A Structural Solution to Mitigating Artificial Intelligence Bias in Administrative Agencies

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ABSTRACT

The rise of artificial intelligence ("AI") from nascent theoretical science to an advancing juggernaut of industry with national security implications has begun to permeate U.S. federal administrative agencies. For all the potential benefits AI brings, misapplied or underregulated administrative agency utilization of AI risks eroding American values. The Executive Branch must carefully calibrate its administrative uses of AI to mitigate for biases that flow from models ranging from simple algorithms to complex machine learning systems, especially for biases that would adversely affect protected classes and vulnerable groups.

Save for a voluntary survey by an independent advisory agency, the federal government lacks an organic accounting of AI-use cases and development across administrative agencies. Recent executive actions have only begun to address these issues by establishing broad-stroke foundational principles and recommendations that can lead to the development of optimal AI regulation and general utilization. Despite these initial gains, the prospective utilization of AI in administrative adjudications, rulemakings, grant administration and the like, lack the structural framework to apply meaningful implementing and accountability mechanisms. The Biden Administration will have the opportunity and challenge to expand on the foundation of the Trump and Obama Administrations and normalize the process of administrative integration of AI with the quality control, consistency measures, and policymaking processes that best leverage federal government resources. This is especially important in light of the related national security implications that flow from this issue.

Regardless of whether the Biden Administration seeks to undergird executive discretion with legislation or operate on a self-restraint basis, the appropriate regulation of AI in administrative agencies should balance technological innovation with legal compliance and fidelity to well-tread limiting principles. We conclude that two units of the Executive Office of the President—the Office of Information and Regulatory Affairs, and the Office of Science and Technology Policy—are optimally situated and experienced to lead the policymaking, adoption, and utilization of AI systems in administrative agencies.

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INTRODUCTION

The adoption of artificial intelligence ("AI") by federal administrative agencies is rapidly growing. This evolving practice is marked by an uncharacteristic opacity and a characteristic lag behind the private sector. A recent report by the Administrative Conference of the United States ("ACUS"), a nonpartisan independent research and recommendatory agency, observed that while nearly half of the agencies surveyed have experimented with AI, little is known about how such algorithms are actually being used.¹ This has created concerns about whether these algorithms are eroding American values on account of AI bias and discrimination. Contemporaneously, foreign rivals are becoming increasingly competitive with the United States in AI applications and there is a growing concern that overregulation of technology will blunt the rate of American AI development.² In contrast with its national security use, the nascency of the U.S. government's administrative use of AI, coupled with the risk of losing its technological preeminence, will place the Biden Administration-and possibly Congress—in a reactive posture to use the gears of government to

¹ See *infra* Section II.A (discussing the findings of Government by Algorithm: Artificial Intelligence in Federal Administrative Agencies ("The ACUS Report")). Nearly 45% of federal agencies have used either AI or machine learning in some capacity, but only 12% of agencies were rated as being "high in sophistication" of use by computer science researchers at Stanford University. David Freeman Engstrom, Daniel E. Ho, Catherine M. Sharkey, Mariano-Florentino Cuéllar, GOVERNMENT BY ALGORITHM: ARTIFICIAL INTELLIGENCE IN FEDERAL ADMINISTRATIVE AGENCIES 6–7, ACUS 79 (Feb. 2020), https://www-cdn.law.stanford.edu/wp-content/uploads/2020/02/ACUS-AI-Report.pdf [https://perma.cc/JBX9-S3WJ].

² See Kelley M. Sayler, Cong. Rsch. Serv., R45178, Artificial Intelligence and National Security 20–27 (2020), https://fas.org/sgp/crs/natsec/R45178.pdf [https://perma.cc/JQ6N-X7GR].

effectively deploy and develop this technology in administrative agencies as an efficiency, efficacy, and innovation driver that would also benefit national security.³

Without a centralized institutional structure to ensure the appropriate uniformity, accountability, limiting principles, and an adequate knowledgesharing environment across government for administrative AI use, America's economic strength, innovation, and national security could be avoidably exposed to greater risk. The federal government has for years identified international competitors in the field of AI as national security risks.⁴ On a bipartisan basis, America's elected officials have pressed that "[c]eding leadership in developing artificial intelligence to foreign governments will not only place the United States at a technological disadvantage, but it could have grave implications for national security."5 President Biden has proposed a \$120 billion investment in "critical technologies" and "America's research infrastructure," including in AI.6 He also cast Executive Order 14,007, President's Council of Advisors on Science and Technology, in part, as a mechanism to invest in AI.⁷

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³ See National Security Commission on Artificial Intelligence, Final Report 7 (March 2021), https://www.nscai.gov/wp-content/uploads/2021/03/Full-Report-Digital-1.pdf [https://perma.cc/KP5U-J9Q3] [hereinafter National Security Commission]; see also THE WHITE HOUSE, NATIONAL SECURITY STRATEGY OF THE UNITED STATES OF AMERICA 20, 34 (2017), https://trumpwhitehouse.archives.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf [https://perma.cc/YLU4-VDF3].

⁴ See National Security Commission, supra note 3, at 7, 61 ("The U.S. military has enjoyed military-technical superiority over all potential adversaries since the end of the Cold War. Now, its technical prowess is being challenged, especially by China and Russia Artificial Intelligence (AI) is a key aspect of this challenge"); SAYLER, supra note 2, at 20-27; Current and Projected National Security Threats to the United States, Hearing Before the S. Comm. on Intel., 114th Cong. 4 (2016) (statement of James Clapper, Director of National Intelligence); Worldwide Threat Assessment of the US Intelligence Community, Statement for the Record, S. Comm. on Intel., 115th Cong. 3 (2017) https://www.intelligence.senate.gov/sites/default/files/documents/os-coats-051117.pdf [https://perma.cc/7G8Y-FRA8].

