National Artificial Intelligence Advisory Committee (NAIAC)

Year 1

MAY 2023

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LETTER FROM THE CHAIR & VICE CHAIR

Dear Mr. President,

The world has changed dramatically since the National Artificial Intelligence Advisory Committee (NAIAC or the "Committee") was launched last May. Artificial intelligence (AI) now dominates the public discourse, catalyzing both excitement and concern across the globe. As a result, the relevance of our work as a Committee has increased, and we are grateful for our exceptional fellow Committee members who will ensure NAIAC achieves its mission.

It is no longer newsworthy to assert that AI is one of the most powerful and transformative technologies of our time. From automating everyday tasks to assisting medical and other scientific breakthroughs, AI is reshaping our society and opening up new opportunities. AI has the potential to assist individuals, organizations, and communities and enable important innovations. AI can also help address society's most pressing challenges, such as climate change and early cancer detection. Once a mostly academic area of study, AI has and will continue to have a profound impact on nearly all sectors and every aspect of our lives.

But direct and intentional action is required to realize AI's benefits, reduce potential risks, and guarantee equitable distribution of its benefits across our society. With the acceleration of AI adoption comes a parallel imperative to ensure its development and deployment is guided by responsible governance. Such governance begins with a crucial first step: alignment on standards and best practices. And because its training and use has no physical borders, its governance must be workable and understandable for users throughout society, operating in the wide landscape of legal jurisdictions. A framework for AI governance must start by evaluating an AI system's potential risks and benefits in a particular use case and for a particular audience. Only then can we determine whether and how to proceed with its development or deployment and ensure that AI systems are worthy of our trust.

While we are enthusiastic about the opportunities AI will bring individuals, communities, our economy, and our country, we also realize that this technology is not without potential and consequential flaws, complexities, and risks. AI applications are susceptible to errors and attacks that undermine public trust and could violate our laws and norms. In addition, AI can be misused by individuals and organizations to cause significant harm, like cyber intrusions or the spread of misinformation. Biases in AI systems can deepen existing disparities in opportunities and access and result in scaled discrimination, disproportionately impacting under-represented or disadvantaged communities. And privacy and security concerns stemming from AI remain a significant issue.

Our Committee understands the importance of having the U.S. government address both the opportunities for AI to benefit society as well as the related concerns, establishing rules

and standards that comport with democratic values, civil liberties, and universal human rights. In this report and future communications, we aim to help achieve this goal and fulfill our mandate by highlighting top priorities to enable AI's opportunities and address its challenges for society, and offering concrete and actionable steps forward.

This Spring report shares our work to date as a collective body. We highlight our thoughts, areas of focus, and suggested action items on topics discussed in Year 1, as outlined in our statutory mandate. In Year 1 we focused on: Leadership in Trustworthy Artificial Intelligence, Leadership in Research and Development, Supporting the U.S. Workforce and Providing Opportunity, and International Collaboration. This report also indicates issues we plan to focus on in Years 2 and 3.

We flag that we have not addressed one critical area of discussion in this report: the use of AI technologies in the criminal justice system. This significant and complex issue was specifically identified in our authorizing statute with a mandate to establish a separate subcommittee to address this issue comprehensively. We are thrilled that its membership was recently approved, and very much look forward to working with the Law Enforcement Subcommittee shortly.

In the coming year, we look forward to exploring issues discussed in this report further and also delving into new ones, with our steadfast focus on realizing this Presidential directive and our Committee mandate.

By carefully navigating a clear and thoughtful path and balancing the competing priorities, we believe our country can and will maintain its competitive edge in AI innovation while securing economic opportunity for a broader cross section of the population. We are honored to share our Committee's insights on how the President and White House can achieve these imperatives in this and future communications.

Sincerely,

Miriam Vogel   James Manyika
Chair, NAIAC   Vice Chair, NAIAC

EXECUTIVE SUMMARY

The United States is facing a critical moment: Artificial intelligence (AI) technology is rapidly accelerating in capability, and being deployed in more contexts with increasing use cases, both in the public and private realms. This is a moment of both significant opportunity and complexity. Our Committee has come into fruition at a time when our nation can and must position itself as a global leader in trustworthy, inclusive, and responsible AI.

The National Artificial Intelligence Advisory Committee (NAIAC) first convened in May 2022. NAIAC consists of 26 leading experts in AI (listed below) who have been tasked to advise the President and the White House National AI Initiative Office (NAIIO). Committee members have experience across a wide range of domains, from industry to academia to civil society. In their service on the NAIAC, Committee members provide expertise and actionable steps for AI policy and related activities — how we develop AI, govern it, and ensure it is equitably created, accessed, and deployed. This work is intended to guide the U.S. government in leveraging AI in a uniquely American way — one that prioritizes democratic values and civil liberties, while also increasing opportunity.

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This is the first formal NAIAC report, and covers the first year of our three-year appointment. The report is parsed into four major themes: (1) Leadership in Trustworthy Artificial Intelligence; (2) Leadership in Research and Development; (3) Supporting the U.S. Workforce and Providing Opportunity; and (4) International Cooperation.

Under each theme, the committee offers a number of objectives for engaging with AI, from the logistical (e.g., "Bolster AI leadership, coordination, and funding in the White House and across the U.S. government") to the innovative (e.g., "Create an AI research and innovation observatory"). In total, NAIAC presents 14 objectives.

Because this report is intended to be actionable, objectives are tied to recommended actions. These actions entail creating and organizing federal AI leadership roles; standing up research and development initiatives; training civil servants in AI; increasing funding of specific programs; and more. In total, the NAIAC presents 24 actions.

Ultimately, this report frames AI as a technology that requires immediate, significant, and sustained government attention. The U.S. government must ensure AI-driven systems are safe and responsible, while also fueling innovation and opportunity at the public and private levels.

The report concludes with a look forward, explaining how the NAIAC will continue its work over the next two years — and help sustain the U.S. as a global leader in trustworthy AI.

INTRODUCTION

Artificial intelligence (AI) can unlock significant opportunities for individuals, organizations, businesses, the economy, and society. AI can fuel life-saving advances in healthcare, enhance educational training and workforce readiness, and facilitate the equitable distribution of opportunity. AI also powers many everyday products and services, and this is only likely to increase as the applicability and usefulness of AI advances. In the last few months alone, our awareness of and interest in AI in our daily lives has increased significantly. The release of powerful new AI technologies to the general public — such as Generative AI and Large Language Models (LLMs) — has opened eyes and imaginations to the potential and versatility of AI. We have seen that AI has the potential to power and propel the American economy by enabling innovation and productivity for a broader cross section of our population. AI also has the potential to help address many of society's greatest opportunities and challenges. It can assist with scientific discovery in the health and the life sciences. It can help with climate science and sustainability. And it can help people today survive or avoid natural disasters, with innovations like wildfire and flood forecast alerts.

However, like many new technologies, AI also presents challenges and risks to both individuals and society. For example, AI systems used to attract and retain talent in the workforce can expand opportunity, but could also amplify and perpetuate historical bias and discrimination at unprecedented speed and scale. Further, AI could be misused in harmful ways, such as spreading disinformation or engaging in cybercrime. AI systems could help enhance access, such as accommodating individuals with disabilities or linguistic barriers, or it could deliver incorrect diagnoses. AI could create economic opportunity or worsen the digital divide for individuals and communities. In the workforce, we are likely to see growth of new occupations and decline of others, as well as ongoing changes to many more occupations. All such challenges magnify the need for appropriate AI oversight and safeguards.

The balance we establish in addressing these two divergent AI realities — fully harnessing its benefits while also effectively addressing its challenges and risks — will significantly impact our future. If navigated appropriately, the U.S. government can ensure that AI creates greater opportunities, providing economic and societal benefits for a broader cross section of the population. However, if navigated poorly, AI will further widen the opportunity gap, and trustworthy AI for all may become an unrealized aspiration.[1]

The importance of this moment extends beyond domestic borders, and the U.S. has an essential leadership role on the global stage in ensuring we understand and achieve trustworthy AI. The U.S. must proactively establish mandates and mechanisms to advance

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[1] For purposes of this report, we rely on the definition of "trustworthy AI" provided in the NIST AI Risk Management Framework: "valid and reliable, safe, secure and resilient, accountable and transparent, explainable and interpretable, privacy-enhanced, and fair with harmful bias managed"

trustworthy AI and avoid ceding AI leadership to those entities with less equitable and inclusive goals.

The National Artificial Intelligence Advisory Committee (NAIAC) was created to advise the President on the intersection of AI and innovation, competition, societal issues, the economy, law, international relations, and other areas that can and will be impacted by AI in the near and long term. Committee members hail from diverse backgrounds — academia, industry, civil society, government — and all possess deep and complementary expertise in AI.

Here, we present our year-one findings: high-level *themes*, our *objectives*, proposed *actions*, and a *plan* for future Committee activities. Our goal is to help the U.S. government and society at large navigate this critical path to harness AI opportunities, create and model values-based innovation, and reduce AI's risks. Our findings are grounded on core beliefs, such as: the establishment of safe and effective AI systems that are opportunity-creating and beneficial to society; there must exist robust defenses against algorithmic discrimination, including support for civil rights and civil liberties; data privacy is paramount; and people deserve to know if automated decision making is being used — and should always have a recourse like human intervention.

This report is divided into four thematic AI areas, based on our focused efforts over the past year, guided by the concerns listed in our statutory mandate including: Leadership in Trustworthy Artificial Intelligence, Leadership in Research and Development, Supporting the U.S. Workforce and Providing Opportunity, and International Collaboration. Under each *theme*, we provide our broad *objectives* for U.S. leadership, and several, more granular recommended *actions*. The content was developed by five working groups, with each NAIAC member serving on two working groups, and ultimately presenting the consensus of the full Committee.

There are several intended audiences for this report. In line with our congressional mandate, we write this report to advise the President and the White House in navigating AI policy. We also write for the Members of Congress, to whom we are grateful for the creation of NAIAC and for their continued support for our work, and for AI innovators and policymakers more generally. Finally, as noted in our first NAIAC meeting in May 2022, we will continue to engage a broad cross section of the population that includes underrepresented communities and geographically diverse regions. We will foster a national conversation on AI governance to better understand and achieve trustworthy AI. We will do this by creating ongoing dialogues, sharing our findings, and amplifying known and new experts in this space.

DEFINITION OF AI

For the purposes of this report, the definition of an AI system is one that was established as a best practice in the recently released [NIST AI Risk Management Framework](#):

"An AI system is an engineered or machine-based system that can, for a given set of objectives, generate outputs such as predictions, recommendations, or decisions influencing real or virtual environments. AI systems are designed to operate with varying levels of autonomy."

(Adapted from: OECD Recommendation on AI:2019; ISO/IEC 22989:2022.)

It is important to note that NAIAC's undertakings are a work-in-progress that will continue over the next two years. There are issues not addressed in this first-year report that we will focus on extensively in subsequent reports, as well as in panel discussions and other mediums. We highlight some of those areas in the final section of this report.

ACKNOWLEDGEMENTS

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NAIAC YEAR 1 REPORT: THEMES, OBJECTIVES, & ACTIONS

> **THEME:** *Leadership in Trustworthy Artificial Intelligence*

Objective:
Operationalize trustworthy AI governance

    Action*: Support public and private adoption of NIST AI Risk Management Framework*

Objective:
Bolster AI leadership, coordination, and funding in the White House and across the U.S. government

    Action*: Empower and fill vacant AI leadership roles in the Executive Office of the President*
    Action*: Fund NAIIO to fully enact their mission*
    Action*: Create a new Chief Responsible AI Officer (CRAIO)*
    Action*: Establish an Emerging Technology Council (ETC)*
    Action*: Fund NIST AI work*

Objective:
Organize and elevate AI leadership in federal agencies

    Action*: Ensure AI leadership and coordination at each department or agency*
    Action*: Continue implementing congressional mandates and executive orders on AI*

Objective:
Empower small- and medium-sized organizations for trustworthy AI development and use

    Action*: Create a multi-agency task force to develop frameworks for small- and medium-sized organizations to adopt trustworthy AI*

Objective:
Ensure AI is trustworthy and lawful and expands opportunities

    Action*: Ensure sufficient resources for AI-related civil rights enforcement*

THEME: *Leadership in Research and Development*

Objective:
Support sociotechnical research on AI systems

    Action: *Develop a research base and community of experts focused on sociotechnical research in the AI R&D ecosystem*

Objective:
Create an AI Research and Innovation Observatory

    Action: *Create an AI Research and Innovation Observatory to measure overall progress in the global AI ecosystem*

Objective:
Create a large-scale national AI research resource

    Action: *Advance the implementation plan from the NAIRR final report to create a large-scale national research resource*

THEME: *Supporting the U.S. Workforce and Providing Opportunity*

Objective:
Modernize federal labor market data for the AI era

    Action: *Support DOL efforts to modernize federal labor market data for the AI era*

Objective:
Scale an AI-capable federal workforce

    Action: *Develop an approach to train the current and future federal workforce for the AI era*
    Action: *Train a new generation of AI-skilled civil servants*
    Action: *Invest in AI opportunities for federal workforce*
    Action: *Boost short-term federal AI talent*
    Action: *Reform immigration policies to attract and retain international tech talent*

THEME: *International Cooperation*

Objective:

Continue to cultivate international collaboration and leadership on AI

Action: *Maintain AI leadership by expanding and deepening international alliances*
Action: *Internationalize the NIST AI RMF*

Objective:

Create a multilateral coalition for the Department of Commerce (NOAA) and the Department of State to accelerate AI for climate efforts

Action: *Establish a U.S.-based multilateral coalition for international cooperation on accelerating AI for climate efforts*

Objective:

Expand international cooperation on AI diplomacy

Action: *Fully fund State's newly expanded Bureau of Cyberspace and Digital Policy and newly created Office of the Special Envoy for Critical and Emerging Technology*

Objective:

Expand international cooperation on AI R&D

Action: *Stand up MAIRI via the National Science Foundation and Department of State*

THEME: *What is Ahead for NAIAC, Years 2 and 3*

YEAR 1 REPORT APPENDIX

THEME: Leadership in Trustworthy Artificial Intelligence

OBJECTIVE: Operationalize trustworthy AI governance

In January 2023, per congressional mandate, the National Institute of Standards and Technology (NIST) released an [AI Risk Management Framework](#) (AI RMF),[2] which was created following extensive stakeholder engagement and is already being used in numerous contexts and jurisdictions, such as in the state of California.[3] The AI RMF has been [well-received](#) by a broad cross section of stakeholders, including Members of Congress, civil rights organizations, policymakers, industry, and international experts. It provides detailed guidance on how organizations can address AI risks in all phases of the AI lifecycle. This framework presents the Administration with expert guidance on how to best manage AI risks internally, and to facilitate both public and private sector efforts to address these risks.

The AI RMF offers a tenet: AI can help address significant and complex societal problems — but AI that is *not* developed and deployed responsibly can harm individuals and communities, and potentially violate civil liberties and Constitutional rights. NAIAC examined and discussed the varying degrees and types of risks related to AI, including through NAIAC public meetings in California[4] and North Carolina.[5]

We understand that trustworthy AI is not possible without public trust, and public trust cannot be attained without clear mechanisms for its transparency, accountability, mitigation of harms, and redress. The Administration should require an approach that protects against these risks while allowing the benefits of values-based AI services to accrue to the public.

As stated in the AI RMF:

> *"AI risk management is a key component of responsible development and use of AI systems. Responsible AI practices can help align the decisions about AI system design, development, and uses with intended aim and values. Core concepts in responsible AI emphasize human centricity, social responsibility, and sustainability. AI risk management can drive responsible uses and practices by prompting organizations and their internal teams who design, develop, and deploy AI to think more critically about context and potential or unexpected negative and positive impacts. Understanding and managing the risks of AI systems will help to enhance trustworthiness, and in turn, cultivate public trust."[6]*

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[2] NIST: [Artificial Intelligence Risk Management Framework (AI RMF 1.0)](#)
[3] Brookings: [How California and other states are tackling AI legislation](#)
[4] NAIAC: [Field Hearing](#)
[5] NAIAC: [Meeting 3](#)
[6] NIST: [AI RMF](#)

NAIAC appreciates that the AI RMF recognizes risk from AI systems as both technical and societal. It provides a roadmap for AI development and deployment to identify new and recurring risks and harms, with the end goal of earning and maintaining trust, both by users internal and external to the process. This process is flexible and is intended to be revisited and implemented throughout the AI lifecycle.

> **ACTION:**
> Support public and private adoption of NIST AI Risk Management Framework

NAIAC recommends the White House encourage federal agencies to implement either the AI RMF, or similar processes and policies that align with the AI RMF, to address risks in all phases of the AI lifecycle effectively, with appropriate evaluation and iteration in place.

We believe federal agencies can leverage the AI RMF to address issues relating to AI in scoping, development, and vending processes. These include but are not limited to bias, discrimination, and social harms that arise when building, assessing, and governing AI systems.

Indeed, the AI RMF is a country-, industry-, and AI-use case agnostic framework crafted for use by government, businesses, and others to navigate the complex path toward responsible AI governance.

To facilitate AI RMF operationalization and adoption in the U.S. government, the Administration should issue an executive order creating a pilot program directing at least three agencies to implement the AI RMF. Agencies would then report on their lessons learned within one year, including the challenges, benefits, and potential for more widespread use across the U.S. government. The Office of Management and Budget (OMB), the National AI Initiative Office (NAIIO), or another appropriate designated body should establish an interagency process to review the agencies' results and determine the effectiveness of the AI RMF and opportunities to expand its implementation. This designated body could also explore whether modifications to the approach are necessary as new versions of the AI RMF are released.

AI RMF adoption need not stop at the public sector. The Administration should also encourage private sector adoption through available mechanisms, such as education and training, exchange and amplification of best practices, procurement policies, and conditions on receipt of federal funding.

For example, the Administration could direct and fund NIST to provide continued education and training about the AI RMF and other standards and tools to small businesses who might struggle to implement the framework. Additionally, the

Administration could amplify and further support the AI RMF's profile development by stakeholders in coordination with NIST.[7]

As another example, OMB could guide agencies on the procurement process to ensure that contracting companies have adopted the AI RMF or a similar framework to govern their AI.[8]

> **OBJECTIVE:** Bolster AI leadership, coordination, and funding in the White House and across the U.S. government

The U.S. government must align on its goals for, and use of, trustworthy AI to maintain global leadership. Effective coordination and funding of federal agency efforts is one critical piece of this effort.

A core principle of ensuring trustworthy AI includes meaningful participation of all stakeholders. These are individuals and communities impacted by, or involved in, the design of accountability systems, and redress mechanisms for algorithmic accountability.

We understand that determining the appropriate body to lead on trustworthy AI within the White House must consider the internal workings, relationships, and dynamics within the White House. As such, in this report we propose alternate ways for the U.S. government to structure AI leadership. Each way could provide an appropriate and sufficient mechanism to coordinate, lead, and model responsible AI use, governance, and regulation.

Leadership and coordination are dependent on funding. And within the White House there are areas where funding appropriations are particularly essential to enabling and maintaining U.S. leadership in AI.

The National AI Initiative Office (NAIIO) is tasked with significant responsibility of interagency coordination on matters relating to AI.[9] For most of NAIIO's existence, it has been staffed by three full-time equivalent (FTE) detailed[10] employees, nine advisors in total. Without adequate staffing and leadership, NAIIO cannot maintain the level of output needed to meet its ongoing statutory requirements, nor provide the required interagency coordination to ensure U.S. AI leadership.

Resource challenges in government are not unique to this issue, but are of particular concern in this area. In FY 2021, the National AI Initiative Act (NAIIA) authorized over $1 billion, with escalating sums moving forward, to the Department of Commerce's NIST and

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[7] AI RMF use-case profiles are intended to illustrate implementations of the AI RMF functions, categories, and subcategories for a specific setting or application based on the requirements, risk tolerance, and resources of the Framework user. For example, an AI RMF hiring profile or an AI RMF fair housing profile

[8] This approach could be similar in practice to the Executive Order on Further Advancing Racial Equity and Support for Underserved Communities Through The Federal Government

[9] See Year 1 Report Appendix, section d

[10] GSA: TTS Handbook

the National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF), and the Department of Energy (DOE) to carry out the provisions of the Act. However, these funds were not fully appropriated. The agencies responsible for carrying out the provisions of NAIIA still attempted to implement its mandate, but with insufficient funding and resources. For example, NIST published its 1.0 version of the AI RMF in January 2023; NSF established 18 AI Institutes; and NSF and OSTP stood up the National AI Research Resource (NAIRR) Task Force, which released its final report in January 2023. However, due to a lack of resources, gaps exist in development and implementation of critical policy initiatives.

With regard to coordination, past groups and reports have recommended creating a coordinating entity within the Executive Office of the President to address the technology challenges of today, including how technology intersects with civil rights and equity, the economy, and national security.[11]

Currently, multiple White House Offices, including but not limited to the National Security Council (NSC), the Office of Science and Technology Policy (OSTP), the National Economic Council (NEC), the Domestic Policy Council (DPC) and a constellation of federal agencies play critical, specific roles in setting U.S. technology policy. In line with their authority and mandate, each entity's role focuses on its distinct domain.

Outside of the White House, the Department of State focuses on diplomatic efforts, including its interconnection with technology policy and development. The Department of Commerce focuses on trade and technology issues through its commercial lens, such as export controls, standards development, and technology governance. And the Department of Labor is exploring AI and emerging technology's impact on the workplace.

