling out health insurance claims forms and prior authorization requests, and scheduling appointments.²⁵ As administrative tasks have become more time intensive, physicians have reported higher levels of burnout.

19 Anand Habib et al. (June 21, 2021) *The Epic Sepsis Model Falls Short-The Importance of External Validation*. JAMA Internal Medicine. <https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2781313>.

20 U.S. Food and Drug Administration. (September 28, 2022) *Clinical Decision Support Software; Guidance for Industry and Food and Drug Administration Staff*. <https://www.fda.gov/media/109618/download>.

21 Bill Siwicki. (June 22, 2023). *Where AI is making a difference in healthcare now*. Healthcare IT News. https://www.healthcareitnews.com/news/where-ai-making-difference-healthcare-now?mkt_tok=NDIwLVlOQS0yOTIAAAGMlh6OuDu5McFjUNQx-kQSQmNjW8IO4xhexcsa56Sim512rObjMVQ3Ag70YFFemTVR9p9-1T-IT73aUDrRCTMjq9bXd8bhZdZr2SR2TZZbXkQ.

22 *Id.*

23 Alec Tyson et al. (February 22, 2023). *60% of Americans Would Be Uncomfortable With Provider Relying on AI in Their Own Health Care*. Pew Research Center. <https://www.pewresearch.org/science/2023/02/22/60-of-americans-would-be-uncomfortable-with-provider-relying-on-ai-in-their-own-health-care/>.

24 HealthAffairs. (October 6, 2022) *The Role Of Administrative Waste In Excess US Health Spending*. <https://www.healthaffairs.org/doi/10.1377/hpb20220909.830296/full/>.

25 Steffie Woolhandler and David Himmelstein. (2014) *Administrative work consumes one-sixth of U.S. physicians' working hours and lowers their career satisfaction*, *International Journal of Health Services*. <https://pubmed.ncbi.nlm.nih.gov/25626223/>. Fabrizio Toscano et al., *How Physicians Spend Their Work Time: an Ecological Momentary Assessment*, *Journal of General Internal Medicine* (August 17, 2019), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7661623/pdf/11606_2020_Article_6087.pdf. Rebecca Pifer, *Hurting into the future: The potential and thorny ethics of generative AI in healthcare*, *HealthcareDive* (April 21, 2023).

Administrative functions related to EHR use are a leading cause of burnout, leading to workforce shortages and a lower quality of care for patients.²⁶

AI has the potential to not only streamline health care administration by leveraging automation and analytical tools to reduce provider time spent on administrative tasks, but also reduce potential mistakes, streamline management decisions, and improve claims management. One hospital system used AI to improve surgical scheduling and saw a ten percent reduction in physician overtime and improved utilization of surgical suites by 19 percent.²⁷ EHR systems are also leveraging AI tools to reply to patient messages and eventually summarize patient medical history and translate between languages and reading levels for patient materials.²⁸ AI has also been used to improve claims management, by improving the speed by which claims can be reviewed and prepared. Some vendors have used AI to enable instant claims approval, reducing uncertainty and paperwork for patients.²⁹

Health insurers can also leverage AI to great benefit, reducing the time, energy, and expenses dedicated to determining and managing health risks. AI can more accurately predict and measure an individual's risk and the specific type of care they need, reducing administrative burdens and saving time and money.³⁰ AI can also drive health care savings by reducing long-term costs and unnecessary paperwork. Some estimates have found that greater uptake of AI could reduce national health care spending by of five to ten percent.³¹

However, we must also ensure that using AI for coverage decisions does not reduce needed care. One report found that a health insurer used an algorithm to batch claims that were denied by the thousands with a single click.³² Stakeholders later emphasized the need for greater regulatory oversight of using AI to review prior authorization requests.³³ Steps should also be taken to ensure that AI is not overriding clinical judgement. Some patients have been unable to receive a provider opinion due to algorithms automatically deciding a treatment plan.³⁴

26 Steffie Woolhandler and David Himmelstein. (2014) *Administrative work consumes one-sixth of U.S. physicians' working hours and lowers their career satisfaction*. International Journal of Health Services. <https://pubmed.ncbi.nlm.nih.gov/25626223/>. Scott Yates. (September 11, 2019). Physician Stress and Burnout, The American Journal of Medicine <https://www.amjmed.com/action/showPdf?pii=S0002-9343%2819%2930757-0>.

27 Thomas Davenport and Randy Bean. (April 11, 2022). *Clinical AI Gets the Headlines, but Administrative AI May Be a Better Bet*, MIT Sloan Management Review. <https://sloanreview.mit.edu/article/clinical-ai-gets-the-headlines-but-administrative-ai-may-be-a-better-bet/>.

28 Rebecca Pifer. (April 21, 2023). *Hurling into the future: The potential and thorny ethics of generative AI in healthcare*. Health-careDive. https://www.healthcaredive.com/trendline/tech/346/?utm_source=HDIT&utm_medium=BlastJune29&utm_campaign=-Salesforce.

29 PR Newswire (April 13, 2023). *Google Cloud Unveils New AI-enabled Claims Acceleration Suite to Streamline Health Insurance Prior Authorization and Claims Processing, Helping Experts Make Faster, More Informed Decisions*. <https://www.prnewswire.com/news-releases/google-cloud-unveils-new-ai-enabled-claims-acceleration-suite-to-streamline-health-insurance-prior-authorization-and-claims-processing-helping-experts-make-faster-more-informed-decisions-301796467.html>.

30 Albert Pomales. (January 10, 2023). *Using AI And Machine Learning To Improve The Health Insurance Process*. <https://www.forbes.com/sites/forbesbusinesscouncil/2022/01/10/using-ai-and-machine-learning-to-improve-the-health-insurance-process/?sh=7c738f2442b1>.

31 Nikhil Sahni, George Stein, Rodney Zimmel, and David M. Cutler. (January 2023). *The Potential Impact of Artificial Intelligence on Healthcare Spending*, National Bureau of Economic Research. <https://www.nber.org/papers/w30857>.

32 Patrick Rucker, Maya Miller, and David Armstrong. (March 25, 2023). *How Cigna Saves Millions by Having Its Doctors Reject Claims Without Reading Them*. ProPublica. <https://www.propublica.org/article/cigna-pxdx-medical-health-insurance-rejection-claims?source=email>.

33 American Medical Association (June 14, 2023). *AMA adopts policy calling for more oversight of AI in prior authorization*. <https://www.ama-assn.org/press-center/press-releases/ama-adopts-policy-calling-more-oversight-ai-prior-authorization>.

