

State of Connecticut

GENERAL ASSEMBLY



CT ARTIFICIAL INTELLIGENCE
WORKING GROUP

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The Connecticut Artificial Intelligence Working Group was created when Governor Lamont signed public act 23-16 into law on June 7, 2023. The charge of the group was to make recommendations concerning ethical and equitable use of artificial intelligence by state government, make recommendations on the policies and procedures that were created as a result of Public Act 23-16, assess the White House Office of Science and Technology Policy's "Blueprint for an AI Bill of Rights, and make recommendations concerning the adoption of other state legislation regarding artificial intelligence. Since the group was formed, we have held 7 meetings and met for over 20 hours. During that time, we heard from over 20 speakers from around the world who all possessed some expertise regarding an aspect of artificial intelligence and artificial intelligence regulations. Our committee itself consisted of a number of leading experts and researchers in the field of Artificial Intelligence.

All of the meetings of the working group were broadcast by CT-N and on YouTube, and this report contains the agendas for all the meetings as well as links to the recordings of the meetings. In addition, we utilized AI to transcribe the meetings and summarize the presentations of each of our speakers. Those summaries are also included in this report. We were fortunate enough to commission a report from the Connecticut Academy of Scientists and Engineers (CASE). In a short time they created an excellent report for us that detailed the skills being taught by our K-12 and higher education institutions, as well as the skills being asked for by our small businesses and larger businesses. More importantly it captured some of the concerns and hopes of both academia and industry. This report also contains all the slide decks from our speakers and the recommendations from individual members of the Working Group. Finally, the report includes the consensus recommendations that were voted on in our final meeting.

The final recommendations center around how to promote transparency and accountability to ensure trustworthy AI. While not included as bullet points in the final recommendations, two issues were discussed during our final meeting that are essential to any legislation that may follow as a result of the work of this Working Group. First, was the importance of including diverse voices in the teams that craft AI solutions. A McKinsey report shows that companies that embrace diversity outperform their peers. Further, by including diverse voices the end product of AI systems are stronger and more representative. It is also of critical importance to include representative data sets while crafting solutions. Finally, during the meeting we also discussed the importance of relying on existing laws when they are available to regulate the potential adverse outcomes of an AI System before crafting new laws. It is important to remember that AI itself is not new, as the term was coined in 1956. While there may be some new problems posed by this technology now, as a country we have undergone several technical and industrial revolutions in the past and there are many analogous situations that we can call on. We are early on in this latest technological revolution and it is important that we are intentional in how we approach workforce development and training and retraining opportunities in order to ensure that all citizens have the opportunity to benefit and that we are mindful not to allow for certain populations to be left behind by this latest transformation. We believe that in order to yield the full

benefit we have to create a framework to allow for responsible and trustworthy AI. Our hope is that this report lays out a pathway for Connecticut to create that framework. It has been our great honor to serve as co-chairs of this working group. It has been our privilege to work alongside such intelligent, dedicated, and passionate members of the group. Finally, we recognize that we are in the early stages of this journey and look forward to continuing this work on behalf of the State of Connecticut.



Co-Chair State Senator James Maroney



Co-Chair Nick Donofrio

Working Group Members

Chairs
Sen. James Maroney Nick Donofrio
Members
George Mathanool Vahid Behzadan David DesRoches Christopher Gilrein Joseph V. DeMarco Matthew Lenz Christian Troncoso Dr. David A. Ferrucci Dr. Jinbo Bi
Ex-Officio Members
Rep. Mike D'Agostino Lauren Bidra Yamuna Menon Mark Raymond Scott Gaul Colleen M. Murphy Steven Hernandez Lucio DeLuca

Working Group Recommendations

Government Use

- Explore Government Use of AI

Workforce Development

- Create a Connecticut Citizens AI Academy Curating Online Courses, making certain to include courses on responsible use of AI
- Work with Charter Oak State College to create certificates and badges related to the online Citizens AI Academy
- Work with higher education to produce certificate programs related to AI skills for small businesses and employees.
- Work with higher ed and SDE to create professional development for teachers
- Work with WIB's and other workforce agencies to incorporate AI training into workforce programs.
- Explore providing compute power to researchers and businesses
- Incentivize and grow AI businesses in the state, starting with healthcare, defense and finance, and assist all businesses with starting their digital transformation.

Regulatory

- Take steps to prevent deepfakes for election and non-consensual intimate images
- Task force to align definitions, explore a voluntary pledge, explore ways to grow other AI businesses in CT like financial services.
- Request an expansion of the study by CASE, in conjunction with CT higher education institutions to determine what we can further do to promote AI innovation in CT.
- Create a permanent advisory committee composed of representatives from industry, academic, and government
- Work with SDE and OPM to create model AI Use Policies for school districts
- Exempt AI used for scientific research for the common good from any regulations
- Exempt open source models contingent upon transparency requirements
- Prohibit Models from recklessly training on CSAM
- Designate a single point of contact for AI businesses within DECD.
- The importance of aligning any CT regulations to relevant global technical standards.
- Explore the importance of transparency for different applications and the requirements metrics and processes for ensuring transparency in those cases

State of Connecticut

GENERAL ASSEMBLY



GENERAL LAW COMMITTEE
LEGISLATIVE OFFICE BUILDING, ROOM 3500
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CT Artificial Intelligence Working Group

AGENDA

Wednesday, September 20, 2023

11:00 AM via Zoom and YouTube Live

Link to Meeting Recording: https://www.youtube.com/live/9S2YINoBNkw?si=l_knY3jHUo7XyFq7

- I. CONVENE MEETING
- II. REMARKS BY THE CHAIRS
- III. PRESENTATIONS
 - a. US Senator Richard Blumenthal
 - b. Susan Frederick - NCSL - Federal Overview
 - c. Evi Fuelle – Credo.AI – Impact Assessments
 - d. Ehrik Aldana – Credo.AI
 - e. Beth Tsai - Google
- IV. ANNOUNCEMENT OF TIME AND DATE OF NEXT MEETING
- V. ADJOURNMENT

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CT Artificial Intelligence Working Group

AGENDA

Wednesday, October 25, 2023

11:00 AM in Zoom and YouTube Live

Link to Meeting Recording: <https://www.youtube.com/live/tydT4hia0Ps?si=izUfipUCWCZWZ3Db>

- I. CONVENE MEETING
- II. REMARKS BY THE CHAIRS
- III. PRESENTATIONS
 1. Senator Joe Nguyen from Washington State - Washington's Policies and Procedures
 2. Heather Morton from NCSL - State legislation and state regulation of AI
 3. Mark Raymond from CT DAS and Adel Ebeid - Progress on CT Policies and Procedures
 4. Katy Ruckle, Chief Privacy Officer Washington State Deloitte
 5. Deloitte - Gabe Grab and Jamia McDonald - Presenting Use Cases in State Government
- IV. CLOSING REMARKS
 - a. Discussion of request for a skills assessment from CASE
- V. ANNOUNCEMENT OF TIME AND DATE OF NEXT MEETING
- VI. ADJOURNMENT

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AGENDA

Wednesday, November 15, 2023

11:00 AM Zoom and [YouTube Live](#)

Link to Meeting Recording: <https://www.youtube.com/live/ihbvFRccTck?si=1dexlM5HlqwT9k8J>

- I. CONVENE MEETING
- II. REMARKS BY THE CHAIRS
- III. PRESENTATIONS
 1. Chloe Autio – Recent developments in AI governance
 2. Delegate Michelle Maldonado – Update on VA efforts
 3. Assembly Member Rebecca Bauer-Kahan – California AB 331 Author
 4. Diya Wynn – Amazon
- IV. ANNOUNCEMENT OF TIME AND DATE OF NEXT MEETING
- V. ADJOURNMENT

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CT Artificial Intelligence Working Group

AGENDA

Wednesday, December 13, 2023

12:00 PM Marsh Lecture Hall and [Zoom](#) and [YouTube Live](#)

Link to Meeting Recording: https://www.youtube.com/live/-4zmfl-xYoc?si=mWeXx0_S9l-qUcaK

Topic	Leads	Duration (minutes)	Time
Registration	Yale University	45	12 (noon)
Opening	State Senator James Maroney- Opening	5	12:30-12:35
Welcome	Mike Crair, Vice Provost for Research at Yale University	10	12:35-12:45
Welcome	Josh Geballe – Yale Ventures	10	12:45-12:55
Welcome	David Ferucci – Elemental Cognition	10	12:55-1:05
Keynote	Arvind Krishna, Chairman and Chief Executive Officer, IBM	25	1:05-1:30
Workforce Panel Discussion	[Moderators – State Senator Saud Anwar] Monica Laufer - Workdayes Trey Causey, Head of Responsible AI– Indeed Kelli Vallieres – Executive Director CT Office of Workforce Strategy	60	1:30-2:30

Break	Yale University	15	2:30-2:45
Health Panel Discussion	<p>Scott Lowry – Moderator – CT Health AI</p> <p>Dr. Sandra Saldana – CEO Alva Health</p> <p>Paul Flicek - JAX Chief Data Science Officer</p> <p>Jodie Gillon - BioCT’s CEO</p>	60	2:45-3:45
Roundtable:	<p>Growing Health Tech in CT – Moderated by Nick Donofrio and Comptroller Sean Scanlon</p> <p>Building an AI Workforce in CT – Moderated by James Maroney and Kelli Vallieres OWS</p>	60	3:45-4:45
Break	Yale University	15	4:45-5:00
Roundtable Report Out	Moderators: Nick Donofrio & James Maroney	15	5:00-5:15
Endnote	Dean Lucila Ohno-Machado, Deputy Dean for Biomedical Informatics and Chair of Biomedical Informatics and Data Science	25?	5:15-5:40
Close out	James Maroney and DECD Commissioner Designate Dan O’Keefe	20	5:40-6:00

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AGENDA

Wednesday, January 10, 2024

11:30 AM via Zoom and YouTube Live

Link to Meeting Recording: <https://www.youtube.com/live/mNEoTwqdsxk?si=ZQdKP6jkhAKiSvKh>

- I. CONVENE MEETING
- II. REMARKS BY CHAIRS
 - a. Next meeting date- 1/29
 - b. Goals between now and then
- III. CASE PRESENTATION- WORKFORCE FINDINGS
 - a. Terri Clark
 - b. Ed Murphy
 - c. Dave Pines
- IV. RESPONSIBLE AI PRESENTATION- UPDATE ON THE EU
 - a. Alyssa Lefaiivre Škopac
- V. AMAZON- FURTHER UPDATE ON EU
 - a. Christian Troncoso
- VI. ROUND TABLE DISCUSSION
- VII. ADJOURNMENT

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CT Artificial Intelligence Working Group

AGENDA

Tuesday, January 23, 2024

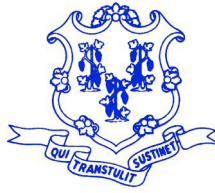
3:00 PM via Zoom and YouTube Live

Link to Meeting Recording: https://www.youtube.com/live/HOmYXBCHtGc?si=M3uLNIMPgSk7ppE_

- I. CONVENE MEETING
- II. REMARKS BY THE CHAIRS
- III. ROUND TABLE DISCUSSION
- IV. ANNOUNCEMENT OF TIME AND DATE OF NEXT MEETING
- V. ADJOURNMENT

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CT Artificial Intelligence Working Group

AGENDA

Monday, January 29, 2024

1:00 PM via Zoom and YouTube Live

Link to Meeting Recording: <https://www.youtube.com/live/yGgBHxCFVZA?si=wqJ3cXf5ETaiWQR5>

- I. CONVENE MEETING
- II. REMARKS BY THE CHAIRS
- III. DISCUSS PROPOSED RECOMMENDATIONS

Consensus Items

Government Use

- Explore Government Use of AI

Workforce Development

- Create a Connecticut Citizens AI Academy Curating Online Courses, making certain to include courses on responsible use of AI
- Work with Charter Oak State College to create certificates and badges related to the online citizens ai academy
- Work with higher education to produce certificate programs related to AI skills for small businesses and employees.
- Work with higher ed and SDE to create professional development for teachers
- Work with WIB's and other workforce agencies to incorporate AI training into workforce programs.
- Explore providing compute power to researchers and businesses
- Incentivize and grow AI businesses in the state, starting with Healthcare, Defense and Finance, and assist all businesses with starting their digital transformation.

Regulatory

- Take steps to prevent deepfakes for election and non-consensual intimate images
- Task force to align definitions, explore a voluntary pledge, explore ways to grow other AI businesses in CT like financial services.

- Request an expansion of the study by CASE, in conjunction with CT Higher Education Institutions to determine what we can further do to promote AI innovation in CT.
- Create a permanent advisory committee composed of representatives from industry, academic, and government
- Work with SDE and OPM to create model AI Use Policies for school districts
- Exempt AI used for scientific research for the common good from any regulations
- Exempt open source models contingent upon transparency requirements
- Prohibit Models from recklessly training on CSAM
- Designate a single point of contact for AI businesses within DECD.

Additional items for discussion

- Require Impact Assessments
- Require model cards, or data cards, or other artifacts to increase transparency
- Issue of Forensicability versus explainability
- Creation of voluntary CT Pledge to Use AI for solving societal challenges.
- Safety Benchmarks/Regulatory Sandbox
- CT AI Alliance
- Invest in AI research thru CT's vast higher education system and CASE

IV. VOTE ON PROPOSED RECOMMENDATIONS

V. ADJOURNMENT

All meetings were transcribed from their YouTube link by using TurboScribe.AI. The transcriptions of each speaker were then uploaded to ChatGPT 4 and summarized using the following prompt: "Please summarize in 5 paragraphs the following transcription of a presentation by (SPEAKER NAME), (SPEAKER COMPANY/UNIVERSITY), as if you were writing an article for an academic journal." The summaries were then checked by MJ Shannon.

Meeting 1

Senator Richard Blumenthal

Senator Richard Blumenthal, alongside Senator Josh Hawley, presented a bipartisan framework aimed at regulating artificial intelligence (AI) at a federal level. This effort is inspired by similar legislative advancements in Connecticut. Blumenthal emphasized the importance of a licensing regime for AI, akin to regulations applied to drugs or toys, to ensure safety and efficacy. He highlighted the role of an oversight entity to administer this licensing and enforce standards.

Blumenthal and Hawley, despite their differing political affiliations, are united in their approach to AI regulation. The proposed framework includes critical principles like transparency and accountability. Blumenthal proposed the idea of an 'ingredient label' for AI, offering users insight into the functioning of AI algorithms. He stressed the need for companies to be held accountable for any harm caused by their AI models, advocating for the removal of Section 230 immunity for AI-related issues.

The senator underscored the necessity of enforcement, which could involve a new office, private lawsuits, or state attorney generals. The combination of federal, private, and state enforcement is essential for the effectiveness of the regulatory framework. He also spoke about the public's right to be informed about AI creations and algorithms, advocating for transparency in this domain.

In the presentation, Blumenthal expressed optimism about the bipartisan support for the framework, despite acknowledging the challenges of legislative processes in Congress. He emphasized the importance of turning the framework into actionable legislation to harness AI's promise while mitigating potential perils such as discrimination, election interference, and fraud. He encouraged states to innovate and inspire federal action, acknowledging the influence of state-level developments on national policy.

Blumenthal also addressed the role of AI in the U.S. defense and intelligence communities, noting that standards for public AI models should apply, while models

used in classified settings might follow different protocols. He highlighted the global nature of AI development and the need for international standards, drawing parallels with civil aviation and medicine.

Finally, Senator Blumenthal responded to concerns about equitable access to AI technologies. He recognized the importance of ensuring that AI is accessible without barriers related to income or race and stressed the need to address implicit biases in AI technologies. He concluded by inviting further dialogue and suggestions on the proposed AI regulatory framework, demonstrating a commitment to collaborative and informed policymaking in this rapidly evolving field.

Susan Frederick - NCSL

Susan Frederick, Senior Federal Affairs Counsel for the National Conference of State Legislatures (NCSL), presented insights on federal activity regarding artificial intelligence (AI). She highlighted the significant role state legislatures play in AI regulation and the growing interest in this field, as evidenced by the expansion of NCSL's task force on AI, Cybersecurity, and Privacy. Frederick focused on the U.S. administration's blueprint for AI, released in October 2022, which outlines key principles for AI development and use, including safety, risk identification and mitigation, data privacy, respect for personal privacy, and the inclusion of human alternatives in AI systems.

Frederick discussed the AI blueprint's focus on creating safe and effective systems, emphasizing the importance of stakeholder involvement, extensive testing, risk identification, and bias mitigation. She noted the administration's emphasis on data privacy, highlighting the need for consent in data collection and sensitivity to privacy in sectors like healthcare and finance. Transparency in AI usage and the provision of human alternatives to AI systems were also underscored as crucial aspects of the blueprint.

The presentation also covered the NIST AI Risk Management Framework, which complements the AI blueprint. This framework outlines principles for managing AI risks, including framing and prioritizing risks, ensuring trustworthiness, and focusing on fairness, explainability, and privacy enhancement. The framework encourages an understanding of the tradeoffs between trustworthy and less reliable elements in AI systems and emphasizes the importance of governance, risk mapping, measurement, and management in AI deployment.

Frederick further addressed the challenges of defining AI and the approaches to AI regulation at state levels. She mentioned the efforts of major AI companies in

implementing voluntary commitments for AI transparency and security, highlighting their pledges to share information on AI vulnerabilities and build trust with users. The importance of aligning AI definitions and regulations across states and internationally was also discussed, with a focus on ensuring consistency and comprehensiveness in AI legislation.

The presentation concluded with a call to action for state legislatures to move beyond task forces and working groups, and to implement concrete AI regulations. Frederick encouraged focusing on the impact of AI rather than its technical details and considering sector-specific approaches to AI regulation. She emphasized the need for comprehensive legislation that accounts for the complexities of AI and its integration into various sectors of society. Frederick offered NCSL's resources and upcoming meetings as avenues for further engagement and information on AI policy development.

Beth Tsai - Google

Beth Tsai, Director of Policy for Generative AI under the Trust and Safety Team at Google, provided an in-depth presentation on Google's approach to generative AI, focusing on responsibility and safety. She highlighted that while AI might seem new and potentially intimidating, it has been integrated into Google's products for a long time, such as Google Translate and Pixel's Magic Eraser. Tsai emphasized that Google's commitment is to move forward with AI development responsibly.

Explaining the basics of AI and machine learning, Tsai clarified that AI involves making things smarter, and machine learning is the process of training computer systems to perform tasks without explicit programming. She used practical examples, such as spam filtering and image recognition (differentiating cats from dogs), to illustrate how machine learning operates. By feeding the system vast amounts of data, it learns to recognize patterns and make predictions, like identifying spam emails or distinguishing between a cat and a dog.

Tsai then dove into generative AI, a type of machine learning system that predicts the next word in a sentence. She explained that generative AI systems like Google's Bard and ChatGPT work by statistically predicting each subsequent word in a sentence based on vast amounts of training data. This process is not about the system having an understanding or opinion but about statistically deriving the most likely next word or phrase.

Addressing the crucial aspect of safety and responsibility in AI, Tsai discussed Google's extensive testing and tuning processes. These include 'red teaming' or adversarial testing, where human testers try to prompt the model into giving inappropriate

responses, which are then used to retrain and improve the model. She also stressed the gradual, responsible deployment of AI systems, starting with limited user groups and slowly expanding, ensuring safety and appropriateness, especially for vulnerable users.

Finally, Tsai addressed the challenges of detecting and preventing the spread of fake content, such as deep fakes. She mentioned Google's ongoing investment in detection systems, like audio and image detection technologies, and the use of watermarks and hashing to identify AI-generated content. Collaborative efforts within the industry and with policymakers are crucial in setting and maintaining safety standards and responsible AI deployment. Tsai concluded by emphasizing the importance of feedback from users and legislators in continuously improving AI systems, underscoring the dynamic nature of AI development and the need for ongoing vigilance and collaboration.

Evi Fuelle and Ehrik Aldana of Credo.AI

Evi Fuelle and Ehrik Aldana from Credo.AI presented to the Connecticut AI Working Group, highlighting the importance of transparent AI governance and the role of their platform in enabling organizations of all sizes to manage AI responsibly. Fuelle, the Global Policy Director, emphasized that AI transparency and documentation governance are neither new nor intimidating concepts. Credo.AI's mission is to help companies track, assess, report on, and manage their AI systems, ensuring compliance, safety, security, fairness, and human-centeredness. Aldana, from the tech policy product team, outlined the four-step workflow of responsible AI governance facilitated by their platform: registering AI systems, applying controls based on laws and best practices, gathering and evaluating evidence for compliance, and generating various reporting artifacts for different stakeholders.

The discussion included an overview of different types of governance artifacts used to increase AI transparency, such as model cards, system cards, bias audit reports, impact assessments, design evaluations, technical documentation, publishing reports, and annual audits. They specifically focused on algorithmic impact assessments, which are typically created before a system's deployment and include details about the AI system's use case, context, and deployment. Fuelle and Aldana emphasized the ongoing research into defining effective algorithmic impact assessments and highlighted the existing precedents for mandating such assessments in various sectors.

They also presented examples of existing reporting requirements at various governmental levels to demonstrate the current landscape of AI transparency requirements. The duo stressed the importance of building trust through mandatory transparency reporting, arguing that voluntary commitments are insufficient for comprehensive risk management in AI development and deployment. They discussed

how impact assessments are already integral in various sectors, citing examples from privacy impact assessments required by the e-Government Act of 2002 and the Department of Homeland Security's procedures.

Aldana further delved into the critical aspects of designing effective transparency reports. He posed questions to consider when creating reports, such as the report's purpose, the audience, requirements, AI system components covered, clarity of requirements, and who conducts the report. These factors are vital in determining the effectiveness and appropriateness of the reports for their intended use. Lastly, they emphasized that trust is a more significant friction point than compliance in AI adoption, advocating for transparency requirements that build trust among users and stakeholders. The presentation concluded with a call for collaborative efforts in establishing transparent AI governance practices.

Meeting 2

Washington State Senator Joseph Nguyen

Senator Joseph Nguyen from Washington State, who represents the 34th district and serves as the chair of the Energy and Technology Committee, shared his insights on the development of policies and procedures regarding the use of artificial intelligence (AI) in Washington. With a background in tech, including a decade at Microsoft and experience in startups, Nguyen brings a unique perspective to legislative discussions on AI. He emphasized the need for legislators to understand AI beyond just fear-based responses, like outright bans, and to consider thoughtful policy-making that balances potential benefits and risks of AI.

Nguyen highlighted that while AI has become a focal point in legislative discussions, many legislators lack a fundamental understanding of the technology. His experience in guiding fellow members on basic computer usage to discussing AI regulation illustrates the wide knowledge gap in legislatures. He stressed the importance of setting up frameworks and guardrails rather than focusing on regulating specific technologies, which evolve rapidly. Nguyen believes that the role of legislation is to provide a structure for responsible AI use rather than stifling innovation.

One of the critical legislative efforts in Washington State is around facial recognition technology. Nguyen pointed out that while AI technologies differ, the frameworks for guiding conversations about them are similar. The focus is on how AI is used, particularly in high-risk areas like sentencing and housing. He mentioned the need for accountability reports and disclosures about potential biases in AI systems. The challenge lies in regulating AI's application in significant life-altering domains while

allowing benign uses in everyday technologies like streaming services and smartphones.

Nguyen addressed the fact that AI technology has been around for decades, emphasizing that its significance has risen due to increased computing power. He cautioned against overregulation that might hinder economic opportunities and innovation, particularly in states like Washington that are home to tech giants like Microsoft and Amazon. However, he also underscored the necessity of protecting citizens from potential harms of AI, suggesting a balance between innovation and regulation.

Finally, Senator Nguyen opened the floor for questions, engaging in a discussion about various aspects of AI regulation. Topics ranged from the distinction between AI types, the challenges in ongoing assessment and adversarial testing of AI systems, to the complexities of defining high-risk AI applications and the potential misuse of AI technologies. He advocated for thoughtfulness in creating AI policies that consider both the rapid advancement of technology and the practical implementation challenges in a legislative environment.

Katie Ruckle and Nick Stowe - Washington State

In a comprehensive presentation, Katie Ruckle, the Chief Privacy Officer of Washington State, along with Nick Stowe, the Chief Technology Officer of Washington State, provided insights into the state's approach to regulating the use of generative AI. Ruckle and Stowe co-chair the Artificial Intelligence Steering Committee, which oversees the AI community of practice in Washington. Their presentation highlighted the specific guidelines Washington State has developed for generative AI, emphasizing their focus on responsible and ethical use of AI technologies in various state operations.

Ruckle, with her extensive experience in privacy law and policy, highlighted the importance of integrating privacy principles into state agency practices, especially concerning AI and data handling. She discussed her role in reviewing major projects involving personally identifiable information and working closely with cybersecurity on data protection issues. Ruckle's legal expertise, combined with her involvement in contracts and data sharing, positions her effectively to address the challenges of AI regulation, particularly in ensuring the protection of individual privacy and data security.

Nick Stowe, bringing his background as a technologist and his experience as the state CIO during the pandemic, shared insights into the practical applications and challenges of AI in state government. His perspective as a CTO, with responsibilities extending to statewide programs focused on data, cloud, innovation, and emerging technology,

including AI, provided a comprehensive view of the state's approach to technology governance. His experience in rapidly deploying algorithms for various purposes, such as fraud detection and efficient benefit distribution, underscored the real-world implications of AI use in government.

The discussion delved into the complexities of defining AI and automated decision systems (ADS), highlighting disagreements among stakeholders on the breadth of these definitions. The inability to reach a consensus on a definition for ADS led to the focus on prioritizing resources for systems with the highest impact on individual rights and freedoms. This approach, while pragmatic, underscores the ongoing challenges in creating cohesive AI policy frameworks that balance innovation with risk management and ethical considerations.

Ruckle and Stowe also addressed the privacy concerns associated with generative AI, emphasizing the need for clear guidelines and contractual agreements to ensure that state data used in AI models remains confidential and secure. Their discussion highlighted the practical aspects of implementing AI policies, including public records compliance and the importance of transparency in AI applications, especially in the context of constituent communications and public service delivery.

Overall, the presentation by Ruckle and Stowe provided a detailed overview of Washington State's efforts to navigate the rapidly evolving landscape of AI technology and regulation. Their combined expertise in privacy law, technology governance, and practical AI applications offers valuable lessons for other states and organizations grappling with similar challenges in AI policy development and implementation.

Mark Raymond - CIO CT and Scott Gaul Chief Data Officer, State of Connecticut

Mark Raymond, the Chief Information Officer of Connecticut, and Scott Gaul, the State's Chief Data Officer, presented on Connecticut's approach to implementing Public Act 23-16, which addresses the use of artificial intelligence (AI) in state government. Their presentation highlighted the dual aspects of the act: policy development and technology implementation.

Raymond, working within the Department of Administrative Services, and Gaul, from the Office of Policy and Management, emphasized the state's commitment to ensuring that AI usage is trustworthy, responsible, ethical, and transparent. They aim to strike a balance between promoting AI's positive use within Connecticut and setting appropriate policies and procedures to regulate its application. The key to their approach is to

innovate with intent, ensuring that Connecticut is seen as a state conducive to AI development while upholding responsible AI practices.

The duo outlined their ongoing work in policy development, focusing on transparency, preservation of individual rights, human review, bias mitigation, and understanding the market dynamics. With statutory deadlines looming, they are working on inventorying AI usage in state government and developing policies and procedures for ongoing AI assessment. Early guidance to agencies has been provided, and a cross-agency working group has been formed to collect AI use cases and inform policy development. Educational briefings are being conducted to enhance understanding and skill-building in AI within state agencies.

In terms of technology implementation, Raymond discussed modifying the state's existing application inventory to include AI usage, decision-making capabilities, and impact assessments. They are currently assessing around 1,400 applications, with a focus on differentiating between publicly available data and private data (PII, PHI) in AI applications. The state is cautious about using open AI models for private data and emphasizes the importance of bespoke data models that maintain data confidentiality.

Raymond and Gaul also touched on the importance of data provenance and authenticity in AI systems, acknowledging the critical role of data quality in AI outcomes. They are aware of the challenges in keeping up with rapidly evolving AI technology in various state applications.

Overall, the presentation by Raymond and Gaul showcased Connecticut's efforts to navigate AI policy and technology implementation within state government. Their focus on balancing innovation with ethical considerations and transparency reflects a comprehensive approach to integrating AI into public services while safeguarding public trust and data integrity.

Jamia McDonald, Deloitte

Jamia McDonald, a partner with Deloitte Consulting and leader of AI for state, local, and higher education clients, shared her expertise in government applications of artificial intelligence (AI) in a recent presentation. With 20 years of experience in state government roles, including as Deputy Chief of Staff for three governors and in Homeland Security and Child Welfare, McDonald offers a unique perspective on AI in public service.

McDonald began by contextualizing AI within its historical and current framework. She explained that AI has evolved over decades, starting with robotic process automation

and advancing to cognitive analytics and narrow AI. Currently, generative AI (Gen AI) is at the forefront, characterized by high complexity and minimal human interaction. McDonald emphasized the probabilistic nature of AI, underscoring its learning-based approach and the importance of human involvement in guiding AI systems, especially in sensitive areas.

Deloitte approaches AI implementation by first understanding the specific business problems of their clients and then tailoring AI solutions accordingly. McDonald presented an 'iceberg' model to illustrate the various layers of AI infrastructure, with computing power at the base and specific applications visible above the surface. She stressed the importance of responsible use of Gen AI, especially regarding privacy and data transparency, recommending closed-loop models for state governments venturing into this technology.

McDonald then discussed AI use cases in government, categorized into five areas: document generation, case management, knowledge management, customer engagement, and back-office functions. She provided examples of personas that could benefit from AI applications, such as a resident navigating public benefits, a student seeking financial aid, or a workforce supervisor managing a high volume of cases.

In her concluding remarks, McDonald highlighted AI's potential as a force multiplier in government, enhancing efficiency without replacing human workers. She emphasized the transformative impact of AI in automating tasks and guiding decisions, thereby allowing government employees to focus on higher-value tasks. McDonald's insights reveal AI's significant potential in public service, from improving individual constituent experiences to enhancing overall operational efficiency in government agencies.

Meeting 3

Chloe Autio

Chloe Autio, an independent AI policy and governance advisor, provided an insightful presentation on the complexities of AI policy and the recent executive order from the president, as well as updates on international AI developments. With over a decade of experience in AI tech policy, including setting up one of the first responsible AI programs at Intel Corporation, Autio is well-versed in the evolution and current state of AI policy. Her talk focused on the intricate AI policy landscape, driven by societal, corporate, and market expectations, and the consensus on the need for regulation.

Autio identified three main categories in the current AI policy landscape: policy and regulatory initiatives, standards bodies, and new legal precedents. She emphasized the

shift from investment strategies to practical regulatory frameworks, the crafting of voluntary risk management frameworks by organizations like ISO and IEEE, and the pursuit of oversight by regulators like the FTC. Autio also discussed global AI policy developments, highlighting the UK's AI Safety Summit, the UAI Act in the European Union, and the G7's creation of a code of conduct for AI.

The focus then shifted to the executive order on AI issued by the Biden administration, which Autio described as comprehensive and influential. She noted its activation of 50 different entities, with the Commerce Department playing a significant role. The order includes over 150 directives for various agencies to implement within the next year, emphasizing collaboration with private industry and state governments. Autio analyzed the implications of the order, stressing the importance of engagement points for states and industries.

Autio further delved into the details of the executive order, categorizing its content into 12 distinct sections, including national security, privacy, consumer protection, labor and worker rights, technology development, and standard setting. She highlighted the executive order's focus on bolstering the US government's AI capabilities and talent acquisition, mentioning a concerning statistic about the low percentage of AI PhDs entering the public sector.

In conclusion, Autio provided key takeaways from her analysis. She observed the movement from abstract principles to tangible actions in AI regulation, the need for clarity in AI governance terms, and the shift in focus towards generative AI and its associated risks. She emphasized the role of industry in self-regulation and the competition among leading industrialized nations to demonstrate AI leadership. Finally, Autio underscored the importance of collaborative efforts between government, private industry, and civil society in shaping effective AI policy and governance.

Delegate Michelle Maldonado of Virginia

Delegate Michelle Maldonado of Virginia provided an update on her state's advancements in AI policy and governance, drawing from her experience as a former tech lawyer and her work with Virginia's AI task force. Maldonado, who founded the Technology and Innovation Caucus in Virginia, emphasized the necessity of educating legislators about technology for informed decision-making. Her focus was on creating a bipartisan, bicameral AI initiative that involved various stakeholders, including the governor's office, industry professionals, academia, and unions, aiming for a holistic approach to AI and emerging technologies.

Maldonado highlighted Virginia's Governor's Executive Order No. 5, which addresses four key areas: privacy, intellectual property, guidelines for agencies, and cybersecurity. She noted the need for further work, particularly in law enforcement and AI, acknowledging the state's recent authorization for the Virginia State Police to use facial recognition technology under specific conditions. The Executive Order sets a foundational tone for AI governance, involving the Office of Regulatory Management, Virginia's IT agency, and JCOTS (Joint Commission on Technology and Sciences), which includes an AI subcommittee.

The delegate discussed legislative strategies, including the potential introduction of a bill mirroring the Child Online Protection Act and amendments to Virginia's Data Privacy Act to address AI developments. She stressed the need for legislative adaptability, given the rapid evolution of technology. Maldonado also spoke about educational strategies, suggesting innovative ways to integrate AI into the curriculum without losing critical thinking and writing skills.

Workforce development was identified as a key challenge, especially in attracting AI talent to government roles. Maldonado underscored the importance of developing a pipeline for government-focused AI expertise and the role of Virginia's burgeoning workforce development agency in this endeavor. Additionally, she touched on government procurement concerns, advocating for the establishment of studies to understand AI implications holistically.

Maldonado's presentation concluded with an emphasis on the importance of considering the human element in AI development and deployment. She warned of potential discriminatory impacts, especially in job automation, and stressed the need to reposition human roles thoughtfully. Her approach to AI governance and policy in Virginia reflects a comprehensive, inclusive, and adaptable mindset, acknowledging AI as a collective challenge requiring collaborative solutions.

Assembly Member Rebecca Bauer-Kahan of California

Assembly Member Rebecca Bauer-Kahan of California presented her insights and legislative efforts on algorithmic discrimination through AB331, a bill she authored. Bauer-Kahan, an attorney and law professor turned legislator, emphasized the ubiquitous presence of AI in our daily lives and the necessity for its regulation, especially considering the changing landscape of technology and its implications on existing laws. She highlighted the vital need for updating legislation to ensure AI's alignment with long-standing legal frameworks, especially in the context of two-party consent states like California.