Each of these departments' and offices' initiatives is of critical importance. These issues can have meaningful interrelationships, but also significant redundancy. Further, a lack of coordination can cause confusion and missed opportunities, particularly with the business community, civil society, and in the rapidly developing global AI policy community. Although White House offices — such as OSTP — successfully coordinate AI, the U.S. government would benefit significantly from additional direction and coordination efforts guiding national AI strategy. Specifically, there is a need for a White House entity that is sufficiently resourced to systematically coordinate related technology policy and initiatives across all of its departments and offices. This function could be housed in an office currently in operation or with alternative structures, if appropriately organized and resourced, as outlined below.

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[11] NSCAI: Final Report, chapter 9; May 2021 Amendment to the U.S. Innovation and Competition Act (USICA) filed by Senators Michael Bennet and Ben Sasse (the amendment was not adopted); June 2022 House Resolution 8027 introduced in the 117th Congress by Representatives Bacon, Franklin, Carbajal, and Lamb (the resolution was not adopted); and November 2022 Platforms Interim Panel Report of the Special Competitive Studies Project

> **ACTION:**
> Empower and fill vacant AI leadership roles in the Executive Office of the President

NAIAC recommends the President and OSTP immediately appoint a Director of the National Artificial Intelligence Initiative Office (NAIIO), which has remained a vacant position since August of 2022, and a Chief Technology Officer of the United States (CTO), which has remained a vacant position in this Administration. These two roles are critical to ensuring leadership and consistency in AI preparedness, policy organization, and implementation across the executive branch.

> **ACTION:**
> Fund NAIIO to fully enact their mission

NAIAC recommends the President or Congress provide sufficient resources for NAIIO's statutorily mandated coordinating functions and oversight responsibilities, including providing no less than six full-time equivalent employees. These roles should be filled by permanent staff with expertise in both trustworthy AI governance and executive branch coordination.

> **ACTION:**
> Create a Chief Responsible AI Officer (CRAIO)

NAIAC recommends the President create the permanent role of a Chief Responsible AI Officer (CRAIO). This new role could be announced in an executive order which clearly articulates the CRAIO's responsibilities and authority to coordinate with federal agencies.

This position could sit in one of multiple offices, including the OMB or NAIIO, and report to the director in either office. The CRAIO would be tasked with implementation and advancement of trustworthy AI principles[12] across agencies, a cohesive AI interagency strategy, and response to executive orders in this domain. The CRAIO would draw on tools like the AI RMF and Blueprint for an AI Bill of Rights and also meaningful stakeholder engagement, particularly with impacted communities.

Further, the CRAIO should determine whether additional Chief AI Officers are necessary in additional agencies where they do not yet exist. The CRAIO should

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[12] Trustworthy AI principles as defined in Executive Order 13960 and Executive Order 14091 4(b), the AI RMF, and the Blueprint for an AI Bill of Rights

create a structure to interface with counterparts at each federal agency implementing AI.

> **ACTION:**
> Establish an Emerging Technology Council (ETC)

NAIAC recommends the establishment of an Emerging Technology Council (ETC). The ETC would coordinate and drive technology policy across the U.S. government and ensure that the opportunities and challenges associated with these technologies are addressed in a holistic and ethical manner.

The ETC should be led by the most senior levels of the White House. One option would be for the ETC to be led by the Vice President and composed of cabinet and key White House leaders.

The ETC would focus attention on three key pillars: (1) civil rights and equity; (2) the economy; and (3) national security. The three pillars should be treated as equal and overlapping policy considerations. The council would provide greater AI and related technology coordination within the White House and government interagency, and ensure that any gaps among OSTP, NSC, NEC, OMB, departments, and agencies — of defense and nondefense posture — are filled and linked. Such a council could play an important role in coordinating policies until OSTP and the NAIIO are strengthened in responsibilities, resources, and staff to perform the tasks of addressing AI and related technologies in the short term. Or, this council could play a longer-term role in partnership with OSTP and NAIIO based on the focus and efforts designated for their leadership.

The suggested members of the ETC could include:

- The Vice President (Chair);
- White House Chief of Staff;
- National Security Advisor;
- OSTP Director;
- NEC Director;
- U.S. Trade Representative;
- OMB Director;
- Director of National Intelligence;
- Domestic Policy Council Director; and
- Cabinet Secretaries from the Departments of State, Defense, Treasury, Commerce, Homeland Security, Justice, Energy, Health and Human Services, Labor, and Education.

The Chair should have flexibility to include other government leaders, as deemed necessary, including leaders who may not be cabinet-level but may be able to provide substantive expertise.

The ETC would not replace the NSC, NEC, or OSTP-led NSTC structures, nor would it supplant the independent, mission-specific work of departments and agencies. Rather, the ETC would elevate interrelated key issues in the technology space and treat them as overlapping and adjacent technology and budgetary priorities. These issues may include domestic security, impacts to trade and labor, and supporting human rights, like mitigating algorithmic bias.

ACTION:
Fund NIST AI work

NAIAC recommends adequately funding the National AI Initiative Act (NAIIA) programs and associated AI activities at NIST.

NAIIA provides an overarching framework to strengthen and coordinate AI research, development, demonstration, and education activities across all U.S. departments and agencies, in cooperation with academia, industry, non-profits, and civil society organizations.

NIST has not only achieved the significant AI developments with which they have been charged, but also earned international acclaim for those efforts, including on the recently released AI RMF.

Yet, NIST is underfunded, especially NIST's Trustworthy and Responsible AI Program.[13] Fully funding NIST will advance NIST efforts to carry out NAIIA provisions, such as establishing testbeds for the benchmarking and evaluation of AI systems (a key piece to fulfilling the promise of the AI RMF); increasing participation in standards development activities; and growing technical and sociotechnical staff. Further, lack of funding hinders NIST's ability to educate and thereby strengthen the U.S. business community, AI researchers, AI governance experts, and other stakeholders, including foreign companies and likeminded governments, about the AI RMF.

To continue to fulfill this crucial role of providing standards, guidance, and evaluation programs, NIST will require a sufficient sustained budget. We stress the importance of this recommendation given the high stakes and urgency of these tasks, which are crucial to supporting the development and deployment of AI and will impact government, industry, civil society, and the general public alike.

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[13] See: Section 5301(g) of the National AI Initiative Act; Administration's FY 2023 budget request for NIST's AI activities

OBJECTIVE: Organize and elevate AI leadership in federal agencies

The U.S. government must lead by example in adopting and promoting trustworthy AI. The President and Congress have prioritized trustworthy AI innovation and adoption both inside and outside the federal government, as demonstrated by numerous executive orders and legislation.[14]

This progress is welcome. However, a recent assessment of the implementation of AI-specific executive orders and the AI in Government Act demonstrates that the U.S. government can do more to lead by example.[15] Requirements should be implemented to foster agencies' strategic planning around AI, increase awareness about agencies' use and regulation of AI, and strengthen public confidence in the federal government's commitment to trustworthy AI.[16]

The assessment of longstanding existing legal requirements in AI-specific executive orders and congressional mandates[17] reveals the importance of senior leadership and strategic planning at each department and agency. Agencies need empowered officials and strong organizational leadership to meaningfully comply, in a timely manner, with pre-existing and forthcoming legal requirements. They also need leadership to capture benefits AI may offer agencies, like increased efficiency and more equitable benefits provision.

Promoting innovation and fostering public trust requires a clear and equitable AI strategy that empowers and holds its senior leaders accountable. Likewise, a well-articulated government AI strategy would help agencies promote consistent, trustworthy AI development, acquisition, and use. Although several do have such a strategy, all U.S. federal departments and agencies would benefit from a strategic plan that articulates their goals for AI design, development, procurement, and adoption; that signals approaches to implementing trustworthy AI principles; that creates priorities for promoting trustworthy AI innovation in the private sector; and that builds associated internal organizational and governance structures.[18]

Research on embedding trustworthy AI innovation into institutions indicates the importance of having executive-level support and cross-functional teams with technical

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[14] Executive Order 13859, Maintaining American Leadership in Artificial Intelligence; Executive Order 13960, Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government; Executive Order, 14091, Further Advancing Racial Equity and Support for Underserved Communities Through The Federal Government; Executive Orders 13960 and 13859; AI in Government Act

[15] Christie Lawrence, Isaac Cui, and Daniel E. Ho: Implementation Challenges to Three Pillars of America's AI Strategy

[16] Year 1 Report Appendix, section e

[17] In Executive Order 13859, Executive Order 13960, and the AI in Government Act; Implementation Challenges to Three Pillars of America's AI Strategy

[18] A number of federal departments and agencies have published AI strategies, but the majority of these public facing documents do not provide the level of detail and delineated responsibilities for specific stakeholders necessary for the strategic planning proposed here. e.g., NAIIO: U.S. Federal Agency AI Strategy Documents

and domain expertise that can dedicate significant time and resources.[19] Yet, there is a lack of clarity on who is participating and leading in the U.S. government's current AI ecosystem.

No existing executive order or statute requires agencies to identify and designate a *senior* official to lead its AI efforts. Executive Order 13960 Section 8(c) requires agencies to "specify the responsible official(s) at that agency who will coordinate implementation."[20] However, agencies can delegate this position, as well as other AI-specific requirements, to junior staff who may lack sufficient decision-making authority. Conversely, the Foundations for Evidence-Based Policymaking Act of 2018 required each agency to identify a Chief Data Officer, Evaluation Officer, and Statistical Officer. OMB also provided agencies with a memorandum of guidance and expectations for the designation of these officials and their roles within agencies.[21]

> **ACTION:**
> Ensure AI leadership and coordination at each department and agency

NAIAC recommends ensuring senior agency leadership (e.g., a Chief AI Officer) and staff at each department or agency provide clarity and transparency, while also ensuring the executive branch captures the benefits and promotes the adoption of trustworthy AI inside and outside of government.

We also recommend five avenues for developing AI strategy coordination and leadership at each department or agency:

First, clarify who is leading or participating in the AI ecosystem within the government at the agency level. We suggest creating organizational mappings across federal agencies and the White House that include: (1) primary authority; (2) leadership team; and (3) point of contact for AI development and agency-level policy making.

Second, appoint and resource dedicated AI leadership in agencies. Each agency should have a senior-level official (i.e., Senior Executive Service, Senior Level[22] or political appointee) that is sufficiently resourced and empowered to determine whether an AI tool is appropriate to adopt in the first place — and if so, institute oversight for AI development, deployment, and use within the agency. Given the

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[19] World Economic Forum: Ethics by Design: An organizational approach to responsible use of technology; U.C. Berkeley Center for Long-term Cybersecurity: Decision Points in AI Governance, UC Berkeley Center for Long-Term Cybersecurity; Alex Mankoo, Aoife Spengeman, and Danil Mikhailov: Integrating Ethics into Data Science: Insights from a Product Team

[20] Executive Order 13960, Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government

[21] White House: Phase 1 Implementation of the Foundations for Evidence-Based Policymaking Act of 2018: Learning Agendas, Personnel, and Planning Guidance

[22] The Senior Level (SL) category is used by "agencies that are statutorily exempt from inclusion in the Senior Executive Service (SES)" to staff positions classified above the GS-15 level: Policy, Data, Oversight: Senior Executive Service, OPM

dual obligation to promote the use of appropriate AI and implement the trustworthy AI principles, this agency senior-level official's responsibilities should include:

- Acting as the primary point of contact and expertise on AI strategy and trustworthy AI within the given agency, and the coordinating member across agencies, particularly in relation to the NAIIO and the Chief Responsible AI Officer's directions and requests;

- Promoting responsible AI innovation within the agency through deliberative design, development, and deployment, such as identifying and overseeing pilot projects and removing internal barriers to AI's creation and use;

- Overseeing compliance with existing legal requirements[23] and future legal requirements, and efforts to manage AI risk (e.g., AI RMF); and

- Ensure procurement of AI tools and systems is aligned with the agency's trustworthy AI principles.

This official will establish and oversee internal AI governance structures and spearhead collaboration both within the agency and across the interagency, including with the Executive Office of the President (through reporting and coordination, where appropriate).

There are several pathways to ensure a senior-level official at each agency. First, existing Agency Chief Technology Officers and/or Chief Information Officers could be assigned these capabilities and responsibilities, if given sufficient resources and authority to extend their work to include this responsibility. Alternatively, the Administration could appoint a Chief AI Officer (CAIO) at those agencies where one does not yet exist. The CAIO would be distinct from, but coordinate with, the Chief Information Officer and other relevant officials, such as the Chief Data Officer, Evaluation Officer, and Statistical Official. For the agencies with a Responsible AI officer already in place, this person or their superior could serve in this role, and fulfill the responsibilities delineated above.

To finalize adoption of this recommendation, the President could issue an executive order requiring agencies to (1) designate a senior official to oversee AI efforts in the agency; and (2) provide the designated official with sufficient authorities and resources, including staff, to achieve their responsibilities.

If the executive order directs agencies to designate a Chief AI Officer (CAIO) to coordinate, oversee, and advise on different elements of AI development, use, and procurement, then the executive order should require OMB to issue a memorandum, similar to the memorandum issued for the Evidence Act. This memorandum would provide guidance on how to choose and empower a CAIO, as

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[23] Executive Order 13960, Executive Order 13859, Executive Order 14091, AI in Government Act, among other AI-related laws and executive orders

well as how to establish relevant governance bodies and other internal structures. The executive order should specify the agencies that are subjected to this requirement.[24] The NAIAC recommends this requirement apply, at a minimum, to all cabinet-level departments and agencies, and agencies subject to the Chief Financial Officers Act,[25] although there are additional departments and agencies with demonstrable AI use cases that may also benefit from a strategic plan and dedicated senior official.[26]

Third, reinstitute OMB-led meetings of Deputy Secretaries through "**The President's Management Council,**" to the extent they are not currently in effect, and add AI governance and policy to the agenda. Such meetings ensure senior-level attention on critically important issues that benefit from interagency coordination, to include implementation of executive orders related to AI use. This process could be facilitated through routine meetings convened by the OMB Deputy Director with deputies at the federal agencies, whose membership would be determined by the OMB Director. Deputies Council meetings could also explore other efficiencies and challenges that are of high-level concern and warrant leadership attention and consensus on action. Such issues in the AI space could include AI procurement protocols, preparedness for emerging and new technologies (e.g., Generative AI, LLMs), cyberthreats emerging from AI use, and adoption of the AI RMF or a similar framework by appropriate recipients of federal funds.

Fourth, develop a strategy at each department or agency for the adoption, approach, and incorporation of AI systems and trustworthy AI principles. Given the varying levels of adoption of AI use and AI principles across agencies, we expect each agency will develop a strategy specific to its needs to develop and integrate AI, but should respond to requirements to:

- Promote responsible AI innovation, where appropriate, within the agency through deliberative design, development, and deployment;[27]

- Identify pilot project opportunities;

- Highlight opportunities to eliminate unnecessary barriers to trustworthy AI's development and deployment;

- Test AI applications in a manner that ensures compliance with law and public values;

- Require substantiation of vendor claims about AI;

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[24] There are hundreds of agencies and sub-agencies and there are some agencies where this requirement may not be relevant or desired (e.g., if the agency has limited to no uses of AI or has particularly limited staff)
[25] CIO: 2.4 Chief Financial Officers Act; The White House: The Cabinet
[26] David Freeman Engstrom, Daniel E. Ho, Catherine M. Sharkey, and Mariano-Florentino Cuéllar: Government by Algorithm: Artificial Intelligence in Federal Administrative Agencies; The Administrative Conference of the United States; Christie Lawrence, Issac Cui, and Daniel E. Ho: Implementation Challenges to Three Pillars of America's AI Strategy
[27] As directed by Executive Order 13960

- Pursue six strategic objectives for promoting and protecting American leadership in AI, consistent with Executive Order 13859's mandate;

- Affirmatively advance civil rights, per Executive Order 14091, including by protecting the public from algorithmic discrimination;

- Implement trustworthy AI principles, as mandated by Executive Orders 13960 and 14091 when designing, developing, acquiring, and using AI;

- Realize these functions through sufficient organizational structures, processes, policies, and responsible parties; and

- Achieve other stated goals of AI-related executive orders[28] and statutes.[29]

Fifth, foster responsible innovation and procurement of AI. When implementing their AI strategy and governance structures, each agency should embed the trustworthy AI principles into the development cycle without unduly stifling innovation.[30]

Each potential use of AI should necessarily start with the question of whether an AI tool is the appropriate and best solution. Agencies should foster a culture of continuous piloting and experimentation, mindful of the multi-stakeholder and sociotechnical considerations addressed in this NAIAC report. An evaluation process should include testing of AI systems for safety and functionality, assessment of impact on stakeholder groups, and processes for reporting, mitigation, and redress of harms should harms occur. The AI design process should therefore include, at a minimum:

- Computer scientists, social scientists, legal scholars with technology domain expertise, and other stakeholders including historically impacted communities with lived expertise of AI systems;

- Piloting and evaluation of interventions; and

- Performance measurements and evaluation against the status quo baseline, with a commitment to continuous improvement against past-performance baselines.

The U.S. government has an opportunity to lead in the procurement of trustworthy commercial AI, which is worthy of significant review and discussion by NAIAC or other capable bodies.

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[28] Executive Order 13960, Executive Order 13859, Executive Order 14091
[29] AI in Government Act, Sect. 104(c)
[30] AI innovation, however, should be appropriate and guided by the trustworthy AI principles in Executive Order 13960, including: "(b) Purposeful and performance-driven. Agencies shall seek opportunities for designing, developing, acquiring, and using AI, where the benefits of doing so significantly outweigh the risks, and the risks can be assessed and managed"

To promote transparency, agencies and the White House should, where appropriate, publicize actions taken pursuant to this recommendation.

> **ACTION:**
> Continue implementing congressional mandates and executive orders on AI

NAIAC recommends the continued implementation of existing and forthcoming congressional mandates and executive orders on AI oversight. We understand that the OMB has taken steps to fulfill outstanding obligations in response to past orders and mandates.[31] To expedite implementation, federal entities — departments, agencies, White House-level offices — need sufficient resourcing and staffing to carry out long-standing requirements and implement new efforts. We support continued allocation of resources for these federal agency efforts underway, as well as to understand current AI use and establish a strategy for future AI adoption.

In the Year 1 Report Appendix, section b, we note existing AI-related functions required by the cited executive orders and congressional mandates that would be of significant benefit to ensuring transparency and infrastructure to support trustworthy AI. To do so, we recommend the President make appropriate funding requests for increased appropriations for OMB, the Office of Personnel Management (OPM), the General Services Administration (GSA), and relevant federal entities.

GSA's AI Center of Excellence could serve as a helpful resource. Per congressional mandate in the AI in Government Act, GSA facilitates the adoption of trustworthy AI throughout the U.S. government. This includes building workforce exchange mechanisms[32] that better advise and consult agencies on AI design, development, acquisition, and use.

To increase the number of agencies that can benefit from the Center of Excellence's services, we recommend that the center have an additional funding model. It could receive appropriated funding[33] in addition to a revolving fund, as is the case with 18F, where partner agencies must reimburse GSA for labor, material costs, and overhead.[34] Some amount of baseline budget could be offered competitively based on specific metrics, including scale of potential impact to citizens, savings in costs to

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[31] Executive Order 13859, Executive Order 13960, and the AI in Government Act, as addressed in the report Implementation Challenges to Three Pillars of America's AI Strategy

[32] 18F recruits IT experts that it assigns to agencies. Although 18F used special hiring authorities like Schedule A excepted service, it has increasingly been using competitive service direct-hire authority; U.S. Government Accountability Office: Digital Service Programs Need to Consistently Coordinate on Developing Guidance for Agencies

[33] "To carry out its mission, USDS receives appropriated funding, as well as reimbursements from the agencies to which it has extended digital service teams. USDS officials said that the program uses its own appropriations to fund core activities. This funding allows it to prioritize projects with urgency and impact and reduces the barrier to critical technical projects, such as at small agencies with smaller budgets"

[34] Ibid.

the U.S. government, or significance of potential threat that services would be used to help address.

OBJECTIVE: Empower small and medium sized organizations for trustworthy AI development and use

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Trustworthy AI is a stated goal of numerous public and private sector entities. However, one challenge to the widespread adoption of trustworthy AI for societal benefit is the general lack of knowledge and skills required to implement the required translational efforts. This is particularly true among small- and medium-sized organizations (SMOs), which rarely have the resources or capacity to build full divisions or offices for trustworthy AI. We are not aware of a sufficient number of entities providing translational efforts to build capabilities and knowledge for trustworthy AI in SMOs.

Currently, practices, standards, and frameworks for designing, developing, and deploying trustworthy AI are created in organizations in a relatively *ad hoc* way depending on the organization, sector, risk level, and even country. Regulations and standards are being proposed that require some form of audit or compliance, but without clear guidance accompanying them.

Advances in trustworthy AI require the development and validation of practical capabilities, scaffolding, training, and guidance on a large scale. This type of work can provide benefits for a wide array of stakeholders. But closing these gaps in resources, knowledge, methodologies, and skills will require critical support and engagement from a broad range of partners.

To be sure, some organizations already develop tools, skills, and capabilities for SMOs. For example, there are nonprofits that provide data science expertise for companies working in the public interest. Other nonprofits help SMOs integrate privacy and responsible data stewardship across their companies.[35] Nonprofits like these could be brought together as stakeholders, in order to maximize and further grow their impact.

ACTION:
Create a multi-agency task force to develop frameworks for small- and medium-sized organizations to adopt trustworthy AI

NAIAC recommends the creation of a multi-agency task force that includes representatives from the Small Business Administration (SBA); NIST; NSF Directorate for Technology, Innovation and Partnerships (TIP); and GSA. This task force should include key stakeholders from across government, industry, academia, and civil

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[35] EFF Certbot

society, with an emphasis on inclusion of impacted communities[36] and historically marginalized groups.