34 Casey Ross and Bob Herman. (July 11, 2023). *How UnitedHealth's acquisition of a popular Medicare Advantage algorithm sparked internal dissent over denied care*. https://www.statnews.com/2023/07/11/medicare-advantage-algorithm-navihealth-united-health-insurance-coverage/?utm_campaign=health_tech&utm_medium=email&hsmi=265862274&hsenc=p2ANqtz--orgR_Iu-WAS7GGqGX88drrkS-CgpWO1Qt-0hrpikjH5uO6OJcK5dgCQHlzxUFi2Vyu0FR117mGU7zGzOJuQs_dNSGCCChu_LS8nwSY3x-DIE0RXSQY&utm_content=265862274&utm_source=hs_email.

While AI has the potential to streamline health care administration and address spending by optimizing provider resources and improving patient care, there are still questions about how patient information will be used to advance care and whether this may weaken patient privacy protections. Leveraging individual health data is essential to deliver specific care outcomes to a patient, but Congress must ensure that AI tools are not used to deny patients access to care or use patient information for purposes that a patient has not given consent for.

Safeguarding Patient Privacy Throughout the Health Care Lifecycle

The foundational requirement for developing an AI tool is a large data set upon which to train an algorithm to analyze information and make determinations and predict outcomes. The dataset can take many forms, including thousands of medical images accompanied by indications of whether and where cancerous tumors are present. After learning from enough images, the algorithm should be able to process a new image and alert a clinician as to whether cancer is indicated in the scan. To obtain such vast datasets, algorithm developers may affiliate with an institution that already has internal datasets, such as a hospital system or EHR vendor. These institutions are typically regulated as covered entities or business associates under the Health Insurance Portability and Accountability Act (HIPAA). Developers may also use health data collected via third-party applications. This information is not always protected by the HIPAA framework and raises questions about what protections the information may be entitled to. In many instances, patients and consumers have expectations for how their health information should be handled that may differ from existing requirements on those who collect health data. AI can be leveraged to enhance privacy protections by aggregating disparate data to anonymize personally identifiable information, though it can also be used to re-identify previously de-identified health information.³⁵ Congress needs to consider if changes are needed in how health information is protected when it falls outside the scope of HIPAA.

Improving Student Learning and Transforming Education

Educators, school officials, and researchers are debating the merits and shortcomings of utilizing this new technology in classrooms. Proponents posit that AI can revolutionize education by providing more personalized learning for students while reducing the workload for teachers. This technology might prove especially helpful in light of the COVID-19 pandemic, which resulted in years of lost learning and the largest decline in test scores seen on national assessments in decades.³⁶ However, there are well-founded concerns around how AI might be used as a low-quality shortcut by both students and teachers, how to account for errors in AI's output, and how the underlying models and algorithms might not be setup to adequately serve all students.

School districts across the country have used federal funds to provide tutoring to address student learning loss. Now, researchers are exploring whether AI can serve as a supplemental tutor during class time or at home to provide homework help. The rise of platforms such as Khan Academy's Khanmigo shows that the technology can provide customized responses to students' questions, guiding them through their thinking process to help them come up with an accurate answer.³⁷ AI can help educators with routine tasks, like grading assessments and identifying trends in student outcomes, to reduce the ever-growing burdens on teacher time. For example, teachers are starting to use AI to assist in lesson planning, by aligning standards to activities, identifying strategies to engage all learners, and developing assessments.³⁸ This can free up teachers' time to focus on

35 Katharine Miller, De-Identifying Medical Patient Data Doesn't Protect Our Privacy, Stanford University Human-Centered Artificial Intelligence, July 19, 2021, <https://hai.stanford.edu/news/de-identifying-medical-patient-data-doesnt-protect-our-privacy/>.

36 The National Assessment of Educational Progress. (June 2023). *Reading and Mathematics Scores Decline during COVID-19 Pandemic*. <https://www.nationsreportcard.gov/highlights/ltr/2022/>.

37 Khanmigo. (n.d.) Khan Academy. <https://www.khanacademy.org/khan-labs#khanmigo>.

38 Jorge Valenzuela. (March 15, 2023). *Using AI to Help Organize Lesson Plans*. Edutopia. <https://www.edutopia.org/article/ai-lesson-plans/>.

activities that make a greater impact on learning outcomes, such as providing individualized instruction or whole-group remediation.

AI can even be used to help support other school personnel, like security guards. School districts are starting to purchase and use AI-powered robots that can surveil school grounds and notify security staff about intruders.³⁹ While reliant on guidance from humans, these robots are equipped to video record interactions with intruders, transmit communications from safety staff, and even use flashing lights and lasers to disarm an individual.⁴⁰ While these robots are a new, and expensive, development, it is a promising innovation that can improve school safety.

Use of AI in post-secondary education, from workforce development to higher education, involves similar opportunities and potential concerns. A famous example of AI success in higher education is on student completion and success at Georgia State University. The institutional graduation rate stood at 32 percent and Pell students, those from low-income backgrounds, were graduating at a rates 10 percentage points lower than non-Pell students.⁴¹ According to their report, in 2003, Georgia State University was the “embodiment of these national failings.”⁴² Now, the graduation rate is up and the racial, ethnic, and economic disparities are no longer predictors of success at Georgia State. The university successfully demonstrated the impact of analytics-based proactive advisement, using AI, from identifying students at-risk of not graduating to chat bots to provide customized communications in real-time.⁴³

While these advances may be a bright spot for the future of education, results from a recent survey of teachers and administrators by the digital learning platform, Clever, show that there are more obstacles to overcome. Nearly half of survey respondents believed that “AI will make their jobs more challenging within three years” and these challenges may stem from the lack of professional development preparing teachers to use these new technologies in the classroom.⁴⁴ However, as with any new technology, like introduction of the internet or tablets in the classroom, there will be growing pains as teachers begin to grapple with and use AI in their classrooms. School leaders will need to take the lead in ensuring that their staff is appropriately trained, and best practices for use are developed and widely disseminated.

As localities consider if and how they will use AI in their classrooms, the country’s largest school district, New York City Public Schools, has taken a decisive step by banning ChatGPT on all district devices and networks.⁴⁵ One of the chief concerns shared by district leaders and teachers is how AI can enable students to cheat on assessments.⁴⁶ In fact, the Department of Education recently released a report that raised both this concern and a more widespread issue – how AI can provide information that appears to be accurate but perpetuates misunderstandings.⁴⁷

While students are now able to use the internet and other technologies to help answer basic homework

39 Megan Tagami. (July 7, 2023) *Your School’s Next Security Guard May Be an AI-Enabled Robot*. Wall Street Journal. <https://www.wsj.com/articles/this-schools-new-security-aide-has-360-degree-vision-its-a-robot-a4f983b5>.

40 *Ibid*.

41 *Ibid*.

42 Georgia State University. (September 2020) *Complete College Georgia*. Carnegie Foundation. <https://www.carnegiefoundation.org/wp-content/uploads/2020/09/George-State-University-Complete-College-Georgia-Report-2019.pdf>.