⁵ The Dawn of Artificial Intelligence, Hearing Before the Subcomm. on Space, Science, and Competitiveness of the S. Comm. on Commerce, Sci., and Transp., 114th Cong. 2 (2016), https://www.govinfo.gov/content/pkg/CHRG-114shrg24175/pdf/CHRG-114shrg24175.pdf [https://perma.cc/W6H8-E58T].

⁶ Press Release, The White House, Fact Sheet: The American Jobs Plan (Mar. 31, 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/factsheet-the-american-jobs-plan/ [https://perma.cc/HL5F-9D8A].

⁷ President Joe Biden, Remarks in Press Conference (Mar. 25, 2021), https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/03/25/remarks-bypresident-biden-in-press-conference/ [https://perma.cc/U6NJ-B9BL]; Exec. Order 14,007, President's Council of Advisors on Science and Technology, 86 Fed. Reg. 7,615 (Jan. 27, 2021).

Pertaining to the natural biases that dispassionate AI algorithms have displayed on vulnerable demographics, including those discriminating on racial or gender bases, the literature has just recently begun addressing mechanisms to mitigate and reduce the risk of machines acting contrary to law.⁸ This is acutely important when regulatory agencies need to immediately—or retroactively—adapt to a change in law or the construction of an existing law.⁹ In such instances, an AI system that was trained on one set of data may need to be modified or retrained to conform to the new rules. One need look no further than the summer of 2020, when the Supreme Court read the employment discrimination protections of the Civil Rights Act of 1964, prohibiting discrimination "because of sex," to necessarily include discrimination because of sexual orientation and gender identity.¹⁰ Once such persons were observed under the law to have this body of discrimination protections, any administrative AI system making determinations on their behalf would need to be adjusted to account for the new groups.

Furthermore, if circumstances warrant that an algorithm must be modified to account for changes in the law, or that it needs to be trained on new additional data, new sources of bias may develop that did not initially exist; this may create accountability problems.¹¹ For example, the U.S. Securities and Exchange Commission ("SEC") uses a supervised learning algorithm to predict fraud based on past referrals to the past SEC enforcement branch.¹² The pool of referrals grows over time, which may result in changes to the model as it is going through the development and deployment process.¹³ As stated by the ACUS Report: "By their nature, the notice-and-comment process and APA-type judicial proceedings are static

⁸ Carmen Niethammer, AI Bias Could Put Women's Lives At Risk - A Challenge For Regulators, FORBES (Mar. 2, 2020, 4:19 AM), https://www.forbes.com/sites/carmenniethammer/2020/03/02/ai-bias-could-put-womenslives-at-riska-challenge-for-regulators/ [https://perma.cc/TLS5-SM4A]; Zack Whittaker, Amazon's Facial Recognition Moratorium Has Major Loopholes, FORBES (June 10, 2020, 6:55PM), https://techcrunch.com/2020/06/10/amazon-rekognition-moratorium/ [https://perma.cc/29EL-WGV8].

⁹ Engstrom et al., *supra* note 1, at 77.

¹⁰ Bostock v. Clayton Cnty., Ga., 140 S. Ct. 1731, 1753–54 (2020) (describing Title VII of the Civil Rights Act of 1964 to proscribe discrimination "because of" an individual's sex, by firing an individual because of the person's sexual orientation or gender identity).

¹¹ Engstrom et al., *supra* note 1, at 77 ("Actionable transparency can also falter when data and algorithms change dynamically A model reviewed at one stage (during the notice-and-comment process) may already be substantively different upon deployment. Conversely, problematic predictions at one point (a specific enforcement decision) might vanish as the model is updated.").

¹² *Id*.

¹³ *Id*.

and may not generate the information required to understand an algorithm in action."¹⁴ And, where incidents of AI bias in AI-assisted recruitment present a major problem, the consequences of similar failings on behalf of the U.S. government are all the more profound because of the greater constitutional and statutory constraints on administrative agencies as well as the sheer scale and breadth of the domain of government regulation. Accordingly, the risks pertaining to bias in administrative AI deployments exist in many forms, creating the need for adequate policymaking and regulation.

This essay analyzes and proposes practical solutions that the Executive Branch should deploy to harness the most meritorious components of AI in their work while minimizing avoidable pitfalls. These changes do not require legislative reform as a prerequisite to be implemented—though such legislation would be valuable—and can readily be adopted as a function of sound public policy.¹⁵ As the Biden Administration implements its policy priorities, the measured introduction of AI into the federal bureaucracy would benefit from instituting normative structures so that the American public can best benefit from the promise of AI integration into government regulatory activity. If done correctly, these solutions will enhance American innovation by empowering the uniform application of regulation across the regulatory state.

A unified regulatory framework will enable assessments of current and developing AI to scale efficiently. These solutions will not hinder military and other national security AI applications, which have their own parallel guiding principles and are outside the scope of this essay.¹⁶ Rather than immediately picking and choosing from various technical and discrete legal proposals for AI in administrative law, we think that the best approach is to first make a key structural change so that the power of government—and American democratic innovation that follows—can institutionalize AI into the fabric of governing. Though others have proposed creating new entities, like an AI commission, the better approach is to charge the Executive Office of the President's Office of Science and Technology Policy ("OSTP") and the Office of Management and Budget's ("OMB") Office of Information and

¹⁴ *Id*.

¹⁵ Alex Engler, *How the Biden Administration Should Tackle AI Oversight*, BROOKINGS INSTITUTE (Dec. 10, 2020), https://www.brookings.edu/research/how-the-biden-administration-should-tackle-ai-oversight/ [https://perma.cc/6873-N7WX].

¹⁶ See, e.g., Exec. Order No. 13,960, *Executive Order on Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government* (Dec. 3, 2020), https://www.federalregister.gov/documents/2020/12/08/2020-27065/promoting-the-use-of-trustworthy-artificial-intelligence-in-the-federal-government [https://perma.cc/NFZ9-G75Q] (establishing principles for use of AI in government for purposes other than national security and defense).