The task force would establish a jointly-funded, public-private entity for: (1) efforts to establish and validate practical methods and frameworks for trustworthy AI development and assessment by SMOs; and (2) creation of workforce development, education, training, and, as appropriate, consultative and evaluative capabilities, for SMOs outside of the U.S. government to advance AI for societal benefit.

This public-private entity should have stable, multi-year funding from multiple stakeholders, including the U.S. government, private philanthropy, and industry.[37] This entity should have scientific and administrative advisory boards, with members from both funders and representatives of the public.

All of this entity's efforts — best practices, validation measures, voluntary standards, training materials, and so forth — should be made freely available to the public using standard open-source and Creative Commons (CC) licenses. This would ensure that the translational efforts provide maximal public benefit. Any necessary maintenance costs and efforts should be included in each project from the outset. Annual reports should be transparent about projects, engagements, trainings (including any consulting or evaluations), and funding sources.

In addition, this entity should drive regular, proactive outreach and engagement with impacted communities, vulnerable populations, key stakeholders, and the general public to identify strategic emphases for the translational efforts, as well as focus areas for its support of capability and workforce development in SMOs. A majority of the entity's projects should be responsive to these specific needs, with other projects determined by competitive proposals. In all cases, the projects should contribute to the development of trustworthy AI for widespread societal benefit.

Industry guidance and insights will be critical to ensure that the translational knowledge and capabilities produced by this entity are relevant and useful in the development of more trustworthy AI. Importantly, the industry engagement and support need not involve proprietary technologies or methods, but only high-level or public information about processes and frameworks that are conducive to trustworthy AI. Although this entity should collaborate with industry organizations, its efforts should not be guided by commercial considerations.

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[36] Michele E. Gilman: Beyond Window Dressing: Public Participation for Marginalized Communities in the Datafied Society

[37] We suggest at least four reasons why private industry would be interested in participating, including funding. First, these translational efforts would potentially benefit the entire sector if trustworthy AI becomes more widespread. Second, this entity would help build capabilities, skills, and knowledge in potential partner SMOs. Third, these efforts would help to ensure that SMOs are able to use products that were previously open-sourced by larger companies. Fourth, there is potentially significant public benefit from the broader design, development, and use of trustworthy AI, which would provide broad benefits for these companies. This entity would share some similarities to NSF TIP's Convergence Accelerator program, which funds the many translational efforts required to move basic research (much of which is funded by other parts of NSF) into widespread commercial and public use

The entity should provide guidance and contributions to international discussions, particularly with regard to standards-setting groups and deliberations. The recommended entity would also provide a neutral venue for information gathering and dissemination, as well as convening different stakeholders with interests in establishing and validating best practices for advancing and evaluating trustworthy AI.

Efforts that focus on education, training, and workforce development for SMOs would provide complementary projects to NSF's program on Expanding AI Innovation through Capacity Building and Partnerships (ExpandAI) and other efforts that focus on more-traditional educational institutions, including minority-serving institutions (MSIs). These efforts could take the form of direct support and consultation, but this entity should emphasize scalable, accessible efforts. These engagements could also be conducted through the establishment of an entity along the lines of a "trustworthy AI reserve corps," composed of individuals with the necessary expertise and interests who are affiliates, rather than employees or contractors, of the public-private entity.

This entity's efforts could also include:[38]

- Clear articulation and validation of best practices for collaborative and value-centered design, including risk and benefit elicitation, incorporation, and evaluation;

- Validated processes for red-teaming and other types of adversarial evaluation;

- Development of testbeds and other mechanisms for real-world performance benchmarking, audit, and evaluation of trustworthy AI systems; and

- Educational and training materials appropriate for developers, evaluators, users, or the general public, with a particular emphasis on under-resourced or historically marginalized communities and regions.

OBJECTIVE: Ensure AI is trustworthy and lawful and expands opportunities

In the coming year, NAIAC aims to explore ways to amplify opportunities and access through AI, such as accommodations in the workplace; growing skills and unlocking economic opportunity for workers; and personalized and innovative ways to support our children's education.

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[38] This list is not intended to be exhaustive, nor are the items in the list discrete and separable, as there are many connections between them (e.g., red-teaming can be part of validated best practices)

An important piece of this puzzle is ensuring that use of AI is lawful and that it neither perpetuates nor scales bias and inequality. U.S. government agencies have recently highlighted that the use of AI-based tools in recruiting, hiring, and monitoring employees can violate existing law if they discriminate against people based on their protected class. The Department of Justice (DOJ) and the Equal Employment Opportunity Commission (EEOC) have noted that AI-based tools used to recruit, hire, and monitor employees can violate the Americans with Disabilities Act by discriminating against people with disabilities.[39] Likewise, the DOJ has addressed unacceptable and illegal occurrences where Black and Hispanic rental applicants are discriminated against when algorithmic systems inappropriately score and screen their applications.[40]

President Biden has clearly articulated his interest in ending discrimination and bias (including algorithmic discrimination and bias), unequivocally stating that "[w]hen any person or community is denied freedom, dignity, and prosperity, our entire Nation is held back."[41] The use of AI to create opportunity depends significantly on building and maintaining public trust. Already, executive orders have directed agencies to "design, develop, acquire, and use AI in a manner that fosters public trust and confidence while protecting privacy, civil rights, civil liberties, and American values."[42]

Dating back to 2016, the U.S. government has increasingly affirmed the importance of combating algorithmic discrimination.[43] Heeding this call, federal departments and agencies have directed their respective civil rights authorities and offices to promote equity, prevent and remedy algorithmic discrimination, and eliminate other uses of AI that violate existing law.[44] Specifically, the Departments of Justice (DOJ),[45] Labor (DOL), Health and Human Services (HHS), Housing and Urban Development (HUD), as well as the Equal Employment Opportunity Commission (EEOC), Federal Trade Commission (FTC), Consumer Financial Protection Bureau (CFPB), and General Services Administration (GSA) have released guidance documents for industry,[46] launched compliance initiatives, and confirmed that existing anti-discrimination laws apply to algorithmic discrimination.[47] In particular, DOJ is a key agency ensuring the enforcement of civil rights and

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[39] DOJ: Justice Department and EEOC Warn Against Disability Discrimination; EEOC: The Americans with Disabilities Act and the Use of Software, Algorithms, and Artificial Intelligence to Assess Job Applicants and Employees; CDT: How Automated Test Proctoring Software Discriminates Against Disabled Students. Center for Democracy and Technology

[40] DOJ: Justice Department Files Statement of Interest in Fair Housing Act Case Alleging Unlawful Algorithm-Based Tenant Screening Practices

[41] Federal Register: Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

[42] Executive Order 13960, Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government

[43] Executive Office of the President: Big Data: A Report on Algorithmic Systems, Opportunity, and Civil Rights; DOJ: Justice Department Announces New Initiative to Combat Redlining

[44] OSTP: Blueprint for an AI Bill of Rights

[45] DOJ: Assistant Attorney General Kristen Clarke Delivers Keynote on AI and Civil Rights for the Department of Commerce's National Telecommunications and Information Administration's Virtual Listening Session

[46] EEOC: U.S. EEOC and U.S. Department of Justice Warn against Disability Discrimination

[47] For more details, see Fact Sheet, Executive Office of the President, Biden-Harris Administration Announces Key Actions to Advance Tech Accountability and Protect the Rights of the American Public; Executive Order 13985 Equity Action Plan (explaining that GSA is "dedicated to actions that prioritize equitable user experience as a core design principle, mitigate algorithmic bias, improve digital accessibility, and modernize the delivery of government services to the American people")

anti-discrimination laws[48] as well as laws that touch on the use of AI in many other areas, such as education, healthcare, employment, housing, credit, policing, criminal justice, and access to consumer goods (see section a, table 1 in Year 1 Report Appendix).[49]

DOJ's enforcement of civil rights is generally led by its Civil Rights Division (CRT),[50] which initiates investigations and compliance with civil rights laws and also acts upon referrals received from other departments and agencies.[51] CRT is rising to the challenge of protecting civil rights and enforcing anti-discrimination laws within the AI context by "taking a holistic approach and marshaling its resources" to combat algorithmic discrimination and address "AI issues that intersect with civil rights, civil liberties and equal opportunity."[52]

The technical talent and resource gap seen across the U.S. government also impacts the DOJ. Currently, under the program for "[u]pholding civil rights in the age of artificial intelligence," the Department lists one attorney[53] and has requested 24 full-time employees (FTE), including 15 attorneys. Other federal agencies are devoting resources and hiring new staff to tackle civil rights risks arising from AI. For example, the Consumer Financial Protection Bureau intends to hire 25 technologists to support its supervision and enforcement actions, including on AI.[54]

In addition, structural and legal impediments can hinder assessments of algorithmic discrimination. Individuals and civil rights agencies often do not have full visibility into a company's AI tool, including information about the data used, the way the tool algorithmically accounts for demographic information or proxy features, or the impact its use has on different demographic groups.[55] Allegations of discrimination often require federal prosecutors to demonstrate to a court that someone was plausibly discriminated against *because of* their specific protected status (such as their race or gender) or *because*

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[48] DOJ: Justice Department Secures Groundbreaking Settlement Agreement with Meta Platforms, Formerly Known as Facebook, to Resolve Allegations of Discriminatory Advertising; DOJ: Justice Department Announces Settlement with Gap Inc., While Celebrating the 35th Anniversary of a Law Prohibiting Immigration-Related Employment Discrimination; DOJ: Justice Department Settles with Microsoft to Resolve Immigration-Related Discrimination Claims; DOJ: Justice Department Settles with Large Health Care Organization to Resolve Software-Based Immigration-Related Discrimination Claims
[49] DOJ: Civil Rights Division, Fiscal Year 2023 Performance Budget; DOJ: Assistant Attorney General Kristen Clarke Delivers Keynote on AI and Civil Rights for the Department of Commerce's National Telecommunications and Information Administration's Virtual Listening Session
[50] Note: DOJ uses the acronym "CRT" to refer to the Civil Rights Division
[51] See Year 1 Report Appendix, section f
[52] DOJ: Assistant Attorney General Kristen Clarke Delivers Keynote on AI and Civil Rights for the Department of Commerce's National Telecommunications and Information Administration's Virtual Listening Session
[53] DOJ: Civil Rights Division, Fiscal Year 2023 Performance Budget, Congressional Justification, pg. 98
[54] Protocol: In its battle with Big Tech, the CFPB is building an army of engineers
[55] For examples, see the "What should be expected of automated systems" action of the Algorithmic Discrimination Protections section of the Blueprint for an AI Bill of Rights

of a specific policy or practice.[56] But because of information asymmetries in the algorithmic based claims, investigations can be challenging.[57]

Congress has provided DOJ and other federal agencies with the authority to compel entities to provide certain documents and information to aid investigations.[58] Such "administrative subpoenas," which includes administrative and civil investigative demand authority (CID), provide executive branch agencies with sufficient investigatory power to fulfill their statutory obligations to regulate and enforce current law.[59] As of 2002, Congress had provided approximately 335 administrative subpoena authorities to various executive branch entities.[60] Notably, DOJ already has authority to issue CIDs based on antitrust laws, which cover all kinds of economic activity, as well as the False Claims Act, which regulates efforts to defraud the U.S. government in a contract.[61] Those laws — like civil rights law — regulate conduct where private parties have a strong interest in hiding their activities, and so prosecutors need some way to compel evidence. In all cases, the government's CIDs must be "reasonably relevant" to the law enforcement purpose,[62] which prevents prosecutors from going on unnecessarily burdensome or intrusive fishing expeditions. (See section c, table 2 in Year 1 Report Appendix for a non-exhaustive list of additional examples of CID authority in many areas of civil rights law.)

The proliferation of AI and automated systems used in education, healthcare, housing, employment, credit, policing and criminal justice, and access to consumer goods has therefore placed more strain on civil rights agencies' ability to combat algorithmic discrimination, while simultaneously preventing and remedying traditional discrimination. Thus, the NAIAC's initial research indicates that the CRT could greatly benefit from increased technical talent and resources, and should explore whether these tools, such as CIDs, could also be helpful in this regard.

Note: NAIAC will continue to explore this objective in the years ahead via our forthcoming Law Enforcement Subcommittee.

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[56] Discrimination claims are generally based on disparate treatment or disparate impact. e.g., 29 CFR § 1607.11 - Disparate treatment; OCC: Fair Lending; DOJ: Title VI Legal Manual, Section VII: Proving Discrimination - Disparate Impact

[57] Kelsey Finn: The Harsh Reality of Rule 8(A)(2): Keeping the *Twiqbal* Pleading Standard Plausible, Not Pliable, pg. 49; Virginia Foggo and John Villasenor: Algorithms, Housing Discrimination, and the New Disparate Impact Rule, pg. 22

[58] See Year 1 Report Appendix, section b; DOJ Administrative Subpoena Authorities Held by the Department of Justice

[59] DOJ: Report to Congress on the Use of Administrative Subpoena Authorities by Executive Branch Agencies and Entities, Pursuant to P.L.106-544, Section II

[60] DOJ: Report to Congress on the Use of Administrative Subpoena Authorities by Executive Branch Agencies and Entities, Pursuant to P.L. 106-544, Section 7

[61] DOJ: Report to Congress on the Use of Administrative Subpoena Authorities by Executive Branch Agencies and Entities, Pursuant to P.L. 106-544, Section 7; JDSupra: 3 Ways to Respond to a DOJ Civil Investigative Demand (CID)

[62] United States v. Morton Salt, 338 U.S. 632, 652 (1950)

ACTION: Ensure sufficient resources for AI-related civil rights enforcement

NAIAC recommends the U.S. government identify and reduce potential algorithmic discrimination by continuing to support civil rights agencies and ensuring they have sufficient tools to address this critical task. NAIAC will continue to engage key stakeholders and explore specific recommendations to protect civil and human rights in the age of AI. This may include strengthening existing or developing new mechanisms across agencies.

NAIAC also recommends agencies and departments supporting our civil and human rights in this emerging legal landscape obtain additional resources. As noted above, there are unique challenges arising from investigating, prosecuting, and enforcing settlements related to algorithmic discrimination. And at the same time, if AI is going to be trusted, the general public will need to know that the offices tasked with ensuring the protection of their rights are sufficiently equipped. As such, we suggest:

First, increase funding to DOJ by at least $4.45 million to grow staff to sufficient levels and with adequate technical expertise. We support this DOJ budget request (discussed above) because these resources would enable the CRT to investigate additional potential violations[63] of existing law, file lawsuits, and take other relevant enforcement actions, as well as coordinate with other federal agencies on related enforcement actions.

Second, DOJ and other agencies in this space should explore fellowships, secondments, intergovernmental personnel act assignments,[64] and other vehicles to bring in technologists to support this work. Working with technologists, social scientists, ethicists, and others with AI expertise helps enforce existing anti-discrimination laws where violations result from the use of algorithmic decision-making. Combatting algorithmic discrimination that violates existing law requires that the CRT "evolve to match a changing legal, commercial, technological, and social landscape."[65]

Third, determine whether civil investigative demand (CID) — and other administrative subpoena authority to investigate algorithmic discrimination that may violate existing anti-discrimination law — would be helpful. We recommend other traditional tools that may not have been applied yet to the government's work in the technology space, equivalent to what Congress has provided other DOJ divisions in order to balance changing technology with existing legal obligations.

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[63] DOJ: Civil Rights Division, Fiscal Year 2023 Performance Budget, Congressional Justification, pgs. 96, 98
[64] The authority under the Intergovernmental Personnel Act allows individuals from academia, state and local governments, Indian tribal governments, nonprofits, and other eligible organizations to work in a federal agency, like the Justice Department, for up to two years: OPM, Policy, Data, Oversight, Hiring Information: Intergovernmental Personnel Act
[65] DOJ: Civil Rights Division, Fiscal Year 2023 Performance Budget, Congressional Justification

THEME: Leadership in Research and Development

OBJECTIVE: Support sociotechnical research on AI systems

AI systems are sociotechnical systems and should be studied as such. Sociotechnical research is an approach to studying technologies within their social, political, economic, and cultural contexts. This field recognizes that successful technological deployment requires understanding and integrating human, material, and cultural infrastructures. A sociotechnical approach questions the notion that a technology's impact can be predicted from its technical properties alone. Moreover, this field assumes that technical transformations to an existing process or function will likely have moral and political implications. Therefore, a sociotechnical approach considers not simply how to best use a technology, but whether a given technology is an appropriate means to address a problem, and where it fits alongside alternative technologies and non-technical means. Methods for conducting sociotechnical research for AI include:

- **Drawing on observations gathered from multiple sources**, e.g., quantitative, qualitative, or mixed-methods approaches. Interview-based or ethnographic studies, computational analysis of logged data, sociological audits, case studies, and historical analysis are all employed in sociotechnical research. Sociotechnical research may also propose theoretical framings that synthesize insights from observational studies or shape future studies.

- **Inductive reasoning to discover the unexpected when technology is deployed.** Although sociotechnical research is guided by theory, it is also designed to capture unexpected real-world uses, processes, and consequences when humans and technologies interact. These phenomena are not necessarily good or bad, but reflect that what a technology becomes in practice is dependent on other actors, in addition to users themselves.

- **Capturing the viewpoint of those impacted by technology**. These methods allow people to have a say in how technology is used and designed for them, making participation a critical element in AI governance.[66]

- **Evaluating AI within contextual settings**. AI use must be understood in the real-world contexts for which it was built and with respect to the users for whom it was envisioned. More and more professions will increasingly be using AI, and likewise, we increasingly need to adopt a sociotechnical approach to understanding the opportunities and problems that arise.

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[66] Michele E. Gilman: Beyond Window Dressing: Public Participation for Marginalized Communities in the Datafied Society

Sociotechnical research is critical for American leadership in AI R&D. We need values-based AI solutions which go beyond efficiency and cost-savings.[67] These solutions should include American values such as equity, just outcomes, fairness, and access to opportunity. Such solutions should use human-centric design, protect human agency and dignity, and lead to positive societal outcomes.

AI solutions absent broader engagement with expertise on society, politics, economy, and culture risk perpetuating AI systems that fail in deployment. These systems may integrate poorly with human infrastructures and reproduce old patterns of incomplete, inefficient, biased, and discriminatory solutions. American AI R&D should lead with an integrated approach that prioritizes both the social and the technical elements of innovation and competitiveness. Early research has shown that the incorporation of sociotechnical approaches into the AI development and testing process and in use-feedback can create significantly more positive outcomes for the users, impacted communities, and AI developers.[68]

Despite this, the U.S. government lacks a system to identify sociotechnical research in public AI funding, including what it is, why it matters, where it is taking place, and how much funding is currently being put toward it.[69] Developing those identification and tracking mechanisms would add transparency and facilitate opportunities for collaboration.

There is also a need for scale, and thus, for methodologies, tools, standards, and measurement approaches that allow for sociotechnical research to be incorporated rapidly and expansively into the American research environment. Further, the impact of that research must be made visible.[70] The recommended actions that follow address some aspects of this, but further steps are needed to ensure an AI environment that prioritizes sociotechnical research.

Additionally, U.S. policy systems are slow to comprehend the societal impacts of AI and are not fully prepared to respond to the quickly evolving technology landscape.[71] Policy-oriented sociotechnical research is needed to support federal agencies and Congress in making policy and legislative decisions that support open innovation and robust competition while also protecting society, industry, and government from potential negative impacts and harms.

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[67] Expert testimony, panelists from Trustworthy AI's panel discussion during the October NAIAC public meeting
[68] Deirdre Mulligan and Helen Nissenbaum: The Concept of Handoff as Model for Ethical Analysis and Design; Safiya Noble: Algorithms of Oppression; Karen Levy: Data Driven: Truckers, Technology, and the New Workplace Surveillance
[69] Expert testimony, panelists from Trustworthy AI's panel discussion during the October NAIAC public meeting
[70] Expert testimony, panelists from Trustworthy AI's panel discussion during the October NAIAC public meeting; NIST: AI RMF
[71] Deirdre K. Mulligan and Kenneth A. Bamberger: Procurement As Policy: Administrative Process for Machine Learning

> **ACTION:**
> Develop a research base and community of experts focused on sociotechnical research in the AI R&D ecosystem

NAIAC recommends the U.S. government make broad, substantial investments in investigating AI through a sociotechnical lens. This R&D spending would dovetail with new public sector vehicles, such as the CHIPS and Science Act and new R&D programs at NIST.

We urge financial support for a strong research base and community of experts; for meaningful, usable, and extensible measures of social considerations for AI development and implementation; for frameworks to support future standards; and for standards and best practices which support future policy. These areas should be connected to each other as part of an overall AI R&D ecosystem that integrates societal concerns with technical development.

American leadership in AI R&D should prioritize just and equitable AI application and development, right alongside economic development. This requires basic research at the intersection of technology, the humanities, and the social sciences that broadens the conception of AI research well beyond technocratic frames. Therefore, the following must be considered:

- **The National Science Foundation (NSF), in coordination with other federal agencies, should fund efforts to create sociotechnical basic and applied research methods and extend these to support values-balanced AI R&D.** Fundamental research is necessary to identify, collect, and interpret critical sociotechnical factors; to integrate them into the AI technology lifecycle; and to ensure they are applicable to a wide range of use cases. This research should be democratized to support participation by underrepresented groups, organizations involved in non-academic-centric research, and community organizations, as well as those more typically funded technical, scientific, and policy research organizations. Further:
    - We hope that the soon-to-be-announced Trustworthy AI Research Institute[72] includes research on high-impact sectors and cross-sector examination of AI benefits, harms, and discrimination, and also investigates quantitative and qualitative mitigation measures that will contribute to regulatory rulemaking and tools used during their enforcement;
    - The U.S. government should study the societal implications of AI applications created with the intention and/or effect of influencing human behavior at individual, group, and societal levels;
    - The U.S. government should develop and continuously improve reusable methods and metrics for sociotechnical AI research and

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[72] [Trustworthy AI Research Institute](#)

implementation to encourage rapid incorporation into AI ecosystems of use;
- The National AI Research Resource should provide computing resources, data, and R&D tools to achieve critical mass and democratization of sociotechnical research. And we should request that relevant research reports include a section on sociotechnical considerations, risks, mitigations, alternative approaches explored, and positive and negative impacts; and
- The U.S. government should create incentives within funding and publication bodies to promote the widespread development and adoption of sociotechnical innovations and best practices into AI R&D, such as prizes, research grants, best papers, and career grants.