43 *Ibid*.

44 PR Newswire. (June 21 2023). *Half of Teachers Surveyed Believe AI Will Make Their Jobs More Challenging*. <https://www.prnewswire.com/news-releases/half-of-teachers-surveyed-believe-ai-will-make-their-jobs-more-challenging-301856158.html>.

45 Maya Yang. (January 6, 2023). *New York City Schools Ban AI Chatbot That Writes Essays and Answers Prompts*. The Guardian. <https://www.theguardian.com/us-news/2023/jan/06/new-york-city-schools-ban-ai-chatbot-chatgpt>.

46 *Ibid*.

47 Office of Educational Technology. (May 2023). *Artificial Intelligence and the Future of Teaching and Learning*. U.S. Department of Education. <https://www2.ed.gov/documents/ai-report/ai-report.pdf>.

questions, recent advancements will enable students to use AI as a substitute for their own thinking for assignments aimed at building or testing their critical thinking skills. AI can be used to write essays, prepare an argument for debate, or construct proofs for complex math problems. If both AI's content and students' use of the technology is left unchecked, students may never fully develop the critical thinking skills needed to succeed in the workforce. Students must be taught to use AI to strengthen, rather than replace their critical thinking skills. For instance, students could be asked to critique the reasoning of an essay prepared by AI or submit their argument to AI and ask for probing questions to work through that might strengthen their logic. AI will either be a shortcut for students' critical thinking or an incredible sparring partner to strengthen them – what actions can we take to ensure it is the latter?

Responsible Use of AI Can Improve the Workplace

Human resources (HR) technology spending on AI tripled in 2021 as companies adjusted to remote work and staffing challenges.⁴⁸ This year, HR technology ranks as the top spending priority for HR leaders, higher than staffing, total rewards, or learning and development.⁴⁹ Employers are using AI to create efficiencies across the employee lifecycle, from recruiting, to interviewing, hiring, onboarding, upskilling, managing, promoting, and downsizing. Proponents argue AI can help firms make better employment-related decisions and enhance work for employees. To fill employment gaps, AI is facilitating connections between job seekers and potential employers, and helping employers attract, hire, and retain high-value employees, including those with untraditional backgrounds. When designed or used inappropriately, AI can lead to violations of federal law or alter how work is done to the detriment of workers.

For example, the use of AI to monitor and manage employees has often been cited as a cause of deteriorating workplace conditions. In certain cases, employees have expressed concerns that AI was inappropriately used to determine who is laid off.⁵⁰ In addition, the digitalization of HR departments has often meant information on employee productivity, employee potential, and other metrics derived using AI played a role in adverse HR decisions.⁵¹ Meanwhile, some companies are deploying employee monitoring methods such as keystroke and eye tracking software, video monitoring or automated job interviews, and wearable tracking devices, which can raise concerns over employee privacy and dignity.⁵² The shift to remote work that occurred during the pandemic spurred adoption of these technologies, intensifying concerns. Companies are also using AI to ensure the safety and protection of their workers. For example, AI models are being developed for fire detection, limiting unauthorized access, and collision warnings for moving vehicles.⁵³

Another area of potential harm that has garnered ample attention by policymakers and regulators is discrimination. At the federal level, Congress, the Department of Labor (DOL), the Equal Employment Opportunity Commission (EEOC), the National Labor Relations Board (NLRB), and the White House have

48 Dondo, Jean. (2021, December 21). *HR technology budget triples in 2021*. HRD America. <https://www.hcamag.com/us/specialization/hr-technology/hr-technology-budget-triples-in-2021/320668>.

49 Feffer, Mark. (2023, March 16). *HR Sees Technology as One Solution to Rising Costs*. HCM Technology Report. <https://www.hcmtechnologyreport.com/hr-sees-technology-as-one-solution-to-rising-costs/>.

50 Nurski, L. and Hoffman, M. (2022, July 27). The impact of artificial intelligence on the nature and quality of jobs, Working Paper, Bruegel. <https://www.bruegel.org/sites/default/files/2022-07/WP%2014%202022.pdf>.

51 Verma, Pranshu. (2023, February 20). *AI is starting to pick who gets laid off*. The Washington Post. <https://www.washingtonpost.com/technology/2023/02/20/layoff-algorithms/>.

52 Lazar, Wendi, & Yorke, Cody. (2023, April 25). *Watched while working: Use of monitoring and AI in the workplace increases*. Reuters. <https://www.reuters.com/legal/legalindustry/watched-while-working-use-monitoring-ai-workplace-increases-2023-04-25/>.

53 Boesch, G. (2023, January 5). Top 18 applications of Computer Vision in security and surveillance. viso.ai. <https://viso.ai/applications/computer-vision-applications-in-surveillance-and-security/>.

each opined on the potential risk of AI to produce discriminatory employment decisions.⁵⁴⁵⁵⁵⁶⁵⁷⁵⁸ Debates are just beginning about whether adequate protections are provided by technology-neutral federal anti-discrimination statutes, such as Title VII of the Civil Rights Act of 1964, the Americans with Disabilities Act of 1990, and the Age Discrimination in Employment Act of 1967.⁵⁹⁶⁰⁶¹

Three AI challenges facing policymakers are working conditions, discrimination, and job displacement. AI is disrupting the labor market by automating some jobs and threatening to displace more.⁶² In one estimate, about two-thirds of jobs globally are exposed to partial AI automation, and about one-fourth of jobs could be replaced.⁶³ Early estimates focus on potential job loss among low-skilled, low-income jobs. White-collar jobs are increasingly considered at risk, particularly with the rapid development of generative AI (i.e., AI systems using existing patterns within data sets to create new content, such as ChatGPT).

As EEOC Commissioner Keith Sonderling notes, machine learning and natural language processing are the most pertinent iterations of AI in the employment context.⁶⁴ Machine learning is a subfield of AI that allows computing systems to process large amounts of data to change the original programming, i.e. “learn,” without explicitly being programmed. At any point in the process, programmers may alter the model to push it to more accurate results or assess the system with evaluation data.⁶⁵ Natural language processing is a set of computational techniques to analyze and produce written or oral language in a way that appears to be human.⁶⁶ Chatbots are a common example.

AI’s impact on work is far from understood, as the workplace, workers’ preferences and expectations, and the technology itself is rapidly developing. AI’s potential positive impact on work is less discussed, but may prove more significant. AI systems have been used to help workers look for a job, or upskill to a new one. AI education tools can be seamlessly integrated into an employee’s workflow, and adjusted in real time as the

54 Senate Judiciary Subcommittee on Privacy, Technology, and the Law. (2023, July 25). Senate hearing on Regulating Artificial Intelligence Technology. CSPAN. <https://www.c-span.org/video/?529513-1%2Fsenate-hearing-regulating-artificial-intelligence-technology>.