Regulatory Affairs ("OIRA") with executive agency AI utilization policymaking and quality control coordination, respectively.

Founded in 1976 by an act of Congress, OSTP was established to provide the President and the Executive Office of the President with advice on the "scientific, engineering, and technological aspects" of the economy, national security, and a myriad of other topics while also leading interagency science and technology coordination and assisting the OMB with annual review of research and development budgets.¹⁷ With experienced career staff historically advising political appointees and Presidents on issues including science and technology policy formulation, research and development budget issues, and-more recently-supporting the Trump administration's American AI Initiative, OSTP is well-positioned to step into a greater role in the regulation of AI.¹⁸ Already, the National AI Initiative Act of 2020, which became law in January 1, 2021, established the National Artificial Intelligence Initiative.¹⁹ Under AI.gov, such initiative has been charged with programmatically coordinating the federal government's acceleration of "AI research and application for the Nation's economic prosperity and national security."20

OIRA was established in 1980 as the federal government's central authority for review of Executive Branch regulations.²¹ Reviewing "between

¹⁷ Office of Science and Technology Policy, The WHITE HOUSE https://www.whitehouse.gov/ostp/ [https://perma.cc/48SM-G8W6]; JOHN F. SARGENT JR. & DANA A. SHEA, CONG. RESEARCH SERV., R43935, OFFICE OF SCIENCE AND TECHNOLOGY POLICY (OSTP): HISTORY AND OVERVIEW i (2020), https://fas.org/sgp/crs/misc/R43935.pdf [https://perma.cc/2ZFA-QURK] ("Congress established [OSTP] through the National Science and Technology Policy, Organization, and Priorities Act of 1976 (P.L. 94-282). The act states, 'The primary function of the OSTP Director is to provide, within the Executive Office of the President ..., advice on the scientific, engineering, and technological aspects of issues that require attention at the highest level of Government.' Further, 'The Office shall serve as a source of scientific and technological analysis and judgment for the President with respect to major policies, plans, and programs of the Federal Government."").

¹⁸ SARGENT & SHEA, *supra* note 17, at 20; *see also* National Security Commission, *supra* note 3, at 165.

¹⁹ William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (NDAA), H.R. 6395, 116th Cong. § 5001 (2020) (enacted), https://www.congress.gov/116/bills/hr6395/BILLS-116hr6395enr.pdf (last visited June 29, 2021) [hereinafter NDAA 2021]; *About Artificial Intelligence*, NAT'L A.I. INITIATIVE OFF., AI.gov/about [https://perma.cc/WU53-HTLZ].

²⁰ National Artificial Intelligence Initiative, NAT'L A.I. INITIATIVE OFF., AI.gov [https://perma.cc/X3XT-W4AL].

²¹ Office of Management and Budget, *Information and Regulatory Affairs*, THE WHITE HOUSE, https://www.whitehouse.gov/omb/information-regulatory-affairs/ [https://perma.cc/MS6V-WNBB]; CURTIS W. COPELAND, CONG. RESEARCH SERV. RL32397, FEDERAL RULEMAKING: THE ROLE OF THE OFFICE OF INFORMATION AND REGULATORY AFFAIRS i (2009), https://fas.org/sgp/crs/misc/RL32397.pdf [https://perma.cc/GG7M-G7MG]

500 and 700 significant proposed and final rules each year" since 1994, OIRA staff are among the most professional in government and have extensive oversight experience.²² OIRA already plays a "fundamental role in Executive Branch privacy policy [by] developing Federal privacy policy, and overseeing implementation of privacy policy by Federal Agencies."²³ By actualizing the reforms discussed herein, we believe that the technical expertise of OSTP coupled with the regulatory and implementation expertise of OIRA will enable the efficacious implementation and oversight of administrative AI. These reforms can readily be accomplished by the issuance of an Executive Order or Presidential Memorandum.²⁴

I. THE NEED FOR REGULATION OF ADMINISTRATIVE AI SYSTEMS

A. What Do We Mean by AI?

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There is still a developing consensus on the term AI.²⁵ We use the FY2019 National Defense Authorization Act ("NDAA") definition that has been utilized in recent executive orders: "Any artificial system that performs tasks under varying and unpredictable circumstances without significant human oversight, or that can learn from experience and improve performance when exposed to data sets."²⁶ Within the realm of AI, there are

- ²⁴ See Engel, supra note 22, at 17.
- ²⁵ SAYLER, *supra* note 2, at 1.

^{(&}quot;Executive Order 12291, issued by President Reagan in 1981, gave OIRA the responsibility to review the substance of agencies' regulatory actions before publication in the *Federal Register*.").

²² COPELAND, *supra* note 21, at i; *see also* Steven A. Engel, *Extending Regulatory Review Under Executive Order 12866 to Independent Regulatory Actions*, 43 Op. O.L.C. 1 (Oct. 8, 2019), https://www.justice.gov/sites/default/files/opinions/attachments/2020/12/30/2019-10-08extend-reg-review.pdf [https://perma.cc/8UMA-BFXZ] ("The President may direct

independent regulatory agencies to comply with the centralized regulatory review process prescribed by Executive Order 12866").

²³ Office of Management and Budget, *Privacy*, THE WHITE HOUSE https://www.whitehouse.gov/omb/information-regulatory-affairs/privacy/ [https://perma.cc/Q6P8-LXLQ]; 5 U.S.C. § 552a; 44 U.S.C. chapter 35; 44 U.S.C. § 3501 note.