Bauer-Kahan discussed the intersection of technology, job creation, and constituent impact, emphasizing the public's growing concern over the lack of AI regulation. She advocated for proactive legislative action, referencing the challenges faced by social media and the internet due to delayed regulatory intervention. Drawing from her legal background and experience in Silicon Valley, Bauer-Kahan stressed the importance of balancing innovation with necessary regulation to prevent discrimination and protect civil rights.

The Assembly Member shared her journey in crafting AB331, focusing on algorithmic decision-making tools and their impact on consequential decisions such as housing, lending, and employment. She aimed to introduce a regulatory framework that is comprehensive yet reasonable, ensuring that AI tools are tested for discriminatory patterns before deployment. Bauer-Kahan highlighted the importance of including both large corporations and small startups in this regulatory process, promoting a competitive and innovative AI landscape.

Bauer-Kahan emphasized the challenges in defining AI and deciding the extent of regulation. She suggested a focus on the impact of AI on communities rather than rigid definitions, advocating for a dynamic and adaptable legislative approach. The Assembly Member also addressed industry responses to regulation, noting a divide between entities advocating for regulatory clarity and those opposing any regulation.

Concluding her presentation, Bauer-Kahan underscored the necessity of including diverse voices in AI development and workforce, to ensure equitable and comprehensive growth in the AI sector. She highlighted the potential of AI in enhancing societal structures if leveraged correctly, particularly in areas like healthcare. Bauer-Kahan called for a collective and mindful approach towards AI legislation, emphasizing the importance of state collaboration in the absence of federal leadership.

Diya Wynn - Amazon

Diya Wynn from Amazon Web Services (AWS) presented her insights on inclusive AI, expressing her passion for the topic and her commitment to making technology more inclusive and responsible. Wynn, recognized as one of the top 100 people in AI, emphasized the transformative power of AI in various sectors and the need for responsible implementation. She shared her personal journey from a technology background to focusing on responsible AI, driven by the necessity of preparing future generations for the challenges and opportunities AI presents.

At AWS, Wynn has pioneered a practice focused on responsible AI, helping customers understand potential risks and implement practices to minimize these risks while

maximizing societal benefits. AWS's strategy on responsible AI includes transforming theory into practice, nurturing diverse leaders, advancing the science of responsible AI, and providing services to detect bias, ensure transparency, and monitor models. This comprehensive approach ensures the integration of responsible AI across the entire machine learning lifecycle, emphasizing the importance of diversity in team composition and decision-making processes.

Wynn highlighted AWS's commitment to education and workforce development, aiming to educate 29 million people by 2025. Initiatives like Machine Learning University, AIML Scholarship Program, and AWS DeepRacer are designed to make AI education accessible to a diverse audience, including underrepresented communities. These efforts are part of a broader strategy to prepare individuals for the evolving job market and ensure inclusivity in the development and application of AI technologies.

Wynn discussed AWS's focus on customer partnership, outlining seven core principles to guide responsible AI development: values, inclusion, training and education, accountability, privacy, safety, security, equity, fairness, and transparency. These principles help customers integrate AI responsibly in their operations. Wynn emphasized that responsible AI is a journey, requiring continuous awareness building, foundational elements, and an integrated system where AI and responsible AI are intrinsic to development.

Concluding her presentation, Wynn addressed questions about transparency and AWS's commitment to it. She discussed AWS's terms of service and recent initiatives for responsible AI in generative services, indicating a willingness to act against violations. Wynn acknowledged the complexity of balancing innovation with responsibility and emphasized the need for continued research, collaboration, and adherence to evolving standards and best practices in AI development.

Meeting 4

Mike Crair, Vice Provost for Research, Yale University

Mike Crair, Vice Provost for Academic Research at Yale University, highlighted Yale's commitment to advancing data science and artificial intelligence (AI) during a recent conference. He emphasized the university's strategic investment in these areas, including the recruitment of new faculty, the development of new facilities, and substantial upgrades to research infrastructure. This initiative aligns with the broader interest in AI by government entities, focusing on how AI can be leveraged for industrial growth and societal improvement.

Yale's significant investment in data science and AI is evidenced by the recent establishment of new buildings and departments. The Time Biology Building, for instance, underwent a \$140 million renovation and now houses the Departments of Statistics and Data Science, Mathematics, and Astronomy. Additionally, it includes the new Institute for the Foundation of Data Science, dedicated to creating innovative tools and techniques in data science and AI. The School of Medicine has also introduced a section in Biomechanics and Data Science, indicating the university's comprehensive approach to incorporating AI across different disciplines.

Crair discussed the historical context of AI, noting its longstanding presence in academic and practical realms. He shared his personal experience with AI, dating back to his PhD work in neural networks in 1991. Despite AI's long history, Crair observed a significant acceleration in the field over the past 30 years, particularly in the last five. This rapid development is attributed to advancements in computer technology and machine learning, which have markedly expanded AI's societal impact.

Yale's proactive stance in addressing the burgeoning field of AI is further demonstrated by the establishment of an AI task force led by Scott Schwobel. The task force reflects Yale's commitment to understanding and integrating AI's growing influence in various domains. The group, which includes industry leaders, is actively engaging with AI advancements through dialogues with major tech companies and is tasked with delivering specific outcomes related to AI's role in research, education, practice, and preservation within a few months.

Finally, Crair proposed opportunities for collaboration between Yale and the state government, particularly in leveraging AI for healthcare advancements. He suggested that the state could play a critical role in facilitating AI development by reducing barriers to accessing and integrating diverse healthcare datasets. This initiative, if implemented safely and effectively, could not only enhance AI's commercial potential in Connecticut but also serve as a model for nationwide healthcare improvements through AI integration. Crair concluded by expressing Yale's readiness to host the AI Task Force and its eagerness to collaborate with academic and governmental partners for the communal benefit of understanding and utilizing AI.

Joseph Geballe

Josh Geballe, head of Yale Ventures, presented his extensive experience and current role at a recent meeting, emphasizing the importance of entrepreneurship and innovation in academia. Geballe's background spans across the packaging industry, technology services at IBM, and leading a software firm focused on scientific data management. This diverse experience, particularly at the intersection of technology,

software, health, and human life sciences, has shaped his approach to fostering innovation in the academic setting.

Yale Ventures, under Geballe's leadership, aims to support entrepreneurship and innovation at Yale University. The organization was created in response to the recognized need for greater support in these areas across the Yale campus. Historically, Yale has been successful in launching biotech startups based on research discoveries, primarily from the School of Medicine, contributing to the robust bioscience ecosystem in New Haven and across Connecticut. Yale Ventures seeks to extend this success across other disciplines and schools within the university.

A significant development at Yale, as highlighted by Geballe, is the growth of the School of Engineering and the rising popularity of computer science as a major among undergraduates. This shift represents a broader embrace of technology and innovation at the university. The interdisciplinary collaboration at Yale, particularly between the growing School of Engineering and the School of Medicine, is spurring new ventures that integrate emerging technologies like AI to create innovative solutions in health and life sciences.

Geballe detailed Yale Ventures' role in transforming research discoveries into startup companies. The organization not only handles the technical aspects, such as patenting discoveries and licensing them, but also supports faculty and students in developing business models and securing necessary resources. This support is aimed at fostering startups within Connecticut, contributing to the state's economic growth and innovation landscape. An increasing number of these startups are focusing on the application of AI in health and life sciences.

Geballe concluded by discussing specific AI startups emerging from Yale, illustrating the potential of this technology in various fields. Examples include InSync AI, which utilizes AI for early diagnostic interventions in heart diseases, and several startups accelerating drug discovery processes. Operational applications of AI are also being explored, such as improving hospital efficiency. Looking forward, Geballe expressed enthusiasm about participating in initiatives to support AI startups, including accelerators, incubators, and hackathons, and emphasized the importance of collaboration across Connecticut institutions for shared infrastructure and resource access.

David Ferrucci, Elemental Cognition

Dr. David Ferrucci, an acclaimed AI researcher and leader of IBM's Watson project, delivered a concise yet insightful presentation on the advancements and implications of artificial intelligence. Over his 25-year career in AI, Ferrucci has witnessed significant

developments, particularly in areas like image and voice recognition, predictive analysis, and reading comprehension. He emphasized the transformative impact of AI, especially in the context of language models, which he regards as a significant leap in AI capabilities.

Ferrucci provided a foundational understanding of AI, focusing on neural networks' ability to find complex functions relating inputs to outputs. These networks, scalable in nature, can handle a vast array of variables, making them powerful predictive tools. However, Ferrucci pointed out a critical aspect: while these networks can predict with high accuracy, their internal functions are often inscrutable to humans, leading to predictions that may be unintuitive or challenging to understand.

Highlighting the rapid growth in AI, particularly in language processing, Ferrucci delved into the mechanics of how large language models work. He explained the concepts of word embeddings and attention-based transformers, crucial in these models. Word embeddings represent words based on the context of other words in a body of text, while transformers predict the next word in a sequence efficiently. This approach allows AI models to interpret and generate language with remarkable accuracy.

However, Ferrucci cautioned against over-reliance on AI's predictive abilities, citing examples where AI models, despite their accuracy, produced results that were logically inconsistent or incorrect ("hallucinations"). This raises concerns about the reliability of AI in complex, nuanced tasks, especially when AI-generated content is assumed credible without critical evaluation. He stressed the importance of understanding AI's limitations in discerning truthfulness, correctness, and biases inherent in training data.

In conclusion, Ferrucci expressed concerns about potential challenges posed by advanced AI. These include centralized control and propaganda, systemic bias, impacts on labor markets, and the facilitation of malicious activities like deep fakes. He emphasized the need for vigilance and critical assessment of AI's role in society, recognizing its power to transform yet also cautioning against its unchecked application.

Arvind Krishna, CEO IBM

Arvind Krishna, CEO of IBM and a long-time resident of Connecticut, recently spoke about the transformative potential of artificial intelligence (AI) and its implications for society and the workforce. He began by acknowledging the significance of AI in state agencies and its broader impact on jobs, skills, and people. Krishna cited a statistic predicting AI could contribute \$4.5 trillion to global productivity annually by 2030. He provided real-world examples of AI applications, such as increasing efficiency in contact

centers and processing veterans' benefits, highlighting the technology's potential to greatly enhance productivity in various sectors.

Krishna addressed common concerns about AI, particularly its impact on employment. Contrary to fears of job displacement, he argued that AI will create more jobs than it displaces, drawing a parallel to the advent of the internet and the subsequent creation of new job roles. He emphasized that increased productivity leads to market expansion and job creation. Krishna also discussed the need for workforce reskilling, noting that while not everyone will become AI experts, there will be a need for a general understanding of how to leverage AI in daily work.

Highlighting IBM's commitment to skills development, Krishna mentioned IBM's efforts to upskill 30 million people by 2021. He emphasized collaboration with educational institutions and the importance of accessible learning through community colleges and local state colleges. Krishna also discussed how AI can be strategically deployed to improve efficiency in areas with high levels of repetitive work, citing examples like call centers in the insurance industry and suggesting that AI can enhance the human workforce rather than replace it.

Krishna advised the government on AI regulation, recommending a focus on regulating risky use cases rather than the technology itself. He advocated for a light regulatory touch in the early stages of AI development to allow for innovation. Krishna suggested that high-risk scenarios, particularly those posing a threat to human life, should receive more regulatory attention, aligning with a risk-based approach.

Finally, Krishna addressed responsible AI deployment within companies, emphasizing the importance of ethical guidelines and governance. He discussed IBM's policies on AI training and accountability, including indemnity for clients similar to other technologies. He also mentioned the necessity of testing for biases and ethical considerations and the role of IBM's internal AI ethics board in ensuring responsible use of AI. Concluding his talk, Krishna reiterated the potential of AI to drive economic growth and improve services, highlighting its transformative impact on society.

Workforce Development Panel Discussion

Moderator – State Senator Saud Anwar

Sean Corcoran - Class Wallet

Monica Laufer - Workday

Trey Causey, Head of Responsible AI - Indeed

Kelli Vallieres, Chief Workforce Officer - CT Office of Workforce Strategy

In a panel moderated by State Senator Saud Anwar on workforce development, the primary focus was on the impact of Artificial Intelligence (AI) on the workforce and the potential policy responses to this challenge. The panelists discussed the dichotomy often presented in public discourse about AI, questioning whether it will complement or replace workers. They addressed the urgency of this conversation, given estimates that AI could automate a significant portion of current jobs and work hours by 2030.

Panelists included Monica Laufer, a senior policy manager at Workday; Kelli Vallieres, the vice chair of the Governor's Workforce Council and chief workforce officer of the Office of Workforce Strategy; and Trey Causey, head of Responsible AI and senior director of Data Science at Indeed.

Monica Laufer emphasized Workday's commitment to utilizing AI to unlock human potential while advocating for smart AI safeguards. She stressed the importance of a skills-based approach in hiring and workforce development, highlighting the role of AI in processing complex skills data and aiding in talent management and career planning. Laufer also addressed Workday's advocacy for responsible AI regulation, underscoring the need for transparent and understandable AI applications that augment rather than replace human work.

Trey Causey, from Indeed, discussed how AI is essential in connecting job seekers and employers. He noted the dual nature of AI in creating and destroying jobs and the importance of equity in hiring. Causey stressed the need for responsible AI use, emphasizing Indeed's principles focusing on job seeker first, fairness and equity, and human involvement in AI systems. He also advocated for effective regulation that protects and empowers vulnerable populations while encouraging responsible innovation.

Dr. Kelli Vallieres discussed Connecticut's strategic approach to workforce development, highlighting the Governor's Workforce Council's focus on long-term effects of workforce development and immediate needs. She emphasized the importance of data-driven strategies and diversity, equity, and inclusion in workforce development. Vallieres also highlighted the challenges in aligning education with current job market needs and the role of AI in identifying skills gaps and potential career pathways for individuals.

The panelists then engaged in a rapid-fire Q&A session, addressing the future of jobs, skill development, and the potential harms of algorithmic biases. They discussed the importance of critical thinking and problem-solving skills, the uncertainty in predicting future job markets, and the need for policies that support skills-based hiring. They also

explored the challenges of reskilling and the role of AI in personalized education and workforce training.

In conclusion, the panel underscored the complex relationship between AI and the workforce. The discussion highlighted the need for thoughtful policy making, skills development, and responsible AI use to navigate the transformative impact of AI on jobs and the economy. The panelists emphasized the importance of preparing the workforce for a rapidly changing job landscape, where AI plays a significant role in shaping future employment opportunities and challenges.

Panel Discussion on Promoting Health AI

Moderator - Scott Lowry - CT Health AI

Dr. Sandra Saldana, CEO - Alva Health

Paul Flicek, Chief Data Science Officer - JAX

Jodie Gillon, CEO - BioCT

In a panel moderated by Scott Lowry of CT Health AI, experts gathered to discuss the promotion of health AI in Connecticut. The panelists included individuals with diverse backgrounds in banking, healthcare, academia, and technology. They shared their experiences and insights on how artificial intelligence (AI) can revolutionize healthcare. The panel emphasized the state's potential to become a leader in health AI, despite current challenges such as catching up with well-established programs in other states and the need for a tech-savvy workforce.

The discussion highlighted Connecticut's rich academic resources and the importance of fostering collaboration between academic institutions, healthcare organizations, and tech startups. For instance, Yale University's role in fostering AI talent and its collaboration with startups like Alva Health, a company developing wearable devices for real-time stroke detection, was noted. The panelists agreed that Connecticut has the potential to excel in health AI, but it requires a concerted effort to nurture the necessary ecosystem.

Panelists also addressed the challenges of competing with larger tech companies for AI talent and the need for state initiatives to retain local talent. The panel suggested that Connecticut could benefit from state-run programs to facilitate data sharing across organizations and support startups in their AI journey. A specific suggestion was made for the state to provide computing capacity to AI startups, which would significantly aid their development process.

The conversation then shifted to regulatory aspects, with panelists discussing the need for flexible and supportive state regulations that don't hinder AI development. The role of the FDA in approving AI algorithms and their software as a medical device program was also touched upon, underscoring the complexity of navigating federal regulations in healthcare AI.

Finally, the panel concluded with the agreement that while there are challenges, Connecticut has the potential to become a leading state in health AI. This can be achieved through collaborative efforts, support from state organizations, and strategic investments in talent development and resource allocation. The session closed with a call to action for further discussion in breakout roundtables, focusing on specific areas like workforce development and health tech innovation.

Dean Lucila Ohno-Machado, Yale University, Deputy Dean for Biomedical Informatics and Chair of Biomedical Informatics and Data Science

In a presentation by Dean Lucila Ohno-Machado of Yale University, key insights were shared on advancing health AI in Connecticut, emphasizing the importance of data, privacy, and ethical considerations in AI development. Ohno-Machado, who has experience in California with similar initiatives, expressed optimism about Connecticut's potential in this field. She highlighted the necessity of harnessing healthcare data in a privacy-preserving manner to aid FDA approvals of clinical devices and technologies, stressing the significance of data security and GPU enclaves for AI development.

Ohno-Machado pointed out the dilemma faced by healthcare systems in data sharing due to privacy concerns. However, she proposed solutions like testing products within healthcare systems and incentivizing such collaborations. Ethical considerations were underscored, with emphasis on developing products that do not harm patients. She stressed the importance of understanding the real risks involved in AI and sharing data responsibly while advancing AI technology.

Addressing federal regulations, Ohno-Machado discussed the challenges and solutions in de-identifying data for research purposes. She brought attention to the risks involved even with de-identified data, explaining how data can be re-identified through various means, thus posing a privacy risk. To mitigate these risks, she advocated for innovative solutions like computing with distributed analytics, keeping data within their health systems, and employing privacy-protecting technologies like homomorphic encryption and multi-party computation.

Ohno-Machado emphasized the ethical dimensions of data sharing, discussing the dilemma between the ethics of sharing versus not sharing patient data for research. She

highlighted the feasibility and public willingness to share data for scientific advancement, suggesting patient-managed data sharing as a viable model. This approach could lead to more informed and comfortable participants in research studies.

Finally, Ohno-Machado concluded with suggestions for workforce development and education in medical AI, proposing a certificate program in medical software and AI. She emphasized the need for transparency to understand AI biases, particularly concerning populations without access to care, and the importance of representing diverse patient populations in AI models. Ohno-Machado's presentation provided a comprehensive overview of the challenges and opportunities in advancing health AI in Connecticut, with an emphasis on ethical data usage, privacy protection, and inclusive model development.



Celebrate, Promote, Inform in Service to Connecticut

BRIEFING

From the Connecticut Academy of Science and Engineering

This briefing was initiated by the Connecticut Academy of Science and Engineering, Inc., (CASE) at the request of the Joint General Law Committee of the Connecticut General Assembly's Artificial Intelligence (AI) Working Group (see [Public Act 23-16](#), §5 for a description of the working group). The purpose of the briefing is to provide an initial overview of AI skills development and use in Connecticut.

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An Initial Overview of Artificial Intelligence Skills Development and Use in Connecticut

CASE's research focused on AI for the following sectors: 1) Connecticut businesses and industries; 2) Connecticut public schools and districts, and organizations that support Pre-Kindergarten through Grade level 12 (PreK-12); and 3) Connecticut private and public, 2- and 4-year institutions of higher education.

The research included interviews with:

- Five Connecticut companies/health systems with 1,000 or more employees
- Six private and public, 2- and 4-year Connecticut colleges and universities, and
- Six public school districts. Additionally, CASE met by phone with staff from a regional education service center, and from a commission empowered by the Connecticut General Assembly to oversee integration of technology into the state's schools, libraries, colleges, and universities.

The AI Working Group, and others at the discretion of the Co-Chairs of the working group, edited and provided comments on the focus of the research for all three sectors. Meeting participants and survey respondents were advised that responses would be aggregated and not reported individually. See Appendices B, C, and D for the final core questions that guided the interviews and the AI Skills Survey (described below). Interviewees received core questions in advance of their interview to assist in preparation and received directly following the interview a summary for their review and edit.

Additionally, CASE partnered with the Connecticut Business and Industry Association on a survey that the association distributed to their members with 100 or less employees. The Connecticut Data Collaborative assisted in development of the survey. The assistance CASE received from the Connecticut Business and Industry Association, including further edits to the survey, along with distribution and timely transmittal of the results, was provided in a spirit of service to the people and the state of Connecticut (see Appendix A for the survey questions).

CASE appreciates the opportunity provided by the AI Working Group to submit this CASE Briefing and the time of all those that met with CASE and/or participated in the survey and interviews. Many of the interviewees confirmed their willingness to be acknowledged, but due to the small numbers and for those requesting confidentiality, CASE opted not to name any business, industry, non-profit, school, or higher education institution in this briefing.

While all comments were considered, CASE's Governing Council is responsible for the content of this briefing document. Special thanks to David Pines, Professor, College of Engineering, Technology, and Architecture at the University of Hartford, for his involvement throughout the research process and to INQ Creative for preparing this document for publication.

As access and use of AI tools becomes more pervasive, additional research will be needed to inform public policies. ***The working group should be cautious as it considers the information contained in this briefing, as the sample size was small.***

The report sections include the following:

Connecticut Institutions of Higher Education

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- AI Initiatives
- AI: Skills for Students
- Challenges
- Opportunities
- Professional Development Strategies
- Business and Industry, and PreK-12 Collaboration
- Suggestions for State Policy

Connecticut Pre-Kindergarten – Grade 12

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- AI Initiatives
- AI: Skills for Students
- Challenges
- Opportunities
- Professional Development Strategies
- Business and Industry and Institutions of Higher Education Collaboration, and Extracurricular Activities
- Suggestions for State Policy

Connecticut Businesses and Industries

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- AI Initiatives
- Challenges
- Skills Needed and Training for Employees
- Recruitment and Effect on the Workforce
- Suggestions for State Policy

Appendices:

A. CASE – Business and Industry Artificial Intelligence Skills: Survey

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B. CASE – Business and Industry Artificial Intelligence Skills: Core Interview Questions

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C. CASE – Higher Education Artificial Intelligence Skills: Core Interview Questions

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D. CASE – PreK through Grade-level 12: Core Interview Questions

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Respondents from six colleges and universities participated in interviews, including a 4-year public university, a 2-year public college, a private, post graduate university, and three, 4-year private universities. Positions of those interviewed included a provost and faculty from one university, a dean and a deputy dean, a vice president for strategic initiatives and outreach, a chair and department head, and a head of digital learning and scholarship.

AI INITIATIVES

All Institutions of Higher Education (IHE) respondents reported being at the exploration stage of planning for AI on their campuses; no one reported policies and/or frameworks in place. One IHE respondent was surprised at how quickly AI became an issue, taking their campus by surprise, with other campuses confirming a similar sentiment. Although some campuses reported efforts will be underway on a framework planning process in early 2024, most indicated that there was no timeline in place.

The majority of IHE respondents reported that campus efforts were focused on providing opportunities for faculty to explore the use of AI tools. One campus reported the importance of faculty engagement in the discussion and that they do not view planning for use of AI as a top-down process.

Faculty have been asked to add AI use policies to their syllabi, with no formal position on whether they should restrict or allow use. It was noted that there is variability for colleges and universities within their schools and departments (e.g., schools of business, schools of arts and sciences), with some departments and schools further along than others. Several respondents indicated that computer science and other more technical courses of study had incorporated into their coursework the mathematics and theory behind the development of AI as necessary to better prepare their students.

Respondents reported that integrating AI into courses and programs will require time. Some campuses reported that discipline committees will come together in a shared governance process. Some campuses are looking at options for developing AI non-credit courses while in parallel initiating the type of campus-wide, or discipline specific processes that would be required for changes to credit courses. Another option suggested would be to have the state require that undergraduate students take a general education course, which would include ethical, safe, and responsible use of AI.

Respondents from the interviews were responsible for overseeing or development of educational programs and, when asked, all indicated they were unaware of AI tools being used to improve university operations.

IHE's respondents identified the following skills as important for students to possess:

- **Critical Thinking and Evaluation:** Ability to critically evaluate AI-generated content, assess the accuracy of information, and think about when to use AI.
- **Data Analysis and Utilization:** Data-related skills, such as data analysis, utilization, visualization, and prediction.
- **Data Privacy:** Recognize the risk of data leaks and use practices that mitigate the risk to sensitive data.
- **Digital Literacy, Media Literacy, and Ethical and Responsible Use:** Be responsible, safe, and ethical users of AI and have a healthy skepticism when using these tools. Must understand that these tools are fallible and will produce incorrect or biased information. IHEs are a safe environment for students to explore AI and it is important to provide students with the opportunity to do so before beginning their professional careers.
- **Prompt Engineering:** Be able to interact with AI, using an iterative process between the user and AI. This is especially important for non-technical majors.

CHALLENGES

- **Data Privacy and Security:** Protecting data privacy and ensuring the security of educational systems and student information. This will require new policies and measures to safeguard sensitive data.
- **Ethical, Safe and Responsible Use:** Ethical and responsible AI that encompasses bias, privacy, and the employment of AI tools that align with ethical principles. It was noted by one respondent that AI tools deepened the challenges created by social media and should be included in any broader discussion about ethical, safe, and responsible use.
- **Digital Divide, Equity and Access:** AI can magnify existing inequalities and further deepen the digital divide. Ensuring equitable access to AI tools was seen as essential.
- **Environmental Impact:** The environmental consequences of AI tools, including their energy consumption and effect on global warming; sustainable and energy-efficient AI tools should be a consideration.
- **Human-Centered Approach:** The importance of human interaction in education should be preserved, with the value of a comprehensive, interactive, and face-to-face learning experience recognized. AI should not be considered as a replacement for teaching.
- **Provenance:** Establishing provenance and intellectual ownership when AI is used is a significant issue that will need to be addressed. Plagiarism related to AI emerges when a student or employee places a claim as their own text that was generated by AI.
- **Resource and Cost Challenges:** The computational power and maintenance required for the use of AI tools will be challenging for smaller colleges and universities, both public and private, and will contribute to a digital divide.
- **Transparency:** Even the creators of some AI tools cannot determine – once in motion – exactly how the outcomes were determined. Developers must be transparent to assist with the challenging process of vetting outcomes.

OPPORTUNITIES

- **Equity and Accessibility:** Recognized as a strategy to address issues of equity. For example, the tools can offer translation assistance for English as a Second Language students.
- **Innovation in Teaching and Learning:** AI tools have the potential to catalyze innovation in education. For example, the tools can assist in idea generation for creative and engaging lessons, making the learning process more dynamic, and in facilitating personalized, student-centered learning by adapting lessons to individual student needs and preferences. Additionally, faculty will have a key opportunity to educate students in the ethical, safe, and responsible use of these tools to better prepare them for future study, the workforce, and in their leisure time.
- **Interdisciplinary Opportunities:** Respondents mentioned the importance of AI in understanding and leveraging opportunities across different academic disciplines and bridging gaps between fields.
- **Productivity Improvements:** The ability of AI tools to streamline tasks such as content creation, curriculum modification, and meeting management, which can free faculty time for increased engagement in their profession (e.g., research, publications, outreach).

PROFESSIONAL DEVELOPMENT STRATEGIES

IHE respondents reported that most faculty have not yet begun to explore the use of AI professionally. However, some are at an exploratory phase and others incorporating into their teaching and/or using it for their research. Faculty members have the latitude to choose their level of involvement with IHE-based professional development resources and will opt to engage based on their needs for teaching and activities related to their profession, such as research and publications. The strategies or supports used or suggested for use include:

- **Collaborative Learning:** Some campuses reported that faculty and staff engagement with their professional organizations and networks tended to be their preferred method of professional development. This type of professional development includes participating in peer-to-peer networks, attending conferences, and utilizing their networks for learning and sharing best practices related to AI. Professional development resources are available to faculty and staff to support expenses for items such as registration and travel.
- **Teaching and Learning Centers:** IHE-based centers provide support to faculty for improved teaching and learning, with several respondents reporting that their IHE centers had AI-in-teaching workshops available and offered individual support if requested. Two IHE's indicated that their centers were working with other support areas, including digital technology support, and schools or departments of education.

One campus offered a limited number of faculty members, or faculty working together in teams, with a subscription to ChatGPT, described by OpenAI, its developer, as "... an AI chatbot that uses natural language processing to create humanlike conversational dialogue." Faculty were required to apply to receive the support with a request that they report back on their experience. The college was disappointed by the response, with only a few faculty members submitting

applications and no applications received from faculty teams. The respondent indicated there might be several reasons why, including: 1) some faculty may already have access to ChatGPT, with currently a low, annual subscription cost; and/or 2) a preference to rely on professional networks for AI guidance.

BUSINESS AND INDUSTRY AND PREK-12 COLLABORATIONS AND PARTNERSHIPS

Most IHE respondents reported minimal engagement with the business and industry, and the PreK-12 sectors related to AI, with the following noted:

- **Business and Industry – AI Products:** IHE Respondents indicated they had been contacted by smaller technology companies with IHE AI-enhanced products and services looking to sell their products. However, only one of the IHE's reported that their institution had been contacted by a major technology company, such as Amazon Web Services, Inc. (AWS), Meta, Google, and/or OpenAI. The remaining IHE respondents indicated that to the best of their knowledge, their institution had not been contacted.
- **Business and Industry:** Most IHEs reported minimal requests for courses and/or professional development for employees or research support. However, respondents indicated that there is a growing interest and uncertainty about AI in the business sector and recognized that there will be a need to:
 - Align the educational system, including AI content and skill development, with workforce needs, and
 - To create seamless pathways from 2-year to 4-year IHE programs of study for students seeking AI-related degrees
- **PreK-12:** One university reported an active partnership with a technology-focused high school local to their campus and several respondents highlighted a collaboration with Skills21 at EdAdvance, a Regional Education Service Center. Skills21 provides project-based learning platforms, with IHE faculty serving as advisors in areas such as curriculum development. Additionally, it was reported that faculty participate in professional networks that include educators from the PreK-12 system, such as [EduCause](#), and the [Northeast Regional Computing Program](#).

SUGGESTIONS FOR STATE POLICY

IHE respondents appreciated the opportunity to share their policy ideas for consideration by policy makers. The following is a summary of the policy concepts discussed:

- **Collaboration and Knowledge Sharing:** Collaboration and knowledge sharing across educational institutions, and between sectors should be encouraged, with the state helping to facilitate these activities through strategies such as a competitive grant program for multi-sector AI projects and/or the creation of a clearinghouse for AI best practices. These types of projects will promote a collective understanding across all sectors, help to establish best practices for

education and the preparation of students for the workforce, support vertical articulation from PreK-12 to the workforce, and provide for a diversity of perspectives about solutions to the challenges presented by AI.

- **Engagement with Technology Companies:** The engagement of the state with large technology companies working at the forefront of AI will be important to position the state to be competitive. If not already underway, state-level efforts should be made to connect these companies with leadership at the state's colleges and universities.
- **General Education Requirement for AI:** Some, but not all, respondents recommended the state consider an IHE general education requirement for basic technology skills that would include AI. This requirement could catalyze changes at the state's IHEs and would ensure students have a foundational understanding of technology in general, and specifically AI.
- **High-Performance Computing Centers and Resource Challenges:** A majority of the IHE respondents suggested the State consider options to support the building and maintenance of a state-based, high-performance computing center (HPCC). IHE's reported that the increasing cost to develop and maintain computing power in the constantly evolving world of technology was prohibitive, and this issue has been further exacerbated by the emergence of the newest AI products. For our state to be a "Knowledge State," access by colleges and universities—a valuable contributor to this enterprise—to up-to-date computing power will become a basic need. The HPCC would provide equitable access to powerful computing resources with proper maintenance and upgrades. Many options could be considered, including overbuilding a center at a public university or establishing a non-profit, that would then manage and facilitate use of the HPCC with colleges and universities and others (businesses and industries) with a willingness to cost share.
- **Policy and Framework Development:** Many respondents confirmed the need for guidance from the state for the development of AI policies and frameworks - specifically guardrails - that will guide development of individual college and university policies and frameworks. The goal for campuses is to be innovative in their practices, while ensuring responsible and ethical use of AI, including data privacy. Having direction from the State will help streamline their process.

Respondents from six districts participated in interviews, with district student populations ranging from ~3,500 to ~12,000. Positions of those interviewed included a superintendent, two assistant superintendents — one for curriculum and instruction and the other for digital learning and innovation —, two directors in areas of digital learning and technology systems and supports, data integration resource teachers, and a system lead for technical education. Additionally, meetings were held with the commission empowered by the Connecticut General Assembly to oversee integration of technology into the state’s schools, libraries, colleges, and universities, and with a director of AI strategy and skills for the 21st century at a Regional Education Service Center. The research effort included attending the Connecticut Education Technology Leaders Conference on Understanding AI and its Impact on K-12 Education (Dec. 11, 2023).

PREK-12 AI INITIATIVES

The districts reported being in an exploratory phase of planning for the use of AI throughout their curriculum, including all grades and disciplines, and for use in the business operations of the district (e.g., communications, contract reviews). Most reported that frameworks had been drafted or were in the planning process for development, with these frameworks to include responsible use, ethical considerations, and professional development. Most districts have included or plan to include a diverse group of stakeholders in the framework development process, including teachers, administrators, parents, students, and members from the community.

One district has an AI policy in place, which is available to the public via their website. However, most districts reported that policies would not be developed until more was known and that existing, more general policies, such as student policies regarding honesty and existing technology policies, were general enough to cover AI. The districts also reported concerns about the impact of social media and felt a sense of urgency “...to get out ahead of AI,” specifically about what it is, its capabilities and associated risks, and ensuring their students are prepared for a future where AI will play a significant role.

AI: SKILLS FOR STUDENTS

District respondents identified the following skills as important for students to possess, specifically in response to the increase in the use of AI tools:

- Awareness of AI: Recognize the prevalence of AI and when interaction is occurring with AI tools.
- Critical Thinker: Critically evaluate AI-generated content, assess the accuracy of information, and think about when to use AI. Fundamental understanding that on-line content should be considered with a healthy skepticism.

- Digital Citizenship: As defined by the International Society for Technology Education (ISTE, 2018), “Digital citizenship is the ability for students to recognize the rights, responsibilities, and opportunities of living, learning, and working in an interconnected digital world, and they act and model in ways that are safe, legal, and ethical.”
- Project-based learning skills: as defined by Edutopia, is a “...classroom approach in which students actively explore real-world problems and challenges and acquire transferable knowledge,” with skills including comparing, analyzing, solving complex problems, communicating orally and in writing, generating ideas, and drawing conclusions.
- Prompting: Asking questions, or prompting, when interacting with AI.