- **NAIIO should support AI governance research to close the gap between new empirical research regarding sociotechnical systems and new policy development around AI governance**. We need translational research to understand how sociotechnical and legal considerations affect policy design and decision-making where AI is used in the public interest. This research should span a number of federal and public-sphere mission spaces, and determine how such considerations can be best incorporated into policy development practices across executive agencies, legislatures, consortia, scientific bodies, industry, academia, federal government R&D, international law, and other domains. This research should investigate policy considerations that impact individuals, groups, and society at large. This research should also support participation by underrepresented groups, organizations involved in non-academic-centric research, and community organizations as well as more typically funded technical, scientific, and policy research organizations. Further:
  - There should be ongoing research into methodologies of accountability and standards-setting for AI development and deployment. There should be identification of AI risks to civil rights and civil liberties, as well as novel forms of risk and harm to society posed by automation, including existential risks. And there should be study of the legal and process mitigations against risks and harms, including mechanisms and methodologies for validation and testing of systems for safety, ethics, and effectiveness.

- **NIST should continue to develop approaches and tools, and expand communities, to incorporate sociotechnical approaches into AI test and evaluation mechanisms**. Such developments should incorporate measurement science, informed by diverse communities of experience, that provides sociotechnical guidance and tools for AI-driven organizations. NIST programs related to developing sociotechnical system guidance, test and evaluation approaches, and peer-reviewed approaches — such as suggested by the AI RMF — should be supported. NIST should also advance measurement science research — similar to what it has already done in

identifying and managing bias in AI — and establish challenges, and other test and evaluation mechanisms that incorporate researchers from a broad set of disciplines. Further:

- ○ The outputs of this research should be clear, specific, repeatable metrics and testing methodologies, including standard reference data and implementations, and with measurements and actions that can be readily reported, and that are not onerous to implement; and
- ○ This research should include a diverse and engaged community of stakeholders beyond industry, government, and academia — including underserved communities, researchers with varied backgrounds and disciplines, and community-focused and social good-focused research organizations.

- **NIST should continue to support the development of consensus-based standards and best practices derived from peer-reviewed measurement research and reporting formats.** These should be used to incorporate sociotechnical considerations and research within AI R&D and implementation. Sociotechnical best practices, standards, and policy support should empower the creation of guiding documents, frameworks, tools, and standard reference resources for values-based AI R&D development. NIST should also consider extending these activities to support policy considerations, coordinating this development with sociotechnical policy research. This work could include:
  - ○ Development of working groups that are demographically and disciplinarily diverse, and represent a variety of use cases and backgrounds spanning AI creators, AI users, and the breadth of societal stakeholders;
  - ○ Balanced representation from industry, academia, government, and underrepresented communities, as well as organizations representing those communities and greater society;
  - ○ Hardening and repeatability testing of the standards and best practices; and
  - ○ Creation of standard reference data, tools, and applications to support agile and effective incorporation of sociotechnical standards and best practices.

OBJECTIVE: Create an AI Research and Innovation Observatory

The U.S. government plays a key role ensuring that AI advancements have the broadest possible benefit to society. Given the transformative power of AI, investment and policy decisions made by the U.S. government must be informed by up-to-date knowledge of the capabilities and limitations of the latest in AI; the translational value of those advancements; application areas of where AI may be underutilized; and promising areas for new investment in fundamental and applied research.

Playing this critical role is more challenging than ever, given the accelerating pace of breakthroughs and diffusion of AI technologies. Yet, there is not currently a center of excellence for measuring progress in AI, identifying gaps in AI technology and its use in consequential applications, and distilling and propagating timely insights to key stakeholders across the government.

To ensure continued U.S. leadership in AI, the President should consider taking steps to coordinate and galvanize efforts across three essential functions in relation to the AI R&D ecosystem: **measure, analyze, and inform.**

Measure: Because the AI R&D sector has rapidly progressed in recent years, nations struggle to obtain reliable insights into national AI competitiveness and trajectory from a research point of view. Likewise, we need to ensure the U.S. government is equipped to monitor AI-related developments in the public sector. Some areas where the scarcity of data is particularly acute include: lack of information about federal funding for AI R&D; lack of information about use of AI within government; lack of clarity around the size and maturity of different parts of the federally-funded AI research ecosystem; insufficient information about the AI priorities of individual agencies and across agencies within the federal government; and the environmental cost of AI.[73]

Further, AI tools and research are increasingly developed as a component of non-AI R&D programs and projects, but they do not typically get reported or emphasized, given that they are not the prime target of research. Finally, we lack standards for labeling lexicons and methodologies, which would allow for consistent reporting of AI research across federal programs and projects.

Analyze: The U.S. government could benefit from synthesizing measures of progress in AI R&D into actionable insights, in order to inform policy and investment. There is an ecosystem of third-party efforts to analyze the AI R&D landscape, including universities, think tanks, and non-government organizations.[74] All of these efforts are impeded by a lack of usable data available from the federal government, reflected in the "Measure" section above. But there is an opportunity for the federal government to gather information from these existing activities, synthesizing it into a coherent view of the global AI R&D landscape and the U.S.'s position within it.

Inform: Decision-making on U.S. government investments in AI R&D should be based on as complete a body of information as possible, and would benefit from standards establishing the baseline or types of information required. Expert panels and agency missions largely set funding priorities, with distributed decision-making. Consolidated analysis and situational awareness are needed across the federal government to improve coordinated, consistent, efficient, and effective decision-making. Analysis of federal AI programs would help

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[73] OECD: Measuring the environmental impacts of Artificial Intelligence compute and application; noting useful efforts by NITRD
[74] Stanford University HAI: 2023 AI Index Report

understand which classes of AI problems and their supporting ecosystems are being effectively catalyzed through federal R&D investments — and which aren't.

A feedback loop for existing AI R&D data collection efforts would be helpful. This should include standards and guidance to ensure concrete, actionable information is provided to relevant stakeholders about how to improve the infrastructure for measuring the AI R&D ecosystem, with an opportunity for the information to grow and be refined over time. Diverse stakeholder engagement will be as critical to this process as stakeholder dissemination.

> **ACTION:**
> Create an AI Research and Innovation Observatory to measure overall progress in the global AI ecosystem

NAIAC recommends the U.S. government create an AI Research and Innovation Observatory (AIRIO) that identifies and measures key indicators of technical progress in AI spanning research and innovation. It would analyze overall impacts and costs across the global AI ecosystem. It would also inform stakeholders across the government of progress to help steer the co-evolution of AI technology and policy, maximizing the impact of the U.S. government's investments in AI. This could be housed at the NSF, the proposed Large-Scale National Research Resource described below, or elsewhere as deemed appropriate.

The AIRIO should perform the following functions:

- Identify or create recommended standards for labeling lexicons and methodologies for such markup and reporting based on research within federal programs and projects;

- Improve the granularity of data available about AI funding, AI programs, and AI usage within the U.S. government by helping federal agencies to consistently label and report AI programs, projects, and budgets;

- Monitor frontiers of AI research outside the U.S. government (e.g., domestically and internationally, in industry and academia). And based on this, identify areas of dramatic progress as well as gaps in technological capabilities, the deployment of AI systems, and our sociotechnical understanding of both;

- Use data about the overall AI landscape — as well as granular data about funding, programs, and usage — to identify areas of AI research with an increasing amount of societal impact, and also areas that are under-researched in both technical and sociotechnical dimensions of AI. Also,

conduct a gap analysis to identify areas of potential positive societal impact from AI where relatively little research is taking place;

- Determine which interventions catalyze AI progress when applied to under-researched areas. Monitor AI pilots and projects to constantly update the library of interventions and the contexts within which they work. Infrastructure required to enable this are AI sandboxes where innovations and interventions can be tested with observational data from real environments or synthetic data from simulated environments under different regulatory requirements;

- Work with federal agencies to identify sources of data that inform this ecosystem analysis, and to identify gaps in data that make it challenging for agencies to deliver on their AI mandates. Also, conduct informal briefings to identify areas of emerging interest; and

- Regularly compile and synthesize the results of this ecosystem analysis and issue reports with such findings to relevant stakeholders in government, as well as the broader public, at least once every three years (and ideally, more frequently).[75]

OBJECTIVE: Create a large scale national AI research resource

In January 2023, the National AI Research Resource (NAIRR) Task Force approved their final report, *Strengthening and Democratizing the U.S. Artificial Intelligence Innovation Ecosystem: An Implementation Plan for a National Artificial Intelligence Research Resource*.[76] One key conclusion was that the AI R&D ecosystem in the U.S. is increasingly inaccessible to many individuals, groups, and organizations. The data and computational resources required to contribute and compete in the advancement of trustworthy AI systems are largely out of reach to many potential users, including students, non-profit organizations, local and tribal agencies, startups, and small businesses. A large-scale national AI research resource would provide much-needed support and opportunities to historically under-resourced and underrepresented groups for innovations in trustworthy AI.

As noted in the NAIRR Task Force report, it is critical that any such resource be developed and deployed in ways that support advances in trustworthiness and innovation for a broad, diverse cross section of the U.S. AI R&D ecosystem. A resource that is reserved for only a few select users, or that is supported by only a few data or compute providers, will ultimately fail to deliver transformative benefits. Any national-scale research resource must be developed with a commitment to its diversity of users, providers, and ultimately benefits. Such a

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[75] We note that several organizations in this field undertake this effort (e.g., Stanford University's AI Index Report) and intend for this suggested compilation to have the authority and broader perspective of the U.S. government
[76] NAIRR: Strengthening and Democratizing the U.S. Artificial Intelligence Innovation Ecosystem

resource will require attending to inevitable ethical, privacy, and civil liberties challenges that arise over time, particularly because many of the benefits will depend on access to datasets that may contain personal or confidential information.

There is no perfect design for this type of large-scale national research resource; different plans could be proposed, each with distinct pros and cons. It is thus critical that the resource be designed and implemented through processes of broad consultation and engagement with diverse stakeholders. The NAIRR Task Force engaged in exactly such processes, and their proposed implementation plan provides a detailed, feasible path toward this transformative resource.

> **ACTION:**
> Advance the implementation plan from the NAIRR final report to create a large-scale national research resource

NAIAC recommends that the White House, in close collaboration with Congress, implement the roadmap outlined in *Strengthening and Democratizing the U.S. Artificial Intelligence Innovation Ecosystem*.[77] In particular, the roadmap outlines[78] key steps that can be taken by executive branch agencies while working with Congress on legislation to authorize and fund the research resource. NAIAC cautions against the further centralization of power within industry in the attempt to create a national AI cloud, and supports, in the strongest terms, the NAIRR's approaches to create a distributed and rotational resourcing model to promote a true alternative to our current AI landscape.

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[77] NAIRR: Strengthening and Democratizing the U.S. Artificial Intelligence Innovation Ecosystem
[78] NAIRR: Strengthening and Democratizing the U.S. Artificial Intelligence Innovation Ecosystem, pg. 53, figure 7

THEME: Supporting the U.S. Workforce and Providing Opportunity

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OBJECTIVE: Modernize federal labor market data for the AI era

Advances in AI and machine learning are rapidly accelerating transformation in the workplace. Some roles are being displaced while entirely new jobs are being created, and according to one of numerous estimates, in about 60 percent of jobs, at least one-third of work activities could be automated by 2030.[79]

In this context, employers struggle to connect qualified workers with emerging opportunities in a timely, efficient, and effective manner.[80] As these trends continue, new and incumbent workers are often less likely to return to school or complete time-consuming and costly traditional credentialing programs. These populations are most vulnerable to these changes unless there is more of a proactive, skills-based approach to talent management and development.

Employers have become increasingly aware of the benefits of a skills-based approach to employment, including both private sector companies[81] and the public sector:[82] states like Maryland,[83] Colorado,[84] and Utah,[85] and also the U.S. government, are prime examples.[86] A skills-based approach to talent can increase both workers' and employers' ability to respond more nimbly to shifts in the economy, while also expanding important employment opportunities for diverse and underrepresented candidates.[87, 88]

When thoughtfully applied with strong data and strong privacy protections in mind, AI is capable of identifying critical patterns within large and complex skills data. This provides insights and inferences that can assist workers and employers in navigating the rapid changes in work more effectively. As a result, in many cases, AI can generate insights into existing and in-demand worker skills, drive informed decision making in the current and future job market, and maximize the impact of workforce development.

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[79] McKinsey: Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages
[80] Wiley: Skills Gap Rapidly Widening, According to New Wiley Survey
[81] New York Times: See Workers as Workers, Not as a College Credential
[82] American Progress: The Benefits of Skills-Based Hiring for the State and Local Government Workforce
[83] Washington Post: Maryland drops degree requirement from some jobs, adding to debate over value of college
[84] Colorado Department of Labor and Employment: Colorado Department of Labor and Employment Commends Executive Order Focused on Skills-Based Hiring Practices
[85] Utah.gov: Gov. Cox Launches Skills-first Hiring Initiative For State Government
[86] OPM: OPM Releases Skills-Based Hiring Guidance
[87] opportunityatwork.org: Skills-Based Hiring
[88] McKinsey: Taking a skills-based approach to building the future workforce

Although progress is being made, there is growing awareness of the current limitations on the federal Workforce and Labor Market Information (WLMI) system. If addressed, it would be highly useful in driving the above benefits.[89]

The WLMI is Congressionally-directed, administered by the Secretary of Labor (DOL), and developed by the Bureau of Labor Statistics (BLS)[90] in conjunction with state WLMI offices. BLS considers the confidentiality of data to be essential.[91] Among other things, these standard applications will consider an agency's need and legal authority for accessing the data; determine steps to be taken to minimize the risk of re-identifying individuals; and determine whether its use would violate the public's trust and confidence in the U.S. government. In addition, as a model for enhanced privacy protections, the Census Bureau under Title 13 U.S.C. § 9(a)(2) is required to prevent usage of information beyond the statistical purpose for which it is supplied and identification of any particular establishment or individual.[92]

The WLMI often provides critical survey-based macroeconomic information at the national level. But the WLMI typically falls short of providing the necessary real-time information to employers, workers, jobseekers, training providers, and policymakers with sufficient granularity to deliver regional or local workforce insights and opportunities. In the wake of the economic disruption caused by the COVID-19 pandemic, the Workforce Information Advisory Committee recommended the DOL take steps that drive the availability of more accurate WLMI at the local level, improve data and information on the changing nature of work (e.g., contingent and alternative work arrangements, remote and hybrid work, impacts of technological change), and adequately fund state WLMI infrastructure.[93]

Consistent with these recommendations, DOL's Congressionally-directed 2022 Two Year Plan for the WLMI:[94]

- Includes expanded pilot programs with states and public-private partnerships to "allow for the production of new economic data at the detailed level of industry and geography";

- Recognizes that states will require additional funding sources; and

- Highlights the continued efforts of a "Future of Workers" advisory group, including "workstreams related to changing employment structures (especially the classification of workers), the impact of technology on workers and working conditions, and training and job quality."

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[89] Brookings: Digital transformation in labor and education systems
[90] BLS: Confidentiality Pledge and Laws
[91] Falling under the Confidential Information Protection and Statistical Efficiency Act (CIPSEA) and other federal laws, BLS does not disclose personal identifiable information without informed consent. OMB ensures compliance with CIPSEA in particular and, in December of 2022, issued standard application process requirements to bring consistency to data sharing practices and uses in statistical research
[92] Cornell Law School, LII: 13 U.S. Code § 9 - Information as confidential; exception
[93] DOL: Many Americans Are Struggling and Need Better Information To Make a Comeback
[94] DOL: Two Year Plan for the Workforce

In addition, DOL recently announced the launch of their Enterprise Data Strategy. It is "a three-year plan by the department's Office of the Assistant Secretary for Policy that will guide department efforts to improve its data collection, management and use and enhance its ability to share data to advance opportunity and equity for the nation's workers."[95] DOL also launched an initial call for feedback.[96]

ACTION:
Support DOL efforts to modernize federal labor market data for the AI era

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NAIAC recommends the DOL prioritize and request adequate funding for ongoing efforts to modernize the WLMI system (e.g., further integrating, refining, and extending it), while ensuring workers' privacy is protected and strong safeguards are in place to prevent the misuse of data.

With the appropriate investments and privacy safeguards in place, AI-driven tools coupled with real-time labor market data can enable workers to not only adapt to a changing workplace, but also thrive. As noted above, a skills-based approach to the workforce can open opportunities for diverse and underrepresented candidates. To ensure that the impacts on the workplace are inclusive and skills-focused rather than disruptive, we suggest:

- DOL should prioritize ongoing efforts to modernize the WLMI with a near-term goal of providing actionable, real-time data with a granularity that can support accurate state, regional, and local inferences on economic trends.

- The FY23 budget request for the BLS sought $673.4 million, an increase over the $587 million appropriated by the FY22 Continuing Resolution.[97] DOL should continue to request robust support in the FY24 and future budgets, including increased funding specifically targeted toward growing state IT capacities. This will help gather, process, and report real-time workforce data supporting state, regional, and/or local insights and opportunities.

- DOL should prioritize the ongoing efforts like those of the working group on the Future of Workers, including efforts capturing the impacts of changing employment structures (especially the classification of workers). DOL should consider expanding the working group's activities to consider the benefits and risks of real-time and accurate state,

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[95] DOL: U.S. Department Of Labor Announces Inaugural Enterprise Data Strategy, Harnessing Data To Advance Opportunity, Equity For Nation's Workers
[96] Federal Register: Office of the Assistant Secretary for Policy; Request for Information on Design and Implementation Features for Open Data Services Provided by the Department of Labor
[97] DOL: FY 2023 Congressional Budget Justification, Bureau Of Labor Statistics

regional, and local inferences to workers. And the DOL should also consider membership expansion to include sociotechnical experts directly relevant to AI and the workforce.

- DOL should synthesize, analyze and report WMLI data so employers, employees, job seekers, and academics have an indicator of probable impacts and recommended skills to develop should they desire to benefit from the latest advancements or rebound from job displacement.

- DOL's ongoing efforts — like those of the working group on the Future of Workers — should include a thorough consideration of gig workers given their growing importance in the economy. Focuses should include the impacts of this work on the health and well-being of workers; their vulnerability to negative impacts of technology;[98] where new opportunities are being created; and the potential benefit to gig workers of modernizing the WLMI.

- With respect to any data collection related to the ongoing efforts to modernize the WLMI, DOL should adopt the model of enhanced privacy protections required of the Census Bureau under Title 13 U.S.C. § 9(a)(2) and prevent the use of the information they collect "for any purpose other than the statistical purposes for which it is supplied" or make any publication that identifies "any particular establishment or individual."

OBJECTIVE: Scale an AI capable federal workforce

Advances in AI, including Generative AI tools, are being deployed across society at great speed. The broad adoption of these technologies in our everyday life, and the ethical and sociotechnical questions and concerns they generate, makes AI workforce readiness all the more urgent. As the nation's largest employer and exemplar, the U.S. government is uniquely positioned to provide a national example for the cross-functional, interdisciplinary application of AI throughout its workforce.

However, the U.S. government has an acute digital talent shortage, including those well-versed in the technical, social, ethical, and policy aspects of AI. As just one example, a federal agency told the General Accountability Office in 2021 that it had more than 2,000 open positions requiring digital skills.[99] One reason is that government salaries simply cannot compete with those in the private sector. Further, upskilling programs for existing civil servants are not in place to leverage internal talent. And cumbersome hiring and security clearance processes create barriers, giving other employers the competitive edge with AI talent.[100]

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[98] NLRB: NLRB General Counsel Issues Memo on Unlawful Electronic Surveillance and Automated Management Practices
[99] GAO: Digital Services: Considerations for a Federal Academy to Develop a Pipeline of Digital Staff, pgs. 3-4
[100] NSCAI: Final Report, pg. 122

The U.S. government cannot keep pace with AI's speed and the commensurate demand for AI talent. It is true that the U.S. government has several successful efforts to bolster its ranks with technologists and other digital talent, such as 18F,[101] the Presidential Innovation Fellows,[102] GSA's AI Center for Excellence,[103] and the United States Digital Service.[104] But these programs cannot supply talent at the scale needed for agencies across the U.S. government to ensure America's AI competitiveness and trustworthiness.

ACTION:
Develop an approach to train the current and future federal workforce for the AI era

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NAIAC recommends the Administration develop a comprehensive approach to scaling an AI-capable federal workforce across three pillars: (1) Nurturing a new generation of AI-ready civil servants across a range of relevant disciplines; (2) Expanding AI training and career opportunities for the incumbent federal workforce; and (3) Expanding pathways for short-term federal service in AI.

The methods by which the pillars are implemented should be made available for replication by interested employers. The pillars should also include disciplines beyond STEM. Below, the first three Actions correspond to the respective three pillars.