55 Goldman, T. (2022, October 4). What the blueprint for an AI bill of rights means for workers. DOL Blog. <https://blog.dol.gov/2022/10/04/what-the-blueprint-for-an-ai-bill-of-rights-means-for-workers>.

56 U.S. Equal Employment Opportunity Commission. (2022, May 12). [Technical Guidance] The ADA and AI: Applicants and Employees. U.S. Equal Employment Opportunity Commission. <https://www.eeoc.gov/laws/guidance/americans-disabilities-act-and-use-software-algorithms-and-artificial-intelligence>.

57 Abruzzo, J. A. (2022, October 31). Electronic Monitoring and Algorithmic Management of Employees Interfering with the Exercise of Section 7 Rights. National Labor Relations Board. <https://www.nlr.gov/news-outreach/news-story/nlr-general-counsel-issues-memo-on-unlawful-electronic-surveillance-and>.

58 The United States Government. (2023, March 16). Blueprint for an AI bill of rights. The White House. <https://www.whitehouse.gov/ostp/ai-bill-of-rights/>.

59 Equal Employment Opportunity Commission . (1964). Title VII of the Civil Rights Act of 1964. US EEOC. <https://www.eeoc.gov/statutes/title-vii-civil-rights-act-1964>.

60 Equal Employment Opportunity Commission . (1990). Americans with Disabilities Act of 1990. US EEOC. <https://www.eeoc.gov/publications/ada-your-responsibilities-employer>.

61 Equal Employment Opportunity Commission . (1967). Age Discrimination in Employment Act of 1967. US EEOC. <https://www.eeoc.gov/statutes/age-discrimination-employment-act-1967>.

62 Challenger, Gray & Christmas, Inc. (2023, June 1). *Layoffs Jump in May on tech, retail, auto; TYD hiring lowest since 2016*. Challenger Report May 2023. <https://omscgcinc.wpenginepowered.com/wp-content/uploads/2023/06/The-Challenger-Report-May23.pdf>.

63 Briggs, Joseph, Hatzius, Jan, Kodnani, Devesh, & Pierdomenico, Giovanni. (2023, March 26). *The Potentially Large Effects of Artificial Intelligence on Economic Growth (Briggs/Kodnani)*. Goldman Sachs Economic Research. <https://www.key4biz.it/wp-content/uploads/2023/03/Global-Economics-Analyst-The-Potentially-Large-Effects-of-Artificial-Intelligence-on-Economic-Growth-Briggs-Kodnani.pdf>.

64 *Ibid.*

65 Brown, Sara. (2021, April 21). *Machine learning, explained*. MIT Sloan. <https://mitsloan.mit.edu/ideas-made-to-matter/machine-learning-explained>.

66 Liddy, Elizabeth D. (2001). *Natural Language Processing*. SURFACE at Syracuse University. <https://surface.syr.edu/cgi/viewcontent.cgi?article=1043&context=istpub>.

economy changes.⁶⁷ AI can increase workplace access for disabled employees. Examples include lip-reading recognition tools, image and facial expression recognition, and wearable technologies, such as robotic arms. AI tools can create more flexible scheduling, matching labor demands with worker availability, qualifications, and preferences. Flexible scheduling is particularly important for family caregivers.⁶⁸ Research has indicated that AI often results in more diverse hires and less biased promotion decisions.⁶⁹ Perhaps counterintuitively, the use of AI in the workplace has been correlated with greater employee satisfaction, giving actionable information on workplace stressors in real time and facilitating interactions with management.^{70,71}

The U.S. Government has not adopted a centralized regulatory approach to AI in the employment context. Several states and localities—Maryland, Illinois, and New York City, for example—have enacted AI laws, and more local and state regulation is pending.⁷² Executive branch policy is beginning to address AI, to include technical assistance from the EEOC and a memo by NLRB General Counsel, but is still in its infant stages. Federal lawmakers have shown interest in regulating AI, but significant problems, including the novelty of the technology and the still undecided nature of its impact, remain.

AI and Job Displacement

Technological unemployment has been a recurring fear since the manufacturing era, and is once again with the advent of AI. According to a Goldman Sachs study, globally 300 million full-time jobs could be at risk of automation.⁷³ The World Economic Forum estimates that 85 million jobs could be displaced by 2025 but 97 million new jobs may be generated by technology.⁷⁴ Many economists argue robots are not replacing workers, but instead workplaces are integrating them into their ecosystem.⁷⁵ Despite these fears, as adoption of AI increases across the private sector, the major workforce challenge most companies face is filling job vacancies.

The potential automation of truck driving has often been predicted to threaten millions of U.S. jobs. According to the American Trucking Association, in 2022, 8.4 million Americans were employed in jobs that relate to trucking activity.⁷⁶ Hearings on autonomous vehicles and trucking have focused on this risk. The Senate Commerce Committee reported the AV START Act (S.1885) in 2017, but exempted vehicles weighing more than 10,000 pounds after pressure from the Teamsters Union.⁷⁷ In 2021, the Departments of Transportation and Labor published a congressionally-directed study on the impacts of automated trucking on the workforce, which acknowledged the potential for job displacement in the trucking industry but noted the lack of data would

67 Perara, Angela. (2022, October 8). *Artificial Intelligence in HR: Using AI for identifying and hiring suitable candidates*. Business-Tech Weekly. <https://www.businesstechweekly.com/hr-and-recruitment/artificial-intelligence-ai-for-hiring/>.

68 Siddiqui, A. R. (2023, June 7). How ai is helping society break free from the 9-to-5 mold. Entrepreneur. <https://www.entrepreneur.com/leadership/how-ai-is-breaking-the-9-to-5-mold/452728>.

69 Houser, Kimberly. (2020, July 12). *Can AI Solve the Diversity Problem in the Tech Industry? Mitigating Noise and Bias in Employment Decision-Making*. SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3344751

70 Candelon, François, Khodabandeh, Shervin, & Lanne, Remi. (2022, November 4). *A.I. empowers employees, not just companies. Here's how leaders can spread that message*. FORTUNE. <https://fortune.com/2022/11/04/artificial-intelligence-ai-employee-empowerment/>.

71 Houser, Kimberly. (2020, July 12). *Can AI Solve the Diversity Problem in the Tech Industry? Mitigating Noise and Bias in Employment Decision-Making*. SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3344751.

72 Zhu, K. (2023, August 3). The State of State AI laws: 2023. EPIC. <https://epic.org/the-state-of-state-ai-laws-2023/>.

73 Goldman Sachs. (2023, April 05). *Generative AI could raise global GDP by 7%*. Goldman Sachs. <https://www.goldmansachs.com/intelligence/pages/generative-ai-could-raise-global-gdp-by-7-percent.html>.

