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Chairman Peters, Ranking Member Paul, and members of the Committee, thank you for inviting me to testify at this hearing on artificial intelligence (AI) in government. I am an Associate Vice Chancellor at the University of Tennessee, Knoxville (UT), and Director of the AI for Tennessee Initiative. I am also a professor of computer science at UT and have had a 30+ year research career advancing the fields of AI and robotics. Prior to my current role, I served for four years across two administrations in the White House Office of Science and Technology Policy (OSTP) as Founding Director of the National AI Initiative Office, Deputy United States Chief Technology Officer, and assistant director of AI. My focus in these OSTP roles was on the development of AI policies bolstering research, governance, education and workforce training, international engagement, and the Federal government's use of AI.

My remarks today focus on ways that U.S. Federal agencies can better leverage and govern the responsible use of AI in advancing their missions and providing services to the American people.

Current Use of AI by Federal Agencies

Federal agencies are currently using AI in many ways to enhance their operations, improve the quality of their services, train their workforce, and much more. These uses of AI are becoming increasingly transparent as agencies comply with Section 5 of Executive Order 13960,[3] "Promoting the Use of Trustworthy AI in the Federal Government." This executive order requires agencies to conduct annual inventories of their AI use cases and share them with other government agencies and the public, to the extent practicable and in accordance with applicable laws and policies. Many federal agencies have now complied with this directive, making their inventories available on AI.gov.[4] As of May 10, 2023, twenty departments and agencies have catalogued their use cases, coordinated by the U.S. Chief Information Officers Council, which provided implementation guidance for creating these AI use case inventories.[5]

Much can be learned from these AI use case inventories, including an understanding of common ways that Federal agencies are leveraging AI and implications for ensuring the responsible use of AI across a wide range of missions. As is clear from a cursory review of these AI use case inventories, not all AI uses

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[1] The opinions expressed in this testimony are solely those of the author and do not necessarily represent those of the University of Tennessee nor any other organization with which the author collaborates.

[2] The University of Tennessee, Knoxville, is Tennessee's flagship university and premier public research institution. It is classified by the Carnegie Classification of Institutions of Higher Education as producing very high research activity (R1 category) and is a Carnegie Community Engaged university. The vision of UT is of a world enriched by our ideas, improved through our action, and inspired by the Volunteer spirit of service and leadership.

[3] Executive Order 13960, 85 FR 78939 (December 3, 2020).

[4] https://www.ai.gov/ai-use-case-inventories/ (accessed on May 10, 2023).

[5] https://www.cio.gov/policies-and-priorities/Executive-Order-13960-AI-Use-Case-Inventories-Reference/ (accessed on May 10, 2023).

require the same level of governance and oversight. For example, Federal agencies are currently using AI to process large amounts of paperwork, automate routine tasks, streamline processes for grant applications, improve customer service via chatbots, review solicitations for regulatory compliance, prevent or detect cyberattacks, secure access to sensitive facilities, and advance mission-specific goals such as predicting hurricane paths, building maps to monitor the Nation's forest resources, and scheduling predictive maintenance. These use cases do not all raise the same level of concerns regarding the protection of privacy, civil rights, and civil liberties, since many uses do not directly impact an individual's rights, opportunities, or access to critical resources or services—areas of emphasis for OSTP's Blueprint for an AI Bill of Rights.[6] But the extreme variety of use cases does create challenges for developing a flexible approach to the responsible governance and use of AI by the Federal government.

In this context, a risk-based approach is needed for determining how best to govern each Federal use case of AI. As directed by the National AI Initiative Act of 2020,[7] the National Institute of Standards and Technology (NIST) published the AI Risk Management Framework (AI RMF 1.0) on January 26, 2023,[8] which now provides a comprehensive and flexible framework to manage the risks of AI to individuals, organizations, and society. **I believe that Congress should require all Federal agencies to use the NIST AI RMF during the design, development, procurement, use, and management of their use cases of AI, promoting the responsible adoption of AI.** Federal AI use cases that pose more than insignificant risks will, of course, require additional governance, as discussed in the next subsection. But beginning with a standardized assessment of the risks posed by each use case of AI is a key step that can be taken now by all Federal agencies, without needing to wait for additional guidance. As stated in the NIST AI RMF (page 1), "understanding and managing the risks of AI systems will help to enhance trustworthiness, and in turn, cultivate public trust."