²⁶ *Id.* at 1–2 ("although Section 238 of the FY2019 National Defense Authorization Act (NDAA) directs the Secretary of Defense to produce a definition of artificial intelligence by August 13, 2019, no official U.S. government definition of AI yet exists"). Note that the FY2021 National Defense Authorization Act has a slightly different definition of AI. *See* NDAA 2021, *supra* note 19, § 233.

variations of what is termed "narrow AI"²⁷ and the as-of-yet theoretical "general AI."²⁸ Presently, all AI systems can be classified into the category of Narrow AI, i.e., "algorithms that address specific problem sets like game playing, image recognition, and navigation."²⁹ This narrow AI distinction also applies to all known AI used by federal agencies though it has recently been revealed that much of how the government uses AI remains unknown to the public.³⁰

The prevailing technique to Narrow AI is known as "machine learning,"³¹ defined as "an automated process of discovering correlations . . . between variables in a dataset, often to make predictions or estimates of some outcome."³² During this machine learning algorithm development process, which is commonly referred to as its "training process," computer systems use large amounts of data to draw these new correlations.³³ Many of the bias issues in machine learning arise from the methodology employed to train the dataset.³⁴

Early scholarship evaluating issues in AI have centered primarily on reforms to be made to systems once they have been implemented, while insufficient focus has been committed to the data—which agencies possess in large quantities—and on the steps leading up to the development and creation of the AI.³⁵ The work of David Lehr and Professor Paul Ohm makes

²⁷ Narrow AI, DEEP AI, https://deepai.org/machine-learning-glossary-and-terms/narrow-ai [https://perma.cc/3RJT-MFWS] ("Narrow AI is a term used to describe artificial intelligence systems that are specified to handle a singular or limited task.").

²⁸ *Id.* ("The antithesis to Narrow AI, sometimes referred to as weak AI, is called strong AI. Strong AI, unlike Narrow AI, is capable of handling a wide range of tasks rather than one particular task or problem. This variation of artificial intelligence can be roughly conceptualized as a foundation for neural networks emulating sentience or consciousness."); *see also* SAYLER, *supra* note 2, at 2.

²⁹ See SAYLER, supra note 2, at 2.

³⁰ See generally Engstrom et al., *supra* note 1; *see also infra* Section II.A for an indepth discussion of the ACUS Report's findings.

³¹ *Id*.

³² David Lehr & Paul Ohm, *Playing with the Data: What Legal Scholars Should Learn About Machine Learning*, 51 U.C. DAVIS L. REV. 653, 671 (2017). For alternative definitions, *see* SAYLER, *supra* note 2, at 2 *and* KEVIN P. MURPHY, MACHINE LEARNING: A PROBABILISTIC PERSPECTIVE 1 (2012).

³³ SAYLER, *supra* note 2, at 2; Solon Barocas & Andrew D. Selbst, *Big Data's Disparate Impact*, 104 CAL. L. REV. 671, 677 (2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2477899 [https://perma.cc/23MF-GMRU].

³⁴ Barocas & Selbst, *supra* note 33, at 680.

³⁵ Tom Abate, Stanford, UMass Amherst Develop Algorithms that Train AI to Avoid Specific Misbehaviors, STANFORD NEWS (Nov. 21, 2019),

this argument, and provides a sound accounting of the existing machine learning scholarship through 2017 while breaking down the components of machine learning into eight stages.³⁶

B. Why Is Regulation of AI in Government Agencies Necessary?

A 2019 report found that 82% of Americans believe robots and/or AI should be carefully managed.³⁷ Other recent studies have shown that the support for AI regulation is squarely bipartisan.³⁸ In reviewing the quantity of AI that have been, or are in the process of being, implemented by agencies, the numbers are large.³⁹ However, there is a dearth of clarity on how these systems are being implemented, and a lack of data available on which, if any, have ever been retired after being rolled out.⁴⁰ As general data privacy concerns have entered the public's mind,⁴¹ some have raised AI-specific privacy issues, particularly amongst those applications that employ facial recognition.⁴² It is also clear that administrative agencies' known

³⁹ Engstrom et al., *supra* note 1, at 17. *But see id.* at 18.

⁴⁰ See *id.* at 19 (describing the lack of sufficient publicly available information regarding what methods of machine learning are employed for various agencies AI implementations).

⁴¹ See James Coker, Will the US Move to a Federal Privacy Law in 2021?, INFO SECURITY (Dec. 18, 2020), https://www.infosecurity-magazine.com/news/us-move-federal-privacy-law-2021/ [https://perma.cc/2S6W-4PL6]; Cameron F. Kerry & John B. Morris, Jr., Framing a Privacy Right: Legislative Findings for Federal Privacy Legislation, BROOKINGS INSTITUTE (Dec. 8, 2020), https://www.brookings.edu/research/framing-a-privacy-right-legislative-findings-for-federal-privacy-legislation/ [https://perma.cc/XF9G-EGLG]; The State of Privacy in Post-Snowden America, PEW RSCH. CTR. (Sept. 21, 2016), https://www.pewresearch.org/fact-tank/2016/09/21/the-state-of-privacy-in-america/ [https://perma.cc/7BDC-XVGF].

⁴² Engstrom et al., *supra* note 1, at 30; *see also* National Security Commission, *supra* note 3, at 11.

https://news.stanford.edu/2019/11/21/stanford-helps-train-ai-not-misbehave/ [https://perma.cc/H9LG-REXP]; *see generally* Lehr & Ohm, *supra* note 32.

³⁶ Lehr & Ohm, *supra* note 32, at 669–702 (describing the eight stages as (1) "problem definition," (2) "data collection," (3) "data cleaning," (4) "summary statistics review," (5) "data partitioning," (6) "model selection," (7) "model training," and (8) "model deployment").

³⁷ BAOBAO ZHANG & ALLAN DAFOE, ARTIFICIAL INTELLIGENCE: AMERICAN ATTITUDES AND TRENDS, CENTER FOR THE GOVERNANCE OF AI, UNIVERSITY OF OXFORD 3 (Jan. 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3312874 [https://perma.cc/5BUK-ZGEH].