74 Schwab, Klaus, & Zahidi, Saadia. (2020, October 20). *The Future of Jobs Report 2020*. WeForum. <https://www.weforum.org/reports/the-future-of-jobs-report-2020/in-full/executive-summary#:~:text=Based%20on%20these%20>

75 Dahlin, Eric. (2022, October 17). *Are Robots Really Stealing Our Jobs? Perception versus Experience*. Socius, 8. <https://doi.org/10.1177/23780231221131377>.

76 American Trucking Association. (n.d.). *Economics and industry data*. American Trucking Associations. <https://trucking.org/economics-and-industry-data>.

77 DC Velocity Staff. (2017, October 4). *Senate committee caps weight limit on vehicles to be subject to AV laws*. DCVelocity. <https://www.dcvelocity.com/articles/29203-senate-committee-caps-weight-limit-on-vehicles-to-be-subject-to-av-laws>.

require further studies to generate a stronger prediction.⁷⁸ A 2019 Government Accountability Office (GAO) report noted widespread deployment of automated trucks could be years or decades away.

Studies have suggested that the impact of automation on jobs may be less abrupt than is envisioned.⁷⁹ A significant portion of job losses, for example, will take place through attrition, including retirement. In addition, studies comparing predictions of job loss and job creation due to technology fail to predict even the most common job titles over the coming decades.⁸⁰ Sixty percent of today’s workforce occupy jobs that did not exist in the 1940s.⁸¹ Increased demand for AI is predicted to generate job opportunities in engineering, software design, and programming. Industries such as finance and health care will experience job creation for high skilled roles including biologists, financial technology specialists, and geneticists.⁸² The Massachusetts Institute of Technology (MIT) Work of the Future report noted, “[W]e anticipate that in the next two decades, industrialized countries will have more job openings than workers to fill them, and that robotics and automation will play an increasingly crucial role in closing these gaps.”⁸³

Labor unions have expressed concern over various implications of AI, including recently at a White House listening session, where union leaders flagged safety, privacy, civil rights, and job loss as key risk areas.⁸⁴ Concurrently, AI has become a central issue in current contract negotiations between the respective actors’ and writers’ labor unions and studios.⁸⁵ The Screen Actors Guild has articulated the principal concern from the actors regarding AI is the risk of actors losing control over their likeness, specifically if their image or voice is used without their consent or without pay.⁸⁶ Likewise, the Writers Guild of America is concerned with the greater utilization of AI-generated storylines or dialogue, especially when it relates to credits that are linked to recognition pay.⁸⁷ Automation was also a major concern of dockworkers during the West Coast labor negotiations, particularly the potential of job loss presented by container-handling and transporting equipment.⁸⁸ This aspect was one of the last areas of agreement reached before the negotiations concluded. Other unions are positioning themselves to provide training and resources for workers entering new roles, or learning to work with technology in their current roles. AFL-CIO President Liz Shuler claimed AI will be “the next frontier for the labor movement,” anticipating growing productivity will allow the union organization to be “the center of

78 U.S. GAO. (2019, March). Automated Trucking Federal Agencies Should Take Additional Steps to Prepare for Potential Workforce Effects. U.S. Government Accountability Office (U.S. GAO). <https://www.gao.gov/assets/gao-19-161.pdf>.

79 Gmyrek, P., Berg, J., & Bescond, D. (2023, August). Generative AI and jobs: A global analysis of potential effects on job quantity and quality. ILO Working Paper 96. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_890761.pdf.

80 Thierer, Adam. (2023 March). *Can We Predict the Jobs & Skills Needed for the AI Era?*. R Street. <https://www.rstreet.org/wp-content/uploads/2023/03/r-street-policy-study-no-278.pdf>.

81 The Economist. (2023, May 7). *Your job is (probably) safe from artificial intelligence*. <https://www.economist.com/finance-and-economics/2023/05/07/your-job-is-probably-safe-from-artificial-intelligence>.

82 Schwab, Klaus, & Zahidi, Saadia. (2020, October 20). *The Future of Jobs Report 2020*. WeForum. <https://www.weforum.org/reports/the-future-of-jobs-report-2020/in-full/executive-summary#:~:text=Based%20on%20these%20>.

83 Autor, David, Mindell, David, & Reynolds, Elisabeth. (2020). *The Work of the Future: Building Better Jobs in an Age of Intelligent Machines*. MIT Work of the Future. <https://workofthefuture.mit.edu/wp-content/uploads/2021/01/2020-Final-Report4.pdf>.

84 The United States Government. (2023, July 3). *Readout of white house listening session with union leaders on Advancing Responsible Artificial Intelligence Innovation*. The White House. <https://www.whitehouse.gov/briefing-room/statements-releases/2023/07/03/readout-of-white-house-listening-session-with-union-leaders-on-advancing-responsible-artificial-intelligence-innovation/>.

85 Patten, Dominic. (2023, July 10). *SAG-AFTRA Strike Could Hinge On AI; Deep Divisions Remain Between Actors & Studios In Final Hours Of Talks. Deadline*. <https://deadline.com/2023/07/actors-strike-ai-kim-kardashian-fran-drescher-contract-deadline-1235432142/>.

86 Webster, Andrew. (2023, July 13). *Actors say Hollywood studios want their AI replicas — for free, forever*. The Verge. <https://www.theverge.com/2023/7/13/23794224/sag-aftra-actors-strike-ai-image-rights>.

87 Dalton, Andrew. (2023, July 13). *AI is the wild card in Hollywood’s strikes. Here’s an explanation of its unsettling role*. AP News. <https://apnews.com/article/artificial-intelligence-hollywood-strikes-explained-writers-actors-e872bd63ab52c3ea9f7d6e825240a202>.

88 Berger, Paul. (2023, April 20). *West Coast Dockworkers Reach Tentative Deal on Port Automation*. The Wall Street Journal. <https://www.wsj.com/articles/west-coast-dockworkers-reach-tentative-deal-on-port-automation-b4b828fe>.

gravity for working people as they transition to new and better jobs.”⁸⁹

Upskilling or educating workers to understand new technological advancements works to mitigate the negative impacts of new technology. For example, Senator Richard Durbin’s (D-IL) Investing in Tomorrow’s Workforce Act of 2021 would provide grants toward upskilling workers displaced due to automation.⁹⁰ Senators Gary Peters (D-MI) and Mike Braun’s (R-IN) AI Leadership Training Act would train federal employees on AI. Tim Kaine (D-VA) and Senator Braun’s JOBS Act, which would extend short term Pell Grants to workforce education programs, has been put forward as a response to automation caused by AI.⁹¹

AI itself may also be an answer to training workers for new tasks and jobs ahead. A Price Waterhouse Coopers (PwC) study found, “AI allows those in training to go through naturalistic simulations in a way that simple computer-driven algorithms cannot. The advent of natural speech and the ability of an AI computer to draw instantly on a large database of scenarios, means the response to questions, decisions or advice from a trainee can challenge in a way that a human cannot.”⁹² Several companies are currently leveraging AI to identify learning opportunities for their workers and facilitate personalized and flexible upskilling. Through machine learning, AI can recommend and facilitate employee role pathways and learning sequences. AI-facilitated upskilling can be seamlessly integrated into an employee’s workflow.⁹³

AI and Working Conditions

AI presents the opportunity for firms to derive meaningful data from workers and the workplace in ways not previously possible. This may translate to productivity gains and improved worker conditions. However, if not designed and implemented properly, AI may play a role in worsening workplace conditions by dehumanizing workers through inhospitable AI-driven management techniques, intruding on worker privacy, or increasing discrimination.