ACTION:
Train a new generation of AI-skilled civil servants

NAIAC recommends training a new generation of AI-skilled civil servants, especially those from underrepresented and marginalized communities. This can be done via:

- **United States Digital Service Academy.** The U.S. has benefited from generations of academy-trained military leadership — from graduates serving as officers in uniform to civilian leadership in business, government, and communities later in life. The country does not have a parallel training ground for digital service leadership. The White House, with support from Congress, should create a United States Digital Service Academy (USDSA): An accredited, degree-granting university helping to meet the AI talent needs of agencies across the federal government in the mold of the U.S. military

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[101] 18F: About page
[102] Presidential Innovation Fellows
[103] GSA: The Centers of Excellence
[104] U.S. Digital Service

service academies,[105] as recommended by the National Security Commission on Artificial Intelligence (NSCAI).[106] The recommended curriculum should not only be technical and STEM-focused, as the Commission recommends, but should also include courses and degrees in sociotechnical disciplines and public administration. With an envisioned initial class of 500 students, graduates would repay their education with a five-year obligation to serve in government, creating a renewable pipeline of civil service talent for generations.

- **Digital Service Academic Compact.** To further scale the pipeline of AI civil servants, the Administration should consider creating a Digital Service Academic Compact with the nation's accredited colleges and universities, in the mold of the Community College of the Air Force.[107] The Compact would allow multiples of the Academy's annual graduating class to complete AI-relevant degrees at participating institutions, including a grounding in sociotechnical matters, AI ethics, policy, and public administration at the undergraduate and graduate levels. Graduates would repay their education with a five-year public service obligation in the U.S. government or interested state, local, or tribal governments.

> **ACTION:**
> Invest in AI opportunities for federal workforce

NAIAC recommends investing in the incumbent federal workforce to meet government needs in AI. As part of the U.S. government's overall investment in ensuring the nation's competitiveness in and responsible use of AI, the Administration should:

- **Establish AI career fields via the Office of Personnel Management (OPM).** The National Security Commission on Artificial Intelligence (NSCAI) recommended creating civil occupational series for software development, software engineering, knowledge management, data science, and AI.[108] Furthermore, other authorities have echoed this need for increased AI hiring opportunities, such as the AI in Government Act of 2020.[109] NAIAC also recommends the Administration create sociotechnical roles in AI, including AI ethicists and other interdisciplinary roles deploying AI in areas of agency

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[105] NSCAI: Final Report, pg. 127
[106] NSCAI: Final Report
[107] Community College of the Air Force
[108] NSCAI: Final Report, pg. 128
[109] Congress: AI in Government Act of 2020 (specific relevant requirements include: identify key skills and competencies needed for positions related to AI; establish an occupational series, or revise an existing job series, to include positions the primary duties of which relate to AI; establish an estimate of the number of federal employees in positions related to AI by each agency; and using the estimate, prepare a two-year and five-year forecast of the number of federal employees in positions related to AI that each agency will need to employ)

focus, such as civil rights, science and society, workplace safety, and health equity.

- **AI training for federal workers.** Federal workers should be incentivized to pursue upskilling, training, and degrees in AI-relevant fields as part of their professional development. Agencies should recommend courses that provide the skills and capabilities relevant to departmental priorities and career advancement, including both technical fields and sociotechnical fields such as anthropology, sociology, linguistics, psychology, and ethics. With people of color making up nearly 40% of the federal workforce, including 33% of senior-level positions and 23% of career Senior Executive Service members, upskilling the federal workforce creates opportunities to advance diversity, equity, and inclusion in the U.S. government, as well as in the general economy's pipeline of diverse talent.[110]

- **AI awareness for federal workers**. The Administration should create content — or work with third parties, universities, and NGOs to do so — that introduces federal workers to AI.[111] This content would boost the understanding of AI and break down barriers to entering AI fields across the federal workforce, especially among traditionally underrepresented and excluded groups. Content would explain what AI is, its technical capabilities and limitations for serving society, principles of ethical and responsible AI, potential pitfalls such as bias and misinformation, and how to begin leveraging AI methods and tools — like how to understand AI outputs through a critical lens. This structure and approach to AI content is in the mold of Finland's Elements of AI course widely available across their federal workforce.[112]

- **Federal support for a skills-based approach to employment.**
  In May of 2022, the Office of Personnel Management [released guidance regarding the implementation of Executive Order 13932](#), Modernizing and Reforming the Assessment and Hiring of Federal Job Candidates. The guidance "encourages federal agencies to value applicants based on what they can do — regardless of where they learned it."[113] This can provide faster access to those with critical and emerging technical skills, as well as sending the right signals to private industry. The Administration should continue to move forward with their skills-based approach, engage with diverse and unrepresented applicants, and share lessons learned.

- **AI and diversity, equity, and inclusion in the federal workforce.** As the nation's largest employer, the U.S. government has a tremendous opportunity to model DEI excellence and opportunity in AI — a sector with

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[110] Partnership for Public Service: [A revealing look at racial diversity in the federal government](#)
[111] The GSA's [AI Community of Practice](#) is a first step
[112] [Finland's Elements of AI course](#)
[113] OPM: [OPM Releases Skills-Based Hiring Guidance](#)

structural diversity, equity, and inclusion (DEI) challenges. The Administration should incorporate AI and federal workforce opportunity in the goals and deliverables of the President's June 2021 Executive Order on Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce.[114]

ACTION:
Boost short-term federal AI talent

NAIAC recommends the Administration strengthen existing initiatives such as 18F, the Presidential Innovation Fellowship, the USDS, the GSA Centers of Excellence, and Intergovernmental Personnel Act assignments to ensure sufficient AI competency across government. This should include bolstering the AI workforce both in quantity, breadth of areas of focus (e.g., sociotechnical researchers) and diversity of backgrounds, and particularly those in traditionally excluded and marginalized communities.

One option to expand the pipeline of AI talent in the short term, could include taking action on the NSCAI's recommendation to create a civilian National Reserve Digital Corps (Corps), tailored to the needs of individual federal agencies, allowing participants to serve as special government employees for up to 38 days a year as short-term advisors, instructors, or developers.[115] Critically, a Corps would include sociotechnical researchers, AI ethicists, and responsible AI advisors.

ACTION:
Reform immigration policies to attract and retain international tech talent

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NAIAC recommends the U.S. government lower immigration barriers for international tech talent to come and stay. More than half of the U.S. AI workforce and about 66 percent of U.S. AI graduates were born abroad.[116] However, the current U.S. immigration system has remained unchanged for a decade and fails to adequately respond to the needs of the U.S. economy. This presents numerous insurmountable obstacles for immigrants to stay after enjoying our first-class higher education institutions, or provide the critical tech skills necessary for our AI economy to thrive.[117] H-1B work visas are selected through a lottery system and annually capped at 65,000 (plus an additional 20,000 for those with graduate degrees). Green Cards for permanent residency have per-country quotas and often unworkable backlogs (for example, decades-long wait times for Indian immigrants, who make up 38 percent of AI graduate students and 26 percent of Silicon Valley's technical workforce).[118]

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[114] The White House: Executive Order on Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce
[115] NSCAI: Final Report
[116] Georgetown CSET: Keeping Top AI Talent in the United States
[117] Georgetown CSET: Immigration Policy and the Global Competition for AI Talent
[118] Georgetown CSET: Immigration Policy and the U.S. AI Sector

THEME: International Cooperation

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OBJECTIVE: Continue to cultivate international collaboration and leadership on AI

AI leadership at the global level has been deemed by some as a competition in values.[119] Secretary of State Antony Blinken affirmed we are in a "global technology revolution." He continued: "More than anything else, our task is to put forth and carry out a compelling vision for how to use technology in a way that serves our people, protects our interests and upholds our democratic values." Establishing leadership in AI and garnering support from our diplomatic allies is paramount to a future that continues to reflect strong democratic values and where the U.S. maintains its competitive edge.

We are mindful of Secretary Blinken's remarks that (emphasis ours), "[w]e need the United States and we need its partners to remain the world's **innovative leaders and standard setters, to ensure that universal rights and democratic values remain at the center of all the innovation** that's to come, and that it delivers real benefits in people's lives."[120]

The U.S. has an adjacent strategic imperative to engage and cooperate with a broader set of partner nations for shared economic and security objectives. In this context, cooperation on AI policy and trade can be an effective means to bridge differences, strengthen diplomatic ties, and find common ground — ground on which multilateral initiatives beyond AI can advance.

By setting up domestic and international AI guardrails and supporting open infrastructures and research, we can promote a global society that encourages trustworthy AI development and educates stakeholders on the potential harms of AI systems. This is an opportunity for leadership as well as cooperation that the U.S. can achieve through engagement, coordination on standards, and efforts to harmonize across nations. Broad-scale AI educational programs that promote awareness and offer training in topics ranging from ethical design to sustainable computing are also essential. We offer our initial insights below and recognize this is a topic we will focus on more deeply in our second and third years.

As we survey the global landscape, we note the development of AI regulations, partnered with the shared imperative for clear and consistent privacy protections, in the European Union (EU). The 2018 passage of the General Data Protection Regulation (GDPR) aimed to protect individuals' fundamental rights and freedoms and "to enhance data protection rights of individuals and to improve business opportunities by facilitating the free flow of

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[119] NSCAI: Final Report
[120] DOS: Secretary Antony J. Blinken at the National Security Commission on Artificial Intelligence's (NSCAI) Global Emerging Technology Summit

personal data in the digital single market."[121] In particular, Article 22 of the GDPR sets guidelines for decisions "based solely on automated processing" of a person's data "including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her." Article 22 has become known as the right against solely automated decisions and also the right to meaningful information about automated processes.

In December 2022, the EU moved closer to enacting the forthcoming Artificial Intelligence Act (AI Act) when EU member states approved a common position on the proposed act.[122] If enacted, the EU AI Act will regulate AI systems in the EU market. This legislation takes a risk-based approach and provides a horizontal legal framework for AI.

Since 2017, the geopolitics of AI has evolved in lockstep with progress on national AI policy. Indeed, most developed economies by now have published a first-generation national AI strategy and are actively implementing it across the public and private sectors. Recently, the inflection moment brought about by Generative AI and LLMs has accelerated the policy imperative within many nations to understand, if not regulate, AI — as well as to invest and scale domestic capabilities to harness AI's benefits. For example, Canada is advancing legislation "to encourage the responsible adoption of AI technologies by Canadians and Canadian businesses." The UK recently completed a "Future of Compute" study to benchmark their domestic capacity to compute AI and inform future investments. Europe has long emphasized the "twin transitions'' — policies that promote both the digitalization and "greening" of their collective economies. Some nations emphasize the centrality of AI governance, trust, and ethics, while others focus more on economic growth and sovereignty. Even China recently passed a law outlining restrictions on AI-generated media, such as deep fakes, though it applies to commercial enterprises, not to the government itself.[123]

A number of important bilateral agreements, multi-agreements and joint statements have established precedent and means for coordination, such as:

- The U.S.-EU Trade and Technology Council (TTC),[124] which enables cooperation on new and emerging technologies and establishes significant developments such as:
  - An Artificial Intelligence (AI) Joint Roadmap on Evaluation and Measurement Tools for Trustworthy AI and Risk Management (AI Roadmap) and Pilot Project on Privacy-Enhancing Technologies and Collaboration on AI and Computing Research for the Public Good.[125]

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[121] Council of the European Union: Proposal for a Regulation of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation)

[122] Council of the European Union: Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts; The AI Act: Developments

[123] Stanford University: Translation: Internet Information Service Algorithmic Recommendation Management Provisions

[124] U.S.-EU Trade and Technology Council (TTC)

[125] White House: U.S.-EU Joint Statement of the Trade and Technology Council

- An economic study prepared in response to the US-EU Trade and Technology Council Inaugural Joint Statement, with U.S. and EU case studies on hiring and logistics.[126]
- US-EU AI Administrative Agreement signed on 27 January 2023.

- Quad emerging tech working group, Declaration of the US UK on Cooperation in AI R&D[127]

- India-U.S. Bilateral agreement[128]
  - A U.S.-India Artificial Intelligence (USIAI) Initiative, which provides an opportunity for the world's two largest democracies to strengthen their strategic partnership by focusing on AI cooperation in critical areas that are priorities for both countries. USIAI was created to "provide a platform to discuss opportunities for bilateral AI R&D collaboration, share ideas for developing an AI workforce, and recommend modes and mechanisms for catalyzing the partnerships."[129]

- Australia-U.S. Joint AI investment ventures
  - The U.S. National Science Foundation (NSF), in partnership with Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO), announced grants totaling $1.8 million by the U.S. and $2.3 million by Australia. The grants accelerate groundbreaking research in responsible and ethical AI approaches to societal challenges, including pandemic preparedness, drought resilience, and harmful environmental emissions.[130]

These international agreements strengthen bonds between countries, support opportunities for like-minded research, promote global AI advancement, and create an opportunity to reduce direct and existential risks of harm.

There are promising international efforts conducted through organizations and coalitions, including the Organization for Economic Cooperation and Development (OECD), Global Partnership on AI (GPAI), UNESCO, and Freedom Online Coalition. These initiatives encourage collaboration on defining AI principles, documenting and sharing AI regulatory progress in various countries, and ultimately encouraging the global development of trustworthy AI. For instance, in 2019, the *OECD Principles on Artificial Intelligence* were adopted by member countries. This established the foundation for international alignment on the direction of AI development, and promoted AI that is rights reinforcing rather than rights violating. The OECD's 36 member countries — along with Argentina, Brazil, Colombia, Costa Rica, Peru, and Romania — signed up to the OECD Principles on Artificial Intelligence at the Organisation's annual Ministerial Council Meeting, in Paris. In June 2020,

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[126] White House: The Impact of Artificial Intelligence on the Future of Workforces in the European Union and the United States Of America
[127] DOS: Declaration of the United States of America and the United Kingdom of Great Britain and Northern Ireland on Cooperation in Artificial Intelligence Research and Development: A Shared Vision for Driving Technological Breakthroughs in Artificial Intelligence
[128] USIAI
[129] USIAI: Introduction
[130] NSF: New NSF-Australia awards will tackle responsible and ethical artificial intelligence

multi-stakeholder institution GPAI[131] convened experts from science, industry, civil society, international organizations, and government to support cutting-edge AI research. In 2021, 193 countries adopted the world's first global agreement on AI, the *Recommendation on the Ethics of Artificial Intelligence*.[132]

Consistent with Secretary Blinken's remarks and his articulation of the Administration's vision, as well as the findings and recommendations in numerous notable reports, maintaining global leadership during the proliferation of AI development is essential to foster economic growth, protect our shared values and individual rights, and ensure the U.S. is well equipped to maintain economic strength and global leadership.

> **ACTION:**
> Maintain AI leadership by expanding and deepening international alliances

NAIAC recommends the U.S. expand and deepen international alliances to maximize our strategic position with allies and partners in every hemisphere. Specifically:

- Increase international collaboration with treaties and diplomatic agreements to build and share AI systems for the government and in the public interest, where possible. Appropriately designed software can be a resource for promoting democratic values. Collaborations in this space are crucial steps toward strengthening democracies across the world;

- Consider the value of an "Accord" or AI summit(s) to build opportunities for alignment and collaboration, particularly in the Global South and Asia Pacific regions;

- Continue to take the lead on diplomatic meetings and learning sessions to promote our approach to AI governance, ethical design of AI systems, and mitigation of harms;

- Gather government technology leaders to promote best practices, share information and insights, and advance a shared understanding across the widest possible set of nation-states; and

- Support existing international coalition efforts (e.g., GPAI,[133] OECD,[134] QUAD,[135] G7)

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[131] GPAI
[132] UNESCO: UNESCO adopts first global standard on the ethics of artificial intelligence
[133] GPAI: Projects
[134] OECD: See "AI Priority projects"
[135] White House: Fact Sheet: Quad Leaders' Summit

NAIAC recommends the Administration allocate funding for NIST, in coordination with the Department of State, to internationalize the AI Risk Management Framework (AI RMF) through formal translations, workshops at strategic multilateral institutions, and technical assistance to foreign governments. With the rapidly evolving global landscape focused on AI regulation, the Administration should take steps to highlight risk-based approaches to AI governance as a means for global regulatory cooperation on AI. With governments increasingly viewing AI governance through a risk-based lens, common approaches to AI risk management can drive regulatory cooperation across borders, including between the U.S. and EU. As NIST demonstrated via the internationalization of the Cybersecurity Framework, the AI RMF can serve as the "common language" on AI risk around the world. In addition, such internationalization will facilitate U.S. companies and companies from like-minded democracies in complying with future AI regulations across strategic markets.

OBJECTIVE: Create a multilateral coalition for the Department of Commerce (NOAA) and the Department of State to accelerate AI for climate efforts

One of the significant opportunities for AI to benefit society is to help remedy global challenges, such as addressing climate and sustainability goals. Although today's climate models work well for assessing climate at a global scale, they work poorly for assessing local effects, making them less useful in supporting climate action by individual governments. AI-enabled innovations, such as digital twins that harness massive computational power to simulate Earth-scale phenomena, make it possible to monitor the health of the planet, improve resiliency of transportation networks and supply chains, and reduce risks from extreme weather events and climate-related disasters.

At the same time, training and deploying such large-scale AI systems can itself have a negative impact on climate, given that they require significant computational resources with environmental impacts from resource consumption, mainly electricity and water. As a result, we need sustainable approaches to data science, data center design, and computing.

Progress in these fields is occurring rapidly, but mostly in isolation within individual academic, government, and private sector labs across nations. The U.S., its allies, and its partners — with the private sector and academia — can more rapidly and effectively advance the development and deployment of important AI-supported innovations, such as Earth-scale Digital Twins and Sustainable Computing approaches, while working together to mitigate environmental impacts.

> **ACTION:**
> Establish a U.S.-based multilateral coalition for international cooperation on accelerating AI for climate efforts

NAIAC recommends the Department of Commerce, through the National Oceanic and Atmospheric Administration (NOAA), and together with the Department of State, should establish a U.S.-based multilateral coalition to facilitate international cooperation around AI that supports climate and sustainability efforts.

OBJECTIVE: Expand international cooperation on AI diplomacy

The Department of State has identified emerging technology, including AI, as a key area of concern and opportunity for U.S. foreign policy and diplomacy. Accordingly, Secretary Blinken has announced the formation of two new State Department divisions.

First, on April 5, 2022, the Secretary formally announced the Department of State Bureau of Cyberspace and Digital Policy (CDP). The CDP comprises three divisions: International Cyberspace Security, International Information and Communications Policy, and Digital Freedom. It is led by a Senate-confirmed Ambassador-at-Large. The State Department charges the CDP with a mission to "lead and coordinate the Department's work on cyberspace and digital diplomacy to encourage responsible behavior in cyberspace and advance policies that protect the integrity and security of the infrastructure of the Internet, serve U.S. interests, promote competitiveness, and uphold democratic values." In this mission, the CDP is a chief diplomat addressing the challenges associated with AI, including in national security, economic opportunity, and societal implications.

Second, on January 3, 2023, the Secretary established the Office of the Special Envoy for Critical and Emerging Technology (S/Tech). The Office of the Special Envoy is charged with bringing technology policy expertise, diplomatic leadership, and strategic direction to the Department's approach to critical and emerging technologies. The office is expected to provide strategic guidance on critical and emerging technology foreign policy, and to engage foreign partners on transformative emerging technologies such as AI, as well as biotechnology, advanced computing, and quantum information. The office will work in close coordination with offices and bureaus across the State Department, including CDP.

To fulfill their critical new mission, CDP and the Office of Special Envoy need:

- Additional employees to operate effectively and meet mission requirements;

- Resources to hire experts from industry and academia with demonstrated knowledge in integrating AI across national security programs;

- To coordinate with the Foreign Service Institute to ensure career Foreign Service Officers who work on such issues are promoted and rewarded;

- To collaborate with the Office of the Science and Technology Adviser to deploy dedicated technology officers at U.S. missions to strengthen diplomatic advocacy, improve technology scouting, and inform policy and foreign assistance; and

- To showcase American AI innovations and promote American AI governance and policy development practices (i.e., State's AI Connections Program).

> **ACTION:**
> Fully fund State's newly expanded Bureau of Cyberspace and Digital Policy and newly created Office of the Special Envoy for Critical and Emerging Technology

The Fiscal Year 2023 Omnibus Appropriations Joint Explanatory Statement directs the Department of State to allocate the Administration's requested funding level for CDP. Additionally, the Omnibus provided additional funding for technology training for its workforce.

However, NAIAC recommends additional funds must be urgently requested by the White House and appropriated by Congress so the CDP can properly hire, train, and retain State workforce, including foreign service professionals, and so they can fully incorporate the CDP mission of tech diplomacy in their daily work worldwide.

OBJECTIVE: Expand international cooperation on AI R&D

AI leadership is necessary to ensure AI is built with democratic values, which requires U.S. coordination with international allies and partners to establish rules and norms to promote free and open societies. One way to achieve this goal is to engage in collaborative research and development with allies and partners.

A Multilateral AI Research Institute (MAIRI)[136] would provide a model for multilateral research, facilitate AI R&D that builds allied nations' strengths, and develop the next-generation global AI workforce. There should be at least one physical center, located in the U.S., complemented by virtual participation. MAIRI should facilitate a federated network of research institutes across the globe with national laboratories and universities. Pooling resources across nations — and enabling involvement by researchers from industry, academia, and research institutions and philanthropies — would serve as a force multiplier to build on countries' strengths to develop the next-generation global AI workforce.

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[136] NSCAI: Final Report; Stanford University HAI: Enhancing International Cooperation in AI Research: The Case for a Multilateral AI Research Institute

> **ACTION:**
> Stand up MAIRI via the National Science Foundation and Department of State

NAIAC recommends the National Science Foundation (NSF), together with the Department of State, establish the U.S.-based Multilateral AI Research Institute (MAIRI) to facilitate AI research and development. The U.S. government should fund the initial startup cost, including the establishment of a physical center in the U.S.