³⁸ Baobao Zhang, *Public Opinion Lessons for AI Regulation*, BROOKINGS (Dec. 10, 2019), https://www.brookings.edu/research/public-opinion-lessons-for-ai-regulation/ [https://perma.cc/6T8A-6XG5]; Amir Nasr, *Poll: Majority Says Regulations Needed For Artificial Intelligence*, MORNING CONSULT (Apr. 11, 2017, 1:29 PM), https://morningconsult.com/2017/04/11/poll-majority-say-regulations-needed-artificial-intelligence/ [https://perma.cc/7Y3R-7R3E].

deployments of AI, while substantial, lag significantly behind the private sector, though the pace of government development of AI tools is accelerating.⁴³ Taking into account these considerations, we make five observations:

- there is broad public support for careful management of AI;
- the amount of government AI already deployed is numerous and unaccounted for;
- there is insufficient transparency of when and how these systems are used;
- there are privacy considerations surrounding administrative AI applications; and
- AI systems are prone to bias.

Thus, the environment is ripe for principled regulation of government AI deployments. While it is plausible that all AI implemented by agencies are successfully performing their intended functions, it is possible that for at least some of these systems, the costs invested once development has begun create a bias in the agency that predisposes the agency to seeing the project through at the heavy cost of marginalizing or ignoring red flags that centralized benchmarking, review, and interagency commentary can resolve. While significant developments for ethical use of AI at the national and international levels are ongoing, there are nuances and concrete solutions that must be developed for AI use in regulatory agencies.⁴⁴

Until recently, many technical issues regarding AI, such as explainability to humans of how an AI makes particular determinations as well as the detection and measuring of unethical bias, posed seemingly

⁴³ Engstrom et al., *supra* note 1, at 20 ("These results on sophistication should be taken with a grain of salt. Reasonable people can disagree about comparative assessments of sophistication Moreover, available documentation likely skews toward older technology.").

⁴⁴ Nicholas Beale, Heather Battey, Anthony C. Davison and Robert S. MacKay, *An Unethical Optimization Principle*, 7 ROYAL SOC'Y OPEN SCI. 2 (June 5, 2020), https://royalsocietypublishing.org/doi/10.1098/rsos.200462 [https://perma.cc/P5EE-SL8Q] ("Principles for ethical use of AI have been adopted at national and international levels and the area of AI ethics is one of very considerable activity.") (internal citations omitted); OECD, ARTIFICIAL INTELLIGENCE IN SOCIETY, (2019) https://doi.org/10.1787/eedfee77-en [https://perma.cc/5233-G9MV] [hereinafter OECD AI Society]; Bostrom N, Yudkowsky E., *The Ethics of Artificial Intelligence, in* THE CAMBRIDGE HANDBOOK OF ARTIFICIAL INTELLIGENCE 316–34 (Keith Frankish &William M. Ramsey eds., Cambridge Univ. Press. 2014) (doi:10.1017/CBO9781139046855.020); Virginia Dignum, *Ethics in Artificial Intelligence: Introduction to the Special Issue.* ETHICS INF. TECH. 20, 1–3 (doi:10.1007/s10676-018-9450-z).

unsolvable challenges for regulators.⁴⁵ Even when technical remedies were potentially available to rectify these issues, legal barriers have inhibited the ability to properly examine AI implementations and make adjustments as needed.⁴⁶

Bias⁴⁷ has been well-documented in numerous applications of machine learning⁴⁸ and has been highlighted as a significant issue in AI implementations.⁴⁹ In the context of algorithms, bias produces results that are "systematically prejudiced due to assumptions in the machine learning process" and often stem from the data sets used to train models as well as

⁴⁷ *Bias*, Black's Law Dictionary (10th ed. 2014) ("a mental inclination or tendency; prejudice; predilection.").

⁴⁸ James Zou & Londa Schiebinger, AI Can Be Sexist and Racist-It's Time to Make It Fair, 559 NATURE 324 (2018), https://www.nature.com/articles/d41586-018-05707-8 [https://perma.cc/5MCS-Q9RP] ("When Google Translate converts news articles written in Spanish into English, phrases referring to women often become 'he said' or 'he wrote'. Software designed to warn people using Nikon cameras when the person they are photographing seems to be blinking tends to interpret Asians as always blinking. Word embedding, a popular algorithm used to process and analyse large amounts of naturallanguage data, characterizes European American names as pleasant and African American ones as unpleasant. These are just a few of the many examples uncovered so far of artificial intelligence (AI) applications systematically discriminating against specific populations."); Julia Angwin, Jeff Larson, Surya Mattu & Lauren Kirchner, Machine Bias, PROPUBLICA (May 23, 2016), https://www.propublica.org/article/machine-bias-risk-assessments-in-criminalsentencing [https://perma.cc/972H-UB7C] (discussing how criminal risk assessment scores can generate higher rates of false positives for African-Americans than for Caucasians); Jeff Dastin, Amazon Scraps Secret AI Recruiting Tool that Showed Bias against Women, REUTERS (Oct. 9, 2018, 7:04 PM), https://www.reuters.com/article/us-amazon-com-jobs-automationinsight/amazon-scraps-secret-ai-recruiting-tool-that-showed-bias-against-women-

idUSKCN1MK08G [https://perma.cc/3FW4-YDQT] (discussing how a natural language processing-based engine used for analyzing job applicants could score individuals who graduated from women's colleges relatively poorly due to current workforce demographics); CATHY O'NEIL, WEAPONS OF MATH DESTRUCTION (2016) (discussing how contrary to intuitive perception, mathematical models which in theory are designed to be more fair than human decision makers often reinforce bias and are also opaque, unregulated, and uncontestable); Vishal Chawla, How a US Citizen Was Wrongly Arrested Due To A Flawed Recognition Match, ANALYTICS INDIA MAG. 26, 2020) Facial (June https://analyticsindiamag.com/how-a-us-citizen-was-wrongly-arrested-due-to-a-flawedfacial-recognition-match/ [https://perma.cc/AFQ2-8XLB] (discussing how U.S. citizen

Robert Julian-Borchak Williams was wrongfully arrested by the Detroit Police Department over a year after an alleged shoplifting incident took place based on still images taken from a surveillance video run through facial recognition software).