The COVID-19 pandemic shifted many in-person roles to remote, some temporarily and some permanently. Remote work centered the discussion of employee monitoring as employers attempted to find ways to hold remote workers accountable. Data collected from such monitoring may contribute to employment decisions such as promotions, raises, demotion, or termination. However, there is concern these tools are simply an invasion of workers’ privacy. Federal law is largely silent on the issue of worker surveillance in the workplace.⁹⁴ Several states have passed laws limiting employer surveillance, particularly in rest and changing rooms, including in California, New York, and West Virginia.⁹⁵ Nevertheless, U.S. employers have great discretion to monitor the workplace. Courts have upheld that employee monitoring is permitted if there is a valid business purpose. In *Smyth v. Pillsbury Co.*, an employee claimed to be wrongfully terminated after sending inappropriate emails through the employer’s email system. The court decided the plaintiff was not wrongfully terminated because there was not a reasonable expectation of privacy.⁹⁶

89 Kullgren, I. (2023, August 29). Unions must be at forefront of AI battle, AFL-CIO president says. Bloomberg Law. <https://news.bloomberglaw.com/us-law-week/unions-must-be-at-forefront-of-ai-battle-afl-cio-president-says>.

90 S. 1212 – 117th Congress (2021-2022) *Investing in Tomorrow’s Workforce Act of 2021*. (2021, April 19) <https://www.congress.gov/bill/117th-congress/senate-bill/1212/text?s=3&r=5&q=%7B%22search%22%3A%5B%22automa-tion+upskilling%22%5D%7D>.

91 Munhoz, Diego Areas. (2023, May 22). Congress Moves to Engage Workforce with AI, Not Fight Against It. Bloomberg Law. <https://news.bloomberglaw.com/daily-labor-report/congress-moves-to-engage-workforce-with-ai-not-fight-against-it>.

92 PricewaterhouseCoopers International Limited. (n.d.) *No longer science fiction, AI and robotics are transforming healthcare*. PWC. <https://www.pwc.com/gx/en/industries/healthcare/publications/ai-robotics-new-health/transforming-healthcare.html>.

93 HR Policy. (2023, January 31). *HRPA Statement to EEOC: “Growing Opportunity for the U.S> Workforce in the Age of AI”*. HR-policy. <https://www.hrpolicy.org/insight-and-research/resources/2023/hr-workforce/public/02/hrpa-statement-to-eec-growing-opportunity-for-the/>.

94 American Bar Association. (2018, January). *How much employee monitoring is too much?*. Americanbar. <https://www.americanbar.org/news/abanews/publications/youraba/2018/january-2018/how-much-employee-monitoring-is-too-much/>.

95 *Id.*

96 *Smyth v. Pillsbury Co.*, 914 F. Supp. 97 (E.D. Pa. 1996).

Employer use of AI to streamline worker management has also come under scrutiny. Safety and health issues have been implicated by aggressive requirements imposed by AI systems on workers' movements, breaks, and other behaviors within the workplace. The labor movement has taken keen interest in the intersection of working conditions and technology.

For example, testing of tracking technology on UPS delivery trucks drew strong push back from the Teamsters Union in 2020.⁹⁷ UPS Teamsters United claimed UPS used worker surveillance systems to “harass and discipline [its] drivers.”⁹⁸ Advocates for such technologies claim they improve worker safety. For example, Amazon partnered with Netradyn to develop a driver information camera system that utilized telematics to ensure the safety of the driver and vehicle.⁹⁹ However, the announcement received push back from the American Civil Liberties Union due to concerns of bias.¹⁰⁰

Many use cases of AI have contributed to improved working conditions and worker well-being. AI has the ability to reduce human error, as such creating a safer workplace. Marks & Spencer, a UK-based multinational retailer, reported a reduction of workplace incidents by 80 percent when they introduced a computer vision technology at a distribution center because the technology identified and rectified unsafe behaviors.¹⁰¹ Integration of AI and other innovative technologies may ultimately improve workplace conditions, worker safety, and worker mobility.¹⁰² App-based food delivery companies use AI to organize and design the system of pick-ups, deliveries, and food recommendations.¹⁰³ Through this system, drivers are able to maximize efficiency and profits. A study on the use of generative AI in the workplace found that workers who used the technology increased their productivity by 14 percent on average. It also found attrition rates plunged by 8.6 percent, suggesting lower stress levels among employees.¹⁰⁴

AI and Discrimination

The use of AI in employment decisions has become mainstream. Nearly 80 percent of employers use some sort of AI or automation in the recruitment and hiring process.¹⁰⁵ AI is often used to reach a specific candidate audience via targeted ads, to screen and rank applicants, and to analyze candidates' facial expressions or eye contact during a video interview.¹⁰⁶ AI is also being used to track performance of employees by following log in times, computer usage, and online activity.¹⁰⁷ Evidence suggests AI may have the potential to exacerbate biases

97 Scarpati, Jessica. (2023, March). *Telematics*. *Techtarget*. <https://www.techtarget.com/searchnetworking/definition/telematics#:~:text=Telematics%20is%20a%20term%20that,remote%20>.

98 UPS Teamsters United. (n.d.). *Protect Drivers From Cameras In UPS Trucks*. *UPS Teamsters for a democratic union*. https://ups-teamstersfordemocraticunion.nationbuilder.com/sign_the_petition_against_ups_cameras_in_trucks_today.

99 Amazon. (n.d.). *Amazon Netradyn Driver Information*. *Vimeo*. <https://vimeo.com/504570835/e80ee265bc>.

100 Stanely, Jay. (2021, March 23). *Amazon Drivers Placed Under Robot Surveillance Microscope*. *ACLU*. <https://www.aclu.org/news/privacy-technology/amazon-drivers-placed-under-robot-surveillance-microscope>.