Additionally, respondents reported that educators will need to measure AI-related competencies and assure a balance of content with skill development.

CHALLENGES

Districts respondents spoke about the challenges they are encountering with the emergence of AI, expect to encounter, and/or possible impacts on students from the use of AI.

- Data Privacy and Security: Privacy, particularly student data privacy, is a concern. The increasing sophistication of AI will further escalate the type of actions that can put systems at risk and opportunities for data leaks. Additionally, some districts reported concerns with the state and federal student privacy statutes and the burden placed on districts to comply, while others reported approaches being used to facilitate district compliance.
- District-based Educational and Operational Technology Leadership and Expertise: Educational and operational technology leadership is needed, with the race to acquire these skill sets and competitive wages making it difficult to recruit and retain talent.
- Equity and Digital Access: A digital divide exists, and this gap will increase in districts that have smaller staffs, limited funds, and/or with families and caregivers unable to provide the technology and access that better resourced communities and families have available for their students. Of note, the Connecticut Education Network (CEN; www.CTEdunet.net) connects every school district, college and university, and most libraries and towns to high-speed broadband with built-in cyber protections. CEN will be rolling out the next phase of the “[Community Wireless](#)” program with American Rescue Plan dollars to expand access to high-speed and safe internet connections to communities around the state.

Additionally, digital resources exist but it is not always clear how they support ethical, safe, and responsible use of AI. Currently the common approach among respondents is to restrict access.

- Ethical Dilemmas and Bias: Bias exists and has the potential to be magnified. Additionally, educators have the responsibility to be culturally sensitive and to model that behavior for students. AI tools will make decisions without understanding the parameters, which will in some cases lead to unethical outcomes.
- Impact on Critical Thinking and Cognitive Abilities: Increased use of AI may lead to a reduction in human cognitive abilities, critical thinking skills, and an over-reliance on technology.

- Multiple major impacts on schools: Districts generally are risk adverse and significant complex problems that require solutions are coming rapidly, with a pace difficult to manage. The ramifications of the pandemic, the social, emotional health of students, exacerbated by social media, and now AI can be overwhelming.
- Plagiarism and Cheating: Some districts reported student plagiarism (i.e., copying what AI software has generated) and cheating with evidence pointing to the use of AI tools. AI plagiarism detector tools are being marketed to schools, but several districts report that these tools are not adequate since AI generates de novo text. Several district respondents recognize that the tools used are new, but that cheating is not new; educators will need to employ new practices to address this current trend.
- Social Media and AI: Several district respondents noted the similarity between social media and AI. With social media, educators did not recognize the impacts and are being more proactive with the emergence of AI.

OPPORTUNITIES

AI tools will provide new ways to engage students in their learning and teachers will need time to explore these tools and how they can be used to assist with planning lessons, with a focus on making these lessons more relevant for students, differentiating instruction, development of assessments and rubrics, and other labor intensive, sometimes daily, activities. This is particularly significant with teachers at the middle- and high-school levels who may see 100+ students a day, but also for elementary teachers seeking to reach each student. Respondents recognize that a goal of student-centered, personalized instruction, always sought, may be possible but also recognize these tools cannot replace the teacher.

PROFESSIONAL DEVELOPMENT STRATEGIES

Several different strategies are being used for professional development, with one district reporting a draft professional development plan for use of AI in place and several others in the planning stages. Respondents shared the following strategies or supports needed:

- In-District Professional Development:
 - Some districts have staff or roles responsible for supporting teachers in their use of educational software, AI tools, and for embedding these tools into instruction. Two districts reported they have plans to recruit and hire additional staff used for technology integration. Some districts have their library and media specialists spend up to 50% of their time on school-based, in-classroom support for digital integration.
 - Peer-to-Peer Training: Providing opportunities for peers to learn from peers; this strategy includes encouraging teachers who are early adopters to take a lead.
- Collaborative Forums and Networking: Generally, respondents value opportunities to engage with peers to share best practices for curriculum and instruction and the integration of technology, and specifically emphasized the need for collaboration and professional development opportunities as it relates to AI. Evidence of this was the “Understanding AI

and its Impact on K-12 Education,” conference held 12/11/23. The conference, presented by the Connecticut Education Technology Leaders (CETL), was closed to additional registrations within 48 hours of the registration being open, with 60 districts attending. According to the respondents, outside expertise, such as the speakers presenting at this conference, help districts establish a foundation, provide insights for in-district planning, and help to identify potential resources.

- State-level Professional Development: Districts recommended that the CT Department of Education, working with and through the Regional Education Service Centers (RESA), the Connecticut Education Network (CEN), and professional associations such as, but not limited to, the Consortium for School Networking (CoSN) and CETL, develop training for administrators and other district-leaders responsible for curriculum and instruction, and digital integration, with this training model then used for in-house training. Several districts mentioned the benefit of participating in Skills21@EdAdvance (EdAdvance is one of the state’s six RESAs) programs and professional development.

BUSINESS AND INDUSTRY AND INSTITUTIONS OF HIGHER EDUCATION COLLABORATION, AND EXTRACURRICULAR ACTIVITIES

All districts reported little to no pressure from the business community to incorporate AI into their curriculum and minimal communication with the higher education community. One district reported robust partnerships with the business community and their local campus of the Connecticut Community College. Several districts have internship programs, work-based learning opportunities, and job shadowing at local businesses. There have not been reports that these students have been asked to work on projects that include the use of AI tools.

Several districts noted extracurricular activities including but not limited to Girls Who Code Clubs, Junior Engineering Technical Society TEAMS competition, and FIRST (robotics).

SUGGESTIONS FOR STATE POLICY

Educators that participated in the interviews were thoughtful and forthcoming in their policy suggestions and recommendations. Most offered to engage further, if asked, and respectfully requested that policy makers include educators in forums, panels, and task forces as future policies are being considered. The following is a summary of the policy concepts discussed:

- Digital Divide: AI tools have the potential to exacerbate inequalities in education. Respondents reported that all students should have equal access to resources and tools, regardless of socio-economic backgrounds or geographic locations. One district respondent commented that AI has been, “...commoditized and once that happened, we cannot turn back.” The digital divide is not new, but there is a sense that the state must act to ensure the divide does not widen. CEN has the Community Wireless Program to address some of these issues; other barriers will need to be identified and addressed quickly.

- District Requests for State Agency Guidance on AI and Support for Collaboration:
 - Five of the six districts have frameworks in place, in draft, or at the planning stage. These frameworks are intended to guide the decision-making process. One system indicated that a policy was approved and in place, but the remaining districts indicated they were seeking guidance from the state before planning for or finalizing district-based policies. Several districts referenced the CT Association of Boards of Education (www.cabe.org) sample AI policy and indicated this would be useful to consider. CABA has a history of releasing timely sample policies, including in the areas of cyberbullying, pandemic flu and emergency preparedness, and data security.
 - All districts indicated that there is value in collaboration and best practices sharing and recommend resources to help facilitate these opportunities. Some respondents suggested support for professional associations and others suggested the RESCs may be well-positioned to facilitate these opportunities within their service areas.
 - Teacher certification may need to be examined based on the impacts of digital integration and use of AI tools.
- Innovation versus Safety and Security: The districts recognize that this is a challenging time for policymakers and acknowledge that a balance between innovation on one side, and safety and security on the other must be the goal. Again, many respondents emphasized the need for clear guidelines and guardrails to ensure the security of student data and that policies do not inadvertently compromise privacy.

No specific suggestions were provided, but several districts recommended revisiting a report released March 25, 2019, by the [Student Data Privacy Task Force](#) pursuant to Public Act No. 18-125: An Act Concerning Revisions to the Student Data Privacy Act. The task force was charged under §5 of the public act with reviewing issues pertaining to the protection of student data, information, content, and records, in addition to the study of other issues relating to the protection of student data. The recommendations contained in the report should be revisited as they may provide value for consideration for future policy and/or study.

- Multiple, Major Impacts on Districts: Some district respondents reported feeling overwhelmed by multiple challenges, including the pandemic, care for the social, mental, and physical well-being of their students, exacerbated by the pandemic and social media, and now the onset of generative AI. These educators urged caution when developing new policies and mandates and requested that policy makers proactively seek to avoid unintended consequences that will add additional pressures on educators.

Respondents from five Connecticut businesses and industries with 1,000 or more employees, including insurance, aerospace, health care, defense, and utility sectors, were interviewed. Interviewees included general counsels, vice presidents and senior vice presidents, lead security officers, chief information officers, and directors. Additionally, the Connecticut Business and Industry Association transmitted a survey on behalf of CASE to approximately 2000 businesses and industries with 99 or less employees (N=82). Although the number receiving the survey was high, the response rate was low. This is due to several factors, including the small window for response and the technical nature of the survey (see survey in Appendix A). AI challenges and opportunities for businesses and industries will continue to grow; the state will benefit from increased engagement with all sizes and types of businesses and industries that will lead to policies that will help them to innovate, while maintaining safety and security for them and the people of Connecticut.

AI INITIATIVES

The respondents acknowledged the historical context of AI development and stressed the importance of taking a pragmatic approach. They are learning from early exploration and adapting to technological advancements as they adopt AI into their businesses. AI is being considered across various business and logistical functions and it is viewed as a tool to enhance efficiency, improve services, and drive innovation. One company noted that increased efficiency would not necessarily translate to lower costs for goods and services, as costs can come from additional expenses related to the use of AI. According to this respondent, the cost-benefit is not always clear and sometimes difficult to justify.

The respondents are using a “human-in-the-loop” approach, where AI supports human decision-making. This approach ensures human oversight and accountability in AI-driven processes.

Safety and security considerations are paramount across all industries. Respondents highlighted the need to ensure the safety of critical operations, protect sensitive data, and mitigate cybersecurity risks. Thus, respondents emphasized the importance of having clear governing directives in place to guide decision-making and ensure ethical AI usage. In the interest of transparency, one respondent’s company has created and then posted a publicly available AI framework that includes their core principles.

Healthcare has been using AI in areas such as radiology interpretation, and a respondent shared that it has significant potential to improve patient care, research, and gain efficiencies once processes are streamlined.

In general, respondents indicated that AI would be useful for non-technical business processes, including customer service functions, human resource queries, the training and on-boarding of employees, and enabling staff to interact faster with lengthy, multiple page documents through the implementation of natural learning models. On the technical side, machine learning is being

explored as a first pass for analyzing data and predictive maintenance, and AI-enhanced imagery.

Responses to the survey indicated that there was a wide range of use and even understanding of how AI tools can be used to improve their business processes. Of the 82 companies that responded, only 20% are currently using AI, with 35% expecting to use AI within the next five years. For these companies, the primary AI benefits identified were to boost efficiency and improve service. Additionally, the most frequently used words used to describe AI by survey respondents were to enhance, automate, personalize, problem solve, understand data, increase efficiency, save time and costs, and identify patterns and themes, with the expected benefit of allowing human capital to be deployed for more high-value work.

CHALLENGES

The following are the major challenges raised by respondents:

- **Security and Data Privacy:** All respondents identified the paramount importance of security and data privacy when deploying AI. This was a priority issue pre-AI tools, and newer tools will further increase actions that can put businesses and their customers at risk. Concerns included financial system security, protection of consumer data, patient data privacy, proper vetting of models to ensure safety and privacy, and protection from leaks of proprietary and classified information. Data breaches and cyber threats were highlighted for their significant level of risk.

One respondents' company blocked the use of generative AI by employees due to security concerns related to sensitive, proprietary information. The company will investigate opportunities to use generative AI in a private AI cloud, with the caveat that it be vetted for safety and security and that it complies with other governance directives. Another company initially blocked access but reopened on an individual basis. Training is required and employees must rationalize its use and how it optimizes the business.

- **Ethical Considerations:** Respondents raised concerns about responsible use of AI, and recognition that the outputs of AI models need to be evaluated for bias and discriminatory practices.
- **Quality Control and Verification:** Accuracy, quality and reliability of AI output must be tested and verified, especially for critical operations. One respondent noted that it is challenging to ensure the accuracy of AI output, with the significant potential for hazards caused by incorrect data analysis. This respondent further noted that a same AI query may lead to different responses, making it impossible to validate the quality of output. Another respondent indicated that users should not be surprised that large language models such as generative AI "generate" and can be "creative," leading to hallucinations, a phenomenon where the model perceives patterns or objects that are non-existent or imperceptible to humans.
- **Digital Divide and Accessibility:** Respondents recognize that multiple customer support modes are needed to cater to diverse customer preferences, with some customers unable or unwilling to interact with new automated tools.
- **High-Performance Computing:** There is a need for secure, high-performance computing but challenges exist in balancing the capital cost of developing a company-owned system versus the

security of shared multi-client systems. One respondent indicated that their company is trying to buy hardware to initiate development of AI tools in-house, which would allow for more security and safety, but lack the necessary infrastructure. Their plan was to start small and then scale. However, an effort to obtain seed capital was unsuccessful. One other option for the company was to use a multi-client cloud environment but they are concerned about data breaches and emphasized the need for a completely air-gapped system. Additionally, the company highlighted the challenges of working with the strict rules of the federal government. Another company protects consumer data and avoids use of public domain sources. Instead, they rely on private partners and universities that must be vetted to ensure secure data handling.

- Limited Capacity for AI Use: Smaller companies have limited capacity to fully explore the potential benefits of AI. Survey respondents reported that they were “uncertain, overwhelmed, and don’t know how to proceed.” Of the survey respondents, 45% indicated that they are not planning to use AI in the next five years.

These challenges collectively underscore the multifaceted nature of AI and emphasize the need for responsible, secure, and ethical AI practices across industries. Security, ethics, data privacy, and quality control emerge as central factors in ensuring the safe and effective deployment of AI technologies.

SKILLS NEEDED AND TRAINING FOR EMPLOYEES

Resistance to change is a challenge in adopting AI technologies. Respondents emphasized the need for retraining the workforce to adapt to new roles and highlighted the importance of analytical thinking and openness to change. Respondents shared the following key points:

Skills Needed: Interview respondents identified data analytics as a critical skill, particularly in understanding and mitigating cyber threats. This underscores the importance of data-driven decision-making in AI contexts. However, there is an understanding that digital literacy will become increasingly important for all employees, irrespective of their specific roles, as current workflows change to leverage the efficiencies offered by AI. Respondents recognized the importance of analytical thinking, critical thinking including critical evaluation of AI outputs, problem-based learning, and openness to change as essential skills eventually for employees. One of the most significant skills identified is prompting and learning how to iterate, referred to by many of the respondents as prompt engineering.

Internal and External Training: Respondents from large companies are using a multi-faceted approach to training with internal training programs commonly used for non-engineering staff and external courses and boot camps, certification programs, and professional development opportunities for highly technical staff. Several respondents reported that their companies developed training programs in-house, which include extensive training on topics such as model outputs, ethics, and compliance.

Small companies that are using or considering the use of AI are at the initial stages of staff training and are looking at or using more than one approach. The most common training methods considered

or used are consultants (48%), outside workshops (44%), vendor certification (41%), and in-house training (37%). Only about 25% of companies are considering 2-year colleges, 4-year universities, and post-secondary technical schools as training partners.

The small companies surveyed indicated their need for short-term (< 2 years) and longer-term training (3-5 years) in a variety of business and manufacturing functional areas as well as research and development, and information technology. A majority of the respondents indicated that training was needed within the next two years (see Figure 1). The business functional areas where training is most needed are marketing (69%), sales (55%), customer services (55%), management (54%), and human resources (50%); the manufacturing functional areas are operations management (44%), production (36%), and quality control (36%); and information technology (64%). For the business-related functions, about 20% to 30% stated that no training was needed while 10% to 20% were unsure of training requirements. For manufacturing-related functions, training was not expected to be needed by 40% to 50% of the companies and about 20% were unsure.

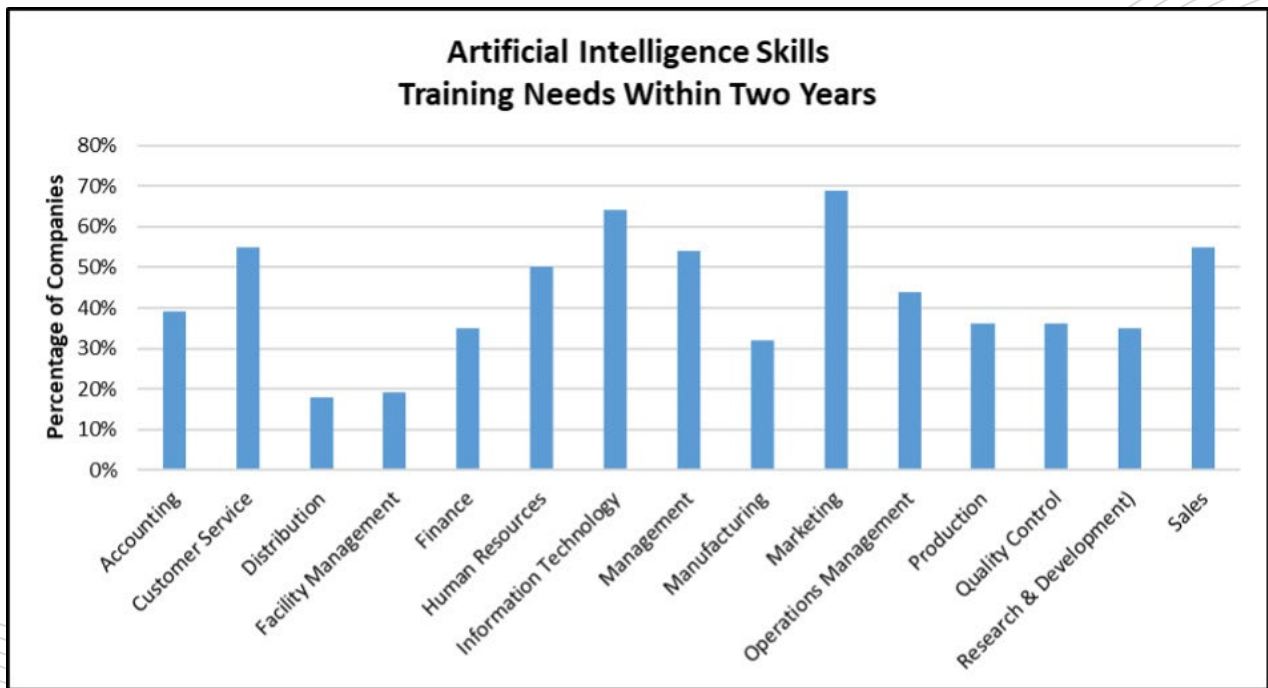


Figure 1. Training Required within two years by small companies (<100 employees) that are using or intend to use AI Tools (n = 28 companies). CASE/CBIA AI Skills Survey, December 2023.

RECRUITMENT AND EFFECT ON THE WORKFORCE

Future Workforce Direction: Respondents generally are optimistic that AI will have a positive impact on the workforce, making it “smarter.” Rather than job displacement, retraining and upskilling are emphasized as necessary for adapting to the new tools and technologies. AI is seen collectively as a tool that can help achieve greater efficiencies and help the workforce to be more productive, with AI assisting with more routine tasks, leaving employees to manage more complex tasks.

Survey respondents from small companies (n=35) indicated that over the next two years they expect no change to a slight increase in the workforce. Over a three to five-year timeframe, 23% expect a substantial increase in the workforce, 13% a small increase, 18% no change, and 28% a small decrease, with 18% uncertain. While the results of this small sample size do not indicate any significant increase or decrease in the size of the workforce, it is interesting to note that on average these same companies are expecting to hire three new employees per company with those new hires having AI skills. The projected areas for the new hires would primarily be in marketing, customer service, information technology, accounting, and quality control.

Large companies highlighted the significance of supporting local universities, colleges, and schools to foster a talent pool. This includes these companies supporting research projects at educational institutions in fields relevant to the company’s business.

SUGGESTIONS FOR STATE POLICY

Respondents identified the following areas where the state can assist companies with the adoption of AI, support innovation, and implement guardrails that protect company and consumer information. Of note, some of these companies are under federal regulation and are concerned about the policies at that level, as well.

- **Governance and AI Guidance:** The larger companies interviewed indicated that governance structures that support their decision-making generally, and specifically are used for decision-making related to the rapidly evolving and changing AI environment, were helpful to their change process for AI adoption. Smaller companies with less capacity may benefit from additional resources to support the improvement of existing or development of new governance structures within their companies that may facilitate change in this disruptive environment. Additionally, best practices for the adoption and use of AI technology would be helpful to small businesses with limited resources and knowledge on how to incorporate AI tools into their business practices.
- **Educating the Public on Data Privacy:** Some respondents suggested that the state might consider a campaign to alert the public about issues of data privacy, including educating the public on a person’s right to data privacy, protecting their data, safely using generative AI, identifying AI misinformation, disinformation, and deepfakes, recognizing that private information is used by public large learning models, and adapting to evolving data usage practices.

- Possible State Investments:
 - High-Performance Computing: There may be value in subsidizing high-performance computing that provides lower costs for computing and storage to Connecticut companies, start-up companies, and IHEs.
 - AI Research and Student Preparation: Connecticut's businesses and industries will benefit from IHEs adequately resourced to prepare students with the technical AI training needed in the workforce and for conducting AI research that will support innovation. This includes access to up-to-date computing power.



APPENDICES



CASE – Connecticut Business and Industry Association: Artificial Intelligence Skills Survey

EMAIL

Dear (insert member first name),

The age of artificial intelligence is upon us, and it has become increasingly important that Connecticut stay competitive and engaged in the emerging technology.

Is your business actively using AI? What types of training do you need for your workforce now and in the future?

CBIA is conducting a brief survey on behalf of the [Connecticut Academy of Science and Engineering](#) to learn about the ways businesses are investing and developing AI skills an technology.

The results of this survey will be used to help inform public policy. CASE will present its findings to the General Assembly's [Artificial Intelligence Working Group](#) at the start of the new year.

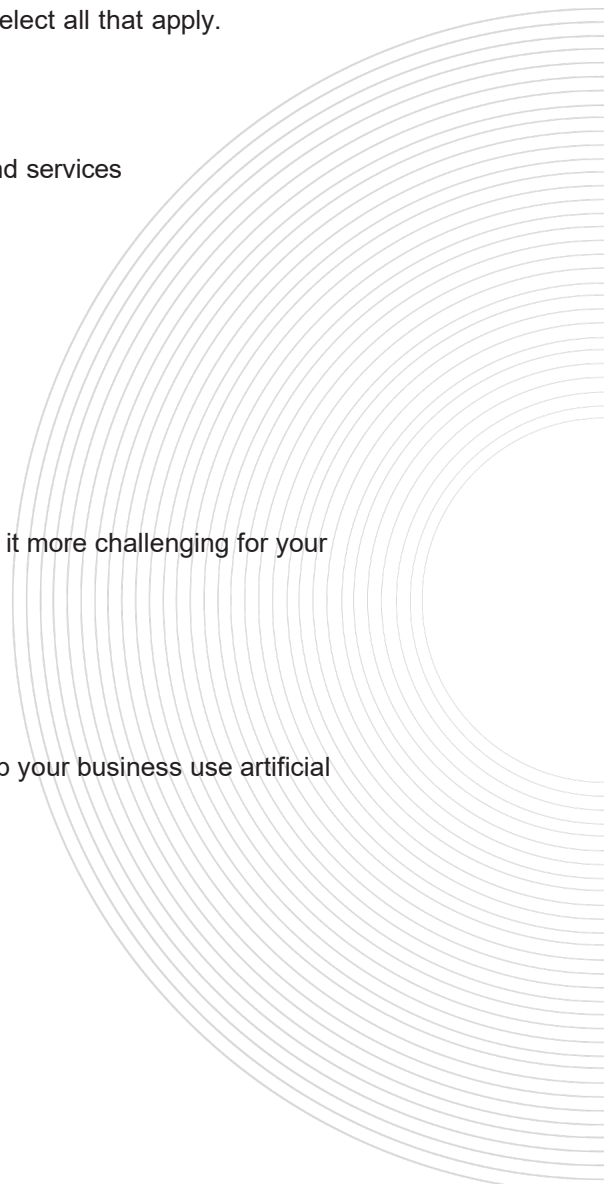
We expect the survey will take 15 minutes to complete. CBIA will report the results in aggregate to ensure all answers are kept anonymous.

Take the survey here — [LINK]

Please complete the survey by Dec. 15. If you have general questions about this project, please [email CASE's Terri Clark](#).

1. Which best describes your company's industry sector?

- Automotive/transportation
- Construction
- Education/childcare
- Finance
- Hospitality and tourism
- Insurance
- Manufacturing
- Medical
- Nonprofit
- Professional services
- Real estate
- Research and development
- Retail
- Software/technology
- Utilities
- Wholesale distribution
- Other (please specify): _____

- 
2. How many employees do you currently have?
 - Less than 10
 - 11-20
 - 21-50
 - 51-99
 - More than 100

 3. Do you expect your business to use or continue to use artificial intelligence in the next five years?
 - Yes
 - No
 - If no is selected, skip to the end of the survey.
 - Unsure

 4. How is your business benefiting from using artificial intelligence? Select all that apply.
 - Boosting efficiency through process automation
 - Improving the speed or consistency of service
 - Using customer insights to inform decision-making
 - Enhancing and/or uncovering opportunities for new products and services
 - Cybersecurity, fraud management, and debt analytics
 - We're not currently using AI
 - Other (please specify): _____

 5. Do you have written policies about the use of artificial intelligence?
 - Yes
 - We are in the process of developing written policies
 - No. We are not currently developing written policies

 6. Are there state of Connecticut regulations and/or policies that make it more challenging for your business to use artificial intelligence?
 - Yes
 - No
 - If yes is selected, please explain: _____

 7. Are there any policies that the state could implement that would help your business use artificial intelligence?
 - Yes
 - If yes is selected, please explain: _____
 - No

8. Rate your use of artificial intelligence for the following:

	No Use	Exploring Use	Low Use	Moderate Use	High Use
Internal Business Functions					
External business functions (i.e., customers, suppliers, contractors, regulators, etc.)					

9. What impact does artificial intelligence have on your current workforce?

- Substantial decrease
- Small decrease
- No change
- Small increase
- Substantial increase
- Unsure

10. What impact do you expect artificial intelligence will have on your workforce in the next one to two years?

- Substantial decrease
- Small decrease
- No change
- Small increase
- Substantial increase
- Unsure

11. What impact do you expect artificial intelligence will have on your workforce in the next three to five years?

- Substantial decrease
- Small decrease
- No change
- Small increase
- Substantial increase
- Unsure

12. For each of the following areas, indicate if your business is hiring or plans to hire staff with skills in artificial intelligence.

	No; we have not hired and do not plan to hire staff.	Yes; We have hired staff.	Yes; we plan to hire within the next two years.	Yes; we plan to hire within the next three to five years.	Unsure
Accounting					
Customer Service					
Distribution					
Facility Management					
Finance					
Human Resources					
Information Technology					
Management					
Manufacturing					
Marketing					
Operations Management					
Production					
Quality Control					
Research and Development					
Sales					
Other (please specify):					

13. For each of the following areas, indicate how your business plans to train staff in the use of artificial intelligence.

	Currently implementing	Considering	Not being considered
In-house trainers			
Consultants			
Outside workshops			
Partnering with two-year colleges			
Partnering with four-year colleges/universities			
Partnering with post-secondary technical schools			
Partnering with vendors to provide certifications (e.g., Microsoft, Meta, Google, Amazon, Coursera, LinkedIn Learning, etc.)			

14. Have you received external funding to assist you with training to implement artificial intelligence in your business?

- Yes
 - If yes is selected: Describe the source: _____
- No
- Seeking funding

15. For each of the following areas, indicate if your company would benefit from skills training for your employees to implement artificial intelligence.

	No training needed.	Training needed within the next two years.	Training needed in three to five years.	Unsure
Accounting				
Customer Service				
Distribution				
Facility Management				
Finance				
Human Resources				
Information Technology				
Management				
Manufacturing				
Marketing				
Operations Management				
Production				
Quality Control				
Research and Development				
Sales				
Other (please specify):				

16. Identify the skills needed for training employees with little to no experience with artificial intelligence.

	Low Priority	Medium Priority	High Priority	Unsure	Not applicable
AI delegation (prompts)					
AI-Enhanced Creativity					
Analytical Judgment					
Bias Detection and Handling					
Collaboration					
Creative Evaluation					
Critical Thinking					
Data Literacy					
Digital Literacy					
Emotional Intelligence					
Ethics					
Flexibility					
Intellectual Curiosity					
Linguistic Literacy					
Personalization					
Voice-Text Interaction					
Other (please specify):					

17. Identify the skills needed for training employees with artificial intelligence experience.

	Low Priority	Medium Priority	High Priority	Unsure	Not applicable
AI Ethics and Bias					
AI Frameworks and Libraries					
Cloud Computing					
Collaboration and Communication					
Computer Vision					
Data Manipulations and Analysis					
Deployment and Scaling					
Machine Learning					
Mathematics					
Model Evaluation and Hyperparameter Tuning					
Natural Language Processing					
Neural Networks and Deep Learning					
Ongoing Learning					
Problem-Solving and Creativity					
Programming languages					
Reinforcement Learning					
Version Control					
Other (please specify):					

18. How would you define artificial intelligence in the context of your business?
19. Would you be willing to be contacted in the future by CBIA or CASE about your use of artificial intelligence?
- Yes
 - If yes is selected: Please provide your name, company name, and contact information.
 - No

Thank you for participating in this survey.

Business and Industry Artificial Intelligence Skills: Core Interview Questions

Thank you for your willingness to participate in an interview as part of a project Connecticut Academy of Science and Engineering (CASE; www.ctcase.org) is conducting on behalf of the Joint General Law Committee of the Connecticut General Assembly: Artificial Intelligence Working Group (for more information, see [Public Act 16-23](#)).

The purpose of the interview is to provide an initial picture of who in Connecticut is doing what as it relates to investing in and/or developing artificial intelligence skills within their businesses. The interview will take place via Zoom and is expected to require one hour. Meeting summary notes and/or transcripts will be available following the interview to provide you with the opportunity to adjust your responses within a couple days of the interview.

Please note that we plan to interview 5-6 large companies in Connecticut, as well as conduct a survey of smaller companies. The survey is being administered in partnership with the Connecticut Business and Industry Association (CBIA). Additionally, CASE will interview 5-6 school districts, and 5-6 colleges and universities. We expect to complete the interviews by Dec. 15, 2023, and then prepare and deliver a briefing to the working group on Jan. 10, 2024, followed by delivery of a briefing document on Jan. 15, 2024.

The information you provide to us will be reported in aggregate and individual company, business, organization responses will be kept anonymous.

If you have questions about this project, please contact Terri Clark, CASE, tclark@ctcase.org.

Thank you.

Core Questions

Question 1: Oxford Languages defines artificial intelligence as 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. How would you define artificial intelligence in the context of your business?

Question 2: Name 2-3 ways your business is or may benefit from using artificial intelligence.

Question 3: Rate your use of artificial intelligence for your business's internal functions.

[response scale: 1=fully use; 2=moderately use; 3=some use; 4=exploring use; 5=not using or exploring use]

Question 4: Rate your use of artificial intelligence for your business's interactions with other parties (i.e., customers, suppliers, contractors, regulators, etc.).

[response scale: 1=fully use; 2=moderately use; 3=some use; 4=exploring use; 5=not using or exploring use]

Question 5: What major concerns do you have about the use of artificial intelligence for your business.

Question 6: Talk about the skills/training your business is doing or planning for non-technical employees who are using artificial intelligence. Of these skills, which are the highest priority.

Question 7: Talk about the skills/training your business is doing or planning for technical employees who are using artificial intelligence. Of these skills, which are the highest priority.

Question 8: Talk about the major functional areas of your business that would be the focus of training for your employees.

Question 9: Which areas of your business/organization are you currently hiring staff with artificial intelligence skills? In the next 2 years? 3-5 years?

Question 10: Talk about the approaches being used, or planning to be used, to provide training for your staff.

Question 11: Have you received external funding to assist you with training to implement artificial intelligence in your business. If so, from what source?

Question 12: If possible, estimate the impact of artificial intelligence on your workforce today? In 1-2 years? in 3-5 years?

Question 13: Does your business have written policies for the acceptable use of artificial intelligence? If not, are these policies in the planning process?

Question 14: Talk about any state of Connecticut regulations and/or policies that make it more challenging for your business to use artificial intelligence?

Question 15: Talk about any state of Connecticut regulations and/or policies that would help your business to use artificial intelligence?

Question 16: Do you have additional comments to share with us?

Question 17: Connecticut Academy of Science and Engineering conducted this interview on behalf of the CT General Assembly's Artificial Intelligence Working Group. CASE will not share individual responses; the briefing will report responses in aggregate. However, please advise if you wish us to add your business to the briefing appendix that will list businesses and organizations that assisted us with the research.

Institutions of Higher Education Artificial Intelligence Skills: Core Interview Questions

Thank you for being interviewed as part of a project Connecticut Academy of Science and Engineering (CASE; www.ctcase.org) is conducting on behalf of the Joint General Law Committee of the Connecticut General Assembly: Artificial Intelligence Working Group (for more information, see [Public Act 16-23](#)).

The purpose of the interview is to provide an initial picture of who in Connecticut is doing what as it relates to artificial intelligence skills.

The interview will take place via Zoom and is expected to require one hour. Meeting summary notes and/or transcripts will be available following the interview to provide you with the opportunity to adjust any of your responses within a couple days of the interview. CASE recognizes that there are more questions than time for response during the interview. Additionally, we expect that your comments may lead to other questions and further discussion. You will have an opportunity at the end of the interview to raise any items you feel should be raised but were not discussed.

Please note that we plan to interview 5-6, 2- and 4-year colleges and universities in Connecticut. Additionally, CASE will interview 5-6 large businesses and industries, a survey of smaller companies, and 5-6 school districts. We expect to complete the interviews by Dec. 15, 2023, and then prepare and deliver a presentation to the working group in early January 2024, followed by delivery of a briefing document in mid-January.

The information you provide to us will be reported in aggregate and individual/institution responses will be kept anonymous.

If you have questions about this project, please contact Terri Clark, CASE, tclark@ctcase.org.

Question 1: Oxford Languages defines artificial intelligence as 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. How would you define artificial intelligence in the context of your institution?

Question 2: Does your institution have a system-wide approach to artificial intelligence access and use? Please describe.

Question 3: Are you implementing or planning to implement an artificial intelligence steering committee or task force? If so, what will guide decisions on who will participate?

Question 4: Do you have written policies for the acceptable use of artificial intelligence? If not, are these policies in the planning process?