⁴⁹ OECD AI Society, *supra* note 44.

⁴⁵ See, e.g., David Freeman Engstrom & Daniel E. Ho, Algorithmic Accountability in the Administrative State, YALE J. REGUL. (forthcoming 2021) (manuscript at 41), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3551544 [https://perma.cc/NM4H-FKW2] ("Explainable and interpretable AI is a frontier challenge in computer science research.").

⁴⁶ *Id.* at 39–40.

from the design of the model itself.⁵⁰ Thus, using large datasets like the ones that agencies possess has great potential to systematically discriminate, especially on the basis of vulnerable groups, including those related to race and gender.⁵¹ Amazon, for example, ultimately had to discontinue using an AI-powered recruiting system because they were unable to remove gender bias from the results.⁵² The system was found to be unfairly favoring male job applicants due to the training data used to teach the system.⁵³ Even after discovering the issue and eliminating any specific mentions of gender from the system's consideration, the system continued to draw unfair inferences based on gender because certain words appeared more often in resumes of males than in resumes of females.⁵⁴ Problematically, it can be difficult to trace the source of these negative effects to humans.⁵⁵ And, sometimes, humans intentionally train biased AI algorithms in violation of federal law.⁵⁶ The biases inherent in these applications have been demonstrated through recent quantitative research indicating that AI operating in large strategy spaces, as AI implemented by administrative agencies often do, disproportionately select unethical strategies when those strategies are not properly accounted for.⁵⁷ Fortunately, new research is providing novel

- ⁵³ Dastin, *supra* note 48; Satell & Sutton *supra* note 50.
- ⁵⁴ Dastin, *supra* note 48; Satell & Sutton *supra* note 50.
- ⁵⁵ Dastin, *supra* note 48; Satell & Sutton *supra* note 50.

⁵⁰ Patrick Huston & Lourdes Fuentes-Slater, *The Legal Risks of Bias in Artificial Intelligence*, LAW 360 (May 27, 2020, 5:30 PM), https://www.law360.com/articles/1274143/the-legal-risks-of-bias-in-artificial-intelligence [https://perma.cc/JPH7-YEE2]; Greg Satell & Josh Sutton, *We Need Al That Is Explainable, Auditable, and Transparent*, HARV. BUS. REV. (Oct. 28, 2019), https://hbr.org/2019/10/we-need-ai-that-is-explainable-auditable-and-transparent [https://perma.cc/JHJ5-UPCD].

⁵¹ Engstrom et al., *supra* note 1, at 80; Barocas & Selbst, *supra* note 33, at 677; *see generally* O'NEIL, *supra* note 48.

⁵² Dastin, *supra* note 48; Satell & Sutton *supra* note 50; James Manyika, Jake Silberg & Brittany Presten, *What Do We Do About the Biases in AI*?, HARV. BUS. REV. (Oct. 25, 2019), https://hbr.org/2019/10/what-do-we-do-about-the-biases-in-ai [https://perma.cc/FKZ2-7PZS].

⁵⁶ Keith E. Sonderling, Commissioner, U.S. Equal Employment Opportunity Commission, *No Bots Need Apply: Microtargeting Employment Ads in the Age of AI*, HR DIVE (June 9, 2021), https://www.hrdive.com/news/no-bots-need-apply-microtargetingemployment-ads-in-the-age-of-ai/601502/ [https://perma.cc/MFF6-CFXV] (AI-powered "microtargeted exclusions"—the exclusive targeting of certain classes of persons with job opportunities at the exclusion of others—"would withhold the very existence of job opportunities from members of protected classes for the sole reason of their membership in a protected class, leaving them unable to exercise their rights under federal antidiscrimination law").

⁵⁷ University of Warwick, New Mathematical Idea Reins in AI Bias Towards Making Unethical and Costly Commercial Choices, PHYS.ORG (June 30, 2020),

means of detecting and minimizing unethical bias in many instances prior to AI implementation.⁵⁸ These solutions also provide means for regulators or those seeking to challenge the results of an AI implementation to detect unethical bias following AI implementation.⁵⁹ Current AI regulatory literature have proposed numerous potential *ex post* and *ex ante* solutions to address the inherent issues of bias.⁶⁰ The latest of this literature has also discussed the shortcomings of these proposals and suggested more novel approaches.⁶¹

II. THE FLEDGLING DEVELOPMENT OF REGULATING AI IN GOVERNMENT IN THE OBAMA AND TRUMP ADMINISTRATIONS

Significant attention has been paid to how federal agencies should regulate commercial AI use⁶² and concerns have been raised of the risk for overregulation.⁶³ However, recent research shows that the progress made on the regulation of federal agency use of AI to date is limited.⁶⁴ The Obama Administration released a report in late 2016 on the future of AI entitled *Preparing for the Future of Artificial Intelligence*⁶⁵ in tandem with a

⁵⁹ Thomas et al., *supra* note 58, at 999.

⁶⁰ Engstrom & Ho, *supra* note 45, at 42–46 (discussing proposed *ex post* and *ex ante* methods regulating AI such as reviewability and allowing opportunity for notice and comment); Ryan Calo and Danielle Keats Citron, *The Automated Administrative State: A Crisis of Legitimacy*, 70 EMORY L.J. (forthcoming 2021) (manuscript at 7) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3553590 [https://perma.cc/62DQ-7ENK].

⁶¹ Engstrom & Ho, *supra* note 45, at 46–50 (discussing the merits of creation of an oversight board and "prospective benchmarking" in assessing AI decision making tools).

⁶² Memorandum from Russell T. Vought to The Heads of Executive Departments and Agencies on Guidance for Regulation of Artificial Intelligence Applications 1 (draft guidance) [hereinafter Memorandum].