Guidance for the Federal Use of AI

The Federal government can set an example for the private sector by demonstrating how AI can be leveraged to advance agency missions and enhance services for the American people, while at the same time protecting privacy, civil rights, and civil liberties. This demonstration would not only highlight the governments' commitment to responsible AI adoption but also inspire similar responsible practices in the private sector.

The responsible adoption of AI by the Federal government, however, is currently being slowed by the lack of overarching guidance for the design, development, procurement, use, and management of AI by Federal agencies. The AI in Government Act of 2020 and executive order 13960 directed the Office of Management and Budget (OMB) to create guidance for the Federal agency use of AI. I am heartened by the May 4th White House announcement that OMB plans to draft policy guidance on the use of AI systems by the U.S. government and release the draft for public comment this summer.[9] Well considered and structured guidance that promotes the innovative and responsible use of AI technologies within the

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[6] Blueprint for an AI Bill of Rights, https://www.whitehouse.gov/ostp/ai-bill-of-rights/ (accessed on May 10, 2023).
[7] National Artificial Intelligence Initiative Act of 2020 (Pub.L. 116-283) § 5301.
[8] https://www.nist.gov/itl/ai-risk-management-framework (accessed on May 10, 2023).
[9] White House Fact Sheet: Biden-Harris Administration Announces New Actions to Promote Responsible AI Innovation that Protects American's Rights and Safety, May 4, 2023, https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/04/fact-sheet-biden-harris-administration-announces-new-actions-to-promote-responsible-ai-innovation-that-protects-americans-rights-and-safety/ (accessed on May 10, 2023).

Federal government while protecting privacy, civil rights, and civil liberties, would go a long way toward achieving the second purpose of the National AI Initiative Act of 2020—for the United States to "lead the world in the development and use of trustworthy artificial intelligence systems in the public and private sectors." **OMB should prioritize and adequately resource their work on this guidance to ensure that it appropriately addresses the wide diversity of use cases of AI across the Federal government; encourages the responsible adoption of innovative AI to improve public services while protecting privacy, civil rights, and civil liberties; and can be operationalized for practical use by Federal agencies.**

Individual Agency Responsibilities for Governance and Use of AI

While government-wide policies and implementation guidance for AI will apply to all agencies, individual agencies also have important responsibilities to ensure that they are appropriately implementing Federal guidance for their mission context. **I believe that Congress should require each Federal agency, department, or bureau to have a current and regularly updated AI strategic plan (made publicly available) that includes the agency's approach to the responsible adoption of AI.** While many agencies already have AI strategies,[10] all agencies should develop these strategies and update them on a regular basis (e.g., every 3 years), to ensure that they remain current as AI technologies rapidly evolve. These strategies should cover all the agency's activities in AI, whether they be research-oriented pursuits or operational use cases.

Additionally, it is my belief that Congress should direct each agency to hire and resource a Chief AI Officer (CAIO) who is responsible for overseeing the development and regular update of the organization's AI strategy, as well as for coordinating the responsible design, development, procurement, use, and management of AI within that organization. While the CAIO role could be filled (in a dual-hat capacity) by the organization's Chief Data Officer, Chief Information Officer, or Chief Technology Officer, the scope of required expertise in a Chief AI Officer is different from that of leaders who oversee IT, data, or technology in general. Flexibility should be provided to agencies to fill these roles as is most beneficial to each agency, while ensuring that the appropriate AI leadership is in place. The CAIO would be the "responsible AI official," as required by executive order 13960, Sec. 8, and would serve as the primary point of contact for interagency coordination on the responsible use of AI within Federal agencies. The CAIO would also coordinate closely with that agency's representative(s) to the interagency coordination committee described in the National AI Initiative Act of 2020, Sec. 5103, which oversees the research, education, workforce development, and outreach goals of the National AI Initiative.