NSF should be the U.S. lead, allowing it to leverage the efforts of existing AI programs it houses, such as the AI Institutes. However, NSF would work in close collaboration with other federal agencies, most notably the Department of State to lead on the diplomatic side of this collaboration, and the Department of Energy on the R&D questions.

NSF does not require new authority to establish the MAIRI. Specifically, it should:

- Provide staffing for MAIRI establishment, implementation, and operation;

- Establish a physical center in the U.S., as well as a virtual presence;

- Establish founding memberships with allies such as Australia, Canada, France, Germany, Italy, Japan, New Zealand, South Korea, and the United Kingdom, in addition to collaboration with the European Union;

- Develop a mechanism for more inclusive and wider collaboration with emerging economies, such as the Global South;

- Provide flexibility to collaborate with researchers from industry, academia, philanthropic researchers, and other government departments and agencies engaging in AI R&D, including the Department of Energy; and

- Lead the development of a research agenda for the MAIRI.

Although legislation is not required to establish the MAIRI, Congress should pass legislation to formally authorize the National Science Foundation, in collaboration with the Department of State, to establish the MAIRI. Congress should also appropriate a minimum of $60 million over five years for NSF to establish and operate the MAIRI.

WHAT IS AHEAD FOR NAIAC, YEARS 2 AND 3

In this report, the NAIAC provides objectives and recommended actions on pressing opportunities and concerns in AI policy, based on our briefings and discussions over the past year, to facilitate action by the President and the White House.

We spent the first year of a three-year term understanding the effort and resources required to advise on pressing opportunities and concerns about AI. As a result, we are optimistic and energized about the impact we expect to offer in the coming years. We are also keenly aware that we have much more to learn about current and planned government activities and interests involving AI, and much more work to do to realize and achieve our mandate.

In particular, the field of Generative AI — a technology that can, for example, leverage LLMs with upward of trillions of parameters to generate wholly new content — has material implications for the future of education, workforce development, medicine, culture, and commerce, as well as democratic processes, international diplomacy, and national security. NAIAC will remain vigilant, and assemble the experts and stakeholders necessary to assist the U.S. government as it confronts these new challenges and opportunities.

We will approach this vital work in a variety of ways. First, we will realign our working groups for 2023-2024. Second, we will consider the various mechanisms available on a shorter time frame, given the pace of AI development and deployment.

We plan to focus our work on both existing areas and new issues, including Generative AI — both the opportunities and guardrails. We will consider how AI can be used to create social solutions. We will also explore how work and our workforce will be impacted by AI, and how to ensure more people can equitably benefit from these systems. We will also continue to explore opportunities for international collaboration and sustained U.S. leadership in AI and other emerging technologies.

[a] Table 1. Federal Civil Rights Statutes that Can Enforce Against Algorithmic Discrimination by DOJ's Office of Civil Rights

Emerging Uses of Automated and Augmented Decision-Making	Relevant Enforcement Areas Covered by the Civil Rights Division
Education	Title IV of the Civil Rights Act of 1964 Title VI of the Civil Rights Act of 1964 Equal Educational Opportunities Act Americans with Disabilities Act Individuals with Disabilities in Education Act
Healthcare	Americans with Disabilities Act
Employment	Title VII of the Civil Rights Act Americans with Disabilities Act Genetic Information Nondiscrimination Act Immigration and Nationality Act's Anti-Discrimination Provision
Housing	Fair Housing Act
Credit	Equal Credit Opportunity Act
Policing & Criminal Justice	Violent Crime Control and Law Enforcement Act Omnibus Crime Control and Safe Streets Act Title VI of the Civil Rights Act Americans with Disabilities Act
Access to goods and services	Americans with Disabilities Act Title II of the Civil Rights Act Title VI of the Civil Rights Act [137]

[b] re: *"Congress has provided DOJ and other federal agencies with the authority to compel entities to provide certain documents and information to aid investigations."*

The OMB Director should "publicly post a roadmap for the policy guidance that OMB intends to create or revise to better support the use of AI, consistent with this order," including a "schedule for engaging with the public and timelines for finalizing relevant policy guidance." As required by Executive Order 13960, Section 4(b), this roadmap is critical to implement the AI principles delineated in Executive Order 13960 and OMB M-21-06. Existing policy guidance may need to be updated or new policy guidance drafted to "address novel aspects of the use of AI in Government."

The OMB Director, in coordination with the OSTP Director and the General Services Administrator (GSA), should issue a memorandum to federal agencies that provides guidance on federal acquisition and use of AI, recommends best practices for assessing its utility, mitigating bias and discriminatory impact, and promotes the use of AI while protecting civil liberties and civil rights. Mandated in Section 104 of the AI in Government Act of 2020, this memorandum, which also requires agency compliance with an OMB-provided template for agency plans, is critical to address gaps routinely identified. The required draft for public comment was expected in July 2021 with the final expected in March 2022.

The OPM Director should establish an AI occupational series, estimate the number of federal employees in AI-related positions in each agency, and subsequently "prepare a

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[137] DOJ: Civil Rights Division, Fiscal Year 2023 Performance Budget, Congressional Justification, pg. 97

two-year and five-year forecast of the number of federal employees in positions related to artificial intelligence that each agency will need to employ." Creating an AI occupational series and estimating staffing needs across the U.S. government is necessary to ensure agencies are sufficiently resourced for U.S. leadership in trustworthy AI. The occupational series and report were expected July 2022, 18 months after the enactment of the AI in Government Act. OPM also did not submit in May 2021 to Congress, at least as can be found publicly, "a comprehensive plan with a timeline to complete" this requirement.

The GSA, in coordination with other entities such as 18F, the U.S. Digital Service, the U.S. Digital Corps, and the Presidential Innovation Fellows (PIF), should ensure its AI Center of Excellence is achieving the duties, as mandated by section 103 of the AI in Government Act, to facilitate the adoption and use of AI technologies throughout the federal government and advise the Administrator of the GSA, the Director of the Office of Science and Technology Policy, and agencies — including the Departments of Defense, Commerce, Energy, Homeland Security as well as OMB, the Office of the Director of National Intelligence, and the National Science Foundation — on a variety of matters related to AI adoption and acquisition. The Center of Excellence has developed an AI Community of Practice for federal government employees[138] and published some considerations for government stakeholders determining how to approach AI.[139] However, the progress made on the other duties, such as aggregating and publishing on a public website "information regarding programs, pilots, and other initiatives led by other agencies," indicate considerably more must be done. The AI Center of Excellence should ensure it is engaging in sufficient efforts to build the capacity of agencies to develop and adopt trustworthy AI, particularly by translating standards, regulations, and frameworks into clear guidance.

Federal agencies should comply with Executive Order 13859's requirement to create and publish an Agency AI Plan and Executive Order 13960's requirement to create and publish an inventory of its AI use cases, and develop and implement plans to ensure the identified AI use cases are consistent with Executive Order 13960.[140]

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[138] GSA COE: Community of Practice: Artificial Intelligence
[139] GSA COE: Artificial Intelligence Governance Toolkit
[140] Section 5(c) of Executive Order 13960 requires agencies, "[a]s part of their respective inventories of AI use cases," to "identify, review, and assess existing AI deployed and operating in support of agency missions for any inconsistencies with this order." Afterwards, and "[w]ithin 120 days of completing their respective inventories, agencies shall develop plans either to achieve consistency with this order for each AI application or to retire AI applications found to be developed or used in a manner that is not consistent with this order." After an "agency-designated responsible official(s)" approves the plan, agencies must coordinate with the Agency Data Governance Body and other relevant officials to "strive to implement the approved plans within 180 days of plan approval, subject to existing resource levels"

[c] Table 2. Departments and Agencies with CID Authority to Enforce Civil Rights and Anti-Discrimination Laws

Department or Agency	Administrative or Civil Investigative Demand Authority
Department of Housing and Urban Development (HUD)	• Fair Housing Act, authority to issue subpoenas to aid in investigations[141] of discrimination in housing and real estate.[142]
Department of Labor	• Uniformed Services Employment and Reemployment Rights Act of 1994, authority to issue subpoenas[143] for investigations into discrimination in employment decisions because of previous service in the military.[144]
Equal Employment Opportunity Commission (EEOC)	• Age Discrimination in Employment Act, authority to demand information[145] for investigations into employment discrimination based on age.[146] • Title VII of the Civil Rights Act of 1964, authority to issue subpoenas[147] for investigations into discrimination in employment decisions based on race, religion, sex, and national origin.[148] • Title I of the Americans with Disabilities Act, authority to issue subpoenas[149] for investigations into employment discrimination based on disability.[150] • Genetic Information Nondiscrimination Act, authority to issue subpoenas[151] for inventions into employment discrimination based on genetic information.[152]
Consumer Financial Protection Bureau (CFPB)	• Equal Credit Opportunity Act, authority to issue subpoenas[153] for investigations into discrimination in provision of credit.[154] • Home Mortgage Disclosure Act, authority to issue subpoenas[155] to investigate the veracity of required reports about home mortgages.[156]

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[141] 42 U.S.C. § 3611; 42 U.S.C. 3612(c)
[142] 42 U.S.C. §§ 3603–06
[143] 38 U.S.C. §§ 4326(b)
[144] 38 U.S.C. § 4311
[145] 29 U.S.C. § 626(b)
[146] 29 U.S.C. § 62
[147] 42 U.S.C. § 2000e–9
[148] 42 U.S.C. § 2000e–2. See also McLane Company, Inc. v. Equal Emp. Opportunity Comm'n, 581 U.S. 72, 76 (2017) (describing EEOC's "broad right of access to relevant evidence" via, among other methods, administrative subpoena)
[149] 42 U.S.C. § 12117(a)
[150] 42 U.S.C. § 12112
[151] 42 U.S.C. § 2000ff–6(a)(1)
[152] 42 U.S.C. § 2000ff–1
[153] 12 U.S.C. § 5562
[154] 15 U.S.C. § 1691
[155] 12 U.S.C. § 2804(b)(1)(B).
[156] 12 U.S.C. § 2803

	• Consumer Financial Protection Act, authority to issue subpoenas[157] to investigate any potential "unfair, deceptive, or abusive act" related to a transaction for a "consumer financial product or service,"[158] which includes discrimination.[159]
National Credit Union Administration (NCUA)	• Equal Credit Opportunity Act, authority to issue subpoenas for investigations into discrimination in provision of credit[160] by federal credit unions with $10 billion or less in total assets.[161]
National Labor Relations Board	• National Labor Relations Act, authority to issue subpoenas[162] to investigate "any unfair labor practice," which includes making employment decisions to prevent union membership.[163]
Department of the Treasury's Office of Comptroller of the Currency	• Authority to thoroughly examine a bank, including by accessing documents, issuing subpoenas, and taking depositions;[164] through these examinations the OCC conducts fair lending risk assessments and may uncover violations of the Equal Credit Opportunity Act or Fair Housing Act and refer cases to the DOJ or HUD[165]
Federal Trade Commission	• Authority to issue civil investigative demands, including to testify or produce documents, for investigations of "unfair or deceptive acts or practices in or affecting commerce,"[166] which may include algorithmic discrimination and commercial surveillance that violates privacy.[167]

[d] NAIIO's Mandate

The statutory mandate directs the NAIIO: (1) to ensure continued U.S. leadership in AI R&D; (2) to ensure U.S. leadership in the development of trustworthy AI systems; (3) to prepare the U.S. workforce for the integration of AI systems; and (4) to coordinate AI R&D and other AI activities across departments and agencies. The National Artificial Intelligence Initiative

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[157] 12 U.S.C. § 5562
[158] 12 U.S.C. § 5531
[159] CFPB: Consumer Laws and Regulations: Unfair, Deceptive, or Abusive Acts or Practices
[160] 15 U.S.C. § 1691
[161] 12 U.S.C. § 1784(a); NCUA: Equal Credit Opportunity Act Nondiscrimination Requirements
[162] 29 U.S.C. § 161(1)
[163] 29 U.S.C. § 158(a)(3)
[164] OCC: Comptroller's Handbook, Examination Process, Bank Supervision Process, pg. 12; see also 12 U.S.C. §1818(n), 12 CFR 19.34 Administrative Hearing Subpoena, 12 CFR 19.170 and 19.171 Administrative Discovery Depositions, 12 CFR 19.26 Administrative Document Subpoenas to Non-Parties, 12 CFR 19.27 Administrative Deposition of Witness Unavailable for Hearing for procedures for administrative law judges
[165] OCC: Comptroller's Handbook, Examination Process, Bank Supervision Process, pg. 20; OCC: Comptroller's Handbook, Consumer Compliance, Fair Lending, pgs. 9-10
[166] Section 20 of the Federal Trade Commission Act, 15 U.S.C. § 57b-1
[167] FTC: FTC Report Warns About Using Artificial Intelligence to Combat Online Problems; White House: FACT SHEET: Biden-Harris Administration Announces Key Actions to Advance Tech Accountability and Protect the Rights of the American Public; FTC: FTC Explores Rules Cracking Down on Commercial Surveillance and Lax Data Security Practices; FTC: Notice on Trade Regulation Rule on Commercial Surveillance

Act (Division E, Title LI, Sec. 5102 of the William "Mac" Thornberry National Defense Authorization Act for Fiscal Year 2021), adopted in January 2021, mandated the White House Office of Science and Technology Policy (OSTP) establish a National AI Initiative Office (NAIIO) to carry out the responsibilities of the National AI Initiative (NAII): Provide technical and administrative support to the interagency Select Committee on AI and NAIAC, entailing:

1. Oversee interagency coordination of the NAII and serve as the central point of contact for technical and programmatic information exchange on activities related to the NAII across federal departments and agencies, industry, academia, nonprofit organizations, professional societies, State and tribal governments, and others;
2. Conduct regular public outreach to diverse stakeholders, including civil rights and disability rights organizations; and others to support equity and inclusion; and
3. Promote access to the technologies, innovations, best practices, and expertise derived from Initiative activities to agency missions and systems across the federal government.

The National AI Initiative Act (NAIIA) specifies that the NAII include the following activities:

1. Sustained and consistent support for AI R&D through grants, cooperative agreements, testbeds, and access to data and computing resources;
2. Support for K-12 education and postsecondary educational programs, including workforce training and career and technical education programs, and informal education programs to prepare the American workforce and the general public to be able to create, use, and interact with artificial intelligence systems;
3. Support for interdisciplinary research, education, and workforce training programs for students and researchers that promote learning in the methods and systems used in AI and foster interdisciplinary perspectives and collaborations among subject matter experts in relevant fields, including computer science, mathematics, statistics, engineering, social sciences, health, psychology, behavioral science, ethics, security, legal scholarship, and other disciplines that will be necessary to advance artificial intelligence research and development responsibly;
4. Interagency planning and coordination of federal AI research, development, demonstration, standards engagement, and other activities under the Initiative, as appropriate;
5. Outreach to diverse stakeholders, including citizen groups, industry, and civil rights and disability rights organizations, to ensure equity and inclusion is taken into account in the activities of the Initiative;
6. Leveraging existing federal investments to advance objectives of the Initiative;
7. Support for a network of interdisciplinary AI research institutes coordinated by the National Science Foundation; and
8. Support opportunities for international cooperation with strategic allies, as appropriate, on the R&D, assessment, and resources for trustworthy AI systems.

   [e] re: *"Requirements should be implemented to foster agencies' strategic planning around AI, increase awareness about agencies' use and regulation of AI, and strengthen public confidence in the federal government's commitment to trustworthy AI."*

For example, major requirements, such as (a) guidance and principles on the federal acquisition and use of AI and (b) the establishment of an AI occupational series, have not been fulfilled to date.

EO 13859 and EO 13960 also notably mandated that federal agencies independently create and publish documents intended to promote transparency and responsible AI innovation. EO 13859 required that federal agencies with regulatory authorities publish plans to comply with OMB's Guidance for Regulation of Artificial Intelligence Applications ("Agency AI Plans").

Such Agency AI Plans are critical for understanding the "regulation of AI applications" and the results of stakeholder engagements to identify regulatory barriers. Conservatively assessing only the 40 agencies that are cabinet-level or statutorily defined as independent regulatory agencies, the percentage of agencies that did not publish a plan is 90% (36 of 40 agencies). (Adding USAID, as an agency represented on the National Security Council, decreases the rate that did not publish a plan to 87.8%.) In total, only five agencies — the Departments of Energy, Health and Human Services, and Veteran Affairs, as well as the EPA and USAID — have submitted Agency AI Plans. Executive Order 13960's requirement to prepare an inventory of AI use cases has also been inconsistently implemented. Considering the widest number of agencies (220 agencies) that could be subject to this requirement, the percentage of agencies that did not publish an inventory hovers around 80%. It is not possible to fully verify the accuracy of this measurement because Executive Order 13960 does not clearly state whether agencies must publish a notice instead of publishing an inventory where the agency (1) does not have any AI use cases that meet the threshold or (2) demonstrates a compelling reason for keeping their AI use cases non-public.

However, even the most conservative measurement — assessment of the 23 large agencies known to have a significant AI use case in 2020, with their sub-agencies and subunits accounted for within the larger agency to which they report — reveals that 56.5% of agencies did not publish an inventory. Therefore, 13 agencies that are known, as of 2020, to have AI use cases that likely necessitate disclosure through the AI use case inventory have not complied with Executive Order 13960's requirement to do so.[168]

> **[f] re:** *"DOJ's enforcement of civil rights is generally led by its Civil Rights Division (CRT), which initiates investigations and compliance with civil rights laws and also acts upon referrals received from other departments and agencies."*

For example, CRT receives referrals to file lawsuits for violations of the Fair Housing Act from the Department of Housing and Urban Development (HUD) and Department of the Treasury's Office of the Comptroller of the Currency (OCC), the Equal Credit Opportunity Act from the Consumer Financial Protection Bureau and the OCC, Title VII of the Civil Rights Act of 1964's prohibitions on employment discrimination from the Equal Employment

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[168] Christie Lawrence, Isaac Cui, and Daniel E. Ho, Implementation Challenges to Three Pillars of America's AI Strategy, Stanford RegLab and HAI

Opportunity Commission, and the Uniformed Services Employment and Reemployment Rights Act of 1994 (USERRA) from the Department of Labor.[169]

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[169] HUD: Fair Housing - Equal Opportunity for All, pg. 13; OCC: Comptroller's Handbook, Consumer Compliance, Fair Lending, Version 1.0, pgs. 9-10; DOJ: Justice Department and Consumer Financial Protection Bureau Pledge to Work Together to Protect Consumers from Credit Discrimination; OCC, Acting Comptroller of the Currency Issues Statement on Civil Money Penalty Against Cadence Bank, N.A. For Violations of the Fair Housing Act; OCC: Comptroller's Handbook, Consumer Compliance, Fair Lending, Version 1.0, pg. 9; EEOC: Justice Department and Equal Employment Opportunity Commission Sign Memorandum Of Understanding to Further the Goals of Title VII of the Civil Rights Act of 1964 in Prohibiting Employment Discrimination in State and Local Governments; DOJ: Justice Department and Department of Labor Sign Memorandum of Understanding to Protect the Employment Rights of Servicemembers and Veterans

COMMITTEE MEMBER PERSPECTIVES

In addition to the report content itself, Committee members generously shared individual perspectives about their service to the NAIAC, their contributions to this report, and the state of AI broadly.

Sayan Chakraborty

Artificial intelligence (AI) and machine learning (ML) hold a transformative capacity to unlock human potential. We are already seeing these technologies drive exciting advances across many sectors, including providing workers, employers, and organizations the tools they need to respond quickly to economic change and embrace the future of work. We are only at the cusp of the positive impacts AI and ML can have, when responsibly implemented and used, on augmenting human capabilities and reducing low-value effort.

However, alongside the benefits of driving greater opportunities and economic growth, AI- and ML-driven tools also hold the potential for unintended and negative consequences. It is critical that stakeholders come together around balanced frameworks and regulatory approaches that simultaneously build trust in AI while allowing us to harness the innovation that will fuel the future economy and maintain our competitiveness. These technology capabilities are evolving exponentially, and the policy landscape must keep pace.

I am honored to have the opportunity to serve on the NAIAC and offer recommendations that will help chart the direction of AI and ML policy. I would like to personally thank the staff of NIST: This small team of dedicated civil servants plays an outsized role in supporting the development of responsible and trustworthy AI at this critical juncture. We are lucky to have their support and I look forward to continued collaboration with them and my talented NAIAC colleagues.

Jack Clark

During my work in AI over the past few years, one thing has become painstakingly obvious: You can't manage what you can't measure.

In industry, whenever we try to figure out how to either improve the performance of our models or minimize their harmful traits, we follow a predictable pattern — we start with a qualitative insight ("this model has strange attribute 'X' we'd like to know more about"), then we try to turn that into a quantitative metric ("how do we measure for 'X' in our system?"). Once we have that metric, we can continually measure our systems against it and integrate it into our evaluation suites.

As this year's NAIAC report shows, much of what our Committee is recommending relates to this goal — we think it'd be helpful for AI policy if the AI ecosystem was itself more legible and quantifiable. The easier we make it to measure attributes of the AI ecosystem, the

easier it will be to design effective, modern policy interventions that increase the upsides of AI and minimize or obviate harmful features.

We have much work to do, but I am confident that the NAIAC working in concert with the vast and growing AI policy community will be able to make a difference here.