⁶³ Clyde Wayne Crews Jr., *How The White House "Guidance For Regulation Of Artificial Intelligence" Invites Overregulation*, FORBES (Apr. 15, 2020, 11:35 AM), https://www.forbes.com/sites/waynecrews/2020/04/15/how-the-white-house-guidance-for-regulation-of-artificial-intelligence-invites-overregulation/ [https://perma.cc/K53L-3BLR].

⁶⁴ Memorandum, *supra* note 62, at 1–2.

⁶⁵ NAT'L SCI. & TECH. COUNCIL, COMM. ON TECH., PREPARING FOR THE FUTURE OF ARTIFICIAL INTELLIGENCE,

https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/N STC/preparing_for_the_future_of_ai.pdf [https://perma.cc/LGB4-KHXU] [hereinafter Obama AI].

https://phys.org/news/2020-06-mathematical-idea-reins-ai-bias.html [https://perma.cc/FJH7-PJPX].

⁵⁸ Beale et al., *supra* note 44, at 1; Philip S. Thomas et al., *Preventing Undesirable Behavior of Intelligent Machines*, 366 SCIENCE 999 (Nov. 22, 2019), https://science.sciencemag.org/content/366/6468/999 [https://perma.cc/ZZW6-KTVS].

companion *National Artificial Intelligence Research and Development Strategic Plan.*⁶⁶ These plans were important steps in the right direction, but, as is apparent from the reports' preliminary recommendations, they operated as an initial salvo into a novel space.⁶⁷

The Trump Administration made progress in the federal response to AI development by taking preliminary steps in organizing and regulating AI systems being deployed by government agencies under Executive Orders 13,859 and 13,960.⁶⁸ Executive Order 13,859, *Maintaining American Leadership in Artificial Intelligence*, and the December 2020-issued Executive Order 13,960, *Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government*, were the first actions of their kind to be specifically focused on AI.⁶⁹ Together, they initiated a whole-of-government process to develop guidance for the regulation of AI applications at the macroscopic level.

As the Executive Branch has grappled with the legal implications of emerging technologies, the development of AI in administrative agencies remains in its infancy.⁷⁰ While much of the literature in this area views AI as a monolith,⁷¹ newer studies have begun to examine its nuances in different

⁶⁷ Obama AI, *supra* note 65.

[https://perma.cc/RH8M-SBYH]("Artificial intelligence may have been invented in the United States, but other nations, including China, Canada, and France, have made bigger moves to back and benefit from the technology in recent years.").

⁶⁹ See Executive Orders cited supra note 68.

⁷⁰ See, e.g., Exec. Order No. 13,859, *supra* note 68; *see also, e.g.*, Cary Coglianese and Lavi M. Ben Dor, *AI in Adjudication and Administration*, FACULTY SCHOLARSHIP AT PENN LAW 2118 (2020), at 2 https://scholarship.law.upenn.edu/faculty_scholarship/2118 [https://perma.cc/59M5-MHHJ] ("[T]here currently exists no centralized repository of applications of artificial intelligence by courts and administrative agencies."); Engstrom et al., *supra* note 1, at 6; Lehr & Ohm, *supra* note 32, at 655 (arguing that legal scholars have disproportionately focused on the implications of AI as a "running model" while neglecting analyzing earlier steps in the AI development process); Huston & Fuentes-Slater, *supra* note 50.

⁷¹ Engstrom & Ho, *supra* note 45, at 5.

⁶⁶ NAT'L SCI. & TECH. COUNCIL, COMM. ON TECH., NATIONAL ARTIFICIAL INTELLIGENCE RESEARCH AND DEVELOPMENT STRATEGIC PLAN (Oct. 2016), https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/N STC/national_ai_rd_strategic_plan.pdf [https://perma.cc/FT6V-7BLR].

⁶⁸ Exec. Order No. 13,859, *Executive Order on Maintaining American Leadership in Artificial Intelligence*, 84 Fed. Reg. 3967 (Feb. 14, 2019), https://www.federalregister.gov/documents/2019/02/14/2019-02544/maintaining-american-leadership-in-artificial-intelligence [https://perma.cc/9E8D-6XPF]; Exec. Order No. 13,960, *supra* note 16; Will Knight, *Trump Has a Plan to Keep America First in Artificial Intelligence*, TECH. REV. (Feb. 10, 2019), https://www.technologyreview.com/2019/02/10/137495/trump-will-sign-an-executive-order-to-put-america-first-in-artificial-intelligence/

applications and stages of development.⁷² These works have built a rich foundation for a more nuanced examination of AI that will yield discrete solutions to legal problems.⁷³ The numerous proposed solutions for regulating AI range from legislative approaches, such as amending the Administrative Procedure Act ("APA") or enacting new statutes, to process and structure approaches, such as instituting a benchmarking regime and establishing a new AI oversight board. While legislative solutions have merit, we focus on the exercise of executive discretion in light of current congressional torpor on technology-oriented legislation.⁷⁴ Within the Executive Branch, we hone in on the structural approach that we think is the best next step for the area—as opposed to engaging on technical features of AI policy or the various competing technologies—to accomplish adequate and effective regulation.

A. The ACUS Report

Several government agencies have recognized the need for reform regarding existing ethical frameworks to ensure they fit well with AI.⁷⁵ In 2020, a report entitled *Government by Algorithm: Artificial Intelligence in*

⁷² See, e.g., Manyika et al., *supra* note 52; *see also* Daniel L. Chen, *Machine Learning and the Rule of Law* 2 (Jan. 6, 2019), *in* LAW AS DATA, (M. Livermore & D. Rockmore eds., Santa Fe Institute Press 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3302507 [https://perma.cc/8GS4-H69A] (arguing "that predictive judicial analytics in the form of applied statistical/machine learning (from causal inference to deep learning) holds at least some promise" in detecting and resolving bias in judicial decision-making); Coglianese & Ben Dor, *supra* note 70, at 1; *c.f.*, Lehr & Ohm, *supra* note 32, at 655.