Question 5: What are the challenges artificial intelligence presents to your institution? Your students? Your faculty?

Question 6: What are the opportunities artificial intelligence presents for your institution? Your students? Your faculty?

Question 7: Describe artificial intelligence courses or programs in the planning stages or currently available to students.

Question 8: Has your institution identified artificial intelligence skills that would be important for all students to acquire? Skills for students seeking an AI specialization?

Question 9: Describe artificial intelligence skills incorporated in current courses/programs.

Question 10: Do you offer non-traditional coursework in artificial intelligence, such as an artificial intelligence certification, boot camps? If yes, please describe.

Question 11: Generally, what AI skills do faculty members have? Will professional development opportunities be available to them?

Question 12: Have external partners, such as businesses, industries, healthcare, and foundations, collaborated with you on course/program development, offerings, and/or research? If yes, please describe.

Question 13: Have external partners reached out to request help with employee/staff training and skill development for their business? If yes, please describe.

Question 14: What ethical implications should be considered?

Question 15: Do you have P-12 educators looking to partner with you on teacher professional development in artificial intelligence? For students?

Question 16: Describe any state of Connecticut regulations and/or policies that make it challenging to use or access artificial intelligence.

Question 17: Describe any state of Connecticut regulations and/or policies that would help your institution to innovate using artificial intelligence.

Question 18: Do you have funding available to support artificial intelligence planning or implementation?

Question 19: Do you have additional comments to share with us?

Question 20: Connecticut Academy of Science and Engineering conducted this interview on behalf of the CT General Assembly's Artificial Intelligence Working Group. CASE will not share individual responses;

the briefing will report responses in aggregate. However, please advise if you wish us to add your business to the briefing appendix that will list businesses and organizations that assisted us with the research.

PreK-12 Artificial Intelligence Skills: Core Interview Questions

Thank you for being interviewed as part of a project Connecticut Academy of Science and Engineering (CASE; www.ctcase.org) is conducting on behalf of the Joint General Law Committee of the Connecticut General Assembly: Artificial Intelligence Working Group (for more information, see [Public Act 16-23](#)).

The purpose of the interview is to provide an initial picture of who in Connecticut is doing what as it relates to artificial intelligence skills.

The interview will take place via Zoom and is expected to require one hour. Meeting summary notes and/or transcripts will be available following the interview to provide you with the opportunity to adjust any of your responses within a couple days of the interview. We apologize in advance for the short period (2-3 days) to return any corrections/clarifications to us following the interview.

CASE recognizes that there are more questions than time for response during the interview. Additionally, we expect that your comments may lead to other questions and further discussion. You will have an opportunity at the end of the interview to raise any items you feel should be raised but were not discussed.

Please note that we plan to interview 5-6, 2- and 4-year colleges and universities in Connecticut. Additionally, CASE will interview 5-6 large businesses and industries, a survey of smaller companies, and 5-6 school districts. We expect to complete the interviews by Dec. 15, 2023, and then prepare and deliver a presentation to the working group at the beginning of January, followed by delivery of a briefing document.

The information you provide to us will be reported in aggregate and individual/organization responses will be kept anonymous.

If you have questions about this project, please contact Terri Clark, CASE, tclark@ctcase.org.

Question 1: Oxford Languages defines artificial intelligence as 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. How would you define artificial intelligence in the context of your institution?

Question 2: Does your school/district have a system-wide approach to artificial intelligence access and use? If you are planning or implementing artificial intelligence, are you thinking about using it across the curriculum or for selected grades/courses? Please describe.

Question 3: Are you implementing or planning to implement an artificial intelligence steering committee or task force? If so, what will guide decisions on who will participate?

Question 4: Do you have written policies for the acceptable use of artificial intelligence? If not, are these policies in the planning process?

Question 5: What are the challenges artificial intelligence presents to your school/district? Your students? Your faculty?

Question 6: What are the opportunities artificial intelligence presents for your school/district? Your students? Your faculty?

Question 7: Describe artificial intelligence coursework in the planning stages or currently available to students.

Question 8: Has your school/district identified artificial intelligence skills that would be important for all students to acquire? Teachers? Administration? By grades? By discipline?

Question 9: Generally, what AI skills do students/teachers/administrators have? Will professional development opportunities be available to teachers/administrators?

Question 10: Do you offer non-traditional coursework in artificial intelligence, such as an artificial intelligence certification, boot camps, robotics, coding? If yes, please describe.

Question 11: Do you see AI as a topic to be taught and/or AI as tools to support teaching and learning? If using as tools, what are you using?

Question 12: Have external partners, such as businesses, industries, healthcare, and foundations, collaborated with you on course/program development, offerings, and/or research? If yes, please describe.

Question 13: What ethical implications should be considered?

Question 14: Describe any state of Connecticut regulations and/or policies that make it challenging to use or access artificial intelligence.

Question 15: Describe any state of Connecticut regulations and/or policies that would help your institution to innovate using artificial intelligence.

Question 16: Do you have funding available to support artificial intelligence planning or implementation?

Question 17: Do you have additional comments to share with us?

Question 18: Connecticut Academy of Science and Engineering conducted this interview on behalf of the CT General Assembly's Artificial Intelligence Working Group. CASE will not share individual responses; the briefing will report responses in aggregate. However, please advise if you wish us to add your business to the briefing appendix that will list businesses and organizations that assisted us with the research.

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of the State of Connecticut... in the application of science and engineering to the
economic and social welfare.”

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Policy Principles for State Lawmakers in the Era of Artificial Intelligence



The rapid adoption of artificial intelligence (AI) has ushered in an era of unprecedented innovation, transforming industries, businesses, and everyday life. As lawmakers grapple with understanding the wide use of this rapidly evolving technology, it is imperative to strike a delicate balance between fostering innovation and safeguarding the rights and interests of individuals and businesses. This paper emphasizes three critical principles for legislators to consider: the role AI plays in our society, how businesses utilize AI, and the need for legislators to pause before adapting current laws to accommodate AI in order to avoid stifling its potential. Additionally, these principles examine the significance of algorithms, address concerns related to bias, and emphasize the necessity of data access for combating algorithmic bias, while drawing insights from public forums and recognizing the longstanding presence of AI in technology. We urge state lawmakers to consider the following as they contemplate intervening in the marketplace to address AI issues.

1. Acknowledge AI's Longstanding Presence

- The first thing to note is that AI is not new. AI has played a profound and enduring role in the evolution of modern technology. Rather than a passing trend, it stands as a foundational technology that has consistently shaped various sectors.
- AI's significance becomes especially apparent when considering its integral role in aiding developers throughout the coding process. Developers have long relied on AI as an invaluable tool in crafting and testing their software. Before code is deployed into test environments, developers use AI to meticulously inspect and analyze it. This process serves as a crucial safety net, identifying and proposing solutions to errors that might otherwise slip through the cracks due to human imperfections. This enduring collaboration between AI and developers not only underscores the deep-rooted presence of AI in modern technology but also showcases its unwavering value and indispensability in the realm of software development. Software teams are also now rapidly adopting generative AI to help write code, and many of them have quickly become reliant on its use to supplant hours of work with 15-minute reviews of an algorithm's product. In short, generative AI's use has become the norm, rather than the exception, for software makers—but there is always a human in the loop.
- AI has also had a long-standing role in healthcare, especially in clinical decision support (CDS). It's been around for quite some time, helping caregivers make more accurate and efficient diagnoses and treatment choices. By crunching through large volumes of patient data and recognizing patterns, AI has transformed the way healthcare is delivered. This history of AI in CDS highlights that, when used responsibly, AI is reliable and adaptable in addressing complex medical issues. And it is showing its potential to further shape the future of healthcare.




2. Balance Innovation and Identify the Government's Role

- States need to be quick to learn but slow to regulate. AI is a swiftly evolving field, and hasty or overly restrictive regulations can stifle innovation and actually harm consumers. It is crucial for lawmakers to figure out how AI can benefit consumers and meet their expectations. We know that statutes and regulations cannot move at the speed of innovation, and creating a legal and policy landscape that attempts to regulate AI based on a snapshot of it taken today, without fully acknowledging its quick evolution and what it will turn into, does more harm than good.
- Importantly, it should be noted that while addressing these issues is crucial, it does not necessarily call for extensive new regulations, aimed specifically at AI as a technology. Instead, a balanced approach that leverages existing tech-neutral laws may be more effective in ensuring fairness and equity in AI outcomes while allowing for continued innovation and growth. Legislators should, therefore, carefully consider whether new regulations are needed or if existing frameworks can be adapted to address these concerns in a more nimble and flexible manner.

3 Understand How AI Helps Small Businesses and Promotes Competition

- While AI encompasses a wide array of technologies, algorithms lie at their core. Algorithms are not just important; they are indispensable to small businesses and developers. Small businesses have been utilizing algorithms for decades to automate processes, make informed decisions, and gain a competitive edge. For many of our members, the role of large language models (LLMs) has already proved monumental in writing and testing their code to integrate their technology faster and ultimately get their products to market on a quicker timeline. Moreover, custom algorithms and specialized learning models are also central to many small businesses' competitive edge—many of our members create their own language models for their specific products, which serve as their “secret weapon” to outperform competitors both large and small. It is imperative for lawmakers to understand the role that AI plays in allowing small businesses to increase productivity at low costs and how it supports an environment where the best technology is rewarded. Lawmakers should acknowledge the foundational role of algorithms in AI and consider how past and current regulations would affect small businesses that benefit from these uses.

- 
- Ultimately, the benefits of AI can only be achieved if AI policies consider the challenges and resource constraints that small businesses face. In addition, policies should contemplate the variety of ways in which our members use AI. For example, they leverage AI to provide clinical decision support for doctors around the country, improving the lives of both care providers and patients while shortening the time between identifying conditions and administering treatments for all patients. They use AI to understand the unique needs of all employees and provide resources and tools for those with neurodivergences like dyslexia and ADHD to feel supported in the workplace. They use AI chatbots to help people manage and treat their pain without the use of opioids; they train AI engines with larger and more diverse data sets to help address bias; and they use AI in their own businesses to better serve their clients, create content, and support their workforce. With the small business innovator perspective at heart, policymakers can avoid creating a harmful disconnect between policy intentions and real-world effects for American entrepreneurs.

4 Understand the Relationship Between AI and Privacy in Addressing Bias

- One of the significant concerns associated with AI is algorithmic bias. AI systems, when trained on biased data or weighted without sensitivity to potential bias in the algorithm's outcome, can perpetuate and exacerbate existing biases, leading to discriminatory outcomes. Access to diverse and representative data is paramount to address algorithmic bias. Similarly, users and developers of AI systems must collaborate to develop best practices in development, training, and deployment. They must optimize the benefits of AI's use while mitigating the harmful bias risks it can pose. Policies that restrict data collection or limit the ability for stakeholders to develop these best practices with overly punitive liability regimes may inadvertently contribute to bias.
- For legislators contemplating government intervention to address AI risks, it is essential to recognize the significant issue of bias and ethical concerns associated with AI systems. Participants in discussions on AI unanimously stress the pivotal role of input data, highlighting that biases in training data inevitably result in biased AI outputs.
- Federal comprehensive privacy legislation remains our goal and is a critical consideration when formulating a role for government in AI. Because of—not despite—AI's reliance on vast troves of data, a single federal set of rules is essential to ensure that consumers and businesses can maximize their data's potential with AI systems, consistent with consumers and businesses' expectations across shifting contexts. Data fuels AI development and enables the creation of fair and unbiased algorithms and strong, flexible privacy protections tied to context and consumer expectations are key to fostering an environment for responsible AI.



5. Insights from Public Forums and Small Businesses

- In addition to public forums, it is imperative for state policymakers to hear the voices of small businesses. These stakeholders highlight AI's transformative potential in reshaping business operations while also voicing concerns about its reliability and the indispensable role of human oversight. They are on the front lines of AI development and implementation, and their experiences and perspectives provide invaluable insights into the practical implications of any potential AI regulation.

As lawmakers navigate the complexities of AI, they must strike a balance between innovation and government intervention, recognize the importance of algorithms, enable stakeholders to address algorithmic bias, and consider the implications of a patchwork of state privacy bills. An agile and adaptive approach is essential to harness the benefits of AI while mitigating its risks. By doing so, policymakers can promote responsible AI development that benefits society as a whole.



For inquiries or to discuss further, please contact Caleb Williamson, State Public Policy Counsel, at Cwilliamson@actonline.org

COMMENT & PROPOSAL

To: Senator James Maroney, Co-Chair, Connecticut AI Working Group; Nicholas Donofrio, Co-Chair, Connecticut AI Working Group

From: Colleen M. Murphy, Executive Director & General Counsel, Connecticut Freedom of Information Commission; Nicholas Smarra, Staff Attorney, Connecticut Freedom of Information Commission

Re: Incorporating Model Cards in the Statutory Framework of Future AI Legislation

Date: January 19, 2024

INTRODUCTION

A consistent theme across many of the presentations and discussions before the Working Group is the need to build public trust and confidence in how AI models are implemented in daily life and the efficacy of those implementations. This need is especially important when AI models are incorporated in high-impact systems (e.g., law enforcement, access to public/private services, employment decisions etc.) A crucial component of fostering this public confidence is to ensure that pertinent information regarding AI models employed in high-impact systems is accessible, relatively easy to understand, and sufficient to verify the appropriate use cases and efficacy of AI models.ⁱ To that end, the Working Group should consider requiring the reporting and/or disclosure of model cards as part of any transparency measures incorporated in future AI legislation.

MODEL CARDS

- Originally proposed in 2019ⁱⁱ, model cards could serve as an effective component in ensuring the public has access to important information regarding AI models implemented in high-impact systems.
- As explained in *Model Cards for Model Reporting*:

[m]odel cards are short documents accompanying trained machine learning models that provide benchmarked evaluations in a variety of conditions, such as across different cultural, demographic, or phenotypic groups . . . and intersectional groups . . . that are relevant to the intended application domains. Model cards also disclose the context in which models are intended to be used, details of performance evaluation procedures and other relevant information.ⁱⁱⁱ
- Model cards typically provide information across a range of sections such as model details (e.g., entity that developed the model, model date, model version, model type), intended uses, factors (e.g., groups, instrumentation, and environments), metrics, evaluation data, training data, quantitative analyses, ethical considerations, and caveats and recommendations.^{iv}
- The information available in model cards is valuable for a multitude of stakeholders including, practitioners of machine learning and AI, model developers, software developers, policymakers,

organizations, individuals knowledgeable in machine learning, and individuals impacted by the effects of AI models.^v

- Model cards effectively balance the need for transparency and a clear understanding of how AI models operate with important policy objectives, such as encouraging and rewarding innovation through safeguarding proprietary information and intellectual property.^{vi}
- Model cards are often compared to nutrition labels that are found on packaged foods.^{vii}
- Model cards or similar documentation have already been adopted by many industry leaders such as Google^{viii}, OpenAI^{ix}, and Nvidia.^x

PROPOSAL & CONSIDERATIONS

Proposal:

Future AI legislation should require any public or private entity seeking to employ an AI model in a high-impact system to register and file an accompanying model card with a state-wide governing body or regulatory authority. The state-wide authority should maintain a searchable database of all public or private entities using AI models in high-impact systems and maintain the model cards as public records in said database.

Considerations:

- Having a state-maintained database of registered AI models and filed model cards would mitigate challenges associated with awareness, discoverability, and accessibility.^{xi} Such database should be accessible to the public.
- Filing requirements are unlikely to pose significant obstacles for developers or organizations as model cards have already been adopted by many leading developers of AI technology.
- The obligation to file should be on the public or private entity utilizing the AI model.
- The state-wide authority tasked with maintaining the model cards should issue regulations regarding minimum standards for information and scientific rigor of the model cards and have the authority to reject model cards that do not meet those minimum standards.
- In determining minimum standards for model cards, attention should be given to ensure the provided information is:
 - *Comprehensible* – the information must be short, simple, and clear.
 - *Consultative* – should provide actionable information, rather than just descriptive metadata.
 - *Comparable* – enable comparisons between related products.
 - *Concrete* – must contain more than just general statements about the source of the data.^{xii}
- Entities using AI models in high-impact systems should have an obligation to make the model card available at the point of use when possible (e.g., employer using an AI model to screen job

applicants should not only disclose that an AI model is being used but should also provide a link to the model card or information on where that model card may be obtained).

- The proposed requirement for filing model cards must be implemented alongside other transparency and disclosure requirements, especially concerning high-impact systems.

CONCLUSION

As AI models become increasingly incorporated into many aspects of daily life, the public should be able to promptly access vital information regarding those models. Requiring entities to file model cards is an appropriate and manageable first step in ensuring the public has access to that information. Additionally, creating a broader regulatory framework to develop minimum standards for model cards will ensure the public is receiving useful information, therefore building public confidence in how AI models are employed in high-impact systems.

ⁱ Julia Stonyanovich & Bill Howe, *Nutritional Labels for Data and Models*, IEEE DATA ENG. BULL. 42 (2019): 13-23, at 13 (“An essential ingredient of successful machine-assisted decision-making, particularly in high-stakes decisions, is interpretability – allowing humans to understand, trust and, if necessary contest, the computational process and its outcomes.”) (Available: <http://sites.computer.org/debull/A19sept/p13.pdf>).

ⁱⁱ Margaret Mitchell et al. 2019. *Model Cards for Model Reporting*. In FAT* '19: Conference on Fairness, Accountability, and Transparency, January 29–31, 2019, Atlanta, GA, USA. ACM, New York, NY, USA, 10 pages. <https://doi.org/10.1145/3287560.3287596> (Available: <https://arxiv.org/pdf/1810.03993.pdf>).

ⁱⁱⁱ Id., at 1.

^{iv} Id., at 3.

^v Id., at 2-3.

^{vi} See Id., at 4, 6, and 8 (explaining how certain aspects of model cards may be adapted to avoid improperly disclosing proprietary or confidential information).

^{vii} See e.g., Stoyanovich and Howe, *Nutritional Labels for Data and Models*, 13-23; see also Danielle Draper, *What's in the Box: Tools that Enhance AI Transparency*, BIPARTISAN POLICY CENTER (December 5, 2023) <https://bipartisanpolicy.org/blog/whats-in-the-box-tools-that-enhance-ai-transparency/> (last visited January 12, 2024) (“Like food nutrition labels, model cards are intended to be concise . . . fact sheets that communicate key information and help build understanding.”)

^{viii} Google Cloud, *Object Detection*, MODEL CARDS.WITHGOOGLE, <https://modelcards.withgoogle.com/object-detection> (last visited January 11, 2024).

^{ix} OpenAI, *GPT-4 System Card*, <https://cdn.openai.com/papers/gpt-4-system-card.pdf> (last visited January 11, 2024).

^x Michael Boone et al., *Enhancing AI Transparency and Ethical Considerations with Model Card++*, NVIDIA DEVELOPER, <https://developer.nvidia.com/blog/enhancing-ai-transparency-and-ethical-considerations-with-model-card/> (last visited January 11, 2024).

^{xi} See, Bryan Cantazro & Michael Boone, *Ingredients of AI Trust: Moving towards Model Card++*, NVIDIA, <https://www.nvidia.com/en-us/on-demand/session/gtcfall22-a41089/?nvid=nv-int-tblg-241772-vt27> (September 2022) (identifying lack of awareness, discoverability, and accessibility as challenges with model cards).

^{xii} Stoyanovich and Howe, *Nutritional Labels for Data and Models*, 20.

Notes on AI Regulations

Innovation in development and applications should not be curtailed, while at the same time we must ensure the public trust and protect privacy and intellectual property.

Where regulations can help

1. Very concerned about **orchestrated, effective and incredibly efficient propaganda** across the board to push political or big corporate agendas – too much centralized power to influence too broadly at very low cost and very wide impact.
2. Very concerned about **intellectual property** and content providers/owners – the output of LLMs, for example, are entirely dependent on the content fed to them with **no attribution, nor accountability** for the original content/ human authors – this is very different from search – which arguably has both. In the case of search, you can assist “don’t crawl” – few use it because they want to be found. With LLMs leveraging content, it’s very different due to lack of attributions. Maybe “LLM don’t crawl, Search can crawl”
3. Very concerned about **public trust**, with regard to the incompleteness of answers – any summary or synthesis is of course incomplete or biased in some way and combined with the answer being generated with such sensitivity to the prompt, it is very easy for the technology to not misguide.
4. **Deep Fakes** can erode the **public trust** in nearly everything. Individuals, intellectual property, control and privacy should be protected. Transparency and accountability are key.

Where regulations can hurt

1. **Innovation in the development and application of LLMs, Attention-based Transformers and deep learning in general needs to continue.** Regulations should not stop the research – it is needed now more than ever.
2. **Business should be free to perform research and development.** They should be free to apply new ideas within the organizations and outside their organizations, provided they adhere to the regulations that protect privacy, intellectual property and ensure accountability.
3. There is a difference between using LLMs, advancing LLMs and using them in different ways to achieve greater effect. While AI should certainly not be used to fake, misguide, erode privacy or trust, businesses should be free to explore and advance AI that helps us more effectively and efficiently uncover truth and solve important problems for business and society. We can not throw out the baby with the bathwater. There is a difference between using LLMs, given their problems with reliability and transparency to deliver “the answer” vs building AI that leverages LLMs to process language but engages more reliable forms of AI to provide transparent and reliable results. We must allow that research in both AI development and application to continue. In some sense, that is why GOOD regulation is so important.

Dave Ferrucci

A tough open question for me is impact on labor markets and protecting jobs – that is a much tougher dilemma in my mind and would take a lot more detailed thought. It is expected and common to see disruption and adaptation in the labor markets with big advances in technology but they are temporary. The big question here is will advances in AI rapidly lead to a significant net loss in jobs and are we prepared to manage the social and economic implications. Almost certainly, the wealth gap will sky-rocket for example while at the same time we may have the potential to dramatically improve the standard of living.

Recommendations from David DesRoches

1. **A right to explanation (RTE):** Data subjects (people) can request to be informed by a company or the government on how an algorithm has made an automated decision. Concerns about feasibility, understandability, IP infringement, and exploitability could be mitigated in one of two (or both) ways.
 - a. Counterfactual explanations: “These essentially take a decision-making algorithm and show what the outcome would have been for an individual if they had had certain different attributes, without disclosing too much technical, trade-secret information about the process itself.” ([Source](#)) Benefit: Easy, fast, uncomplicated. Drawback: Doesn’t address the “why” directly.
 - b. Third-party explanation: The decision-making algorithm is provided to a neutral third-party which drafts an explanation for the decision. Benefit: Addresses the “why” more directly. Drawback: May be more costly and time-consuming, with longer waits for an explanation.

For an RTE to truly have value, the developers of the technology need to understand why a decision was made. This is a problem, “because no one, not even programmers, knows exactly how an algorithm does what it does in every situation.” ([Source](#)). This brings us to the next recommendation:

2. **Requirement for AI systems to be explainable.** Algorithms and other AI systems in-use today were not built by programmers, but by AI. Given that it would be impossible for a human to analyze these systems and provide an appropriate explanation, there should be a requirement that AI systems be developed solely for the purpose of analyzing other AI systems, for the purpose of providing the explanation for the decision in plain English. For example, for any AI system used to make a decision, there should be an AI system developed solely for the purpose of analyzing that decision and drafting the explanation. If this proves unfeasible, the AI system charged with the explanation could instead draft the “counterfactual explanation”.
3. **Enforceable and meaningful accountability.** Companies, individuals, and public agencies that violate state regulations on the use of AI should be required to face consequences that include, not are not limited to, financial penalties. Multibillion-dollar-valued companies would flout regulations if penalties were merely financial; it would be a simple cost of doing business. However, if they were excluded from the marketplace as a result of a violation, or required to limit their internal development of AI systems, or some other enforcement mechanism that would act as a real deterrent to potential violators, they would be less likely to violate regulations.

Submission to Connecticut Artificial Intelligence Working Group – 1/9/2024.

Recommendations per SB 1103, the purpose of the CT AI Working Group is to, “Make recommendations concerning, and develop best practices for, the ethical and equitable use of artificial intelligence in state government for Connecticut on the Ethical and Equitable Use of Artificial Intelligence.

1. Connecticut State Government:

a. *Ethical and Equitable Use:*

Renew the mandate of Connecticut AI Working Group’s for any twelve (12) months: This would help Connecticut to collaborate and harmonize with ongoing Federal efforts on ethical guidelines for the use of AI among all US states and their agencies, including principles like fairness, transparency, accountability, and non-discrimination. Additionally, creation of the State Liaison for Artificial Intelligence. Thereby to continually function as the agile convenor and neutral facilitator, to advance all below;

- Conduct AI impact assessments: Before deploying any AI system, the state should conduct thorough assessments to identify potential risks and biases and develop mitigation strategies.
- Prioritize transparency and explainability: The state should ensure that AI systems are understandable and explainable, both to the public and to those impacted by their decisions.
- Promote data privacy and security: The state should develop robust data privacy and security regulations to protect individuals from the misuse of their data in AI systems.
- Invest in AI literacy and education: The state should provide educational resources and training programs to help the public understand AI and its implications.

b. *Policies and Procedures:*

- Develop a centralized AI governance framework: This framework would establish clear guidelines and standards for the use of AI across all state agencies.
- Standardize data collection and management practices: This would ensure consistency and quality in the data used to train and operate AI systems.
- Implement responsible procurement practices: The state should only procure AI systems from vendors that adhere to ethical principles and have strong data privacy and security practices.
- Establish mechanisms for public oversight and accountability: The public should have a clear way to raise concerns about the use of AI and hold the state accountable for its actions.

2. Connecticut Municipal Governments:

- Support municipalities in conducting AI impact assessments and developing mitigation strategies.
- Provide resources and training to municipal officials on the ethical use of AI.
- Facilitate collaboration and knowledge sharing among municipalities on AI best practices.
- Develop Local AI Policies: Adopt policies and procedures for the ethical and equitable use of AI in local government operations, including procurement, decision-making, and service delivery.
- Partner with Local Communities: Engage with residents and community organizations to gather input and address concerns about the use of AI in local government.
- Focus on Transparency and Explainability: Ensure that residents understand how AI systems are used in their communities and can access information about decisions made by AI.
- Prioritize Equity and Inclusion: Use AI to address existing inequalities and ensure equitable access to benefits and opportunities for all residents.

3. Connecticut's Industries and Businesses:

- Encourage businesses to adopt ethical AI principles and practices: Businesses should implement internal committees to guide and oversee the development and deployment of AI, upholding ethical principles.
- Conduct Impact Assessments: Evaluate the potential impact of AI systems on employees, customers, and the broader community before deployment.
- Use AI for Good: Leverage AI to address societal challenges, such as healthcare, climate change, and education.
- Promote Responsible Data Practices: Ensure responsible data collection, storage, and use, respecting individual privacy and security.
- Invest in AI fairness training and tools: Provide resources and training for businesses to identify and mitigate bias in their AI systems, ensuring fair and unbiased outcomes.
- Promote transparency and explainability: Encourage businesses to be transparent about their use of AI, providing explanations for AI-based decisions to ensure accountability and trust.
- Develop mechanisms for public feedback and redress: Establish channels for individuals to raise concerns about potential harm or unfair outcomes from business use of AI.

- Incentivize AI Tools and Resources for Small Businesses: Invest in the development of affordable and accessible AI tools and resources specifically designed for the needs of small and medium-sized businesses.

4. Connecticut's Academia:

- Develop educational programs on AI ethics and responsible development.
- Engage with industry and government to ensure that AI research is aligned with societal needs and values.
- Integrate AI Education into Curricula: Offer courses and modules on AI ethics, bias, and societal implications across various disciplines.
- Conduct Research on Ethical AI: Advance research on AI fairness, transparency, and explainability, and develop solutions to AI-related challenges.
- Bridge the Gap Between Academia and Industry: Facilitate collaboration between academic researchers and businesses to ensure ethical AI development and application.
- Promote Public Engagement: Organize public forums, workshops, and educational events to increase awareness and understanding of AI technologies.
- Advocate for Responsible AI Policy: Engage with policymakers and other stakeholders to inform the development of ethical AI regulations and frameworks.

5. Assessment of the White House AI Bill of Rights and Recommendations:

a. Regulation of the Use of Artificial Intelligence in the Private Sector:

- Connecticut should consider adopting some of the principles outlined in the White House AI Bill of Rights, such as the right to non-discrimination, the right to explanation, and the right to human oversight.
- However, the state should also tailor its regulations to the specific needs and context of Connecticut.
- Focus on key areas of concern, such as the use of AI in hiring, healthcare, and criminal justice.
- Develop a flexible regulatory framework that can adapt to the rapid pace of change in AI technology.

b. Adoption of a Connecticut Artificial Intelligence Bill of Rights:

- Connecticut could consider adopting a state-level AI bill of rights, but it is important to carefully consider the potential benefits and drawbacks.

1/10/24

- A bill of rights could provide valuable guidance and protections for individuals, but it might also be difficult to enforce and could stifle innovation.
- The state should engage in a public dialogue to determine whether a bill of rights is the right approach for Connecticut.

6. Additional Recommendations:

- Support the development of a diverse and inclusive AI workforce: This is important to ensure that AI systems are not biased against certain groups of people.
- Stay informed about the latest developments in AI: This will help the state to adapt its policies and practices as needed.
- Invest in the development of AI for good initiatives: This could include initiatives that use AI to address social and environmental challenges.
- Establish a *State Liaison for Artificial Intelligence, as a semi-independent entity within the Office of Legislative Management or State Auditors to provide impartial cross-branch recommendations etc.:*

1) As an agile and responsive liaison, it should provide a dynamic and adaptive approach to the role, recognizing the rapidly evolving nature of exponential AI technologies and the swift evolution of the legal and policy landscapes. Providing dynamic inputs on GenAI to legislators.

2) Engaging rapidly sprouting national AI industry associations, tech-alliances, and educational developments. To foster AI innovations, trustworthy AI deployments and industry-led AI education

3) Gather public feedback and input on AI policies.

These are just a few recommendations for how Connecticut can address the ethical and equitable use of AI. The specific policies and practices that the state of Connecticut adopts will need to be tailored to its unique needs and circumstances. However, by taking an initiative-taking approach to AI, Connecticut can ensure that this powerful technology is used for good. While managing a variety of large language models; constitutional, frontier, foundational, generative, etc. etc.

Thank you for reviewing the above and sharing your feedback at our January CT AI WG meeting.

George Mathanool
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Addendum

Currently following President Biden Executive Order on Artificial Intelligence and UK Prime Minister Sunak. Both governments of the United States and United Kingdom launched in November 2023; Artificial Intelligence Safety Institutes.

“These Institutes will carefully test new types of frontier AI before and after they are released to address the potentially harmful capabilities of AI models, including exploring all the risks, from social harms like bias and misinformation, to the most unlikely but extreme risk, such as humanity losing control of AI completely.”

The US AI Safety Institute is currently coordinating and compiling resources, to issue standards and guidelines for all 50 states by Q3 2024 to the WH and Congress, on the following;

- Data and data documentation
- AI Metrology
- AI Governance
- AI Safety
- Trustworthy AI
- Responsible AI
- AI system design and development
- AI system deployment
- AI Red Teaming
- Human-AI Teaming and Interaction
- Test, Evaluation, Validation and Verification methodologies
- Socio-technical methodologies
- AI Fairness
- AI Explainability and Interpretability
- Workforce skills
- Psychometrics
- Economic analysis
- Models, data and/or products to support and demonstrate pathways to enable safe and trustworthy artificial intelligence (AI) systems through the NIST AI Risk Management Framework
- Infrastructure support for consortium projects
- Facility space and hosting consortium researchers, webinars, workshops and conferences, and online meetings

Also in the following areas:

1. Develop new guidelines, tools, methods, protocols and best practices to facilitate the evolution of industry standards for developing or deploying AI in safe, secure, and trustworthy ways
2. Develop guidance and benchmarks for identifying and evaluating AI capabilities, with a focus on capabilities that could potentially cause harm
3. Develop approaches to incorporate secure-development practices for generative AI, including special considerations for dual-use foundation models, including
 - Guidance related to assessing and managing the safety, security, and trustworthiness of models and related to privacy-preserving machine learning;
 - Guidance to ensure the availability of testing environments
4. Develop and ensure the availability of testing environments
5. Develop guidance, methods, skills and practices for successful red-teaming and privacy-preserving machine learning
6. Develop guidance and tools for authenticating digital content
7. Develop guidance and criteria for AI workforce skills, including risk identification and management, test, evaluation, validation, and verification (TEVV), and domain-specific expertise
8. Explore the complexities at the intersection of society and technology, including the science of how humans make sense of and engage with AI in different contexts
9. Develop guidance for understanding and managing the interdependencies between and among AI actors along the lifecycle

Connecticut AI Working Group – 1/21/2024.

The WG aims to recommend regulations and best practices for the use of AI and automation systems. This recommendation is in response to the sections 2/3 of Substitute Senate Bill No 1103, Public Act No. 23-16.

Cited from Section 5 of the Act: “ a working group to engage stakeholders and experts to: (1) Make recommendations concerning, and develop best practices for, the ethical and equitable use of artificial intelligence in state government; (2) make recommendations concerning the policies and procedures developed pursuant to subsection (b) of section 2 of this act; (3) assess the White House Office of Science and Technology Policy's "Blueprint for an AI Bill of Rights" and similar materials and make recommendations concerning the (A) regulation of the use of artificial intelligence in the private sector based, among other things, on said blueprint, and (B) adoption of a Connecticut artificial intelligence bill of rights based on said blueprint; and (4) make recommendations concerning the adoption of other legislation concerning artificial intelligence.”

Some logic and technical considerations:

The following section is not part of my recommendations, but consists of the foundational considerations that form the logic base of the recommendations.

1. *The great diversity of AI systems:* “AI” system has been defined in Bill No. 1103. It is clear but very general. It covers all systems that potentially mimic human intelligence with potential applications in any area, such as healthcare, criminal justice etc. The best practice for different areas and systems may eventually become more detailed and differentiated.

Particularly, explainability and interpretability were the concept proposed in the beginning to explain black-box deep learning (DL) models to hopefully turn them into glass-boxes. The concept may be expandable to other machine learning (ML) algorithms (since deep learning is one type of ML) to explain their mechanisms of decision making. For any other AI systems, if exist, that do not use machine learning models, explainability may need to be defined.

Research is ongoing. Satisfactory explanation has not yet been achieved for most deep learning models. Largely two lines of interpretable DL methods exist with pros and cons: one is intrinsically interpretable which requires the DL model to be re-designed so humans can understand its reasoning more easily but may significantly limit the capability of the related AI system; another is post-hoc explanation of an already created DL model which imposes no constraints on the DL architecture but the explanation often times may not be faithful to the actual reasoning of the DL model.