Coordination of Federal Agency Use of AI

To ensure the efficient and consistent implementation of AI guidance across Federal agencies, it is important to establish a single coordination body. This body would be responsible for regularly developing and updating AI use guidance, assisting agencies in implementing this guidance, overseeing the annual inventories of agency AI use cases, leveraging insights from the AI use case inventories, and handling other matters related to the practical governance and use of AI by Federal agencies. Previous Congressional action has led to the creation of: (1) the National AI Initiative Office (NAIIO) within OSTP, which coordinates key goals of the National AI Initiative around AI research, education, workforce

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[10] See https://www.ai.gov/strategy-documents/ for links to current national and agency-specific AI strategy documents (accessed on May 10, 2023).

development, outreach, and interagency coordination on these topics, and (2) the AI Center of Excellence within the General Services Administration (GSA), which, together with GSA's AI Community of Practice, facilitates the adoption of AI and improves the cohesion and competency in the adoption and use of AI within the Federal government. However, neither of these bodies is given the role of leading and coordinating Federal agencies in their practical governance and use of AI.

I believe that Congress should direct the creation of an interagency Chief AI Officers Council (CAIOC) as an effective way to coordinate the governance and use of AI within the Federal government. This Council would be co-led by OMB and OSTP's NAIIO, with representation from the proposed agency Chief AI Officers as well as GSA's AI Center of Excellence and/or AI Community of Practice. Given OMB's role for managing Federal agencies, including oversight of agency performance, procurement, financial management, and information technology,[11] it makes sense for them to be a co-leader of the CAIOC. Designating OSTP's NAIIO as a co-leader of the CAIOC would leverage OSTP's deep subject matter expertise and role in overseeing interagency activities in research, education, and workforce development; their ability to leverage a strong interagency coordination network; and their ability to convene external stakeholders to gather relevant input from non-government experts. Given the wide range of agency missions, it is important to include broad representation of the agencies. The proposed agency Chief AI Officers would be the experts at each agency who can speak to their agency-specific needs and approaches to the responsible governance and use of AI. Finally, GSA's interagency work via the AI Center of Excellence and AI Community of Practice provides the opportunity to inform and facilitate the development of cross-agency best practices and lessons learned on the responsible use of AI via working groups and related activities that help accelerate the government-wide implementation of responsible AI.

The CAIOC can also help increase efficiencies across agencies by further leveraging the AI use case inventories that agencies have compiled. **The proposed Chief AI Officers Council should review the AI use case inventories for common application areas and identify dozens of key agency processes that could be transformed with AI, in a manner consistent with privacy, civil rights, and civil liberties.** These efforts would further the goals of executive order 14058,[12] "Transforming Federal Customer Experience and Service Delivery to Rebuild Trust in Government," by enabling agencies to learn from each other and build efficient, common, and shared approaches to key processes that improve the delivery of services for the American people. **Congress can accelerate the responsible and innovative adoption of AI within Federal agencies by providing agencies with AI innovation funds as part of their annual operating budgets.**

Workforce Challenges Around Federal Use of AI

Federal agencies face a shortage of AI workers who have the expertise to design, develop, procure, use, and manage responsible AI applications. The AI in Government Act of 2020 took action to help address this challenge by requiring the Office of Personnel Management (OPM) to establish or update an occupational series for AI. By creating an occupational series for AI, OPM could help agencies identify prospective employees with the skills necessary to promote and govern the responsible use of AI in the Federal government. This occupational series would be particularly helpful since only a few colleges and universities have degree programs in AI, making it challenging to identify those with the skills needed for

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[11] https://www.whitehouse.gov/omb/ (accessed on May 10, 2023).
[12] Executive Order 14058, 86 FR 71357 (December 13, 2021).

the Federal AI workforce. **OPM should prioritize and adequately resource their work on the AI occupational series, so that Federal agencies will be better positioned to strengthen their AI workforces.**

An additional action that could help in building up the Federal AI workforce, along with the Nation's AI workforce in general, would be the development of an AI Workforce Framework similar to the National Initiative for Cybersecurity Education (NICE) Framework that was initially published in 2017 and is updated regularly. The NICE Framework, developed via a multistakeholder process led by NIST, provides an understanding of the tasks, knowledge, and skills needed to perform cybersecurity work. Such a framework is helpful both for the students who want to develop cybersecurity skills, as well as the employers who want to understand the types of skills needed to perform cybersecurity work. **Congress should direct the development of a National Initiative for AI Education Framework, analogous to the NICE Framework, to provide a comprehensive and standardized approach to describing AI roles and the associated knowledge, skills, and abilities needed for those roles.**