Victoria Espinel
I am honored to have served as Chair of the Leadership in Trustworthy AI working group, where we thoughtfully considered the societal impact of AI and how to maximize AI's benefits while minimizing its risks. AI is a powerful tool that helps tackle difficult challenges and improve modern life — and it is being used today across industry sectors including healthcare, agriculture, manufacturing, cybersecurity, infrastructure, and many others. But the success of AI products and services in the years to come will depend on public trust and confidence in those technologies.

The Biden Administration has created an important tool for companies to improve the trustworthiness of AI systems, identifying specific ways that companies can incorporate trustworthiness considerations into the design, development, use, and evaluation of AI products, services, and systems. NIST released that tool — the AI Risk Management Framework (AI RMF) — in January.

The U.S. government has a unique opportunity to increase the development and use of trustworthy AI systems by not only leveraging the AI RMF in the government's use of AI systems, but also spurring adoption of the AI RMF in the private sector. The report recommends the U.S. government pursue this opportunity, including through establishing new government-focused pilot programs and fostering private-sector adoption of the AI RMF. By doing so, the U.S. can take meaningful steps to turn AI principles into practice and advance the trustworthiness of this pivotal technology.

Paula Goldman
The topic of Generative AI has come to the forefront of public attention and regulatory interest. And for good reason. The implications of Generative AI cut across every topic that the NAIAC covered in this first year report, from national competitiveness and security to economic access and workplace opportunity/risk. Certainly not least on this list is the need for governments and businesses to come together and create guardrails to ensure the trustworthy development and use of Generative AI.

The introduction to this report reads: "The balance we establish in addressing these two divergent AI realities — fully harnessing its benefit while also effectively addressing its challenges and risks — will significantly impact our future." This quote is true for many AI applications. But Generative AI presents uniquely pointed opportunities and challenges. The power to augment uniquely human creative capabilities is matched by an imperative to create both policy and technical solutions around privacy, accuracy, intellectual property, workplace impact, and much more. Additionally, Generative applications are advancing at unprecedented speed. Technology and democratic decision making typically progress on very different timelines. It has never been more important that we bring these processes and timelines closer together to create a foundation for success. This will be a key body of

work for NAIAC, and my hope is that we can release insights and learnings on an ongoing basis — so as to participate in ongoing public learning.

Susan Gonzales

NAIAC was created to advise the President on the intersection of AI and innovation, competition, societal issues, the economy, law, international relations, and other topics. A group of 26 leaders in artificial intelligence (AI) were appointed to execute the charter at a time of unprecedented growth and impact of AI. It was a time when Generative AI created awareness about the quickly advancing technologies significantly impacting jobs, education, health, and more. We spent our first year on high-level themes, objectives, proposed actions and a plan for future activities.

One of the key themes we identified as a group is *Inclusivity in AI*. We recognize that identifying opportunities and creating pathways to improve inclusivity in AI and reduce biases for the U.S. government, its workers, and the global community, will be critical to the outcome of our work. Inclusivity in AI is essential for improving AI tool efficiencies and making them more adaptable and effective for the government, business, and the end users — the people. By incorporating diverse perspectives, knowledge, and data, AI systems can better understand and meet the needs of the people they are impacting. This Committee will seek input from a broad range of key stakeholders representing many communities, especially the underrepresented. Our work will include different perspectives to ensure the final reports reflect many voices. It is truly an honor to serve on a Committee that considers inclusivity in AI an action item as part of its charter.

Janet Haven, Liz O'Sullivan, Amanda Ballantyne, and Frank Pasquale

Many of the recommendations put forward in the NAIAC's first year report are ones we're pleased to see advance, and are valuable to address immediate needs related to advancing federal AI policy. However, the challenges that we face related to AI governance are not only immediate and tactical. This Committee should be working through a strategic lens, building on a set of core values that are resilient to the ever-changing nature of technology. This is why we advocated to anchor this Committee's work in a foundational rights-based framework, like the one laid out in OSTP's October 2022 Blueprint for an AI Bill of Rights. While we're pleased to see the Blueprint referenced in this report, this is insufficient.

For the NAIAC to meet this critical moment, the Committee should clearly articulate a commitment to a people-first, rights-respecting American AI strategy. The U.S. should lead from a position that prioritizes civil and human rights over corporate concerns. Given the immense concentration of money, data, compute, and talent amassed by AI companies and the overwhelming evidence of societal impacts and harms, this requires more than the positive and important steps undertaken by agencies and through executive orders that we've seen over the past year. Congress needs to enact legislation, starting with the most basic comprehensive data privacy protections, to protect citizens and non-citizens alike from the AI harms already identified through a growing field of research. Beyond that, we need to design comprehensive systems of accountable governance that allow values-based, rights-respecting AI to thrive. Those should include badly-needed new

methods to create accountability in AI lifecycles, such as participatory, public interest audits and impact assessments with mechanisms for mitigation and redress of harms.

Building on such commitments, the Committee should address critical gaps in our work in the coming years. The lack of attention in this report to the pressing issue of AI use within the criminal legal system must be corrected; the mandated Law Enforcement Subcommittee needs to be convened immediately. We need to address new protections for workers, particularly those in low-wage and precarious work, who are increasingly hired, fired, surveilled, and managed by algorithmic systems. And, this Committee should investigate the unfolding societal impacts of anthropomorphized and increasingly ubiquitous — but also increasingly invisible — AI systems in a range of areas, particularly those where historically vulnerable and marginalized groups may be most affected: care work, education, health care access, public benefits, and housing, to name only a few.

Finally, the members of the NAIAC hold a range of views on AI governance. The public deserves to see those differences articulated, to assess them, and to add their own voices. To this end, this Committee must undertake much more public engagement and public deliberation in the coming two years. We strongly believe it is through that process that members of this Committee who want to see meaningful action can promote a focus on human and civil rights — including worker rights — in the NAIAC reports and recommendations ahead.

Christina Montgomery
Over the course of my career in the technology industry, I've witnessed first-hand the impact leading-edge technologies have had on the world, and I've worked to establish good governance practices to ensure those technologies are released responsibly and with clear purpose. I take that responsibility seriously not only because I believe technology companies — and business and governments using technology — have an obligation to. But because, particularly with Generative AI, I believe that now, more than ever before, we must ask threshold questions of what we are building technology for, and in some cases, whether we should build it at all.

These are questions I've been asking at IBM as we have: advocated for a risk-based approach to AI regulation that balances the awe-inspiring potential AI offers with the near and long term risks that, if not addressed, will scale harms and erode trust; pledged to promote an ethical approach to AI by leading in the development and adoption of the Rome Call for AI Ethics; and operationalized practices internally in support of responsible AI. On the NAIAC, our task as a Committee is huge and critically important. In my observation, our first year report reflects the magnitude of our efforts, the diversity of our perspectives, and the depth of our commitment to fulfill our statutory mandate. It is my honor and privilege to serve on the NAIAC with my fellow Committee members, and I look forward to continuing our work in the second year.

COMMITTEE MEMBER BIOGRAPHIES

The National Artificial Intelligence Advisory Committee (the NAIAC) advises the President and the White House National AI Initiative Office on topics related to the National AI Initiative. The NAIAC members were selected by the Secretary of Commerce, in consultation with the Director of the Office of Science and Technology Policy, the Secretary of Defense, the Secretary of Energy, the Secretary of State, the Attorney General, and the Director of National Intelligence. The NAIAC consists of leaders with a broad and interdisciplinary range of AI-relevant expertise from across academia, non-profits, civil society, and the private sector. These experts were selected in their individual capacity based on their unique qualifications to provide advice and information on science and technology research, development, ethics, standards, education, governance, technology transfer, commercial application, security, economic competitiveness, and other topics related to AI.

The following experts serve on the NAIAC:

Miriam Vogel (Chair)
Miriam Vogel is the President and CEO of EqualAI, a non-profit created to reduce unconscious bias in our AI and promote responsible AI governance. Miriam co-hosts a podcast, "In AI we Trust," with the World Economic Forum and has taught Technology Law and Policy at Georgetown University Law Center, where she serves as chair of the alumni board, and also serves on the senior advisory board to the Center for Democracy and Technology (CDT). Previously, Miriam served in the U.S. government leadership, including positions in the three branches of federal government. At the Department of Justice, she served as Associate Deputy Attorney General, where she advised the Attorney General and the Deputy Attorney General (DAG) on a broad range of legal, policy, and operational issues. Miriam served in the White House in two Administrations, most recently as the Acting Director of Justice and Regulatory Affairs. Miriam previously served as General Counsel at WestExec Advisors and Associate General Counsel at Dana-Farber Cancer Institute, and practiced entertainment/corporate transactional law at Sheppard Mullin in Los Angeles. Miriam began her legal career as a federal clerk in Denver, Colorado after graduating from Georgetown University Law Center and is a third-generation alumna from the University of Michigan.

James Manyika (Vice Chair)
James Manyika is Senior Vice President for Technology & Society at Google, and leads Google Research. He is the Chair and director emeritus of the McKinsey Global Institute, where he led research on technology and the economy. He served as Vice Chair of President Obama's Global Development Council at the White House, and the Commerce Department Digital Economy Board and the National Innovation Board. He serves on the Secretary of State's Foreign Affairs Policy Board. He is a Visiting Professor at Oxford, has served on boards of research institutes at Harvard, MIT's College of Computing, and Stanford's Human Centered AI Institute and the 100-year study of AI, and on the National

Academies of Science, Engineering and Medicine's Committee on Responsible Computing. He is a Fellow of the American Academy of Arts and Sciences, a Distinguished Fellow of Stanford's AI Institute, and a Distinguished Research Fellow in Ethics & AI at Oxford. A Rhodes Scholar, James has a DPhil, MSc, MA from Oxford in AI, mathematics and computer science, and a BSc in electrical engineering from the University of Zimbabwe.

Yll Bajraktari
Yll Bajraktari is the CEO of the Special Competitive Studies Project. Prior to launching SCSP, Yll served as the Executive Director of the National Security Commission on Artificial Intelligence. Prior to joining NSCAI, he served as Chief of Staff to the National Security Advisor LTG H.R. McMaster, held a variety of leadership roles for former Deputy Secretary of Defense Robert Work, and served as Special Assistant to the Chairman of the Joint Chiefs of Staff, General Dempsey. Originally joining the Department of Defense in 2010, he served in the Office of the Undersecretary for Policy as a country director for Afghanistan, and later India. Mr. Bajraktari is the recipient of the Department of Defense Distinguished Civilian Service Award — the highest award given to career DoD civilian employees.

Amanda Ballantyne
Amanda Ballantyne is the Director of the AFL-CIO Technology Institute. Under Amanda's leadership, the Tech Institute is working closely with unions and worker advocates to educate and engage a broad set of stakeholders on the impacts of AI and related technologies on work and working people. Amanda also focuses on elevating worker voices on practical and ethical implications of AI and machine learning technologies, specifically AI in hiring and performance tracking, algorithmic management, privacy, and worker surveillance issues. Amanda earned her BA from Smith College and her J.D. from the University of Washington School of Law.

Sayan Chakraborty
Sayan Chakraborty is co-president and leads Workday's product and technology organization. In this role, he is responsible for the strategy, delivery, infrastructure, and security of the company's platform as well as its entire suite of solutions. Since joining Workday through the acquisition of GridCraft in 2015, Sayan has held several leadership roles including executive vice president of technology and senior vice president of tools and technology. Before co-founding GridCraft and serving as chief operating officer, Sayan was vice president of software development at Oracle, where he led teams focused on next-generation collaboration products. Prior to Oracle, Sayan served in various leadership roles at several technology startups over the course of nearly two decades. At the start of his career, Sayan worked as an engineer on interplanetary spacecraft at NASA's Jet Propulsion Laboratory, and on the early commercialization of global positioning systems (GPS). Sayan holds a Master of Science degree and a Bachelor of Science degree in aerospace engineering from the Massachusetts Institute of Technology.

Jack Clark
Jack Clark is co-founder of Anthropic, co-chair of the OECD's working group on AI and Compute, and a non-resident research fellow at the Center for Security and Emerging Technology (CSET). In his spare time, Jack writes Import AI, a newsletter about AI and AI

policy read by more than 25,000 people around the world. Jack was formerly the policy director of OpenAI, an AI research company.

David Danks
David Danks is a Professor of Data Science and Philosophy and affiliate faculty in the Department of Computer Science and Engineering at the University of California, San Diego. Professor Danks' research focuses on the intersection of cognitive philosophy, cognitive science, and machine learning, using ideas, methods, and frameworks from each to advance our understanding of complex, interdisciplinary problems. His work explores the ethical, psychological, and policy issues around AI and robotics in transportation, healthcare, privacy, and security. He has also conducted research on computational cognitive science and developed multiple novel casual discovery algorithms for complex types of observational and experimental data. Prior to coming to UC-San Diego, he was at Carnegie Mellon University, where he notably served as the Chief Ethicist for the Block Center for Technology and Society. He also served as a subject-matter advisor to the National Security Commission on Artificial Intelligence.

Victoria A. Espinel
Victoria A. Espinel is the President and CEO of BSA | The Software Alliance. The Software Alliance is an authority on the intersection of digital transformation, global markets, and public policy, leading efforts that shape the technology landscape in more than 30 countries. Prior to BSA, Espinel served for a decade in the White House for Republican and Democratic Administrations. As President Obama's advisor on intellectual property, she created a new office for intellectual property coordination at the White House. Before that, she established and led a new office at USTR as the first chief trade negotiator for intellectual property and innovation. Espinel was appointed by President Obama to serve on the Advisory Committee on Trade Policy and Negotiations (ACTPN), the principal advisory group for the U.S. government on international trade. Espinel serves on the Board of Directors for ChIPs, a nonprofit organization focused on advancing women in technology, law, and policy, and is a founding sponsor of Girls Who Code's Washington, D.C., program. She holds an LLM from the London School of Economics, a JD from Georgetown University Law School, and a BS in Foreign Service from GW School of Foreign Service.

Paula Goldman
Paula Goldman is Salesforce's first-ever Chief Ethical and Humane Use Officer. In her role, she leads Salesforce in creating a framework to build and deploy technology, including AI, that optimizes trust and social benefit. Prior to Salesforce, Paula was Vice President and Head of the Tech and Society Solutions Lab, as well as VP of Impact Investing at Omidyar Network, a mission-driven early-stage investment firm founded by eBay Founder Pierre Omidyar. Prior to Omidyar, she co-founded multiple startups and initiatives. As founder and director of Imagining Ourselves with the International Museum of Women, she co-led the creation of one of the world's first online museums. Paula earned a Ph.D. from Harvard University, where she did a dissertation on how unorthodox ideas became mainstream.

Susan Gonzales
Susan Gonzales is Founder and CEO of AIandYou, a nonprofit engaging and educating marginalized communities about AI and new technologies including cryptocurrency, NFTs and the metaverse. Susan leads the organization with over 20 years of experience in technology, community engagement, and tech policy from Washington, D.C., and Silicon Valley. Prior to launching AIandYou, Susan led community engagement for policy at Meta (Facebook), Comcast and other global organizations. She currently serves as an advisor to the World Economic Forum's Global Futures Council and Global AI Action Alliance. Susan also serves as Board member for the Eva Longoria Foundation, the Sheryl Sandberg/Dave Goldberg Foundation and LeanIn.org. She served as Vice Chair for the National American Latino Museum Commission and the Congressional Hispanic Caucus Institute in Washington, DC.

Janet Haven
Janet Haven is the Executive Director of Data & Society, leading the independent social science research institute as it investigates the implications of data-centric and automated technologies — particularly as they impact historically marginalized and vulnerable groups. Haven has worked at the intersection of technology policy, governance, and accountability for 20 years both domestically and internationally. Before joining Data & Society, she spent more than a decade at the Open Society Foundations, where she oversaw funding strategies and grant-making related to technology's role in strengthening civil society and played a substantial role in shaping the field of data and technology governance. She sits on the board of the Public Lab for Open Technology and Science and advises a range of non-profit organizations.

Daniel E. Ho
Daniel E. Ho is the William Benjamin Scott and Luna M. Scott Professor of Law at Stanford Law School, Professor of Political Science, and Senior Fellow at the Stanford Institute for Economic Policy Research. He is also Associate Director of the Stanford Institute for Human-Centered Artificial Intelligence, Faculty Fellow at the Center for Advanced Study in the Behavioral Sciences, and Director of the Regulation, Evaluation, and Governance Lab (RegLab). Ho also serves as a Member on the Committee on National Statistics (CNSTAT) of the National Academies of Sciences, as Senior Advisor on Responsible AI at the U.S. Department of Labor, and as a Public Member of the Administrative Conference of the United States (ACUS). He received his J.D. from Yale Law School and Ph.D. from Harvard University and clerked for Judge Stephen F. Williams on the U.S. Court of Appeals, District of Columbia Circuit.

Ayanna Howard
Ayanna Howard is the Dean of Engineering at The Ohio State University and Monte Ahuja Endowed Dean's Chair. Previously she was the Linda J. and Mark C. Smith Endowed Chair in Bioengineering and Chair of the School of Interactive Computing at the Georgia Institute of Technology. Dr. Howard's research encompasses advancements in AI, assistive technologies, and robotics, and has resulted in over 275 peer-reviewed publications. She is a Fellow of IEEE, AAAI, AAAS, and the National Academy of Inventors (NAI). Prior to Georgia

Tech, Dr. Howard was at NASA's Jet Propulsion Laboratory where she held the title of Senior Robotics Researcher and Dep. Mgr. in the Office of Chief Scientist.

Jon Kleinberg

Jon Kleinberg is the Tisch University Professor in the Departments of Computer Science and Information Science at Cornell University, where he has served in roles including chair of the Department of Information Science and Interim Dean of Computing and Information Science. He is a member of the National Academy of Sciences, the National Academy of Engineering, and the American Academy of Arts and Sciences, and has served on the Computer Science and Telecommunications Board (CSTB) of the National Research Council and the Computer and Information Science and Engineering (CISE) Advisory Committee of the National Science Foundation.

Ramayya Krishnan

Ramayya Krishnan is the W. W. Cooper and Ruth F. Cooper Professor of Management Science and Information Systems at Carnegie Mellon University. He has been Dean of the Heinz College of Information Systems and Public Policy at the University since 2009 and is also a faculty member in the Department of Engineering and Public Policy in the College of Engineering at the University. In 2019, he established the Block Center for Technology and Society at CMU and serves as its Faculty Director. He is an elected fellow of the National Academy of Public Administration, a AAAS Fellow (Section-T) and an INFORMS Fellow. He was the 2019 President of INFORMS (the Institute for Operations Research and Management Science) and is a distinguished alumnus of both the University of Texas at Austin and the Indian Institute of Technology, Madras.

Ashley Llorens

Ashley Llorens is Vice President, Distinguished Scientist, and Managing Director at Microsoft Research (MSR). In this role, he leads strategy and execution for MSR engagement with the rest of Microsoft and with the broader science and technology research community through high-impact collaborative initiatives. Prior to joining Microsoft, he served as the founding chief of the Intelligent Systems Center at the Johns Hopkins Applied Physics Laboratory, where he directed research and development in AI, robotics, and neuroscience. His background is in machine learning and signal processing, and current research interests include reinforcement learning for real-world systems, machine decision-making under uncertainty, human-machine teaming, and practical AI safety. He's served on advisory boards and strategic studies for the Departments of Defense and Energy and the National Academy of Sciences.

Haniyeh Mahmoudian

Dr. Haniyeh Mahmoudian is the Global AI Ethicist at DataRobot, Inc. She leads a team of Applied AI Ethicists providing technical and educational guidance in the area of responsible AI. In addition to strategizing the implementation of components of ethics in the product, Dr. Mahmoudian provides thought leadership in responsible AI with focus on AI Bias, Trusted and Ethical AI. Dr. Mahmoudian holds a Ph.D. in Astronomy and Astrophysics from Bonn University. She has won the VentureBeat's Women in AI Award for Responsibility and Ethics in AI and was named an AI Ethics leader by Forbes.

Christina Montgomery

Christina Montgomery is IBM's Chief Privacy & Trust Officer and an IBM Vice President. As Chief Privacy & Trust Officer, she oversees IBM's global privacy program, compliance, and strategy, and directs all aspects of IBM's privacy policies. She also chairs IBM's AI Ethics Board, a multi-disciplinary team responsible for the governance and decision-making process for AI ethics policies and practices. During her tenure at IBM, Christina has served in a variety of positions including cybersecurity counsel and Corporate Secretary to the company's Board of Directors. Christina is an Advisory Board Member of the Future of Privacy Forum, Advisory Council Member of the Center for Information Policy Leadership, and a member of the U.S. Chamber of Commerce AI Commission. She received a B.A. from Binghamton University and a J.D. from Harvard Law School.

Liz O'Sullivan

Liz O'Sullivan is CEO of the algorithmic risk platform Vera. Prior to co-founding Vera, they were a co-founder of model monitoring startup Arthur, and the first Technology Director of NYC-based Surveillance Technology Oversight Project (STOP). Liz is an expert in fair algorithms, consumer privacy, and AI, coming to the world of responsible AI following an 11-year career on the commercial side of AI startups. In 2019, Liz became a member of the International Committee for Robot Arms Control and the Campaign to Stop Killer Robots, joining the movement toward an internationally binding instrument to prohibit some of the most dangerous applications of AI.

Fred Oswald

Fred Oswald is Professor of Psychological Sciences and Herbert S. Autrey Chair in Social Sciences at Rice University. As an industrial-organizational psychologist, Professor Oswald's research centers on workforce readiness and quantitative methods. He directs the Organization & Workforce Laboratory at Rice, which conducts and publishes research on workforce outcomes (e.g., employee performance and academic success), workforce processes (e.g., recruitment and personnel selection), and workforce measurement (e.g., developing and evaluating employment tests); and the analysis of the workforce (e.g., using modern analytics for organizations and colleges). Currently, he serves as Chair of the Board on Human-Systems Integration (BOHSI) at the National Academy of Sciences, and he is a former President of the Society for Industrial-Organizational Psychology (SIOP).