A rigid requirement for all producers (who generate products of AI or automation systems) to provide definitive explanation of their systems may be hard to hold legal power if the explanation methods later turn out to be inaccurate or incorrect. Such a requirement may also make the users (who use the products) believe the system is trustworthy based on the wrong method from the producer.

2. *The unclear definition of AI requirements:* The terms of accountability, transparency, explainability, fairness, and trustworthiness are not well defined for AI systems and are commonly used in an intervened format in different scenarios. Without clear definitions of the requirements, it can be vague with respect to what is being regulated. For instance, being explainable may increase the trustworthiness of a system, but they may essentially mean different things. Among these concepts, fairness seems to be the most difficult to define. For now, mostly it has been discussed in terms of whether a system is biased to a group of individuals and creates disparity towards another group of people. How to detect and quantitatively measure such a bias can be a technical challenge for vastly different types of AI systems and can be case-by-case.

Here are some initial or partial definitions used in current publications:

Accountability: *how accurate the system is; whether and how much the system's functions match with the functions described in their user manual; if the system is not accurate, what impact it will have on the users and/or on the body which the system is applied to.*

Transparency: *how much humans can understand the system's operation; whether private data are collected and how they are used, stored, and transmitted; whether a third party data, or computing facilities are utilized etc.*

Explainability: *if the system is not readily plausible for humans to understand, can it be explained to some degree?*

Fairness: *whether or not the system is fair to all ethical groups (e.g., gender, ethnicity, sexual orientation, disability etc).*

Trustworthiness: *this may involve human cognitive function/human psychology; how to improve human trust of an AI system (which may require explainability, accountability etc.)*

3. *Appropriate level of regulation:* The legislative process may need to be on a continuous basis and the regulation policies may have to be rapidly adapted according to the rapid development and changes of AI systems. It is extremely important to put guardrails on AI technologies/systems, but there is also potential to over-regulate so it becomes barrier to AI advancement (although I do not know an exact example for this.) Here is an example that is purely from technical perspective rather than from legal perspective. If a system based on chatGPT is created to educate patients a specific type of cancer, users (patients) may need to put in their information to the system for chatGPT to respond and potentially for chatGPT to improve. If we regulate that the patient's PHI should not be exposed to or used by chatGPT then chatGPT may not have data to fine-tune its models for better performance rather than returning inaccurate base performance from its current foundation models.
4. *Continual learning and rapid development:* The regulations or best practices appearing to be appropriate today may not be enough or proper in the near future with the current fast growth of AI technologies. Continuous discussion (seasonally?) and being informed of the latest development and latest challenges are important to allow us to revise our policies/rules timely. Additionally, for those products that are approved to get on market, routine re-evaluation may be needed because their foundation models may change over time. The recent life-long learning strategies may continuously update the machine learning models while users use the system.

Recommendations:

Producers (parties include industries, businesses, contractors for government):

For an AI or automation product, the producers

- a. *Provide an impact assessment report that requires their internal production team to create a strategy to mitigate fairness, and accountability, and report their observations and findings. The report may include how accurately the product reflects their targeted functions; on what data they have tested their system; what their assessment procedures are and how others can follow to replicate their evaluation process and results; whether they collect users data; how they store and use the data if so; how secure their system is in terms of adversarial attacks.*
- b. *Provide an explanation report that describes the explanation methods they have used to interpret their system, and their observations and findings.*
- c. *May undergo a “usability” trial, which is, in spirit, similar to clinical trials for healthcare. Regulations for clinical trials have been well-studied, so may be useful for setting up “clinical” trials of AI systems. There are three types of clinical trials: (cited from [nih.gov/health-information/nih-clinical-research-trials](https://www.nih.gov/health-information/nih-clinical-research-trials)) Screening trials test new ways for detecting diseases or health conditions. Diagnostic trials study or compare tests or procedures for diagnosing a particular disease or condition. Treatment trials test new treatments, new combinations of drugs, or new approaches to surgery or radiation therapy.*

A specific trial may need to be designed for a particular product in conjunction with the different groups across the government, users, and producers.

Government (parties that enforce the regulations)

- a. *Develop AI regulation guidelines. The guidelines can cover the different aspects of the requirements, or procedures of performing usability trials, and may need a team of legal experts, AI experts, and other stakeholders to work in a continuous mode.*
- b. *Form an AI regulation department with experts who are capable of carrying out impact assessment with concrete steps following the guidelines. Note that the assessment report provided by the producer may be biased towards their advantages, but nevertheless provides the scenario to determine what kind of assessments are necessary. This regulation department should determine appropriate steps for a trial study for a product. This group of experts may also keep track of the latest development in AI technologies, and sense or document new ethical issues.*
- c. *Set up a public (web or app) system with a backend database to allow users to report their issues with a product and store into database for analysis. This public system may have a hotline to address urgent issues if any.*
- d. *Staff in relevant state agencies and departments should be educated with AI knowledge and safety concerns.*
- e. *The State may help gather test datasets, and provide resources, and best practices to share with industries and other AI system producers.*

- f. The State encourages or provides educational programs and materials to educate general users.*

General Users and Education (parties that use AI systems or affected by AI systems)

- a. Promote and develop K-12 education with AI teaching components (besides the current college level education). For any AI education program, a component on safety and regulation is required. This may be performed by higher education institutions in conjunction with the State Dept of Education.*
- b. Higher education intuitions form an association for AI ethics, which helps continuously inform the State the latest advancement and changes.*
- c. The association or a specific 3rd party may help analyze public data to understand the effectiveness and validity of any current regulation policy.*

These are partial recommendations. As I am not familiar with AI bill of rights, I leave those to other experts.

Jinbo Bi
UConn CSE Faculty

As it relates to Artificial Intelligence technologies (“AI”), I recommend that policy-makers, technologists, and other interested stakeholders make it a priority to explain AI and how it is used to members of the public in ways which are concrete, clear, and relatable. Specifically, I submit that real-world case-study examples be to illustrate and explain the use of AI.

To pick an example of what I have in mind, consider the case of a Motorist who drives on the Merritt Parkway from Stamford, Connecticut, to Milford, Connecticut, and determine answers to the following questions:

As the Motorist is driving, what (if any) AI technologies are being used to monitor the Motorist?

If, during the course of the trip, the Motorist exceeds the posted speed limit, what (if any) AI technologies might be used to detect the Motorist’s speeding?

If the Motorist is pulled over by a State Trooper, what (if any) AI technologies might be used by the State Trooper before he or she exits their cruiser to identify the owner of the Motorist’s vehicle?

If the Motorist happened not to have his or her license or registration with them when they were pulled over, what (if any) AI technologies might be used by the State Trooper at the scene to identify the Motorist?

If the Motorist and the State Trooper got into an altercation, and the Motorist was arrested as a result, what (if any) AI technologies might be used when the Motorist was first taken to the police facility where the Trooper brought the Motorist?

If the incident was referred by police officials to criminal prosecutors, what (if any) AI technologies might be used by the prosecutors to determine whether to charge the Motorist and, if so, what charges to bring?

If the Motorist was in fact criminally charged, what (if any) AI technologies might be used by the Court prior to, and at trial, in connection with the proceedings?

At trial, what (if any) AI technologies might be used by the prosecution and the defense?

If the Motorist was convicted at the end of the trial, what (if any) AI technologies might be used in connection with the Motorist's sentencing?

If the Motorist was sentenced to a period of incarceration, what (if any) AI technologies might be used by prison officials in connection with the Motorist's incarceration?

After the Motorist was released from prison what (if any) AI technologies would be used in any post-release supervision of the Motorist.

Exercises similar to the above could be undertaken with other common scenarios – for example, a job applicant who applies for a job opening posted by an agency or department of the State, or a would-be service provider who seeks to fill a public contract with a town or municipality of the State. It is my contention that breaking down commonly-understood, real-world, scenarios into discrete units and then determining the impact (if any) of AI on the “parts” and the “whole” would be helpful in making AI explainable and intelligible to members of the public.

Respectfully submitted,

Joseph V. DeMarco

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917-576-2369

TechNet Recommendations to the Connecticut AI Working Group
January 10, 2024

Legislation for the 2024 session should focus on priming the state's workforce to take advantage of the new opportunities afforded in AI, position the state to foster and attract AI startup activity and new company creation, and continue to integrate uses AI into state agencies, processes, and government services to better serve our constituents by:

- ensuring all K-12 students have access to foundational computer science curriculum;
- attracting and retaining qualified instructors in advanced computer science fields;
- incorporating AI education into existing successful workforce training programs;
- ensuring that state workforce funds are flexible and adaptable to changing needs, as Chief Workforce Officer Kelli Vallieres identified the limitations of federal workforce funds at the 12/13 meeting;
- partnering with industry, online training platforms, and online job search and hiring platforms to develop and promote industry recognized credential and certificate programs, and to provide real-time data on skill requirements for AI-related jobs;
- creating a fund to invest in early-stage Connecticut-based companies;
- investing in tech transfer offices in state colleges and universities;
- exploring best practices in leveraging AI to deliver more services and a better user experience to constituents; and
- identifying or designating the appropriate leads at each state agency to engage in the development and eventual implementation of federal recommendations and regulations.

The Biden Administration's October Executive Order directed NIST and other entities to produce guidance on Issues of explainability, security, nondiscrimination, content authenticity, and more. Any state legislation on these topics should be held until those processes conclude later this year.

This working group or a subsequent one should engage where appropriate in the development of federal recommendations, including the state engagement points listed by Chloe Autio 10/15:

- providing comments on the draft OMB Guidance on governance;
- providing comments on upcoming DOJ guidance on AI in criminal justice;
- providing comments on upcoming HHS guidance for benefits administration; and
- coordinating with the Regional Innovation Cluster program.

Recommendations from Vahid Behzadan

1. **Definition of AI:** It seemed to me that the majority (if not all) of the issues raised in prior meetings and the text of the bill are related to machine learning, which is a specific subdomain of AI. Accordingly, and in order to minimize vagueness, I suggest the adoption of Learning AI (or Learning Computer Systems) as the operating term of the recommendation document. A technical definition of Learning AI is as follows: computing systems whose performance is improved (/are adapted) with increasing amount of data they ingest. Please note that the bill's definition of AI is so broad to the extent that it even considers mechanical thermostats as instances of AI.

2. **On Watermarking:** Various legislative efforts aim at enforcing the watermarking of AI-generated content. Please note that this is antithetical to the entire AI endeavor: a fundamental characteristic of AI is its high behavioral entropy (i.e., degrees of freedom). Watermarking of any sort puts a theoretical upper-bound on such entropy, thereby limiting the capabilities of AI programs to the threshold that can (theoretically) be also achieved via classic (i.e., manually coded) programs. Enforcing such a limit would be a major obstacle for further advances in AI. Please also see the following paper (and others) on the impossibility of strong watermarking in LLMs: <https://eprint.iacr.org/2023/1776.pdf> .

3. **Forensicability vs. Explainability:** The notions of Explainability and Interpretability in AI are notoriously underdefined (see https://link.springer.com/content/pdf/10.1007/978-3-031-40837-3_5.pdf or <https://arxiv.org/pdf/2306.02312.pdf>). Furthermore, my own research papers have argued that explainability, interpretability, or any such concept pertaining to transparency, will have diminishing utility in the face of increasing complexity of models. Conversely, I believe that for legal purposes, the framework of forensicability will have more enduring effectiveness (see <https://arxiv.org/pdf/1912.06497.pdf>).

4. **On the Mechanics of Blaming:** Many of the current and future AI systems are continuous learners. From personalized recommendation systems to the envisioned life-long learners, the behavior of such systems is heavily dependent on their users rather than developers. Unfortunately, a popular thrust in legislative efforts seems to be based on the assumption that any deleterious act of AI is to be blamed on the developer. If enforced, such a presumption will soon turn into a major hurdle for further development of AI. In other words, not every car accident is the fault of the car manufacturer.

5. **Safety Benchmarks:** The ecosystem of AI research and development is rapidly approaching a state of monopolization. Major organizations such as Google and Microsoft have already established a strong footprint in the AI market, and are actively pushing for regulations that limit the reach of smaller AI houses and startups. These efforts are particularly emphasized in the issues surrounding proving safety and security. To counter such an impact, I believe that the state should develop its own safety benchmarks (e.g., datasets, test suites, etc.) and make them publicly and freely available, so that any AI development house can provide safety metrics without incurring additional costs for

developing their own benchmarks or paying for third-party certification or verification services.

6. **CT AI Alliance:** A significant takeaway from the in-person meeting of the Working Group in December was that there is definitely a need for a forum which acts as a connectome/nexus for AI developers, researchers, consumers, and educators. I propose the establishment of the CT AI Alliance to address such a need, with regular (e.g., monthly) meetings, educational seminars, expos, and more. In consultation with the administration at the University of New Haven, I have managed to secure some degree of commitment from Univ. New Haven for sponsoring this Alliance, and I am certain that many other institutions will join in if the organization is managed by prominent figures such as the co-chairs of this committee.

7. **AI Safety and Security Training:** I propose mandatory training for the technical leaders across the state government to learn more about AI, and in particular the safety and security of AI-enabled tools. This training can be in-person or online (e.g., similar to annual HR or cybersecurity training programs).

8. **All Models Are Wrong**, but some are useful. This statement (from George Box) is not just a witty remark, but a provable property of reductionist models of phenomena in a complex adaptive system such as our universe. Please be mindful that pushing for error-free AI systems is pushing against the nature of the universe.



Federal Action on Artificial Intelligence

Susan Parnas Frederick

Sr. Federal Affairs Counsel



Artificial Intelligence Blueprint



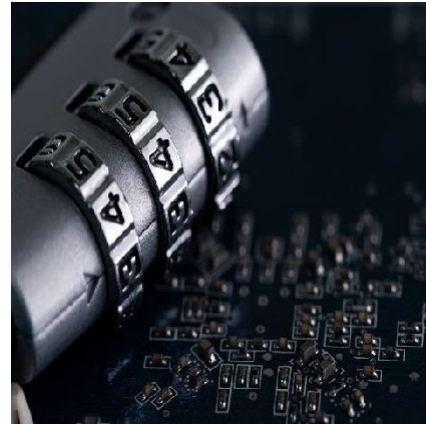
Safe & Effective Systems

- Consultation
- Testing
- Risk Identification
- Risk Mitigation



Discrimination Protections

- Equity assessments
- Representation
- Ongoing monitoring & Mitigation



Data Privacy

- Collect only necessary data
- Consent
- Sensitive domains concerns



Notice & Explanation

- Let people know AI is being used
- Clear & brief explanation



Human Alternatives

- Opt out
- Especially important re: sensitive domains



NIST AI Risk Management Framework



Framing Risk & Prioritizing

- 3 types of harm-people, orgs/gov't and ecosystem
- There are challenges



Trustworthy AI Features

- Valid, reliable, safe
- Transparent, accountable
- Fair, explainable, privacy enhanced



Benefits of NIST Framework

- Improved awareness of the relationship and tradeoffs among trustworthy characteristics



Management of AI

- Govern
- Map
- Measure
- Manage



Zero risk?

- No such thing as a perfect system
- Must regularly test and update to eliminate bias



Risk Management Commitments From AI Companies

Amazon, Anthropic, Google, Inflection, Meta, Microsoft, OpenAI



Safety First

- Products must be safe before introducing them to the public
- Internal and external testing
- Information sharing

Security

- Investments in cybersecurity are key to success
- Promise to report vulnerabilities of systems

It's a Matter of Trust

- Users must know when AI is being used
- Goal is toward public reporting of AI system capabilities
- Research should be prioritized





Where to Begin?

General Thoughts and Ideas From the Experts



- How to define AI?
 - 2022 American Data Privacy and Protection Act (ADPPA)

“covered algorithm - a computational process that uses machine learning, natural language processing, artificial intelligence techniques, or other computational processing techniques of similar or greater complexity that makes a decision or facilitates human decision-making with respect to covered data, including to determine the provision of products or services or to rank, order, promote, recommend, amplify, or similarly determine the delivery or display of information to an individual.”
- Feds recommend looking to existing laws & policy first
 - Can be federal constitutional or statutory law or state law.
 - Update state laws to include AI – regulatory refinement model
- NCSL AI, Cyber & Privacy Task Force –Points of policy intervention can happen at any point in the AI pipeline (development, etc)
- Sector-specific policy guidance may be the way to go.





Where to Begin?

General Thoughts and Ideas From the Experts



From NCSL's AI Primer:

Move beyond a task force or working group

Use experts already on staff at state agencies

Be specific when creating transparency requirements

Focus on impacts not technical details

Define what a “consequential decision” is

- California bill AB 331 - actions that have a material effect on the impact of, access to, eligibility for, cost of, terms of or conditions of certain circumstances”

Employment – Education - Housing - Essential Utilities - Health care - Financial Services - Criminal Justice – Voting - Government benefits

Reach Out Anytime!

EMAIL

Susan.frederick@ncsl.org

PHONE

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WEB

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Susan Parnas Frederick

Sr. Federal Affairs Counsel

NCSL Base Camp 2023



Nov. 8-9, 2023

NCSL Forecast '24 - Austin



NCSL FORECAST '24
PREPARING FOR LEGISLATIVE SESSIONS

Dec. 4-6, 2023

AI Governance for the AI-powered organization

Adopt AI safely, effectively, and responsibly to
power every aspect of your business.

20 September, 2023





Agenda:

- Introduction
- Explanation of Credo AI Platform
- Types of Governance Artifacts
- Impact Assessments Research





PLATFORM OVERVIEW



Responsible AI Governance Platform

Build, buy, and use machine learning and generative AI with confidence through comprehensive risk management, contextual governance, and compliance to regulations

The image displays three overlapping screenshots of the MLFlow Responsible AI Governance Platform interface. The top screenshot shows the 'Compliance Progress' dashboard with a 68% completion gauge and a table of regulatory packs. The middle screenshot shows 'AI Risk Issues' categorized by Fairness, Performance, Privacy, and Security. The bottom screenshot shows 'Use Case Approvals 0/3' with a list of reviewers and an 'ADD REVIEWERS' button.

Compliance Progress

68%

Regulatory Pack	Progress
Fairness Pack	86.60%
NIST AI RMF Pack	78.26%
EU AI Act Readiness Pack	12.85%
NYC Algorithmic Hiring Law	65.56%

AI Risk Issues

Category	Issues
Fairness	2 issues
Performance	1 issues
Privacy	0 issues
Security	0 issues

Use Case Approvals 0/3

Reviewers

- Fei Simmons (you) - Product Manager
- Sam Mavis - Governance Lead
- Ricardo Lopez - Data Scientist

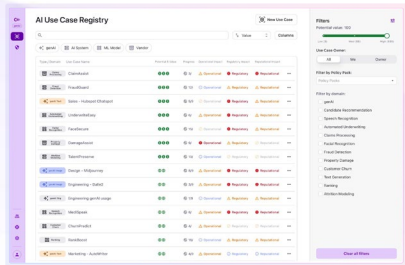
ADD REVIEWERS



Manage AI Risk and Compliance

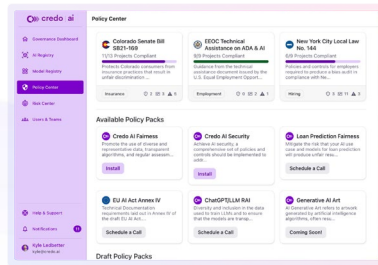
Register AI Systems

Maintain a repository for AI you're building, buying and using; identify risks contextually.



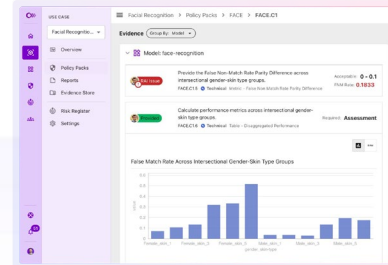
Apply Risk-Based Controls

Define AI system requirements based on deployment context—like laws, regulations, and standards.



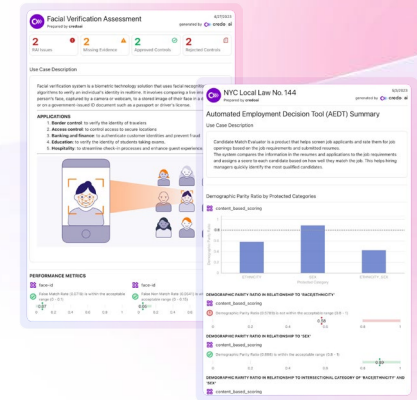
Gather & Evaluate Evidence

The Credo AI Platform takes evidence from your AI infrastructure and documentation about your AI systems to validate if controls are met.



Generate Reporting Artifacts

Create reports to provide trust and compliance information about your AI system. These can include model cards, impact assessments, and dashboards.





Types of Governance Artifacts

- Model Cards & AI System Cards
- Bias Audit Reports
- Algorithmic Impact Assessments
- Algorithm Design Evaluation
- Technical Documentation
- Published Report
- Annual Audit



Reporting Requirements (Examples)

City/State Level

DC SDAA

- Annual report
- Annual audit
- Adverse action notice

NYC Local Law No. 144

- Bias Audit

Federal Level

ADPPA (Section 207)

- Algorithm design evaluation
- Algorithmic impact assessment

CFPB Circular 2022-03

- Adverse Action Notice

Global Level

EU AI Act:

- Article 11
- Annex IV
“Technical Documentation”



Trust is a bigger piece of friction than compliance in this ecosystem

Precedent for Impact Assessments

- Impact assessments (IAs) are already a widely known and accepted form of assessing potential risks and possible societal impacts of an AI system before the system is in use
 - **environmental** impact assessments,
 - **privacy** impact assessments (Section 208 of the E-Government Act of 2002)
 - **cybersecurity** impact assessments,
 - **human rights** impact assessments
- Algorithmic Impact Assessments (AIAs) are not an “impossible challenge” – they are doable.
- AIAs help the Responsible AI ecosystem develop. The public disclosure of metrics and measures used to assess an AI system can inform industry-wide benchmarks (companies can compare results with each other, and customers can compare results from different companies), which form the basis of technical, industry-wide standards.



ADPPA “Design Evaluation” Example

Algorithm Design Evaluation - Section 207, U.S. American Data Privacy Protection Act (ADPPA) ([linked here](#))

“Covered entities and service providers must evaluate the design, structure, and data inputs of the algorithm to reduce the risk of potential discriminatory impacts.”

- ADPPA emphasizes that algorithm design **evaluations must occur at the design phase**, including any training data used to develop the algorithm.
- In the last draft, ADPPA would also require the use of an **external, independent researcher or auditor to conduct the evaluation** to the extent possible.
- The covered entity or service provider would be **required to submit the evaluation to the FTC no later than 30 days after completion of the evaluation** and to make it available to Congress upon request.



ADPPA “Impact Assessment” Example

Algorithmic Impact Assessment - Section 207, U.S. American Data Privacy Protection Act (ADPPA) ([linked here](#))

“For large data holders who use algorithms that may cause potential harm to an individual, and that use such algorithms to collect, process, or transfer covered data, an algorithm impact assessment is also required.”

The draft bill provides a detailed description of these assessments and requires that they include:

- A detailed **description of the design process and methodologies of the algorithm**;
- A **statement of the algorithm’s purpose, its proposed uses, and its foreseeable capabilities** outside of the articulated proposed use;
- A detailed **description of the data inputs used by the algorithm**, including the specific categories of data that will be processed and any data used to train the underlying model;
- A **description of the outputs produced by the algorithm**;
- An **assessment of the necessity and proportionality of the algorithm in relation to its purpose**, including the reasons an algorithm is superior to a non-automated decision making process; and
- A detailed **description of steps to mitigate potential harms**.

Large data holders would be required to submit the impact assessment to the FTC no later than 30 days after completion of the assessment and continue to produce assessments on an annual basis. As with algorithm design evaluations, the proposed legislation would require the use of an external, independent researcher or auditor to conduct the algorithm impact assessment, to the extent possible.



Creating Effective Reports for Governance

How does the report ultimately address risk?

- By promoting public accountability?
- By preventing behavior outright?
- By setting the table stakes for the future and generating new policy?

Who is consuming the report?

- Non-technical stakeholders vs. technical stakeholders?
- The public?
- Government officials?

What are the report requirements?

- Documentation of processes or decision?
- Measurable items that lead to constraints on behavior?
- What AI system components are covered? (base model v. application)
- Are the requirements clear?

Who is conducting the report?

- Internal team?
- Auditor?
- Regulators?



Key Points

Transparency: To ensure validity, impact assessments should either be made publicly available (i.e. open to watchdog verification) or require third party/government auditing if they are closed.

Context: Impact assessments should be context dependent. This will require active work on providing benchmarks for what good looks like (either by de jure standards from an authoritative body or de facto standards through industry transparency).

Impact: Impact assessments should include components of realized impact (i.e. incident reporting and tests) and potential impact (e.g. risk assessment and mitigation).



Thank You

Evi Fuelle, Global Policy Director, evi@credo.ai

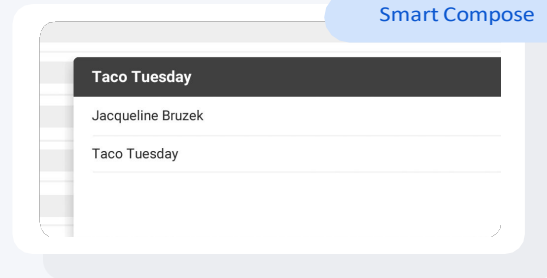
Ehrik Aldana, Policy Product Manager, ehrik@credo.ai

Generative AI: Google's Approach to A Powerful Technology

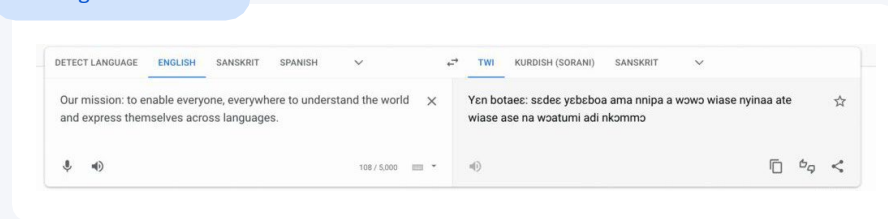
Beth Tsai, Director, Search, Geo and Assistant Policy

We've been developing AI for over two decades, and it already powers our core products

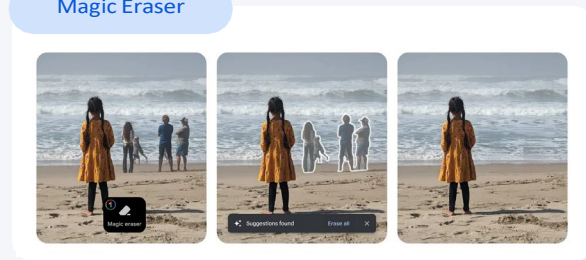
Smart Compose



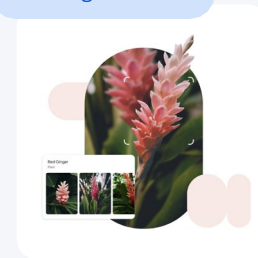
Google Translate



Magic Eraser



Google Lens



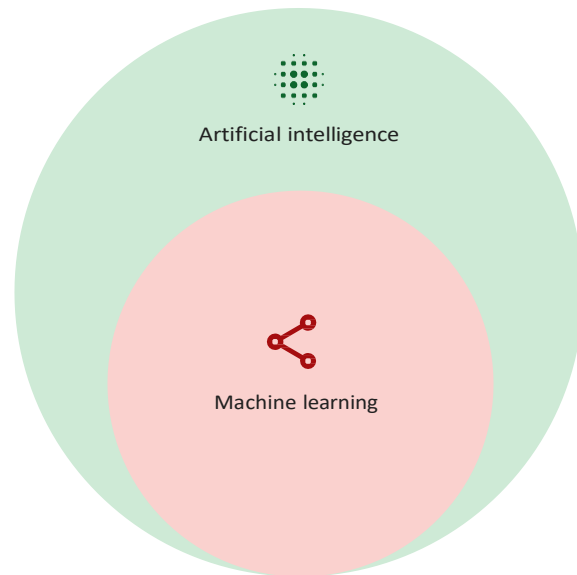
What are machine learning and AI?

Artificial intelligence

The science of making things smart.

Machine learning

Science of getting computers to do something without being programmed with rule.



**At its core, machine learning
is a new way of creating
problem-solving systems.**

Take a problem like filtering spam email out of your inbox.

We can do it by giving a computer a set of rules to help it parse which emails were spam. This might be by filtering certain keywords, like “save now!”

Write a computer program with explicit rules to follow

```
if email contains save now
    then mark is-spam;
if email contains ...
if email contains ...
```

This approach is limited in how effective it can be.

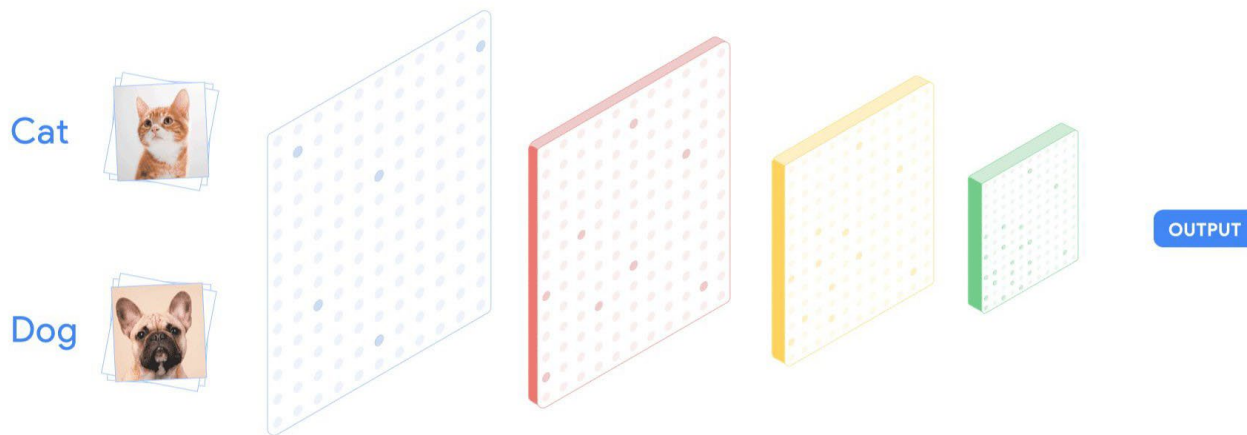
It would be impossible to guess at the contents of all the different spam emails you could receive.



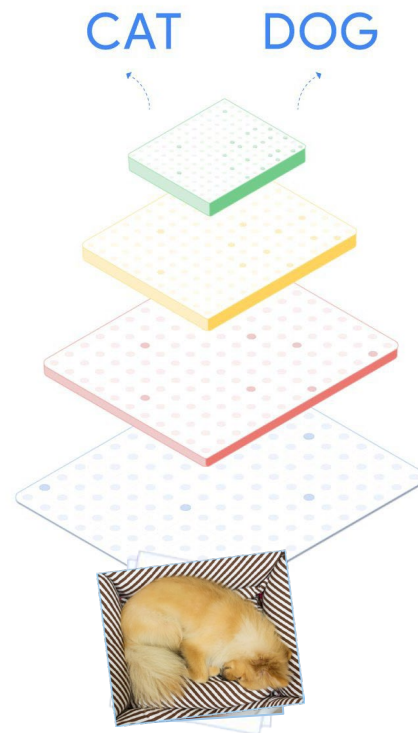
**And rule-based
systems don't
always account for
the messiness of
the real world.**



The breakthrough with machine learning is teaching computers to learn without having to program them with rules.



Over time, and with exposure to training datasets, the system becomes smarter.



Generative AI is a type of machine learning model that can take what it has learned from the examples it has been provided to create new content, such as text, images, music, and code.

Large Language Models (LLMs) do this by predicting words that are likely to come next, based on the user's prompt and the text it has generated so far.



Bard is an early experiment that lets you collaborate with generative AI. It's grounded in Google's understanding of quality information.

Bard

bard.google.com

You can ask Bard questions on a wide variety of topics:

Tech: “Explain why large language models sometimes make mistakes.”

Science: “Help me understand if lightning can strike the same place twice.”

Culture: “Brainstorm some ways to help me read 20 books this year.”



I'm Bard, your creative and helpful collaborator. I have limitations and won't always get it right, but your feedback will help me improve.