An expanded pipeline of skilled AI workers would also help increase the number of potential Federal employees with expertise in AI. One strategy to cultivate AI experts is by promoting their participation in AI research, particularly drawing from underrepresented and under-resourced groups. As directed by Congress in the National AI Initiative Act of 2020,[13] the National AI Research Resource Task Force released their final report in January 2023.[14] This report provides an implementation plan to create widely accessible AI research cyberinfrastructure, including computational resources, data, testbeds, algorithms, software, services, networks, and expertise that would help democratize participation in AI research and development and increase the diversity of AI talent. **Congress should authorize and fund the National AI Research Resource to help strengthen the breadth and diversity of talent in the AI research ecosystem.** Some of this talent would likely choose to use their AI skills to support the Federal government in its adoption and governance of responsible AI.

Summary of Recommendations for AI in Government

The responsible adoption of AI by the Federal government can provide many benefits to the American people, if done in a manner that upholds privacy, civil rights, and civil liberties. The following list summarizes my recommendations for steps the Federal government could take to accelerate this process:

1) **Use NIST AI Risk Management Framework.** Congress should require Federal agencies to use the NIST AI Risk Management Framework during the design, development, procurement, use, and management of their use cases of AI, promoting the responsible use of AI.

2) **Develop Federal AI guidance.** OMB should prioritize and adequately resource their work on creating Federal guidance for the use of AI in government, ensuring that it appropriately addresses the wide diversity of use cases of AI across the Federal government; encourages the responsible adoption of innovative AI to improve public services while protecting privacy, civil rights, and civil liberties; and can be operationalized for practical use by the agencies.

3) **Create agency AI strategic plans.** Congress should require each Federal agency, department, and bureau to have a current and regularly updated AI strategic plan (made publicly available) that includes the agency's approach to the responsible adoption of AI.

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[13] National Artificial Intelligence Initiative Act of 2020 (Pub.L. 116-283) § 5106.
[14] https://www.ai.gov/wp-content/uploads/2023/01/NAIRR-TF-Final-Report-2023.pdf (accessed May 10, 2023).

4) **Hire agency Chief AI Officers.** Congress should direct each agency to hire and resource a Chief AI Officer (CAIO) who is responsible for overseeing the development and regular update of the organization's AI strategy, as well as coordinating the responsible design, development, procurement, use, and management of AI within that organization.

5) **Create Chief AI Officers Council.** Congress should direct the creation of an interagency Chief AI Officers Council (CAIOC) as an effective way to coordinate the governance and use of AI within the Federal government. This Council would be co-led by OMB and OSTP's NAIIO, with representation from the agency Chief AI Officers, as well as GSA's AI Center of Excellence and/or AI Community of Practice.

6) **Leverage AI use case inventories.** The proposed Chief AI Officers Council should review the AI use case inventories for common application areas and identify dozens of key agency processes that could be transformed with AI, in a manner consistent with privacy, civil rights, and civil liberties.

7) **Supply AI innovation funds.** Congress can accelerate the responsible and innovative adoption of AI within Federal agencies by providing agencies with AI innovation funds as part of their annual operating budgets.

8) **Complete development of AI occupational series.** OPM should prioritize and adequately resource their work on the AI occupational series, so that Federal agencies will be better positioned to strengthen their AI workforces.

9) **Create National Initiative for AI Education Framework.** Congress should direct the development of a National Initiative for AI Education Framework, analogous to the NICE framework, to provide a comprehensive and standardized approach to describing AI roles and the associated knowledge, skills, and abilities needed for those roles.

10) **Fund National AI Research Resource.** Congress should authorize and fund the National AI Research Resource to strengthen the breadth and diversity of talent in the AI research ecosystem. Some of this talent would likely choose to use their AI skills to support the Federal government in its adoption and governance of responsible AI.

I thank the committee for the opportunity to testify on AI in government.