Frank Pasquale

Frank Pasquale is an expert on the law of AI, and one of the leading scholars of law and technology in the U.S. Before coming to Brooklyn Law, he was Piper & Marbury Professor of Law at the University of Maryland. His 2015 book, "The Black Box Society: The Secret Algorithms That Control Money and Information" (Harvard University Press), has been recognized as a landmark study in information law. His latest book, "New Laws of Robotics: Defending Human Expertise in the Age of AI" (Harvard University Press, 2020) analyzes the law and policy influencing the adoption of AI in varied professional fields. Pasquale has also co-edited "The Oxford Handbook of Ethics of AI" (Oxford University Press, 2020), and published numerous articles on law and technology. He is an Affiliate Fellow at Yale University's Information Society Project, a member of the American Law Institute, and

co-editor-in-chief of the Journal of Cross-Disciplinary Research in Computational Law (JCRCL).

Trooper Sanders
Trooper Sanders is CEO of Benefits Data Trust, a nonprofit that uses data, technology, policy change, and direct service to both connect people today to public benefits paying for food, healthcare, and other critical needs, and advance the modernization of public benefits system so all have dignified and efficient access to support tomorrow. Previously, Trooper was a Rockefeller Foundation fellow developing strategies addressing the social and economic equity implications of AI and related emerging technologies. For many years, he ran a boutique policy and social good partnerships practice advising startup companies, philanthropy, and business leaders. He has served as a White House policy advisor in two Administrations working on issues ranging from military family policy to mental health. Trooper has an LL.M. from the University of London, a Master's degree from the London School of Economics and Bachelor's degree in international political economy from the University of Michigan. He serves on the board of Girl Scouts of the USA and the advisory board of the Military Family Research Institute.

Navrina Singh
Navrina Singh is the Founder and CEO of Credo AI, a responsible AI governance platform enabling enterprises to build fair, compliant, and auditable AI. Credo AI SaaS helps enterprises build trust by measuring, monitoring, and managing AI risks at scale. Navrina is an executive board member of the Mozilla Foundation guiding their trustworthy AI charter. Navrina is also a Young Global Leader with the World Economic Forum for her work in disruptive technologies and driving diversity and inclusion initiatives at scale, and was on their future council for AI guiding policies and regulations in Responsible AI. Navrina holds a Master's in Electrical and Computer engineering from the University of Wisconsin – Madison, an MBA from Marshall School of Business at the University of Southern California and a Bachelor's in Electronics and Telecommunication engineering from India.

Swami Sivasubramanian
Swami Sivasubramanian is Vice President for Data and Machine Learning Services at Amazon Web Services. His team's mission is to put the power of databases, analytics, and machine learning capabilities in the hands of every business, including developers, data scientists, and business users. Previously, Swami managed AWS's NoSQL and big data services. He managed the engineering, product management and operations for AWS database services that are the foundational building blocks for AWS. Swami has been awarded more than 250 patents, has authored 40 referred scientific papers and journals, and participates in several academic circles and conferences.

Keith Strier
Keith Strier is the Vice President for Worldwide AI Initiatives at NVIDIA with responsibility for global public sector engagements and AI Nations partnerships. Keith is a recognized authority on national AI infrastructure and is the founding Co-Chair, AI Compute Taskforce at the OECD. Keith was previously Global AI Leader at EY and Global Managing Partner,

Digital Innovation at Deloitte. Keith holds degrees from Cornell University and New York University School of Law.

Reggie Townsend
Reggie Townsend oversees the Data Ethics Practice (DEP) at SAS Institute. As Director of the DEP, he leads the global effort for consistency and coordination of strategies that empower employees and customers to deploy data-driven systems that promote human well-being, agency and equity. He has over 20 years of experience in strategic planning, management, and consulting focusing on topics such as advanced analytics, cloud computing, and AI.

COMMITTEE OVERVIEW

The National Artificial Intelligence Advisory Committee (the NAIAC) was established in April 2022, as authorized by the [William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (P.L. 116-283, FY 21 NDAA) (the Act)](). The NAIAC advises the President and the White House National Artificial Intelligence (AI) Initiative Office on matters related to the National AI Initiative (the Initiative), including:

- The current state of U.S. competitiveness;
- The degree to which the Initiative has achieved its goals;
- The state of the science around AI;
- Issues related to workforce and the potential to use AI for workforce training;
- Government operations;
- Updating the Initiative including balance of activities and funding;
- Whether societal issues are adequately being addressed;
- International coordination;
- Oversight of AI systems; and
- Enhancing opportunities for diverse geographic regions of the U.S.

Duties. Specific duties, as outlined in the authorizing language, include:

(1) The current state of U.S. competitiveness and leadership in AI, including the scope and scale of U.S. investments in AI research and development in the international context;

(2) The progress made in implementing the Initiative, including a review of the degree to which the Initiative has achieved the goals according to the metrics established by the Interagency Committee under section 5103(d)(2);

(3) The state of the science around AI, including progress toward artificial general intelligence;

(4) Issues related to AI and the U.S. workforce, including matters relating to the potential for using AI for workforce training, the possible consequences of technological displacement, and supporting workforce training opportunities for occupations that lead to economic self-sufficiency for individuals with barriers to employment and historically underrepresented populations, including minorities, Indians (as defined in 25 U.S.C. 5304), low-income populations, and persons with disabilities;

(5) How to leverage the resources of the initiative to streamline and enhance operations in various areas of government operations, including health care, cybersecurity, infrastructure, and disaster recovery;

(6) The need to update the Initiative;

(7) The balance of activities and funding across the Initiative;

(8) Whether the strategic plan developed or updated by the Interagency Committee established under section 5103(d)(2) is helping to maintain U.S. leadership in AI;

(9) The management, coordination, and activities of the Initiative;

(10) Whether ethical, legal, safety, security, and other appropriate societal issues are adequately addressed by the Initiative;

(11) Opportunities for international cooperation with strategic allies on AI research activities, standards development, and the compatibility of international regulations;
(12) Accountability and legal rights, including matters relating to oversight of AI systems using regulatory and nonregulatory approaches, the responsibility for any violations of existing laws by an AI system, and ways to balance advancing innovation while protecting individual rights; and
(13) How AI can enhance opportunities for diverse geographic regions of the U.S., including urban, Tribal, and rural communities.

Reporting Requirements. Not later than one (1) year after the date of the enactment of the Act, and not less frequently than once every three (3) years thereafter, the Committee shall submit to: the President; the Committee on Science, Space, and Technology; the Committee on Energy and Commerce; the House Permanent Select Committee on Intelligence; the Committee on the Judiciary; the Committee on Armed Services of the House of Representatives; the Committee on Commerce, Science, and Transportation; the Senate Select Committee on Intelligence; the Committee on Homeland Security and Governmental Affairs; the Committee on the Judiciary; and the Committee on Armed Services of the Senate; a report on the Committee's findings and recommendations under Section 5104(d) and Section 5104(e) of the Act. The report on the Committee's findings and recommendations will be administratively delivered to the President and Congress through the Secretary of Commerce.

The Secretary of Commerce delegated the administration of the committee to the National Institute of Standards and Technology (NIST), through the NIST Information Technology Laboratory and the NIST Director's Office, which provides support for the performance of the Committee's function and ensures compliance with the requirements of the FACA, governing federal statutes and regulations, and established Department of Commerce (Commerce) policies and procedures.

Member Selection Process. In accordance with the Act, members of the NAIAC and NAIAC-LE were appointed by the Secretary of Commerce following a call for nominations published in the Federal Registry on September 8, 2021. The deadline for submission of nominations for initial appointment of members was 5:00 p.m. ET, October 25, 2021.[170] The NAIAC and NAIAC-LE prospective members were selected to ensure that the Committee included:
(1) Broad and interdisciplinary expertise and perspectives, including from academic institutions, companies across diverse sectors, nonprofit and civil society entities, including civil rights and disability rights organizations, and Federal laboratories;
(2) Geographic diversity; and
(3) Individuals qualified to provide advice and information on science and technology research, development, ethics, standards, education, technology transfer, commercial application, security, and economic competitiveness related to AI.

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[170] By the deadline, 487 unique timely nominations were received

The authoring statute states that the NAIAC shall consist of not less than nine members and members shall serve as special government employees. Full-time or permanent part-time federal officers or employees will not be appointed to the NAIAC. Members must be citizens of the United States of America. Members shall not be compensated for their services. Members shall not reference or otherwise utilize their membership on the Board in connection with public statements made in their personal capacities without a disclaimer that the views expressed are their own and do not represent the views of the NAIAC, NIST, or the Department of Commerce.

In selecting the members of the Committee, the Secretary of Commerce sought and considered recommendations from Congress, industry, nonprofit organizations, the scientific community (including the National Academies of Sciences, Engineering, and Medicine, scientific professional societies, and academic institutions), the defense and law enforcement communities, and other appropriate organizations.

Selected nominees underwent a rigorous vetting process that included a security and conflict of interest review. Each candidate certified that they are not a registered lobbyist or foreign agent and submitted a financial disclosure statement.

The 27[171] inaugural Committee members were selected on the basis of their established records of distinguished service and eminence in their fields and appointed to three-year terms, in accordance with the FY 21 NDAA and the Charter.

Law Enforcement Subcommittee. In addition, the Act also directed the NAIAC Chairperson to establish a subcommittee that shall provide advice to the President, through the Committee, on matters related to the development of AI relating to law enforcement. Specific duties of the Subcommittee on Artificial Intelligence and Law Enforcement (the NAIAC-LE), as outlined in the authorizing language, include:

A. Bias, including whether the use of facial recognition by government authorities, including law enforcement agencies, is taking into account ethical considerations and addressing whether such use should be subject to additional oversight, controls, and limitations.
B. Security of data, including law enforcement's access to data and the security parameters for that data.
C. Adoptability, including methods to allow the U.S. government and industry to take advantage of AI systems for security or law enforcement purposes while at the same time ensuring the potential abuse of such technologies is sufficiently mitigated.
D. Legal standards, including those designed to ensure the use of AI systems are consistent with the privacy rights, civil rights and civil liberties, and disability rights issues raised by the use of these technologies.

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[171] One member, Zoë Baird, resigned from NAIAC in October 2022 when she accepted a position in the Department of Commerce.

The NAIAC Chair ratified the creation of the Subcommittee May 2022, in compliance with statutory mandate. Members were appointed April 2023.

Ethics Guidelines. Each NAIAC member was asked to serve as a special government employee (SGE) and as such are required to adhere to ethics statutes and regulations. See 18 U.S.C. § 202. NAIAC members may not participate in federal matters in which they, their spouse, their minor children, or any general partners, organizations in which you serve as an officer, director, trustee, general partner or employee, or prospective employer, has a financial interest. See 18 U.S.C. § 208.

In instances where a member has a financial interest in a specific-party matter or matter of general applicability that is the subject of NAIAC consideration or deliberations, they must disqualify themselves from participating in NAIAC deliberations and voting, unless an exception applies or a waiver is authorized. See 5 C.F.R. §§ 2640.102(1), 2640.102(m).

Members may not participate in federal matters where there is a direct and predictable effect on the financial interests of a member of your household, or a family member with whom you have a close personal relationship, or in federal matters in which a party is, or is represented by, a prospective employer or business partner, a prospective or current employer of a spouse or parent, someone for whom the member has served as an officer, director, trustee, general partner, agent, attorney, consultant, contractor, or employee within the last year; or any organization in which the member is an active participant. See 5 C.F.R. § 2635.502.

WORKING GROUPS

Over the past 12 months, the NAIAC has engaged in fact finding by: examining the recommendations of the other advisory committees; federal laws, statutes, policies, programs, processes, and coordination efforts that were underway in the AI space including emerging federal statutes and programs related to AI competitiveness, equity, governance, workforce development, international collaboration, and risk management; leveraging the expertise of its members; and hearing from researchers, government leaders, other experts, and the public.

Working Group Structure. The NAIAC organized around five focus areas derived from the duties outlined in the Act and created corresponding working groups: **Leadership in Trustworthy Artificial Intelligence; Leadership in Research & Development; Supporting the U.S. Workforce and Providing Opportunity; U.S. Leadership and Competitiveness;** and **International Cooperation.** These working groups were designed to gather information, conduct research, and analyze relevant issues and facts in preparation for NAIAC meetings, and to draft materials for deliberation by the NAIAC. The working groups spent the first several months of their appointment gathering information relevant to their charge to provide relevant guidance to the President and White House and sharing knowledge and experience relevant to their respective focus areas.

Miriam Vogel, NAIAC Chair, and James Manyika, NAIAC Vice Chair,
serve as ex-officio members of each working group.

Working Group	Focus	Members
Leadership in Trustworthy Artificial Intelligence	Explore how to lead the world in development and use of trustworthy AI systems in the public and private sectors, and approaches to assess, evaluate, and govern trustworthiness of AI systems (see Sec. 5104(d)(10)&(12) of P.L. 116-283).	Victoria Espinel, *Chair* David Danks Paula Goldman Janet Haven Daniel E. Ho Ayanna Howard Jon Kleinberg Christina Montgomery Liz O'Sullivan Fred Oswald Navrina Singh
Leadership in Research & Development	Explore how to ensure continued U.S. leadership in AI research and development, and provide a long-term vision for U.S. investment in AI R&D (see Sec. 5104(d)(1)&(3) of P.L. 116-283).	Ayanna Howard, *Co-Chair* Ashley Llorens, *Co-Chair* Jack Clark Janet Haven Jon Kleinberg Ramayya Krishnan Haniyeh Mahmoudian Liz O'Sullivan Swami Sivasubramanian
Supporting the U.S. Workforce	Explore how to prepare and educate present and future U.S. workforce for the integration	Trooper Sanders, *Chair* Amanda Ballantyne

	of AI systems across all sectors of the economy and society, to support workforce training including the potential use of AI, and to support the development of a diverse workforce with opportunity for all regions (see Sec. 5104(d)(4)&(13) of P.L. 116-283).	Sayan Chakraborty Susan Gonzales Haniyeh Mahmoudian Christina Montgomery Fred Oswald Frank Pasquale Reggie Townsend
U.S. Leadership and Competitive-ness	Explore operations of National AI Initiative Office, how to best organize and coordinate ongoing and future USG AI activities, and review existing legal and regulatory structures that inhibit the USG from providing strategic leadership on AI (see Sec. 5104(d)(2)&(5-9) of P.L. 116-283).	Yll Bajraktari, *Chair* Jack Clark Victoria Espinel Paula Goldman Susan Gonzales Daniel E. Ho Trooper Sanders Keith Strier Reggie Townsend
International Cooperation	Explore means to achieve policy and standards alignment with allies and partners, and opportunities to decrease barriers to trade (see Sec. 5104(d)(11) of P.L. 116-283).	Keith Strier, *Chair* Yll Bajraktari Amanda Ballantyne Sayan Chakraborty David Danks Ramayya Krishnan Ashley Llorens Frank Pasquale Navrina Singh Swami Sivasubramanian *Zoë Baird, *former Chair*[172]

Committee Meetings. In its inaugural year, the NAIAC held three (3) public meetings and heard from government, industry, academic, and civil society leaders, researchers, and other experts. Additionally, working group chairs shared their insights on which areas should be the Committee priorities. The public was also given the opportunity to submit comments in writing and during public meetings. Meeting agendas, video recordings, and minutes of the NAIAC public meetings and full public comments are available on the NAIAC website.

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[172] See FN 171

BRIEFINGS, PANELS, & PUBLIC COMMENTS

NAIAC Committee Public Briefings (Non-Committee Member Briefings/Panels)

We would like to thank the individuals and organizations below for taking the time to share their insights with our Committee:

Date	Speaker(s)/Panelists	Topic	Recording Link
NAIAC Public Meeting 1			
5/4/2022	Hon. Gina Raimondo, U.S. Secretary of Commerce	Appreciation for the NAIAC Committee, workforce development and education and trade (TTC and IPEF)	https://www.youtube.com/watch?v=Uq-CydVwLDw&t=86s
5/4/2022	Hon. Don Graves, Deputy Secretary of Commerce	AI opportunities and risks, U.S. competitiveness, and economic equity	Read Remarks
5/4/2022	Dr. Alondra Nelson, Acting Director, OSTP	Equal access to AI benefits, leveraging the beneficial use of AI while mitigating risks, societal benefits of AI	https://www.youtube.com/watch?v=Uq-CydVwLDw&t=86s
5/4/2022	Hon. Dr. Laurie Locascio, Undersecretary of Commerce for Standards and Technology/Director NIST	NIST administrative support for the NAIAC, scientific and societal benefits of AI, appreciation for the NAIAC Committee	https://www.youtube.com/watch?v=Uq-CydVwLDw&t=86s
5/4/2022	Dr. Lynne Parker, Director OSTP NAIAO	Appreciation for the leadership of DoC and NIST, OSTP, and NAIAO and support of the committee, overview of NAIAO, NAIRR Task Force and need for greater access to AI R&D resources	https://www.youtube.com/watch?v=Uq-CydVwLDw&t=86s
NAIAC Public Meeting 2			
10/12/2022	Renee Cummings, Data Activist in Residence, University of Virginia Kadija Ferryman, Core Faculty, Johns Hopkins University	Panelists discussed the challenges of using AI in a trustworthy manner and explored what the U.S. government is doing right and what it can do better to promote AI systems that are fair, equitable, and unbiased	NAIAC Meeting 2 Panel 1: Building Trustworthiness into Artificial Intelligence

	Michele Gilman, Venable Professor of Law; Associate Dean for Faculty Research & Development; Director, Saul Ewing Civil Advocacy Clinic; Co-Director, Center on Applied Feminism; Affiliate, Data & Society, University of Baltimore School of Law		
10/12/2022	Catherine Aiken, Director of Data Science, Center for Security and Emerging Technology, Georgetown University Percy Liang, Assistant Professor of Computer Science and Statistics, Director CRFM, Stanford University, Human-Centered AI, AI Lab, Natural Language Processing Group, Machine Learning Group, Center for Research on Foundation Models Deirdre Mulligan, Professor, School of Information, Co-Director, Algorithmic Fairness & Opacity Group, Faculty Director, Berkeley Center for Law and Technology, University of California, Berkeley	Panelists discussed how the U.S. government can promote diversity and equitable access to AI R&D. It also discussed the need for increased government funding on AI to help bridge the gap between academia and industry in order to maximize AI's benefits to all Americans.	NAIAC Meeting 2, Panel 2: Advancing U.S. Leadership in AI Research & Development
10/12/2022	Randi Weingarten, President, American Federation of Teachers Karen Levy, Associate Professor, Department of Information Science, Cornell University Daniel Chasen, Vice President of Workplace Policy, HR Policy Association	This panel discussed the ways AI impacts jobs and the workforce. It explored the externalities of AI in professions such as nursing and education and emphasized the need for leaders to include worker's voices in how technology is adopted and implemented	NAIAC Meeting 2, Panel 3: Growing Opportunity for the U.S. Workforce in the Age of AI

10/12/2022	William Hurd, Managing Director, Allen & Company; Former United States Representative (TX-23)	Panelists discussed how U.S. civilian government agencies can better coordinate ongoing and future AI activities and the importance of global cooperation with allied nations, protecting intellectual property, and facilitating American innovation in AI	[NAIAC Meeting 2, Panel 4: Ensuring U.S. Government Coordination on AI to Lead and Compete Globally](#)
	Tara Murphy Dougherty, CEO, Govini		
	Brian Drake, Federal Chief Technology Officer, Accrete AI		
	Andrei Iancu, Former Under Secretary of Commerce for Intellectual Property of United States; Former Director, U.S. Patent and Trademark Office		
10/12/2022	Gerard de Graaf, Senior EU Envoy for Digital and Head of the new EU Office in San Francisco	Panelists discussed the importance of bilateral international cooperation on AI between the U.S. and allies. The panel also compared and contrasted U.S. and European privacy laws and the need for AI standards.	[NAIAC Meeting 2, Panel 5: Expanding International Collaboration](#)
	Cameron Kerry, Ann R. and Andrew H. Tisch Distinguished Visiting Fellow - Governance Studies, Center for Technology Innovation, The Brookings Institution		

Public Comments

Comments submitted to the NAIAC are treated as public documents and have been made available for public inspection at: https://www.nist.gov/itl/naiac-public-comments. As of March 2023, the Committee has received 51 comments.

Received From	Date
[Keith Kupferschmid, CEO, Copyright Alliance](#)	March 13, 2023
[Marc Rotenberg, President Center for AI and Digital Policy](#)	March 3, 2023
[Jesselyn McCurdy, Executive Vice President of Government Affairs, The Leadership Conference on Civil and Human Rights](#)	February 8, 2023
[Danielle Coffey, Executive Vice President & General Counsel, News/Media Alliance](#)	February 8, 2023
[Keith Kupferschmid, CEO, Copyright Alliance](#)	February 8, 2023
[James Keller](#)	October 1, 2022
[Caroline Friedman Levy, PhD, Center for AI and Digital Policy](#)	October 3, 2022
[Erica Wissolik, IEEE](#)	October 4, 2022
[Marc Rotenberg, President, Center for AI and Digital Policy](#)	October 4, 2022

Public Questions and Comments Received During Online Registration for the May 4, 2022 National Artificial Intelligence Advisory Committee Meeting	May 2022

Meeting agendas, video recordings, and minutes of the NAIAC public meetings and full public comments are available on the NAIAC [website](.).