Not sure where to start? You can try:

[Draft a packing list for my weekend fishing and camping trip](#)

[Help me understand if lightning can strike the same place twice](#)

[Debug this error message: "FileNotFoundException: \[Errno 2\] No such file or directory: 'data.csv'"](#)



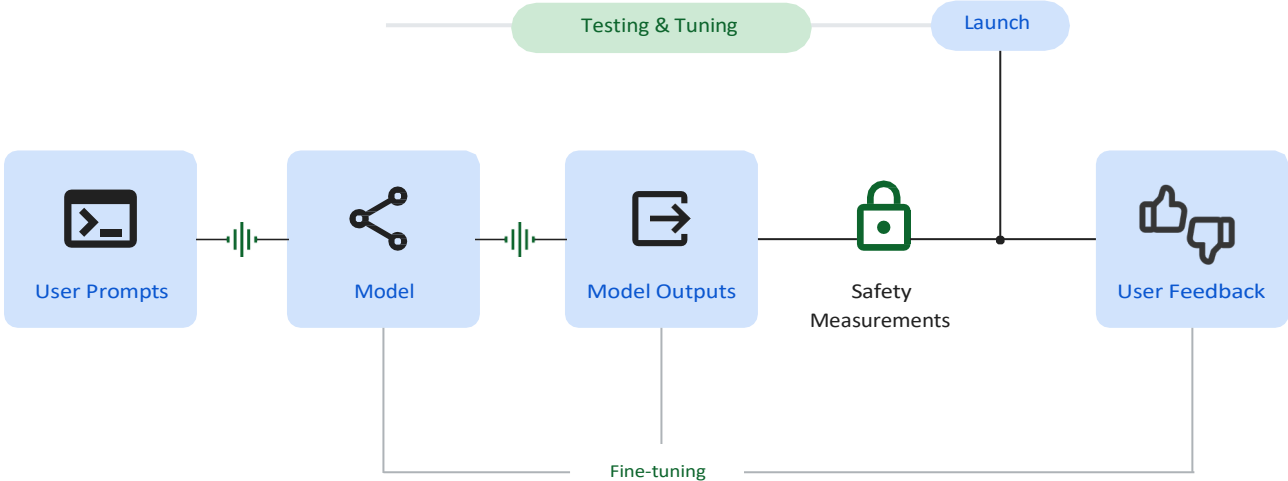
Enter a prompt here



Bard may display inaccurate or offensive information that doesn't represent Google's views. [Bard Privacy Notice](#)

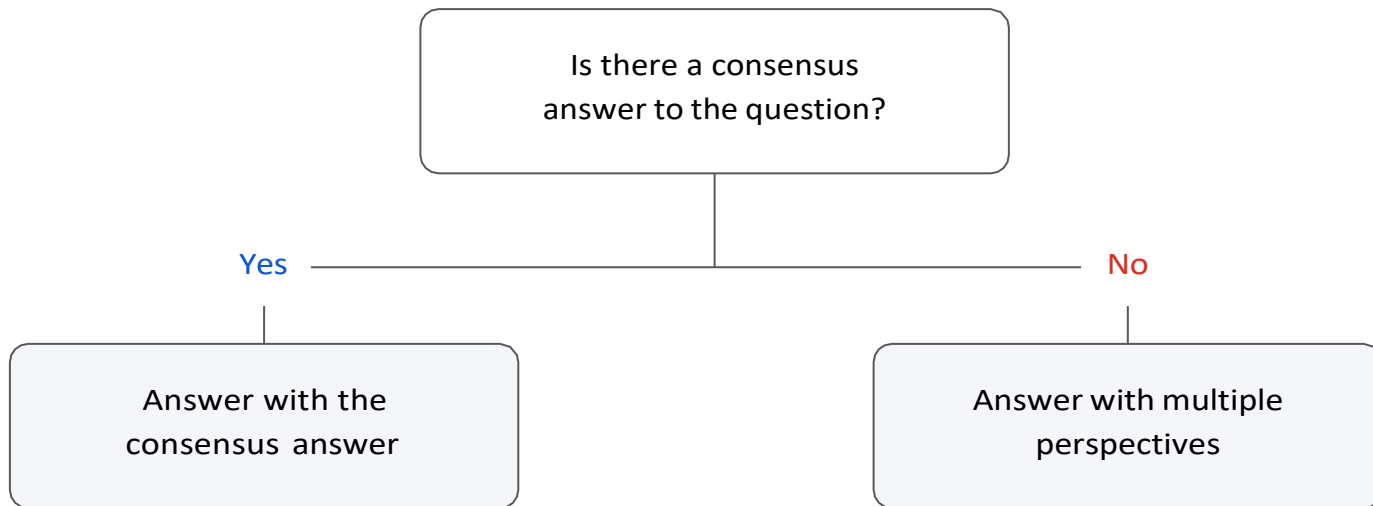
**You can also upload
images to Bard to
enable creative
collaborations inspired
by your photos**

We've built Bard to be responsible from the ground up



We use a policy framework to mitigate risks of unfair bias

User Is a hot dog a sandwich?



Bard is trained to give multiple perspectives on subjective topics

User Is a hot dog a sandwich?



The question of whether a hot dog is a sandwich is a hotly debated one, with people on both sides of the argument making valid points.

On the one hand, a hot dog has all the essential components of a sandwich: bread, meat, and condiments. The bread is a split roll, which is essentially two slices of bread held together by a hinge. The meat is a hot dog, which is a type of sausage. And the condiments can be anything from ketchup and mustard to relish and sauerkraut.

On the other hand, some people argue that a hot dog is not a sandwich because it is not made with two separate slices of bread. Instead, it is made with a single, split roll. They also argue that a hot dog is its own unique food item, and should not be classified as a sandwich.

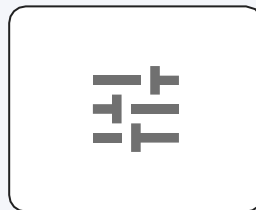
We thoroughly **test and tune** **products** before launching to users



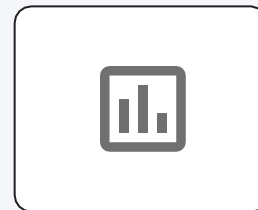
Set launch safety
thresholds



Conduct systematic
adversarial testing



Fine-tune
models



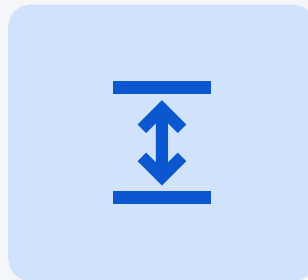
Measure safety
performance

We take multiple approaches to adversarial testing



Red Teaming
for more surgical testing

+



Scaled Evaluations
for broad testing

We launch with a **measured, gradual** approach

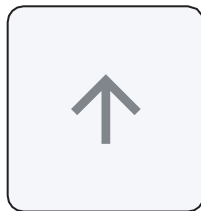
Our Bard launch strategy



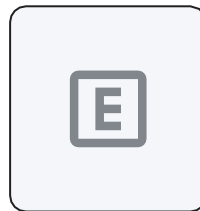
AI Test
Kitchen app



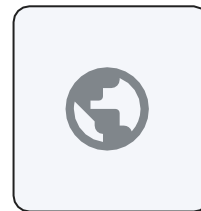
10K Trusted
Testers



Gradual ramp
up of users

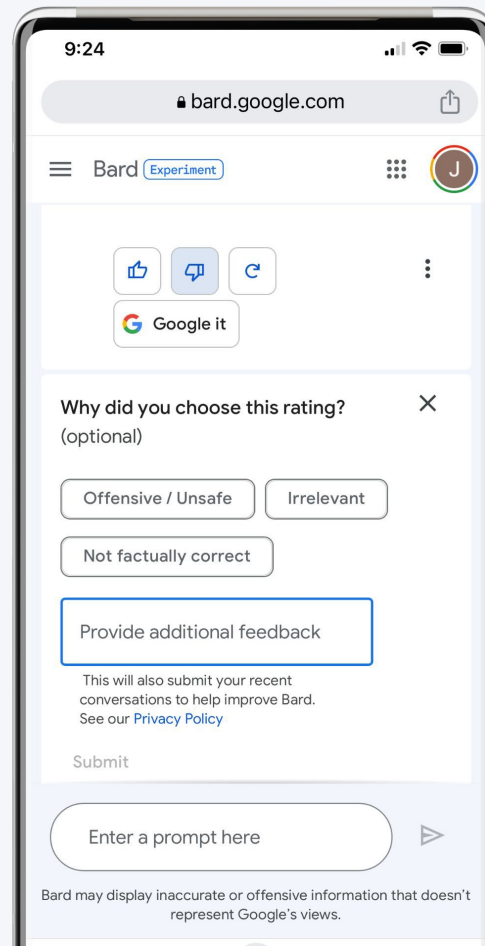


Limited access
to age 18+



Methodical rollout to
additional languages
and countries

User feedback is critical to safety improvements



We're preparing for the evolving nature of information

Graphika

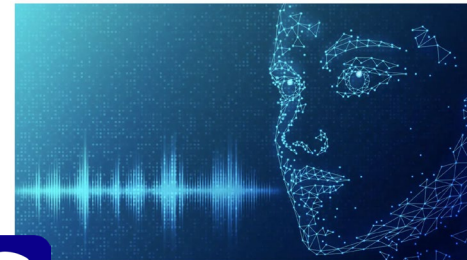
Deepfake It Till You Make It

Pro-Chinese Actors Promote AI-Generated Video Footage of Fictitious People in Online Influence Operation

AI Voice Simulator Easily Abused to Deepfake Celebrities Spouting Racism and Homophobia

AI voice generator company ElevenLabs said it may backtrack on its open platform after reports its AI was used to deepfake Joe Rogan, Justin Rolland, and more.

By Kyle Barr Published January 30, 2023 | Comments (12) | Alerts



Darktrace warns of rise in AI-enhanced scams since ChatGPT release

Cybersecurity firm notes emergence of sophisticated email scams featuring improved linguistic complexity



We're actively researching synthetic media detection



Accuracy rate for detecting synthetic audio
generated by Google's AudioLM model

Building responsible AI with industry and academia

Industry coalitions



ANTHROPIC

OpenAI

Microsoft

Frontier Model Forum partners

Academic collaborations



DATA & SOCIETY



ETH zürich

Thank you

Washington State's approach to Artificial Intelligence

October 25, 2023

Katy Ruckle, State Chief Privacy Officer

Nick Stowe, State Chief Technology Officer

Overview

- WaTech's Role
 - CTO
 - CPO
- AI Community of Practice
 - Charter & Governance
 - Initiatives
- Generative AI Guidelines
 - NIST AI Risk Management Framework
- What's next?

WaTech's Role

WaTech's Role

- RCW 43.105.205
 - “To **educate** and **inform** state **managers** and **policymakers** on **technological developments**, industry **trends** and **best practices**...”
 - “To **establish standards** and **policies** for the consistent and efficient operation of information technology services....”
- Enterprise responsibility
 - RCW 43.105.265 “...shall develop an **enterprise-based strategy** for **information technology** in state government”

State Chief Technology Officer

- Who are you?
 - Nick Stowe, Washington State Chief Technology Officer!
 - Also – **Washingtonian, Dad, Nerd, Technology Enthusiast**
- What does the State CTO for Washington State do?
 - Leadership, vision, and execution of enterprise technology programs and initiatives focused on **architecture, data, cloud, innovation, and emerging technology**
- What is your role in relationship to AI?
 - Co-Chair for the AI Steering Committee
 - **Align AI** applications with **business, technology, and risk** management strategies
 - **Encourage collaboration** between public sector organizations, **promote** strategies for technology **re-use**





State Chief Privacy Officer

- Who are you? Katy Ruckle, State Chief Privacy Officer
- What does CPO do? Position created in RCW 43.105.369 –
 - Privacy Principles
 - Projects that involve personally identifiable information (PII)
 - Data Protection
- What is CPO role in relationship to AI?
 - Automated Decision Systems Work
 - Generative AI



AI Community of Practice

AI CoP

- **Governance Structure**
 - Representation from WaTech, State Agency, and Local Government
- **Steering Committee Objectives**
 - Develop a set of **guidelines** and **policies**
 - Identify and document **best practices**
 - Establish a **governance structure** and develop mechanisms for accountability and oversight
 - **Document use cases** and examine potential societal impact
 - **Facilitate collaboration** and knowledge sharing
 - **Promote alignment** of new AI technologies to business and IT strategies



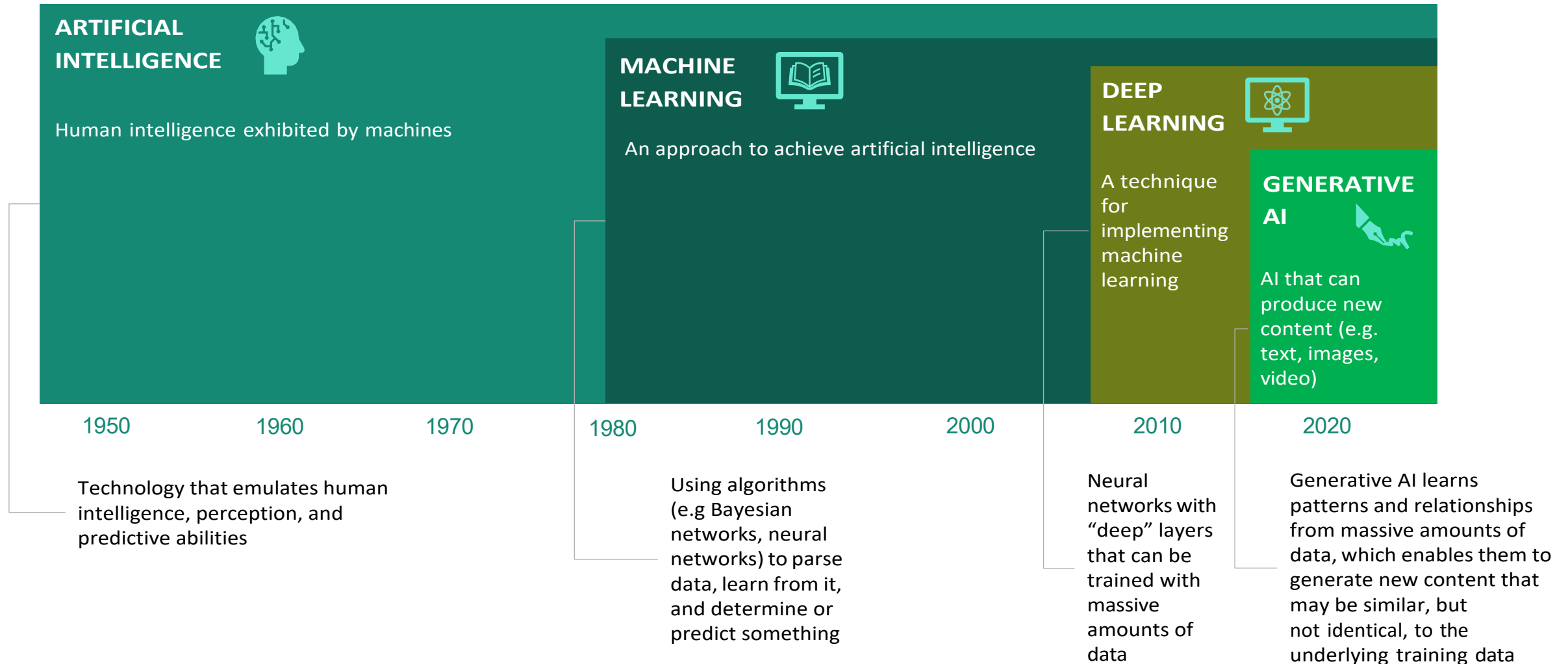
AI CoP Current Initiatives

- Feedback on interim Generative AI guidelines
- Establishing Subcommittees to support areas of interest (risk, use cases, local government)
- Information sharing on industry evolution of Generative AI



Generative AI Guidelines

What are we talking about?



<https://ocio.wa.gov/policy/generative-ai-guidelines>

- Interim Guidelines for Purposeful and Responsible Use of Generative Artificial Intelligence
 - Background
 - Definition
 - Principles
 - Guidelines
 - Generative AI Usage Scenarios and Dos and Don'ts
 - Use Cases
 - Acknowledgments



Background

The rapid advancement of generative artificial intelligence (AI) has the potential to transform government business processes, changing how state employees perform their work and ultimately improving government efficiency. These technologies also pose new and challenging considerations for implementation.

These guidelines are meant to encourage **purposeful and responsible use** of generative AI to foster public trust, support business outcomes, and ensure the ethical, transparent, accountable, and responsible implementation of this technology.

This document serves as an initial framework for the responsible and ethical use of generative AI technologies within the Washington state government. Recognizing the rapidly evolving nature of AI, these guidelines will be periodically reviewed and updated to align with emerging technologies, challenges, and use cases.

Definition

[Generative Artificial Intelligence \(AI\)](#) is a technology that can create content, including text, images, audio, or video, when prompted by a user. Generative AI systems learn patterns and relationships from massive amounts of data, which enables them to generate new content that may be similar, but not identical, to the underlying training data. The systems generally require a user to submit prompts that guide the generation of new content. (Adapted slightly from [U.S. Government Accountability Office Science and Tech Spotlight: Generative AI](#))

Principles

The intention of the state of Washington is to follow the principles in the [NIST AI Risk Framework](#), which serve as the basis for the guidelines in this document. A foundational part of the NIST AI Risk Framework is to ensure the trustworthiness of systems that use AI. The guiding principles are:

- **Safe, secure, and resilient:** AI should be used with safety and security in mind, minimizing potential harm and ensuring that systems are reliable, resilient, and controllable by humans. AI systems used by state agencies should not endanger human life, health, property, or the environment.
- **Valid and reliable:** Agencies should ensure AI use produces accurate and valid outputs and demonstrates the reliability of system performance.

Definition of Generative AI

- Technology that can create content:
- text, images, audio, or video
- Generative AI systems learn patterns and relationships from massive amounts of data, which enables them to generate new content that may be similar, but not identical, to the underlying training data.
- The systems generally require a user to submit prompts that guide the generation of new content.



Guiding Principles for Generative AI Use



- **Safe, secure, and resilient:**

- AI should be used with safety and security in mind, minimizing potential harm and ensuring that systems are reliable, resilient, and controllable by humans.
- AI systems used by state agencies should not endanger human life, health, property, or the environment.

- **Valid and reliable:**

- Agencies should ensure AI use produces accurate and valid outputs and demonstrates the reliability of system performance.

- **Fairness, inclusion, and non-discrimination:**

- AI applications must be developed and utilized to support and uplift communities, particularly those historically marginalized.
- Fairness in AI includes concerns for equality and equity by addressing issues such as harmful bias and discrimination.

- **Privacy and data protection:**

- AI should be used to respect user privacy, ensure data protection, and comply with relevant privacy regulations and standards.
- Privacy values such as anonymity, confidentiality, and control generally should guide choices for AI system design, development, and deployment.
- Privacy-enhancing AI should safeguard human autonomy and identity where appropriate.

- **Transparency and auditability:**

- Acting transparently and creating a record of AI processes can build trust and foster collective learning.
- Transparency reflects the extent to which information about an AI system and its outputs is available to the individuals interacting with the system.

- **Accountability and responsibility:**

- As public stewards, agencies should use generative AI responsibly and be held accountable for the performance, impact, and consequences of its use in agency work.

- **Explainable and interpretable:**

- Agencies should ensure AI use in the system can be explained, meaning “how” the decision was made by the system can be understood.
- Interpretability of a system means an agency can answer the “why” for a decision made by the system, and its meaning or context to the user

- **Public purpose and social benefit:**

- The use of AI should support the state’s work in delivering better and more equitable services and outcomes to its residents.

Guidelines for Generative AI Use



- **Fact-checking, Bias Reduction, and Review**

- All content generated by AI should be reviewed and fact-checked, especially if used in public communication or decision-making.
- State personnel generating content with AI systems should verify that the content does not contain inaccurate or outdated information and potentially harmful or offensive material.
- Given that AI systems may reflect biases in their training data or processing algorithms, state personnel should also review and edit AI-generated content to reduce potential biases.
- When consuming AI-generated content, be mindful of the potential biases and inaccuracies that may be present.

- **Disclosure and Attribution**

- AI-generated content used in official state capacity should be clearly labeled as such, and details of its review and editing process (how the material was reviewed, edited, and by whom) should be provided. This allows for transparent authorship and responsible content evaluation.
- State personnel should conduct due diligence to ensure no copyrighted material is published without appropriate attribution or the acquisition of necessary rights. This includes content generated by AI systems, which could inadvertently infringe upon existing copyrights.

- **Sensitive or Confidential Data**

- Agencies are strongly advised not to integrate, enter, or otherwise incorporate any non-public data (non-Category 1 data) or information into publicly accessible generative AI systems (e.g., ChatGPT).
- If non-public data is involved, agencies should not acquire generative AI services, enter into service agreements with generative AI vendors, or use open-source AI generative technology unless they have undergone a Security Design Review and received prior written authorization from the relevant authority, which may include a data sharing contract.
- Contact your agency's Privacy and Security Officers to provide further guidance.

State Ethics law – Confidential Information

- [RCW 42.52.050](#)

(3) No state officer or state employee may disclose ***confidential information*** to any ***person*** not entitled or authorized to receive the information.

- Definitions ([RCW 42.52.010](#)):

(5) "Confidential information" means (a) specific information, rather than generalized knowledge, that is not available to the general public on request or (b) information made confidential by law.

(15) "Person" means any individual, partnership, association, corporation, firm, institution, or other entity, whether or not operated for profit.

Generative AI Usage Scenarios Do's and Don'ts



✓ **Do's (best practices) and X Don'ts (things to avoid)**

➤ **Rewrite documents in plain language for better accessibility and understandability.**

✓ **Do** specify the reading level in the prompt, use readability apps to ensure the text is easily understandable and matches the intended reading level, and review the rewritten documents for biases and inaccuracies.

➤ **Condense longer documents and summarize text.**

✓ **Do** read the entire document independently and review the summary for biases and inaccuracies.


X Don't include sensitive or confidential information in the prompt


➤ Draft Documents

✓ **Do** edit and review the document, label the content appropriately, and remember that you and the state of Washington are responsible and accountable for the impact and consequences of the generated content.

✗ **Don't** include sensitive or confidential information in the prompt or use generative AI to draft communication materials on sensitive topics that require a human touch.

➤ Aid in Coding

 **Do** understand what the code is doing before deploying it in a production environment, understand the use of libraries and dependencies, and develop familiarity with vulnerabilities and other security considerations associated with the code.

 **Don't** include sensitive or confidential information (including passwords, keys, proprietary information, etc.) in the prompt and code

➤ **Aid in generating image, audio, and video content for more effective communication**

✓ **Do** review generated content for biases and inaccuracies and engage with your communication department before using AI-generated audiovisual content for public consumption.

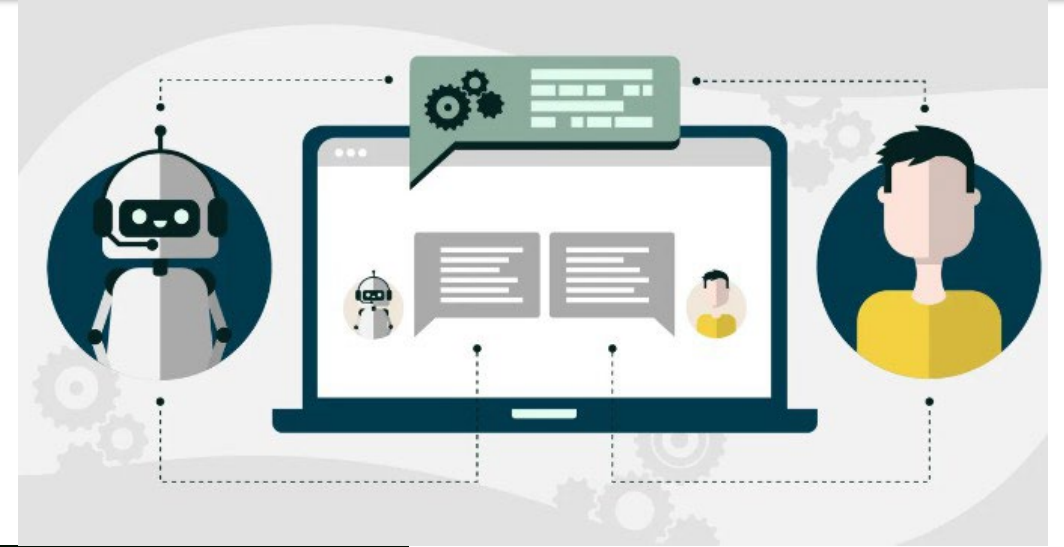
X Don't include sensitive or confidential information in the prompt.

➤ **Automate responses to frequently asked questions from residents (example: chatbots)**

✓ **Do** implement robust measures to protect resident data.

X Don't use generative AI as a substitute for human interaction or assume it will perfectly understand residents' queries. Provide mechanisms for residents to easily escalate their concerns or seek human assistance if the AI system cannot address their needs effectively.

Other Use Cases



Other data and privacy considerations for Generative AI?

Where did the training data come from?

Was the training data legally obtained?

Data being used as a proxy for something else?

Artificial Intelligence Regulation in Washington

- **SSB 5116 (2021)** - Establishing guidelines for government procurement and use of **automated decision systems** in order to protect consumers, improve transparency, and create more market predictability.

POLICY

Lawmakers Move to Ban Discriminatory Tech in Washington State

In response to reports detailing AI tech's disproportionate impact on communities of color, Washington State Sen. Bob Hasegawa introduced a bill to ban AI tech and regulate automated decision systems.

February 23, 2021 • Katya Maruri

2021 Automated Decision Systems Workgroup

#1 Prioritization of Resources

#2 Procurement

#3 Evaluation of Existing Systems

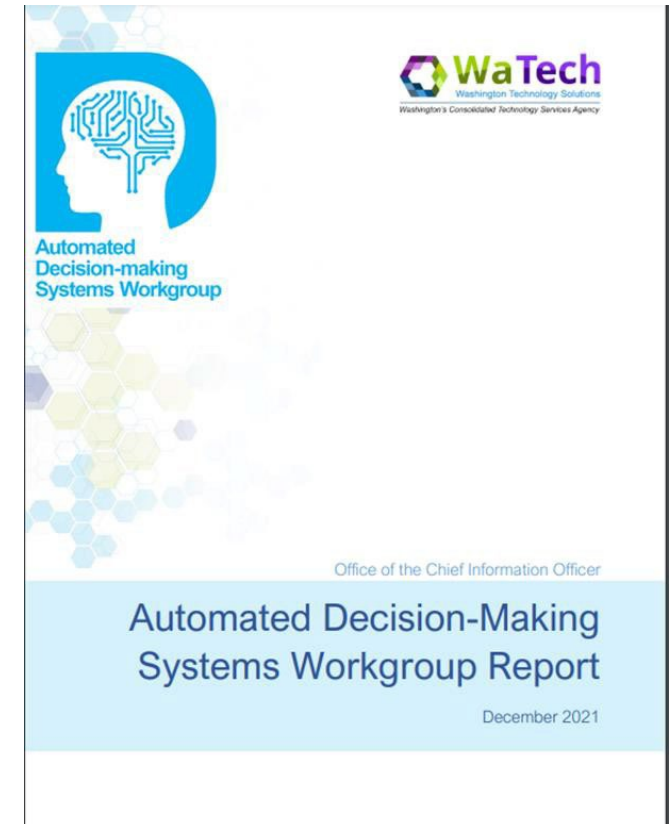
#4 Transparency

#5 Determination on Whether to Use System

#6 Ongoing Monitoring or Auditing

#7 Training in Risk of Automation Bias

[2021 ADS Workgroup Report](#)



Questions?

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State Chief Privacy Officer

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[YouTube](#)

Nick Stowe

State Chief Technology Officer

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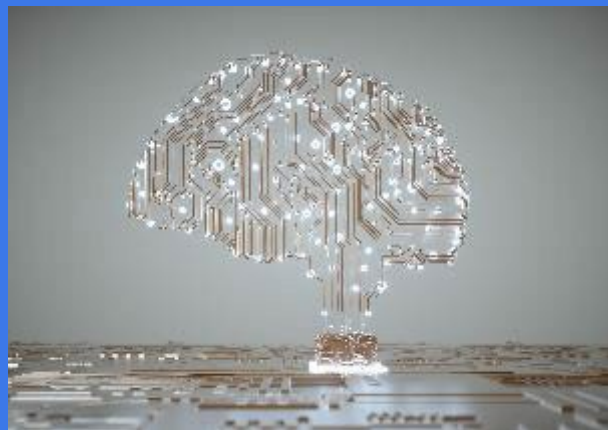




CONNECTICUT

MAKE IT HERE

Artificial Intelligence(AI) Briefing



Introductions

- **DAS**

- Mark Raymond – Chief Information Officer

- **OPM**

- Adel Ebeid – Director of Technology Policy
- Scott Gaul – Chief Data Officer

What should CT's posture be for AI?

- **Using AI to innovate with intent**
- **Responsible and ethical AI**
- **AI friendly (business attraction)**
- **Early guidelines to agencies**
- **Early and frequent monitoring of AI use cases**
- **Community and stakeholder involvement**



CONNECTICUT

Considerations

- **Privacy (right to be forgotten)**
- **Need for Transparency, Audit, Accountability, Repeatability**
- **Need for Human Review**
- **Bias in models and responses from training data**
- **Costs for computing are high – electric, water**
- **Skills are in high demand. Most are building, not buying.**
- **Regulations can stifle without balance / industry cooperation and alignment. Federal alignment**
- **Where does funding come for experimentation and growth**



CONNECTICUT

Policy Actions

- **Provided early guidance to agencies on potential uses**
- Established Cross Agency Working Group
 - OPM, CJIS, DCJ, DSS, DAS
- Developed Outline of Policies for Use of AI
 - Include outline?
- Staying active in National efforts (NGA, NASCIO, GovTech)
- Agency Educational Briefings



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Technology Actions

- **Modified Application Inventory to collect additional information on AI uses.**
 - **Does this application use AI?**
 - **Is AI use for Decision Making?**
 - **Has an AI Impact Assessment been conducted?**
- **Started agency data collection, expected completion by end of December**
 - **1382 applications**
 - **5 Yes, 833 No, 544 not yet assessed**



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Possible Use Cases



Public Data Use Cases

- Simplify statutes – make them understandable
- Translate common questions across languages
- Compare versions
- Help summarize
- Make data more understandable



Private Data

- Bespoke models need to be put in place



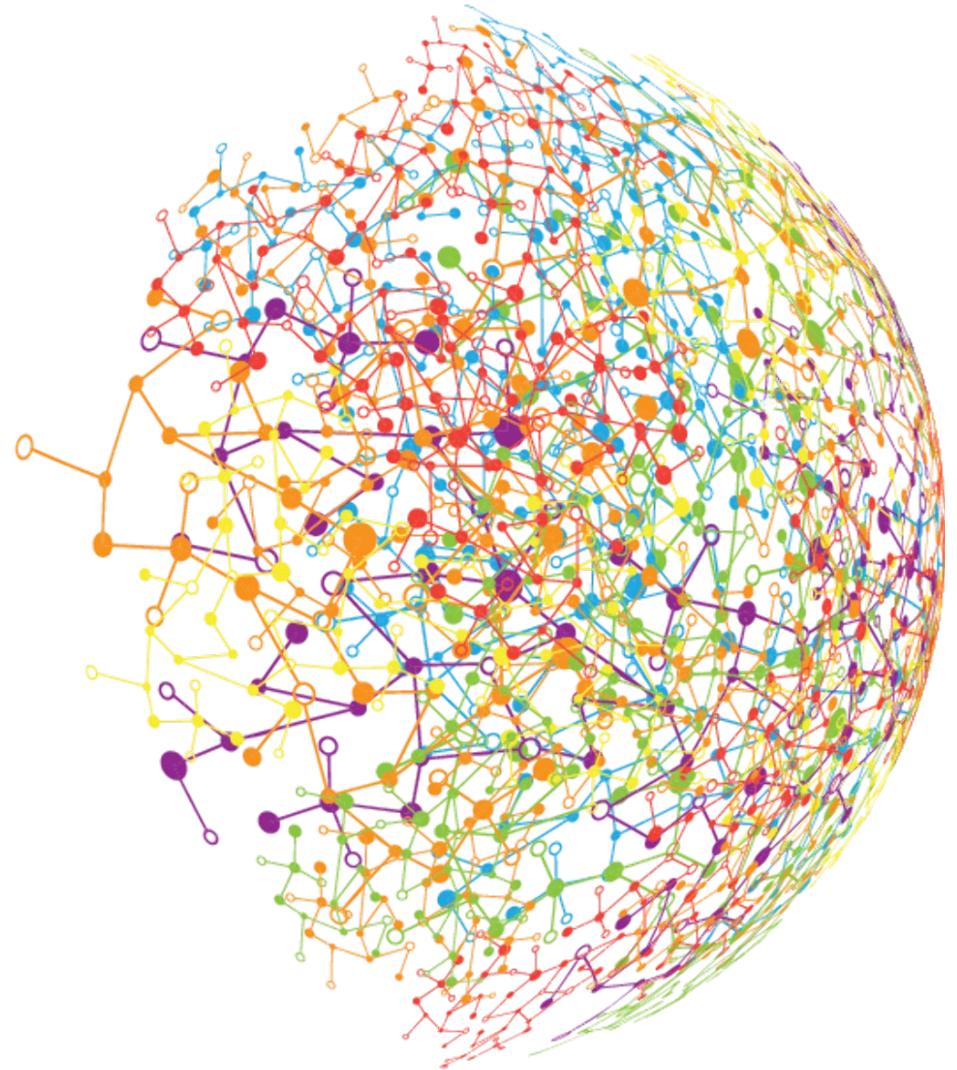
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Deloitte.