101 Healy, Charlotte. (2023, June 2). *UK: AI's Impact on Workplace Safety*. *SHRM*. <https://www.shrm.org/resourcesandtools/hr-topics/global-hr/pages/uk-ai-safety.aspx>.

102 Altman, Elizabeth J., Kiron, David, & Riedl, Christoph. (2023, April 13). *Workforce ecosystems and AI*. *Brookings*. <https://www.brookings.edu/articles/workforce-ecosystems-and-ai/>.

103 Ramesh, Raghav. (2018, May 2). *How DoorDash leverages AI in its world-class on-demand logistics engine*. *Artificial Intelligence Conference*. <https://conferences.oreilly.com/artificial-intelligence/ai-ny-2018/public/schedule/detail/65038.html>.

104 Brynjolfsson, Erik, Li, Danielle, & Raymond, Lindsey R. (2023, April). *Generative AI at Work*. *NBER*. https://www.nber.org/system/files/working_papers/w31161/w31161.pdf.

105 Brin, Dinah Wisenberg. (2019, March 22). *Employers Embrace Artificial Intelligence for HR*. *SHRM*. <https://www.shrm.org/resourcesandtools/hr-topics/global-hr/pages/employers-embrace-artificial-intelligence-for-hr.aspx>.

106 Casimir, Lance, Kelley, Bradford J., & Sonderling, Keith E. (2022, August 11). *The Promise and The Peril: Artificial Intelligence and Employment Discrimination*. *University of Miami Law Review*. <https://repository.law.miami.edu/cgi/viewcontent.cgi?article=4692&context=umlr>.

107 *Ibid*.



in hiring.¹⁰⁸ Data being inputted may reflect existing workplace biases and it is difficult to discern how an AI system's inputs translate into its outputs.¹⁰⁹

Title VII of the Civil Rights Act (Title VII) prohibits discrimination on the basis of race, color, religion, national origin, or sex in the employment context. According to the EEOC, which enforces Title VII, a business may be found to have violated Title VII for either disparate treatment or, more relevant to AI operators, disparate impact. Disparate treatment occurs “when an employer or other person subject to the [Civil Rights] Act intentionally excludes individuals from an employment opportunity on the basis of race, color, religion, sex, or national origin” (emphasis added). However, intent is not necessary to establish a claim of disparate impact, where the only concern is whether a facially neutral policy disproportionately excludes individuals within a protected class.¹¹⁰ Disparate impact is typically the focus of discrimination concerns regarding AI.¹¹¹

Employers are also prohibited from unlawfully discriminating based on age or disability under the Age Discrimination in Employment Act (ADEA). The ADEA prohibits employers and employment agencies from discriminating against workers 40 or older in job advertising, recruiting, hiring, and other job opportunities.¹¹² In December 2022, in one of the first AI-related charges filed with the EEOC, Real Women in Trucking filed a discrimination charge against Meta Platforms Inc. The group alleged Meta Platforms steered employment ads away from women and people over 55 years. After an investigation of a complaint by a man who could not complete an online application due to age restrictions, the Illinois Attorney General investigated several automated hiring platforms for discouraging older workers from applying.¹¹³

The Americans with Disabilities Act (ADA) expressly bans pre-employment assessments that tend to screen out individuals with a disability unless the test can be shown to be job-related and consistent with a business necessity. For example, an AI-powered personality test may ask or intuit an applicant's sense of optimism, and disqualify them based on their living with Major Depressive Disorder.¹¹⁴ Job applicants diagnosed with autism may be screened out from job opportunities based on video interviews assessed by AI trained to detect certain patterns, such as eye contact and pauses in speech.¹¹⁵ In addition, the ADA prohibits employers from inquiring into an applicant's disability during the application and interview processes. AI systems that determine a potential employee's disability status may violate the ADA. Advocates in favor of using of AI in the workplace, however, argue that with certain safeguards, the technology can speed up the hiring process while limiting discrimination and bias.¹¹⁶

108 The United States Government. (2016, May). *Big Data: A Report on Algorithmic Systems, Opportunity, and Civil Rights*. Executive Office of the President. https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/2016_0504_data_discrimination.pdf.

109 Rawashdeh, Samir. (2023, March 6). *Artificial intelligence can do amazing things that humans can't, but in many cases, we have no idea how AI systems make their decisions*. UM-Dearborn Associate Professor Samir Rawashdeh explains why that's a big deal. UM Dearborn. <https://umdearborn.edu/news/ais-mysterious-black-box-problem-explained>.

110 U.S. Equal Employment Opportunity Commission. (1988, August 1). *[Guidance] CM-604 theories of discrimination*. U.S. Equal Employment Opportunity Commission. <https://www.eeoc.gov/laws/guidance/cm-604-theories-discrimination>.

111 New EEOC guidance on when the use of artificial intelligence in selection procedures may be discriminatory. FordHarrison. (2023, June 13). <https://www.fordharrison.com/eeocs-guidance-on-artificial-intelligence-hiring-and-employment-related-actions-taking-using-artificial-intelligence-may-be-investigated-for-employment-discrimination-violations>.

112 Department of Labor. (n.d.). Age discrimination. U.S. Department of Labor. <https://www.dol.gov/general/topic/discrimination/agedisc#:~:text=The%20Age%20Discrimination%20in%20Employment,conditions%20or%20privileges%20of%20employment>.

113 Ajunwa, Ifeoma. (2020, May 1). *Protecting Workers' Civil Rights in the Digital Age*. UNC School of Law. <https://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=1394&context=ncjolt>.

114 U.S. Equal Employment Opportunity Commission. (2022, May 12). *[Technical Guidance] The ADA and AI: Applicants and Employees*. U.S. Equal Employment Opportunity Commission. <https://www.eeoc.gov/laws/guidance/americans-disabilities-act-and-use-software-algorithms-and-artificial-intelligence>.

115 Landon, Oliver. (2022, April). *AI video assessment. Employment autism*. <https://www.employmentautism.org.uk/blog/ai-video-assessments>.

116 Sonderling, Keith E. (n.d.). *How People Analytics Can Prevent Algorithmic Bias*. IHRIM. <https://www.ihrim.org/2021/12/how-people-analytics-can-prevent-algorithmic-bias-by-commissioner-keith-e-sonderling/#:~:text=Carefully%20designed%2C%20>

Conclusion

As the U.S. Senate assesses the readiness of American regulatory frameworks for AI, as Ranking Member of the HELP Committee, I'm focused on ensuring that we are prepared for the continued deployment of AI. The insights of stakeholders that can describe the advantages and drawbacks of AI in our health care system, in the classroom, and in the workplace are critical as policymakers grapple with this topic. Please submit feedback and comments for ways to improve the framework in which these technologies are developed, reviewed, and used to [HELPGOP_AIComments@help.senate.gov] by [Friday, September 22].