OCTOBER 25, 2023

Connecticut AI Working Group

AI and GenAI Use Cases in State Government



Agenda

Understanding AI & GenAI

Overview of AI Solution Areas

Use Cases for State Government

Questions & Answers

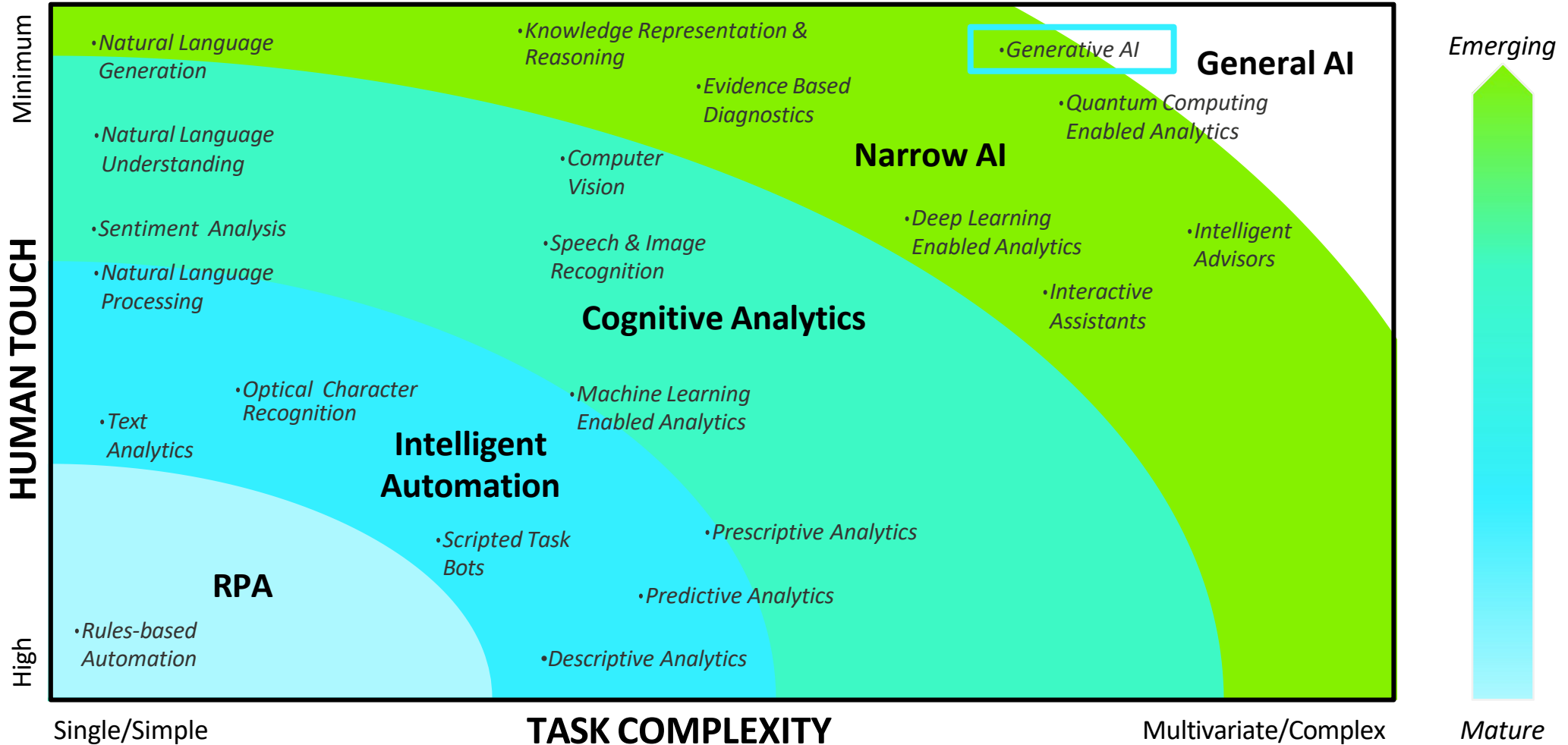


Understanding AI & GenAI

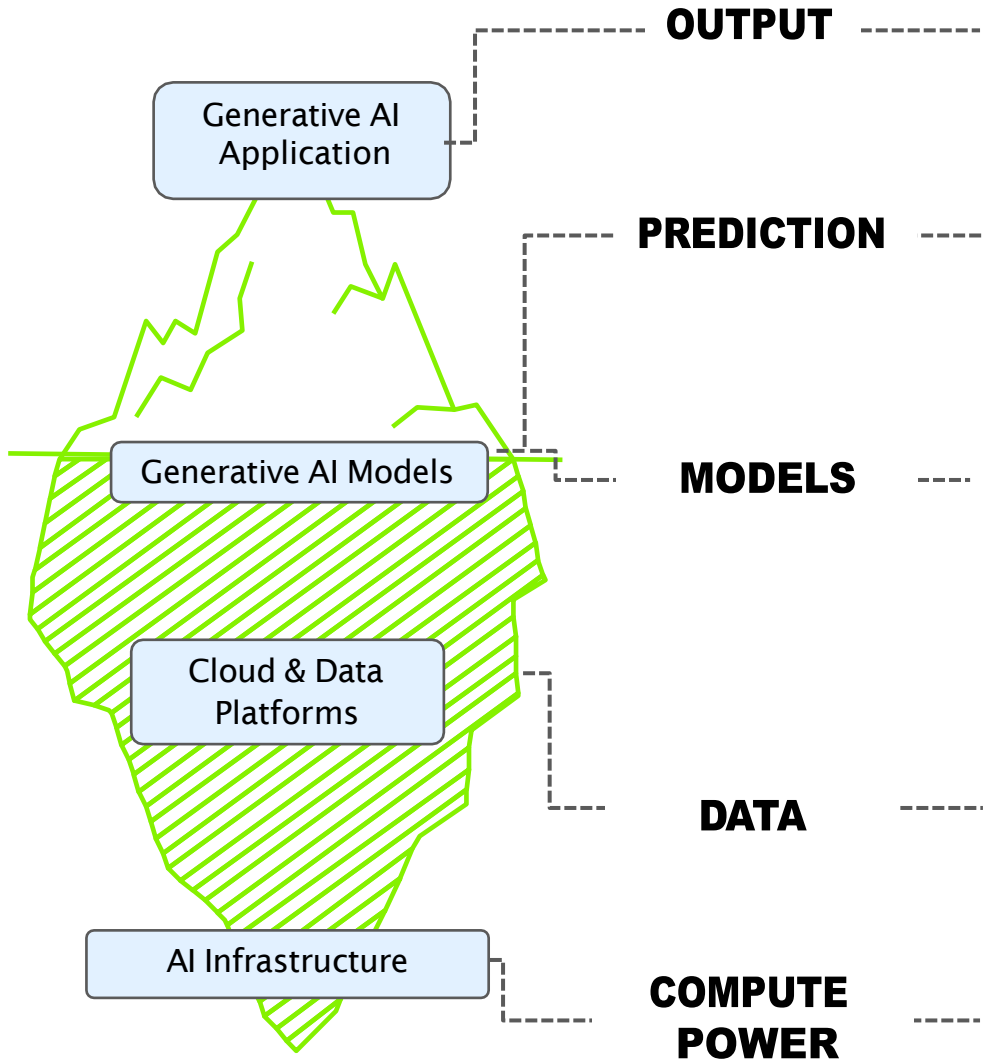


The Artificial Intelligence (AI) Spectrum

AI encompasses a wide range of technologies that use inputs of varying complexities to generate human-like outcomes.



Mechanisms of GenAI



Applications...what we see

Generative AI applications generate content across various modalities (e.g., text, image, video, audio) based on how the underlying model was trained.

Why do these applications seem so human?

Like traditional AI, Foundation Models are models (1) that predict outputs based on inferences on the inputs it receives. However, through, fine-tuning (2), prompt engineering (3) and adversarial training (4) these models generate outputs based on its understanding of human communication.

What are Foundation Models?

OpenAI's GPT-4, and NVIDIA's Megatron are two examples of Foundation Models, specifically large language models (LLM) which use deep learning to process huge amounts of data to form 'memories' on the input datasets through tokenization (5), thereby shaping the models' parameters (6). There are common Foundation Model architectures (e.g., Transformer (7), Diffusion (8)) which drive the modalities for each model.

Training on the world's knowledge

Foundation Models are trained on petabytes worth of global data to shape understanding, tone, and behavior while considering human communication styles.

Powering our journey to tomorrow

The scale of compute capacity required to train and process Foundation Models necessitates the usage of leading GPUs (e.g., A100 NVIDIA) and TPUs (e.g., Google TPU v4) on scalable infrastructure.

What is Generative AI?

A type of artificial intelligence that creates original content across various modalities (e.g., text, images, audio, code, voice, video) that would have previously taken human skill and expertise to create.

HOW does it work?


Uses **Foundation Models (FMs)** trained on massive amounts of data to **understand human communication and natural language.**


WHY now?


Converging innovations of hardware, cloud native stack, software engineering, machine learning, deep learning, and model sizes allows for the **realization of an autonomous creation economy.**

WHO is involved?

Technology leaders and start-ups are developing user facing applications on these underlying models.

- 

Act as a force multiplier for our people and our clients
- 

Reduce the burden of human interaction for many types of tasks
- 

Use technologies to guide decisions and focus on critical tasks

EXAMPLE MODALITIES

Text Generation

Prompt: *Explain my colleagues the business impact of generative AI in 50 words*

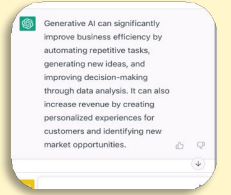


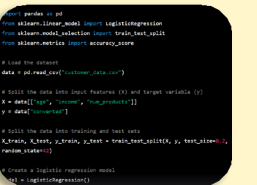
Image Generation

Prompt: *A bowl of soup that is a portal to another dimension as digital art*



Code Generation

Prompt: *In python, code a program that predicts the likelihood of customer conversion*



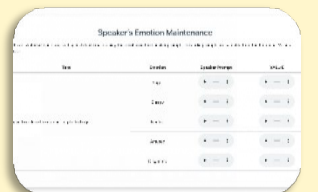
Video Generation

Prompt: *A teddy bear painting a portrait*

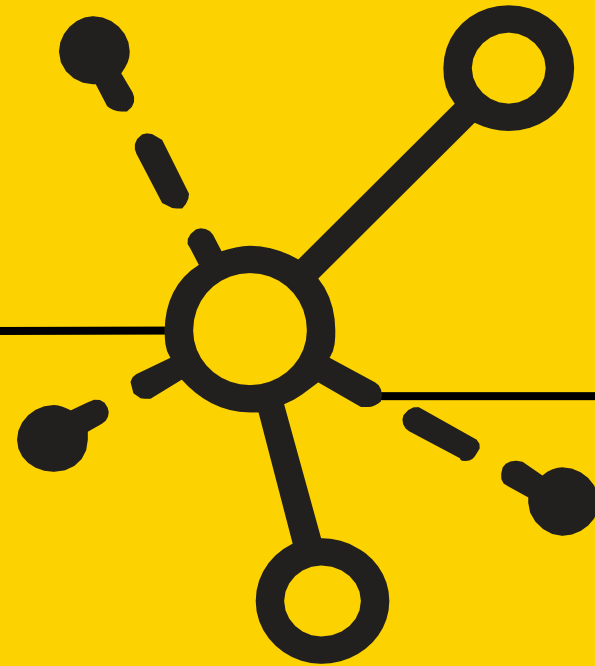


Audio Generation

Prompt: *Play 'we have to reduce the number of plastic bags' in a sleepy tone*



Overview of AI Solution Areas



AI Intelligent Solution Areas



DOCUMENT GENERATION

Application of AI to create documents and reports; saving time, reducing error and bias, and allowing employees to focus on what matters.



CASE MANAGEMENT

Using AI to parse files for actionable details which are then sorted and prioritized for maximum impact. Guidance and Policy suggestions at the point of decision.



KNOWLEDGE MANAGEMENT

Natural language interface that allows users to cluster, search, and filter their data without coding or data science expertise. Includes image and video data sources.



CUSTOMER ENGAGEMENT

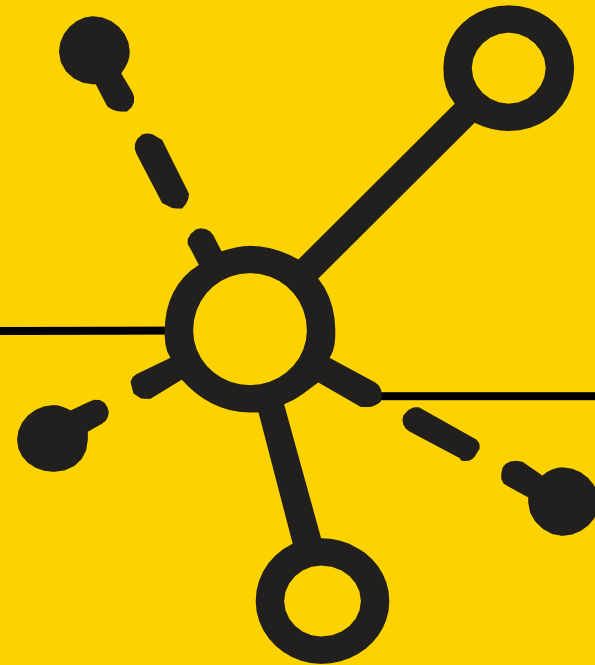
Applying AI to enhance citizen and customer engagement, ultimately making services more user friendly, and resources easier to navigate and consume.



BACK-OFFICE FUNCTIONS

Application of AI Engine modules and processes that augment the workforce to complete previously tedious back-office functions related to decisions, costs, finance, HR and procurement & logistics.

AI Opportunities & Impact



Bringing AI to Life through Real World Applications

AI drives benefits *across the state government ecosystem*. Below are a few common user personas across state government organizations.

Health & Human Services



**Julia
(Resident)**

- Feels extremely stuck and overwhelmed
- She lost her job last week and is the primary provider for her family
- She has a fifteen-year-old granddaughter and a twelve-year-old grandson she cares for
- She has heard of food stamps, but she has no idea even where to start

Workforce Development



**Robert
(Workforce Supervisor)**

- Never feels his work is done
- Feels unorganized with the endless influx of applications, tasks and cases
- Extremely frustrated with trying to learn new policies and regs
- Communication with clients continues to be challenging

Higher Education



**Janelle
(Student)**

- First in her family to attend college, managed her FAFSA independently
- She struggled to juggle numerous grants and loan applications
- Extremely frustrated by the need to visit multiple offices for financial assessments and scholarship applications
- Constantly anxious about the impending debt burden

Transportation



**Anthony
(IT Operations)**

- Data wiz and has been writing reports and queries for the entire transportation department
- Concerned that when he gets promoted no one will be able to understand their data
- Data quality and data management continue to be ongoing challenges
- Interested in AI but not sure where to start

Tax/Revenue



**Emily
(Audit Supervisor)**

- Tax analyst that worked her way up to audit supervisor
- Agency tax revenues are down, and she is concerned that their team is missing the right cases to audit
- Agency has access to large quantity of data but has historically had challenges with data management
- Has heard about AI but unsure of how it's different from GenAI and how this technology could be used

Making an Impact in Health and Human Services



**Julia
(Resident)**

- Feels extremely stuck and overwhelmed
- She lost her job last week and is the primary provider for her family
- She has a fifteen-year-old granddaughter and a twelve-year-old grandson she cares for
- She has heard of food stamps, but has no idea where to start

How Does AI Help ?

- Julia learns that she’s not only eligible (potentially) for SNAP, but she should also apply for Medicaid, TANF, LIHEAP, and HAF
- She fills out a simple application to officially apply for all the above benefits
- She’s received a tailored text message letting her know the status of her application
- Benefits are approved and received within a few days helping to alleviate her concern
- Julia is notified of employment and training services

Considerations for AI Success

- Assess and establish standards for safeguarding PII data
- Prompt engineering/testing to improve accuracy, reliability, and bias reduction
- Establishing guardrails to connect residents with the appropriate resources and services
- Alignment of eligibility rules and criteria based on recommended program (Medicaid, SNAP, TANF)

Use Cases

Resource Engine: Connects clients to resources and discovery services available

AI-Assisted Omni-Channel: Provides text, email, and online notices and alerts

Translation Engine: Provides multi-language text generation support for translating notices

Navigator Assistant: Enables clients with question-answering capability against websites and State data

Customer Experience Engine: Develops custom checklists that help customers maintain their benefits

Policy Knowledge Engine: Assists caseworkers, business analysts, and executives answer complex policy questions

Making an Impact in Workforce Development



Robert
(Workforce Supervisor)

- Never feels his work is done
- Feels unorganized with the endless influx of applications, tasks and cases
- Extremely frustrated with trying to learn new policies and regs
- Robert’s staff finds communication with clients to be challenging due to language barriers

How Does AI Help?

- Robert uses the new Policy engine tool to research if refugees who are new residents of his state are eligible for workforce support
- Robert’s staff can now access all their tasks and cases in a single integrated workload dashboard
- He’s able to improve case coordination for staff to ensure their caseloads are manageable
- The new multilingual translation services helps his staff communicate with multilingual jobseekers

Considerations for AI Success

- Review existing policy documentation to confirm accuracy/ reliability
- Establish data transparency to clearly identify the reference/ source documentation for the policy answer
- Separate LLM security protocols are required for policy data (public) vs. case copilot data (private PII)
- Implement continuous monitoring processes to track, train, and tune the workforce solutions
- Test translation services using prompt validation or Human in the Loop AI testing

Use Cases

Case Copilot: Assists workers by interpreting policy or system questions

Mock Interview Engine: offers industry-specific questions and facilitates a training exercise simulating a live job interview

Workload Dashboard: Provides tasks and caseload information summarized in a single view

Self Service Engine: Provides personalized guidance by using information from existing policy/procedure documents

Policy Engine: Interprets policy, systems, and ops manuals to answer worker questions

Service Desk Assistant Engine: Answers FAQs related to tickets, resolving help desk issues, and summarizing help desk calls.

Making an Impact in Higher Education



**Janelle
(Student)**

- First in her family to attend college, managed her FAFSA independently
- She struggled to juggle numerous grants and loan applications
- Extremely frustrated by the need to visit multiple offices for financial assessments and scholarship applications
- Constantly anxious about the impending debt

How Does AI Help?

- Janelle uses the new scholarship matchmaker to identify new scholarship opportunities applicable to her
- Tuition Payment Simulation allows Janelle to estimate her tuition costs compared to other universities
- The student job connector relieves some of the debt stress from Janelle, allowing her to find on/off-campus jobs to begin paying for college

Considerations for AI Success

- Identify and investigate potential AI-induced hallucination risks
- Promote and ensure ethical use of AI technologies in decision-making processes
- Enhance measures for maintaining confidentiality and privacy in AI-driven systems when dealing with FAFSA related data
- Prompt engineering/testing to improve accuracy, reliability, and bias reduction

Use Cases

Scholarship Matchmaker: AI-powered scholarship platform that matches student profiles to scholarship opportunities

Tuition Payment Simulation: Simulates tuition payment options to showcase options for students to fund their education and decide between various institutions, and options for schools to receive tuition money promptly.

Student Job Connector: Leverage AI to help students identify and match with various on-campus and off-campus jobs and paid opportunities.

Making an Impact in Transportation



Anthony
(IT Operations)

- Data wiz and has been writing reports and queries for the entire transportation department
- Concerned that when he gets promoted no one will be able to understand their data
- Data quality and data management continue to be ongoing challenges
- Interested in AI but not sure where to start

How Does AI Help?

- Anthony uses our Discover AI solution to quickly generate SQL based on text
- The Report Generation and Data Summarizer tools enable him to analyze and build reports on unstructured and semi structured data
- He can document and create a repository of common queries with the AI Catalogue
- Anthony can automatically obfuscate/ mask data in lower environments and create synthetic data for testing with Nudge Engine
- He attends an in-person technical GenAI training – specifically how to use Open AI within Azure

Considerations for AI Success

- Design and implement a secure architecture for AI systems to mitigate vulnerabilities
- Assess and establish standards for safeguarding sensitive data
- Address bias in AI algorithms to ensure fairness and equity
- Establishing guardrails to detect and prevent malicious activities in AI systems

Use Cases

Discover.AI: Assists technical staff in generating SQL queries/ syntax based on English language questions

Nudge Engine: Identifies actions within a system and nudges user to perform actions accordingly

Report Generation: Automatically generates reports and dashboards based on data

Data Summarizer: Brings together large data sets/documents and summarizes key information

AI Catalog: Provides the ability to catalog and store both queries and models in single platform

Contact Center Agent: Uses natural language processing to answer policy and case questions.

Making an Impact in Tax / Revenue Services



Emily
(Audit Supervisor)

- Tax analyst that worked her way up to audit supervisor
- Concerned that her team is missing the right cases to audit
- Agency has had challenges with data management
- Has heard about AI but unsure of how it's different from GenAI and how this technology could be used

How Does AI Help?

- The Intelligent Case Management supports Emily and her staff with creating a prioritized list of tax files that should be audited based on the actionable details that are identified
- When taxpayers receive correspondence indicating that they have been selected for a tax audit, the Intelligent Audit Engagement virtual support chatbot identifies what information and documents are being requested
- Emily uses the Intelligent Back Office to improve workload management and ensure staff are focused on complex audit cases and providing audit support to ensure taxpayer compliance

Intelligent Case Management: Use GenAI to parse tax case files to identify actionable details such as excessive deductions, unreported income, excessive expenses, and missing income, which are then sorted and prioritized to identify the most likely cases that should be audited

Intelligent Audit Engagement: Frontline virtual support chatbot that helps taxpayers who have been selected for an audit understand the scope of the audit, what information and documents are being requested, and what information and documentation should be included in the audit response

Intelligent Back Office: Use GenAI to augment the workforce to complete previously tedious back-office functions related to decisions, HR, procurement, and logistics to allow for staff to focus time and attention on audit support to ensure taxpayer compliance

Considerations for AI Success

- Assess and establish standards for safeguarding PII data
- Prompt engineering/testing to improve accuracy, reliability, and bias reduction
- Continuously update and improve the machine learning models to adapt to changing tax laws, regulations, and patterns

Use Cases

Bringing AI to Life through Real World Applications

AI and GenAI are helping to *reimagine and enhance* the *experience* for customers, staff and supervisors, students, and technology staff.

Health & Human Services



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(Resident)**

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- Emily uses the Intelligent Back Office to improve workload management and ensure staff are focused on complex audit cases and providing support to ensure compliance

Q&A





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Government Use of Artificial Intelligence: the Legislative Landscape

2023 Working Group on Artificial Intelligence

Connecticut

Oct. 25, 2023



Presentation Overview



NCSL Overview

- Strengthen the legislative institution
- How NCSL strengthens legislatures

State Legislation on Govt Use

- Artificial Intelligence 2019-2023 legislation by category
- Government Use:
 - Inventories
 - Criminal Justice
 - Facial Recognition
 - Miscellaneous

Government Use Examples

- Use Examples:
 - Robotic Process Automation
 - Natural Language Processing
 - Machine Learning
- State CIO/CTO Perspectives





Strengthening the legislative institution

How NCSL Strengthens Legislatures



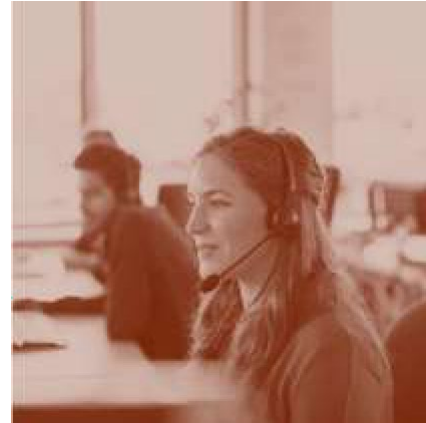
Policy Research

NCSL provides trusted, nonpartisan policy research and analysis



Connections

NCSL links legislators and staff with each other and with experts



Training

NCSL delivers training tailored specifically for legislators and staff



State Voice in D.C.

NCSL represents and advocates on behalf of states on Capitol Hill



Meetings

NCSL meetings facilitate information exchange and policy discussions



Artificial Intelligence 2019-2023 Legislation

Introduced and Enacted/Adopted



1

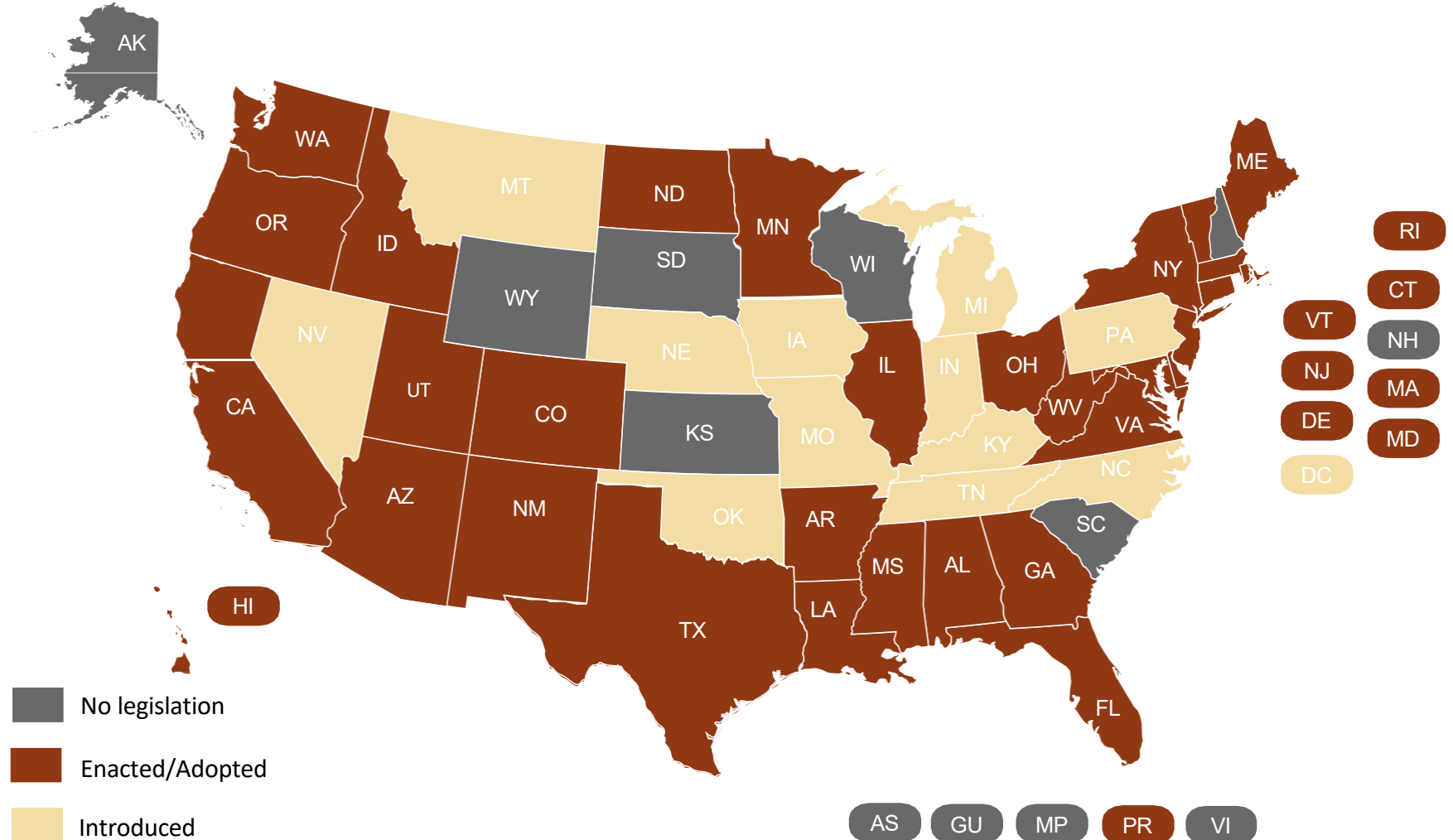
Enacted/Adopted

- 31 states and Puerto Rico

2

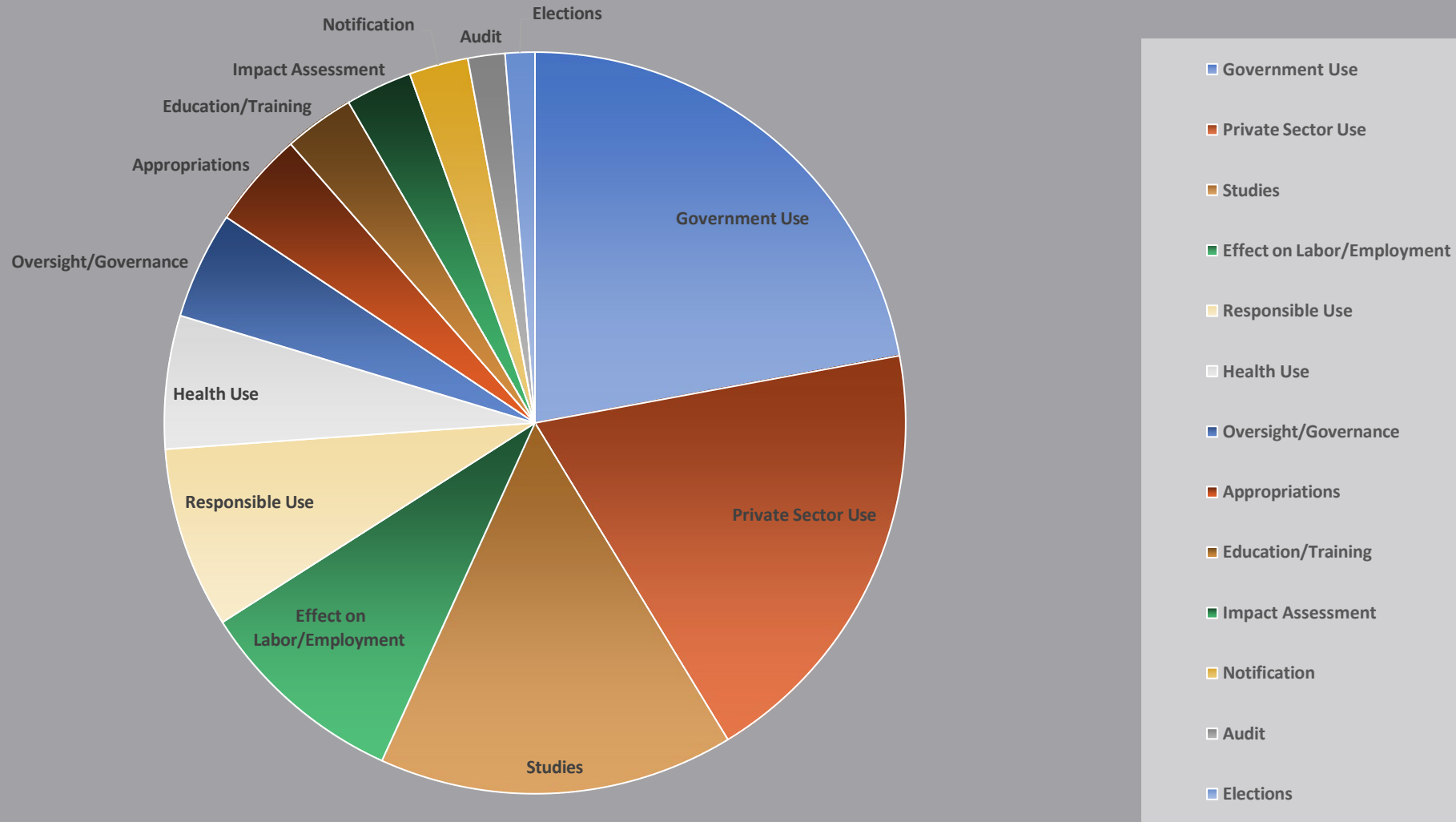
Introduced

- 12 states and Washington, D.C.



AI Legislation by Category

2019-2023 Sessions



AI Government Use Legislation

Inventories



Vermont

2022



Washington

2021 and 2022



California

2023



Rhode Island

2023



Connecticut

2023



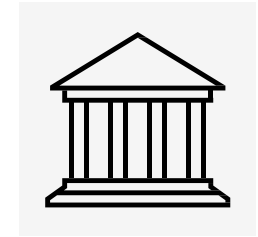


AI Government Use Legislation

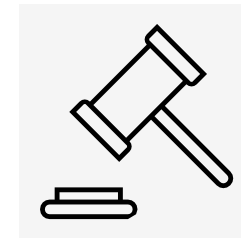
Criminal Justice



Idaho



Maryland



Arizona



Texas



AI Government Use Legislation

Biometrics and Facial Recognition

Government Agencies

- Washington (2020)
- Colorado (2022)
- Maine (2021)

Law Enforcement

- Vermont (2020 and 2021)
- New Hampshire and Oregon
- Kentucky (2022)

Driver's Licenses

- Maine, Missouri and New Hampshire



AI Government Use Legislation

Miscellaneous



Ohio (2021)

- Medicaid Cost Assurance Pilot Program during FY 2022 and FY 2023
 - Utilize automation and artificial intelligence to provide Medicaid program savings by avoiding traditional cost structures

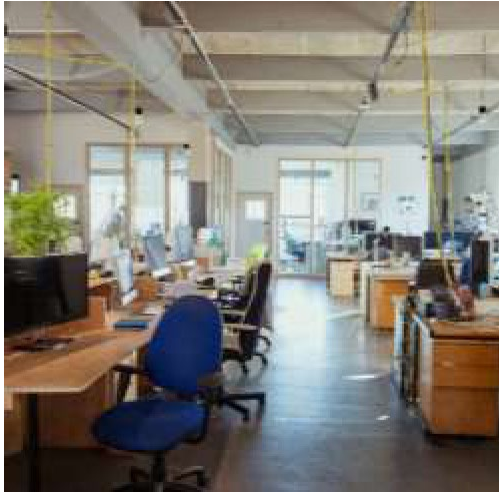


Maryland (2022)

- Department of Information Technology to annually evaluate the feasibility of units of state government providing public services using
 - artificial intelligence, machine learning, commercial cloud computing services, device-as-a-service procurement models, and other emerging technologies

AI Government Use Examples

Robotic Process Automation



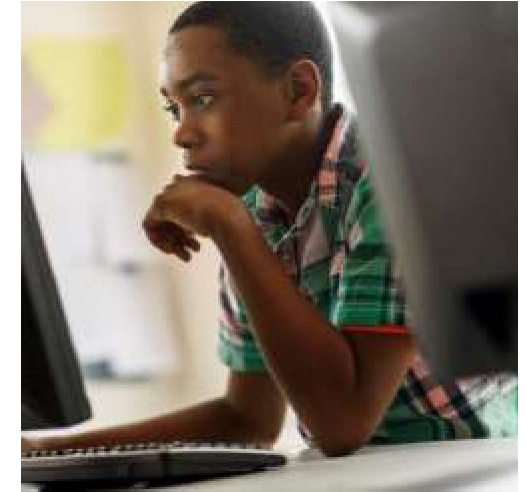
Georgia

Department of Labor



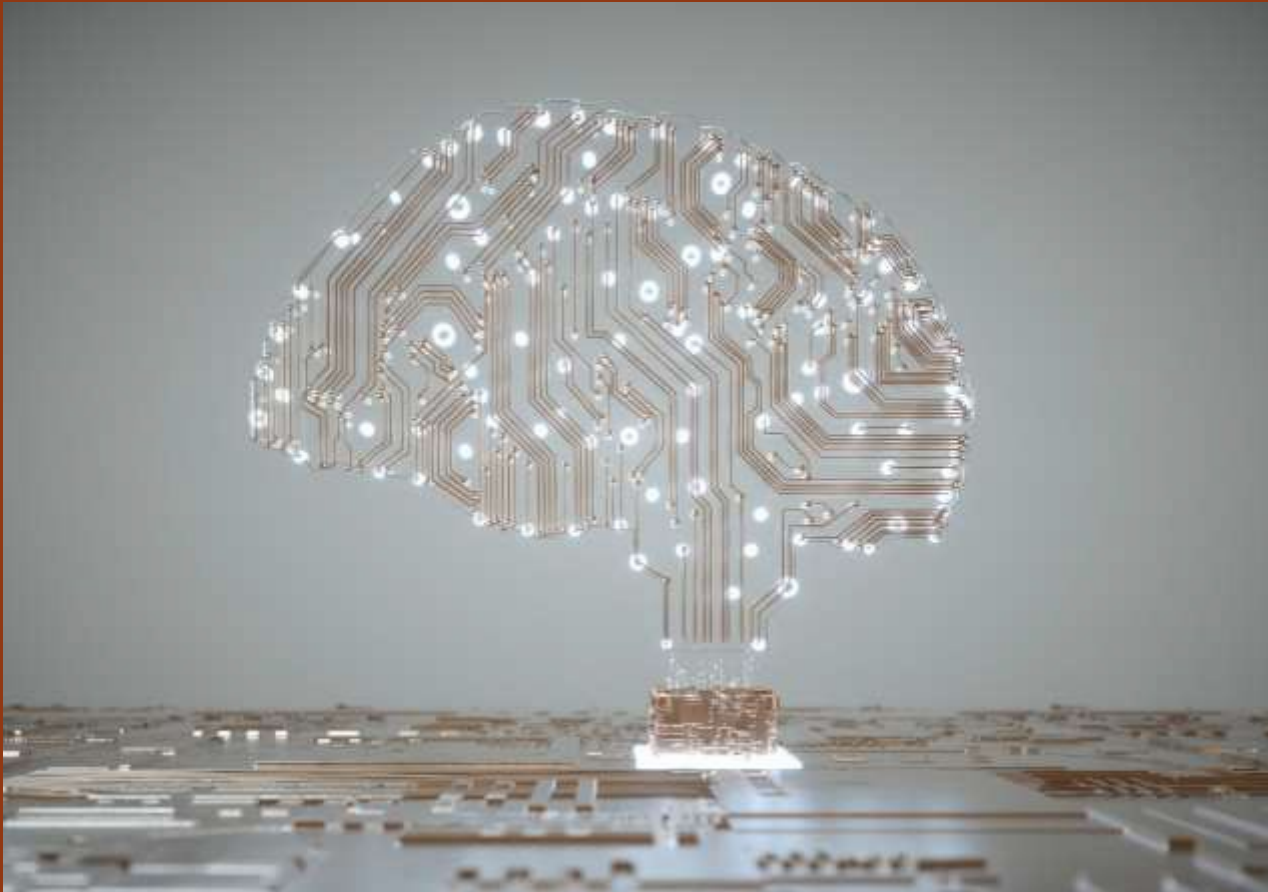
Ohio

Disability Onset Alert Bot



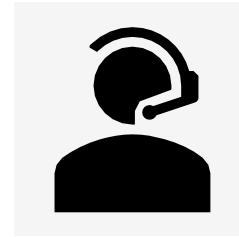
Texas

Department of
Information Resources



AI Government Use Examples

Natural Language Processing



Presidio County



Baltimore



Minnesota



Georgia

AI Government Use Examples

Machine Learning



Wildfires



Housing Assistance

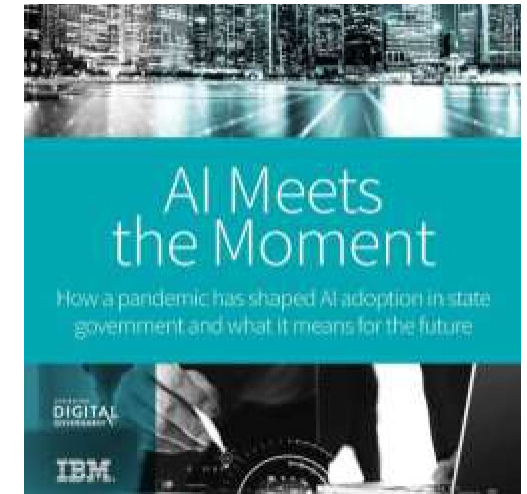


Building Inspection



State CIO/CTO Perspectives

Center for Digital Government, IBM and NASCIO



2019

2020

2021



NCSL Web Resources

- [Artificial Intelligence 2023 Legislation](#)
- [Legislation Related to Artificial Intelligence \(2019-2022 Legislation\)](#)
- [Approaches to Regulating Artificial Intelligence: A Primer](#)
- [2023 Consumer Data Privacy Legislation](#)
- [Legislative Responses to Policing](#)