Questions for Consideration

Health Care

Supporting Medical Innovation:

- How can FDA support the use of AI to design and develop new drugs and biologics?
- What updates to the regulatory frameworks for drugs and biologics should Congress consider to facilitate innovation in AI applications?
- How can FDA improve the use of AI in medical devices?
- What updates to the regulatory frameworks for medical devices should Congress consider to facilitate innovation in AI applications while also ensuring that products are safe and effective for patients?
- How can Congress help FDA ensure that it has access to the expertise required to review products that are developed using AI or that incorporate AI?
- How can FDA better leverage AI to review product submissions?
- How can FDA harness external expertise to support review of products that are developed using AI or that incorporate AI?
- What are the potential consequences of regulating AI in the United States if it remains unregulated in other countries?

Medical Ethics and Protecting Patients:

- What existing standards are in place to demonstrate clinical validity when leveraging AI? What gaps exist in those standards?
- What practices are in place to mitigate bias in AI decision-making?
- What should be the federal role, if any, in addressing social and/or political bias?
- How can AI be best adopted to not inappropriately deny patients care?
- Is the current HIPAA framework equipped to safeguard patient privacy with regards to AI in clinical settings? If not, how not or how to better equip the framework?
- What standards are in place to ensure that AI maintains respect and dignity for human life from conception to natural death?
- Who should be responsible for determining safe and appropriate applications of AI algorithms?
- Who should be liable for unsafe or inappropriate applications of AI algorithms? The developer? A regulating body? A third party or private entity?

Education

General Policy:

- What should the federal role be in supporting AI in education?
- What should the state role be in supporting AI in education?
- What should be the local role in supporting AI in education?
- Do these roles vary by the educational setting?
- What should be the federal role in supporting and ensuring safe and responsible use of AI with respect to the workforce and the workplace?
- What should the state role be in supporting and ensuring safe and responsible use of AI with respect to the workforce and the workplace?
- What are the best practices currently being used to ensure that AI systems are designed, developed, and deployed in a manner that protects people's rights and safety?

Practical Uses for AI in Education Settings:

- How is AI already being used in the classroom? Are there any innovative models emerging?
- How is AI being used throughout school buildings or on post-secondary campuses? What areas are advocates hopeful AI can help in besides the classroom?

- How can AI be used to promote school safety? Are there pilots in this area?
- How do we ensure kids can use AI without relying on it? How can it be used to promote critical thinking, rather than replace it? What part of the workflow can AI take over for teachers? What part of the workflow should not be replaced by AI?
- How can we ensure that AI is used effectively and meaningfully in the classroom to support teachers and improve learning, rather than becoming another burdensome new tech for teachers to navigate?

Fostering Students' Understanding of AI:

- How does AI impact what students need to be taught?
- What are the skills students need to use AI responsibly and effectively?
- How does AI impact how student learning is assessed?
- What are the components of next-generation digital literacy related to AI (e.g., algorithmic bias, ethics and academic integrity, asking critical questions/spotting deep fakes, etc.)?

Preparing for AI in the Classroom:

- What do teachers/professors/instructors need to understand about AI before using it?
- How can we incentivize and fund high quality professional development for teachers and administrators in AI and computer science?
- How could AI impact teacher preparation programs?
- What does refusal look like in a classroom? When can and should teachers decline advice/recommendations from an AI system?
- How should errors in AI's output be handled? How should teachers be trained to spot and correct these? Students?
- Right now, schools are putting many of their AI courses into their Career and Technical Education (CTE) programs, but AI lacks industry-recognized credentials. How can industry create meaningful credential development, recognizing also that the curricula and assessments may need to be updated frequently to reflect the changing technology?

Design for AI Use in Schools and with Kids and Young Adults:

- What are the demonstrable steps taken during the design process that give districts/teachers/parents confidence that the AI is fit for use?
- How do foundational models that were not designed with children or the classroom in mind come into play here?
- How is data that is collected during the use of these programs in schools used by the AI?
- How is personally identifiable information managed, stored, and used in accordance with FERPA?
- What protections are in place to keep AI from "learning" the wrong things?
- How can policymakers and technologists work together to build trust in responsibly developed AI? What does responsible development look like?

Higher Education Admissions:

- What is the current and future use of AI in college admissions?
- What protections are put into place to ensure admissions is not biased in decision making?
- How will AI affect the admissions timelines, and would it increase the response time from schools on their admissions decisions?

Degree or Credential Completion and Success:

- Are there lessons that can be learned from other policy areas or program spaces about how to leverage AI to improve the student experience and improve outcomes?
- How do we protect students from being just another number and instead use AI to build social connections that lead to student success?

Labor

Practical Uses for AI in the Workplace:

- What role does AI play in the workplace? Where is AI most often deployed in the context of the workplace?
- What are the key areas companies anticipate making investments in AI in the workplace context?
- What are the chief reasons employers deploy AI in the workplace?
- What considerations do companies purchasing AI software make to ensure it is safe and does not infringe on human rights prior to implementing it in their systems?
- What do workers need to understand about AI in the workplace?
- What do AI developers need to understand about AI in the workplace?
- What steps do companies take when they become aware of a safety or humans rights issue caused by the use of AI with respect to workers?
- How are companies integrating AI into their remote workforce?

AI Standards

- What role will AI standards, such as the National Institute of Standards and Technology AI Risk Management Framework, play in regulatory and self-regulatory efforts?
- What do policymakers need to know about the development of AI standards?
- What do employers need to know about the development of AI standards?
- How can policymakers work with AI developers and users to update and improve such standards as the technology develops?

AI and the Job Market

- What role will AI play in creating new jobs?
- What jobs are most at risk of experiencing displacement due to AI?
- What is the rate of job displacement due to AI?
- What skillsets will become more important as AI is adopted in the workplace?
- How is AI being used to fill gaps in the labor market?
- Should Congress be involved to mitigate job displacement from AI? How will the market adapt if Congress does not step in?

AI and Working Conditions

- What are high-risk use cases of AI with respect to working conditions?
- What are low-risk use cases of AI with respect to working conditions?
- The General Counsel of the NLRB has taken a particular interest in the use of AI in employee monitoring. How are employers viewing this issue? How are they preparing in the case they are brought before the Board for review?
- How is AI being used to promote safety in the workplace?
- How is AI being used to promote accessibility in the workplace?
- How is AI being used to increase flexibility in the workplace, including for remote workers?
- What are the concerns regarding the use of AI and worker privacy and dignity, including for remote workers?
- What is the impact of AI on worker productivity?
- What is the impact of AI on worker retention?

AI and Workplace Bias

- What are high-risk use cases of AI with respect to discrimination?
- What are low-risk use cases of AI with respect to discrimination?
- Are the current technology-neutral federal anti-discrimination laws sufficient to prevent discrimination in the workplace?