NCSL Forecast '24 - Austin



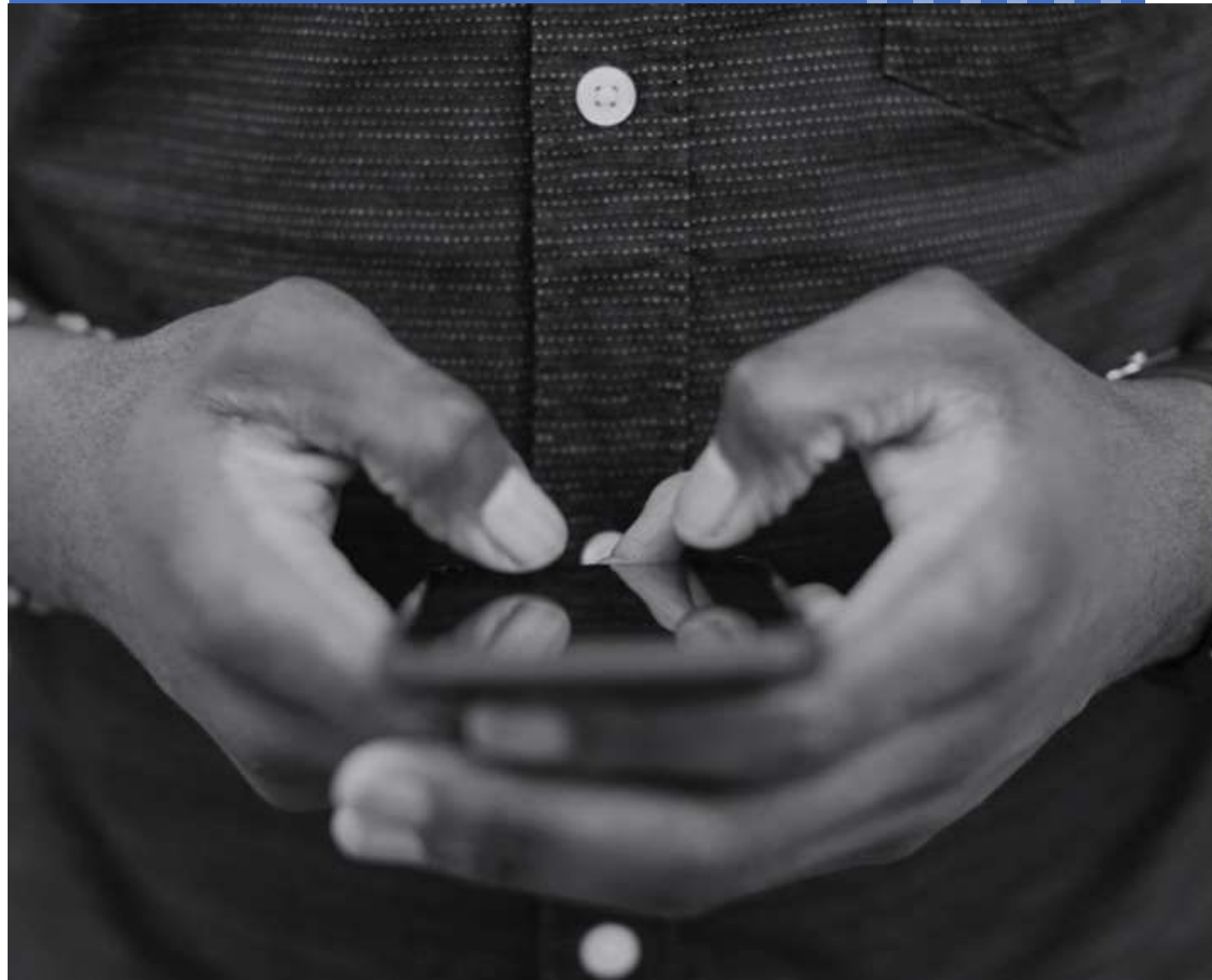
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PREPARING FOR LEGISLATIVE SESSIONS

Dec. 4-6, 2023

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Reach Out Anytime!



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Recent Developments in AI Policy & Governance

Presentation to CT AI WG

November 15, 2023

Chloe Autio

Independent AI Advisor

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Agenda

1. Level Set on Policy Landscape

- A. Demystifying / ways to organize*
- B. Global – EU AI Act, UK, G7*
- C. US – AI EO*

2. Broadening the Aperture: Implications of EO & Policy Activity

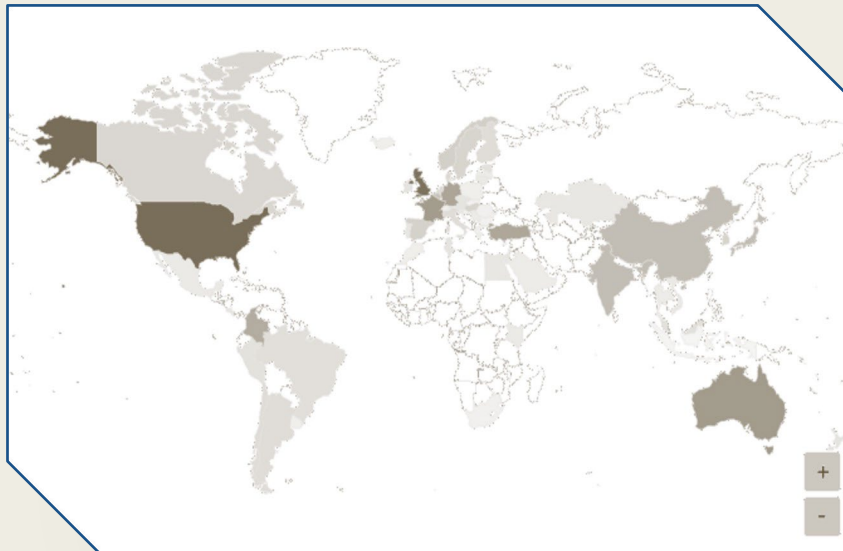
- A. For states*
- B. For industry*
- C. Key Takeaways*

3. Q&A

The AI & Data Policy landscape is increasingly complex – and maturing.

In addition to new regulatory standards, societal, corporate and market expectations all call for thoughtful engagement and communications regarding AI development and use.

Global Snapshot of Government AI Initiatives



Graphic: OECD.AI (2021), powered by EC/OECD (2021), database of national AI policies

- **Policy and regulatory initiatives**, which are shifting from Strategy & Investment to Governance of AI
- **Work in global standards bodies** (IEEE, ISO) and certification regimes are coordinating development of voluntary frameworks
- **New legal precedent:** Regulators are examining how to combat AI harms through the courts and enforcement of existing law (i.e., broad antidiscrimination and civil rights laws, sector specific privacy laws)

Global AI Policy Developments

- **UK AI Safety Summit**, creation of Institute and Bletchley Declaration among 29 countries
- **EU AI Act** – Trilogues continue, with some new additions and sticking points:
 - **Generative AI:**
 - Latest text includes a requirement for red teaming for general purpose AI systems (potentially “through vetted red-testers” from the AI Office).
 - Definitions and how to treat generative AI / foundation models (“high-impact foundation models” vs. general purpose AI)
 - Debates about enforcement i.e., how centralized it should be within EU vs. Member States
 - Negotiations will continue, with “50-50” chance the Act passes before Parliament elections in June 2024
 - After passage, AI Act will only come into force after two years.
- **G7 code of conduct** for companies, focused on risk mitigation, tracking issues and misuse, and transparency via public reporting on capabilities.

AI EO Summary

- Longest and most comprehensive EO of the Biden Admin to date
- Perhaps the most comprehensive related to tech / digital policy ever
- Activates 50 different entities, with Commerce Dept taking on many new responsibilities
 - *Establishment of AI Safety Institute at NIST*
- Over 150 new directives (actions, reports, guidance, rules, and policies) to be implemented or initiated within 30 – 365 days

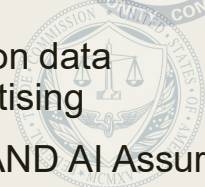
LOTS of work to do!

Pre-EO, the USG was already very active on AI regulation, as are state governments and legislatures.

Congressional, federal and executive agencies, military and intelligence agencies, and state and local governments are all working to carve out their own frameworks for AI regulation.

Administration, Regulatory & Defense

- **White House OSTP Bill of Rights and AI Commitments**
- **NIST-Supported initiatives**
 - NAIAC
 - NAIRR
 - AI RMF
- **Agency-specific activities and rulemaking**
 - EEOC – Algorithmic Fairness Initiative; Guidance on ADA Compliance
 - CFPB – Report and guidance on ECOA compliance when using black box models
 - HHS – Trustworthy AI Playbook
 - FTC – Report on AI for online harms; rulings on data disgorgement; warnings RE behavioral advertising
 - NTIA RFCs on Privacy, Equity & Civil Rights AND AI Assurance
- Joint statement from **DOJ, CFPB, EEOC** on Enforcement Efforts Against Discrimination and Bias in Automated Systems



Congressional

- **AI-specific legislation** (NO FAKES Act, Algorithmic Accountability Act, licensing bill)
- **Privacy and Competition legislation** with AI provisions
 - Section 207 of the ADPPA
 - Provisions in CHIPS and Science



State & Local

- **NYC** AI Hiring law, **CO** big data insurance law
- **IL** Biometric Protection Law
- **CT** AI work & cross-state collaborations
- **CA** AB 331 and SB 294
- **DC** Stop Discrimination by Algorithms Act
- **State privacy laws** with AI provisions
- **DOD** RAI Initiatives – Principles, Just-released toolkit.



Breaking it Down: Six Core Categories

National Security

- Reporting (of foundation model development and of Cloud customer use)
- Protections against AI-enabled bio engineering
- National Security Memo

Privacy, Consumer Protection, IP

- **Research, evaluation and uptake of PETs (NSF)**
- **Evaluation of how agencies buy and use commercially available data (i.e. from data brokers)**
- HHS to develop responsible AI in drug discovery and create reporting mechanism unsafe AI in healthcare
- **USPTO guidance on AI inventorship and proposed actions from copyright office**

Equity & Nondiscrimination

- DOJ to coordinate enforcement and guidelines RE AI discrimination
- Develop best practices for AI used in criminal justice system (DOJ, DHS, OSTP)
- Agency civil rights and liberties offices consulted RE AI use
- Guidance from FHFA, CFPB on loan and tenant screening
- Guidance on AI use in benefits administration, including human review and redress

Labor and Worker Rights

- **DOL to issue guidance RE AI use in hiring for federal contractors**
- Report on labor market effects of AI (CEA)
- Assess viability of safety nets and consult with unions (DOL)
- Guidance to ensure AI augmented or tracked work is compensated fairly (DOL)

Security of AI Systems

- NIST AI Safety Institute, **developing test beds and standards for red teaming**
- DHS AI Safety & Security Board (DHS) to apply standards to critical infrastructure & evaluate other risks
- Standards for **authenticating AI-generated content**
- Defining **open source risks (NTIA)**

Bolstering AI in USG

- **Immigration provisions**
- Boost hiring of AI talent via fellowships and new hiring authorities
- Provide AI training to public servants
- NAIRR Pilot
- **Responsible Use via OMB guidance**
 - Agencies to appoint chief AI officer, AI review board
 - Implement risk management protocols and procurement guidance

Implications and Engagement Points for States

- **Draft OMB Guidance:** Organizational structure and processes for AI governance
 - *AI Officers and councils, minimum risk management processes*
- **Investment and Innovation:** Coordination with Regional Innovation Cluster program funding to establish Small Business AI Innovation and Commercialization Institutes via Commerce Dept
- **Review, guidance and technical assistance from DOJ on use of AI in criminal justice settings**
 - *Also training and guidance for AI use by law enforcement professionals*
- **Guidance for State / local benefits administration:** HHS guidance and coordination to address use of automated or algorithmic systems, and mechanisms for human oversight, redress, audits (Sec 7.2)
 - *Also examining AI use for benefits with Dept of Agriculture, DOT*

[Top of Mind] Implications for Industry

- **Reporting requirements** for entities developing “**dual use foundation models**” which meet computing threshold or are used for use cases with biosecurity implications: results of red team testing (including discriminatory outputs)
- **Compute monitoring and reporting** for **cloud service providers** to share information about compute used by foreign entities that could enable malicious cyber activity
- **Procurement considerations** for organizations contracting with the federal government regarding risk management of AI systems (auditability, documentation, accountability)
- **Civil rights** and **nondiscrimination enforcement warnings**, particularly for employers

Key Takeaways

#1: Regulation has moved from abstractions around high level principles to more tangible/actionable guidelines or third party access (via things like red teaming).

#2: However, proposals are not self-executing and often present unclear and differing requirements for fairness, transparency, safety and accountability.

- Framing for transparency or accountability is probably the easiest and most effective way to regulate, via required disclosures like process documentation and risk assessments for select use cases, or the mandated allocation of resources towards governance activities.

#3: Focus on generative AI and existential / future risks has pulled focus from traditional GRC approaches to AI.


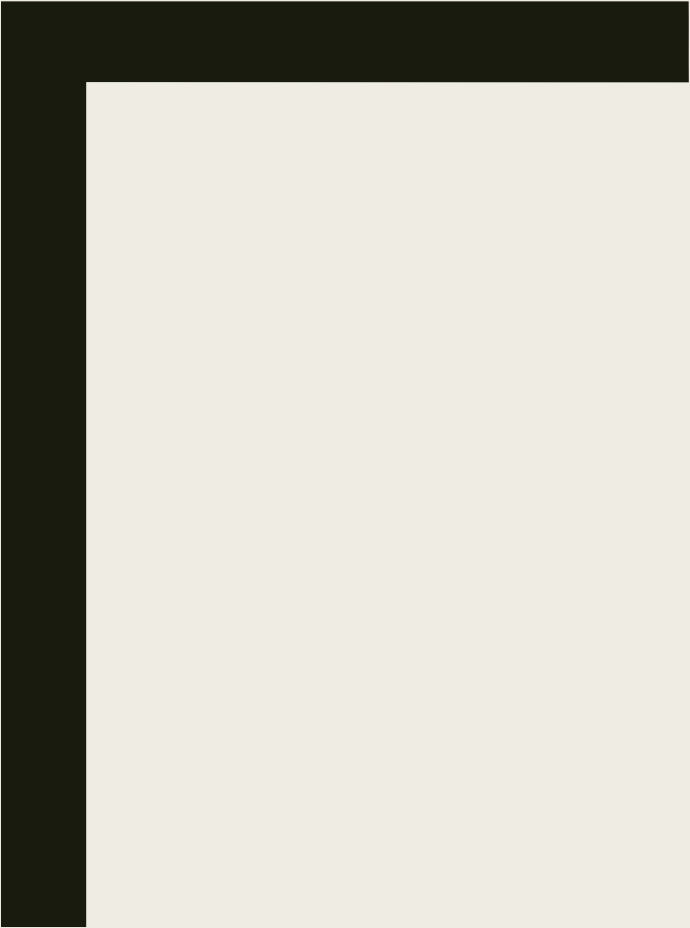
- Discussions about AI safety and model governance are distinct from governing AI use cases and data on a more practical and tangible level. Non-advanced / “traditional” AI can create risks which should be managed today.

#4: Leading industrialized nations (UK, EU, US) are competing to demonstrate who is the leader in AI regulation.

- Companies using AI are working to balance requests and prioritize time / initiatives with geopolitical considerations top of mind.

#5: Industry self-regulation has a role to play beyond technical compliance, but it won't be a complete solution.

- Risk assessments – which are context and sector specific – need to be worked out in context of regulator with sector jurisdiction.
- These technologies are constantly evolving – need standards that can be flexible and adapt to technological change. Setting standards around performance or other metrics will become mostly irrelevant (as we have seen with generative AI).



Thank you!
Questions



Connecticut Academy of Science and Engineering Briefing: An Initial Overview of Artificial Intelligence Skills Development and Use in Connecticut

Presented to the Artificial Intelligence Working Group,
Joint General Law Committee of the Connecticut General Assembly

Edmond Murphy, PhD, CASE Executive Committee Member and Treasurer
David Pines, PhD, CASE AI Briefing Research and Professor, University of Hartford

January 10, 2024

Briefing Background

Connecticut Academy of Science and Engineering (CASE) was created by CT General Assembly Special Act No. 76-53

- CASE's mission includes providing guidance when requested on issues of science and technology for the people and the state of Connecticut
- Co-Chairs, Artificial Intelligence Working Group requested that CASE provide an initial overview of who was doing what related to Artificial Intelligence Skills Development and Use in Connecticut

Research for the Briefing

- Interviews conducted with
 - 5 CT companies/health systems with 1,000 or more employees
 - 6 private and public, 2- and 4-year CT colleges and universities
 - 6 CT public school districts
 - Regional education service center
 - Commission empowered by the Connecticut General Assembly to oversee integration of technology in the state's schools, libraries, colleges, and universities.
- Survey of small businesses and industries (<100 employees)
- ***The AI Working Group should be cautious as it considers the information contained in this presentation and the briefing document as the sample size was small.***

Briefing Background

Methodology for the Interviews and Survey

- The AI Working Group edited and provided comments on the research focus for all three sectors
- Interview questions were developed for the 3 sectors; interviewees received the questions prior to the interviews; and a summary was submitted to the interviewees for their review and edit following the interview
- Small business and industry survey
 - CASE worked with the CT Data Collaborative on the first draft of the survey
 - The CT Business and Industry Association (CBIA) partnered with CASE on the survey and further refined it
 - CBIA transmitted the survey to 2000+ CBIA members and submitted aggregated results to CASE
 - 82 businesses and companies responded. The low response rate was attributed to the time of year (holidays) and the technical nature of the survey. The survey, or some version of the survey, should be used in the future to continue to monitor the needs of CT businesses and industries.

Deliverables

- AI Working Group Briefing (today)
- CASE AI Briefing Report – January 15, 2024

Connecticut PreK-12 Districts

AI Implementation – Current Status

- Districts are at the exploration stage, with all intending to use AI across the curriculum in all disciplines and grade-levels; districts reported some use of AI in business operations, including communications and contract reviews
- Five of 6 districts are planning or have in place frameworks to provide guidance for responsible use, ethical considerations, and professional development.
- One district has an AI Policy, with the other districts waiting for more information before establishing a policy, relying instead on more general policies, such as existing honesty and technology policies.

Opportunities: Innovations in Teaching and Learning

Challenges

- Data Privacy and Security
- Educational and Operational Technology Leadership and Expertise
- Digital Access and Equity
- Ethical Dilemmas and Bias
- Impact on Critical Thinking and Cognitive Abilities
- Multiple major impacts on schools
- Plagiarism and Cheating

Engagement with Business and Industry, and Institutions of Higher Education

Limited, with one district partnering with the Connecticut Community College – local campus and several districts partnering with local businesses for internships, work-based learning opportunities and job shadowing.

Connecticut PreK-12 Districts

Skills

- Awareness of AI
- Critical Thinker
- Digital Citizenship
- Project-based Learning Skills
- Prompting

Professional Development Strategies

- In-district
- Collaborative Forums/networking
- State-Level

Policy Suggestions

- Digital Divide: Important to address the potential of AI to magnify inequalities.
- Guidance for AI framework development and support for Sharing Best Practices.
- Balance of innovation versus safety and security: Districts recognize the difficulty securing the right balance; although no suggestions, several districts thought a revisit to recommendations contained in the Student Data Privacy Task Force report released March 25, 2019, would be of value.
- Multiple Major Impacts on Districts: Staff are overwhelmed by multiple challenges, including the aftermath of the pandemic, care for the social, mental, and physical well-being of their students, social media, and now the onset of generative AI. Respondents requested caution when developing new policies and mandates, and that policymakers proactively seek to avoid unintended consequences that will add additional pressures on educators.

Connecticut Institutions of Higher Education

AI Implementation – Current Status

- Goal for campuses is to be innovative in their practices, while ensuring responsible and ethical use of artificial intelligence, including data privacy.
- Exploration stage of planning for AI on their campuses with efforts focused on providing opportunities for faculty to explore the use of AI tools

Opportunities

- Equity and Accessibility
- Innovation in Teaching and Learning
- Interdisciplinary Opportunities
- Productivity Improvements

Challenges

- Data Privacy and Security
- Ethical, Safe and Responsible Use
- Digital Divide, Equity and Access
- Environmental Impact
- Human-Centered Approach
- Provenance
- Resource and Cost Challenges
- Transparency

Engagement with Business and Industry; PreK-12

Limited engagement, with one university reporting an active partnership with a high school local to their campus and several respondents noting an active partnership with Skills 21 at EdAdvance, a Regional Education Service Center.

Connecticut Institutions of Higher Education

Skills

- Critical Thinking and Evaluation
- Data Analysis and Utilization
- Data Privacy
- Digital and Media Literacy, and Ethical and Responsible Use
- Prompt Engineering

Professional Development Strategies

- Collaborative Learning
- Teaching and Learning Centers

Policy Suggestions

- **Policy and Framework Development:** State development of AI policies and frameworks - specifically guardrails - will help guide development of IHE policies and frameworks
- **Collaboration and Knowledge Sharing:** State should encourage collaboration and knowledge sharing across educational institutions
- **General Education Requirement:** Basic Technology Skills
- **High-Performance Computing Centers and Resource Challenges:** Support the building and maintenance of a state-based, high-performance computing center.
- **Engagement with Technology Companies:** State-level efforts should be made to connect large technology companies with the state's IHE's to assist in the preparation of an AI skilled workforce

Connecticut Business and Industry

AI Implementation – Current Status

- Using a "human-in-the-loop" approach where AI supports human decision-making.
- **Large Companies:** Taking a pragmatic approach in the context of the historical development of AI; being considered across various business and logistical functions and is viewed as a tool to enhance efficiency, improve services, and drive innovation
 - Core Business Competency: Machine learning is being used as a first pass for analyzing data and predictive maintenance; AI - enhanced imagery
 - Non-Core Business Processes: Customer service functions, HR queries, training and on-boarding of employees, and enabling staff to interact faster with lengthy, multiple page documents
- **Small Companies:** AI Survey (82 companies): 20% using AI; 35% expecting to use AI; 45% will not be using AI in the next 5 years

Challenges

- Security and Data Privacy
- Ethical Considerations
- Quality Control and Verification
- Digital Divide and Accessibility
- High-Performance Computing
- Limited Capacity for AI Use

Connecticut Business and Industry

Future Workforce -- Skills & Training

- Optimistic that AI will have a positive impact on the future workforce. Rather than job displacement, retraining and upskilling are emphasized as necessary for adapting to the new tools and technologies.
- **Skills Needed:** Data analytics, digital literacy, analytical thinking, critical thinking and evaluation, and prompting will become increasingly important for all employees
- **Training:**
 - **Large Companies:** Multi-faceted approach to training with internal training programs used for non-engineering staff and external courses and professional development for highly technical staff
 - **Small Companies:** Business functional training (marketing, sales, customer service), manufacturing (operations management, production, quality control), and IT training needed within the next two years. Most common training methods are consultants, outside workshops, vendor certification, and in-house training

Suggested AI Policies

- **Governance and Artificial Intelligence Guidance:** Larger companies rely on internal structures in providing guidance for AI adoption
- **Educating the Public on Data Privacy:** Campaign to alert the public about issues of data privacy, including educating the public on a person's right to data privacy, protecting their data, safely using generative AI, identifying AI misinformation, disinformation, and deep fakes
- **Possible State Investments:** High Performance Computing; AI Research and Student Preparation



Questions/Contact

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Celebrate, Promote, Inform in Service to CT

EU AI Act Overview



Topics

01 EU AI Act: Why it Matters?

02 Scope and Liability

03 General Purpose AI

04 Ongoing Conversations

05 What's Next

EU AI Act: Overview

Process has been underway since 2021

21 April 2021

Proposal first published by the European **Commission**

6 December 2022

EU **Council** adopted its common position

14 June 2023

EU **Parliament** adopted its negotiating position

9 December 2023

EU bodies reach **political agreement** on a final draft

Political agreement

- High-risk AI systems pose "significant potential harm to health, safety, fundamental rights, environment, democracy and the rule of law"
- Also includes requirements for General Purpose AI models

EU AI Act: **Why it Matters**

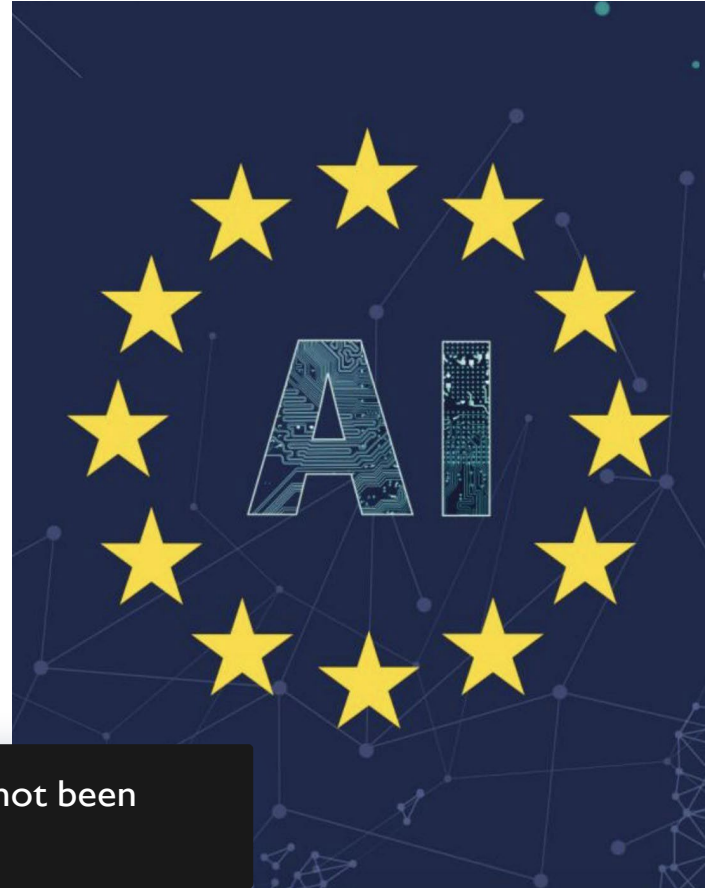
Current highest bar and broadest regulation to date once passed

- Brussels Effect (e.g. global bar like GDPR)
- Combined effect of EU AI Act and White House EO on AI (October 2023) is that RAI governance is no longer optional for organizations

Penalties

- Up to 7% of global revenue, potential criminal penalties for high-risk AI systems
- Grace period - **6 months** for prohibited uses, **12 months** for GPAI, **2 years** for others

As of January 10, the final text of the compromise draft has not been released.



EU AI Act: **Scope and Liability**

Cross–sectoral, horizontal, governed at the National and European Level (Titles VI and VII)

- Applies to those who provide AI in the EU market, deploy AI systems in the EU, and create AI outputs to be used in the EU

Categorizes AI systems by risk: unacceptable, high, limited, and minimal

- Different requirements for different risks of systems, including documentation, auditing, and governance
- For example, businesses must demonstrate compliance for high risk systems through approved conformity assessments (notified bodies required for high–risk systems)



Includes incentives for innovation, including regulatory sandbox (Art. 53 and 54) and support for SMEs (Art. 55)

EU AI Act: High-Risk Systems

“High-Risk” includes:

AI systems that are used in products falling under the EU’s product safety legislation or listed in the Act

AND pose "significant potential harm to health, safety, fundamental rights, environment, democracy and the rule of law"

This includes toys, aviation, cars, medical devices and lifts.

- certain critical infrastructures for instance in the fields of water, gas and electricity;
- medical devices;
- systems to determine access to educational institutions or for recruiting people;
- certain systems used in the fields of law enforcement, border control, administration of justice and democratic processes; and
- biometric identification, categorisation and emotion recognition systems

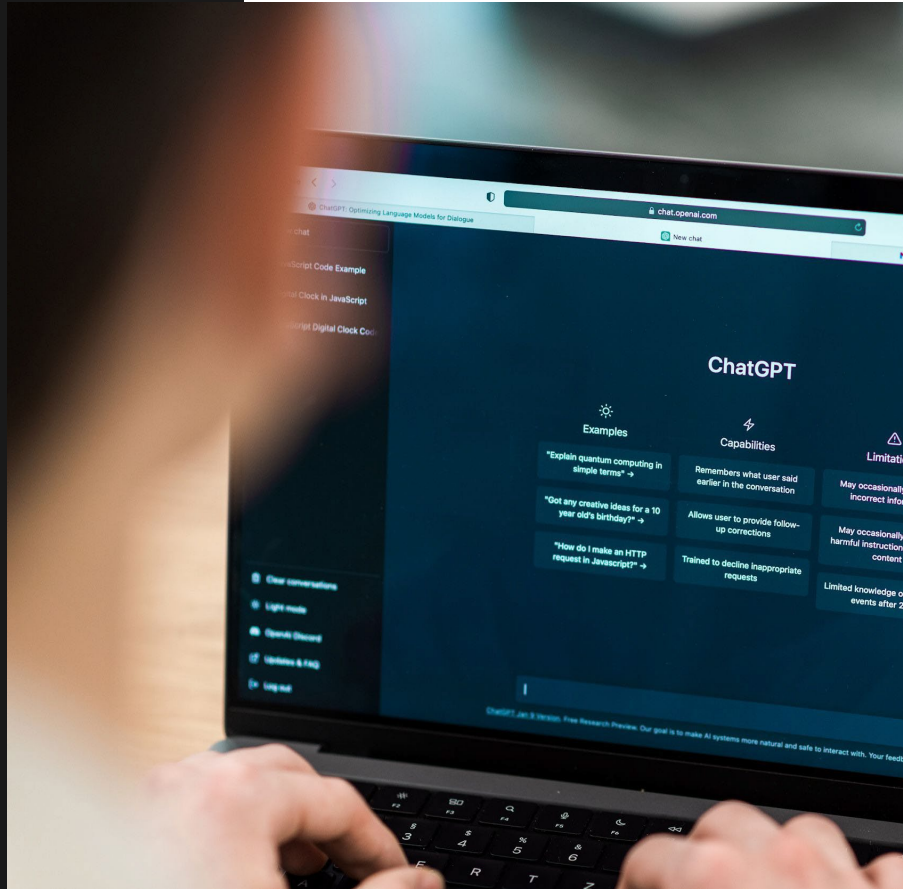


EU AI Act: High-Risk Systems

Compliance and Documentation Requirements (Title III, Chapter 2)

- AI system documentation
- Risk management framework
- Fit for purpose design
- Responsible data safeguards and governance
- Transparency
- Human oversight
- Accuracy
- Ex-ante conformity assessment and reassessment requirements as needed





EU AI Act: Rules for General Purpose AI

Distinguishes between two types - GPAI and GPAI that “poses systemic risk”

General requirements:

- Transparency and documentation
- Respect copyright
- Exceptions for open source, research

Requirements for ‘systemic risk’ GPAI:

- Model evaluation, adversarial testing
- Report on serious incidents
- Cybersecurity
- Environmental reporting

Ongoing Conversations



Test Compliance Early

Organizations can pledge to comply with the AI Act's requirements prior to the grace period and share learnings

Similar efforts at the G7 Level (eg G7 Code of Conduct)

Innovation Concerns



“We can decide to regulate much faster and much stronger than our major competitors. But we will regulate things that we will no longer produce or invent.”

Emmanuel Macron, December 11, 2023

EU AI Act: Next Steps

Next step:

Final text released in early February

International Cooperation:

European standardization organizations will prioritize the use of international standards (such as those from ISO) that can help demonstrate compliance with parts of the Act

Grace periods - 6 months (banned uses), 12 months (GPAI), 2 years (everything else)

International harmonization efforts underway, notably at the G7 level