⁷³ See, e.g., Engstrom & Ho, supra note 45; Michèle Finck, Automated Decision-Making and Administrative Law, OXFORD HANDBOOK OF COMPARATIVE ADMINISTRATIVE LAW (forthcoming, P. Cane et al. eds., Oxford University Press, 2020, Max Planck Institute for Innovation & Competition Research Paper No. 19-10) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3433684 [https://perma.cc/SC3G-T8WC]; Coglianese & Ben Dor, *supra* note 70, at 1–2; Engstrom et al., *supra* note 1, at 76. See OECD Principles on AI, OECD (last visited June 19, 2020), https://www.oecd.org/goingdigital/ai/principles/ [https://perma.cc/G7VH-MUAC] [hereinafter OECD Principles]. See also Lehr & Ohm, supra note 32, at 655.

⁷⁴ Engler, *supra* note 15 ("With Democrats unable to take decisive control of the Senate, legislation to create a new regulatory body seems unlikely.").

⁷⁵ Principles of Artificial Intelligence Ethics for The Intelligence Community, OFFICE DIR. NAT'L INTEL. (Jul. 23, 2020), https://www.intelligence.gov/principles-of-artificial-intelligence-ethics-for-the-intelligence-community [https://perma.cc/P2HT-QFYA]; Artificial Intelligence Ethics Framework For The Intelligence Community, OFFICE DIR. NAT'L INTEL. (June' 2020), https://www.intelligence.gov/artificial-intelligence-ethics-framework-for-the-intelligence-community [https://perma.cc/8267-EZW2]; Press Release, U.S. Dep't Def., DOD Adopts Ethical Principles for Artificial Intelligence (Feb. 24, 2020), https://www.defense.gov/Newsroom/Releases/Release/Article/2091996/dod-adopts-ethical-principles-for-artificial-intelligence/ [https://perma.cc/D2CW-VZC8] [hereinafter DOD Ethical Principles]; National Security Commission, supra note 3, at 93–95.

Federal Administrative Agencies (ACUS Report or the Report) revealed disconcerting findings about the lack of information⁷⁶ and number of AI systems already being used or developed by administrative agencies with minimal federal oversight.⁷⁷ Published by ACUS and drafted by a diverse research team that included lawyers, computer scientists, and social scientists, the report endeavored to understand how agencies are currently using AI systems.⁷⁸ The ACUS findings provided that:

- "the government's AI toolkit is diverse and spans the federal administrative state;"
- despite widespread agency use, the government's development of AI still significantly lacks sophistications when compared to private sector counterparts;
- "AI poses deep accountability challenges;"
- agencies must continue to develop in-house technical capacity to continue to make "responsible and smart use of AI;" and
- "AI has the potential to raise distributive concerns and fuel political anxieties."⁷⁹

Based on these findings, the ACUS Report proposes several options for "concrete reform ideas."⁸⁰ The three options presented range from minimalist to bold.⁸¹ The minimalist approach opts to interpret the APA as much as possible to "enable prudent *ex ante* review of algorithmic tools through the notice-and-comment process and/or judicious *ex post* review by courts."⁸² For *ex ante* review, the Report suggests amending the APA to set new triggers for when an algorithmic tool should be subject to notice and comment.⁸³ For *ex post* review, the Report suggests relaxing the presumption against reviewability of enforcement decisions that was described by the Supreme Court in *Heckler v. Chaney*.⁸⁴

83 Id.

⁷⁶ Engstrom et al., *supra* note 1, at 19 ("Here lies the most sobering finding: For most government applications (61%), there is insufficient publicly available technical documentation to determine with precision what methods are deployed.").

⁷⁷ *Id.* at 6.

⁷⁸ Id.

⁷⁹ Id. at 6-8.

⁸⁰ Id. at 77.

⁸¹ See id.

⁸² Id.

⁸⁴ See id. (referring to the Supreme Court's decision in Heckler v. Chaney, 470 U.S. 821, 833 (1985), which held that in the absence of statutory "guidelines for the agency to follow in exercising its enforcement powers," an agency's exercise of enforcement discretion is not reviewable by the courts).

To overcome the limitations of *ex ante* and *ex post* review under the APA, a second option proposed by the Report is to establish an AI oversight board within each agency or as a standalone agency staffed with "technologists, lawyers, and agency representatives" to monitor, investigate, and make recommendations to agencies seeking to adopt new AI.⁸⁵ We believe that jointly empowering OIRA and the OSTP with policymaking authority to regulate agency adoptions and utilizations of AI systems would render an independent AI oversight board unnecessary and superfluous in light of the traditional congressional oversight role and agency inspectors general. A newly empowered OIRA and OSTP could serve dual functions of providing mandatory requirements and best practices guidance to agencies seeking to implement AI and also could provide (or commission) objective experts as needed for AI developments and implementations.

Lastly, a third reform option proposed by the Report is for agencies to engage in prospective "benchmarking."⁸⁶ The Report interprets the term in this context to mean that random sets of agency decisions made through a new AI implementation would continue to be made according to the status quo (without AI) in order to gauge the effectiveness of the new system.⁸⁷ Of all the options explored in the Report, benchmarking appears to be the one most strongly supported in a forthcoming follow-up article written by some of the initial report's authors.⁸⁸ We think that this proposition is essential to ensure that the public and key stakeholders, such as lawmakers and potentially courts, understand the decisions being made through AI. Adhering to this proposition would also ensure that residual agency knowledge is retained in human counterparts and is not lost through overreliance on autonomous systems. Assuming there are sufficient human resources available, humans may be able to offer a supervisory review for a subset of decisions rendered by an AI.

B. Recent Executive Orders and Actions on AI

The development of standards for AI technology in government has been catalyzed by Executive Order 13,859⁸⁹ and some progress has been made to date.⁹⁰ Such executive order requires the development of guidance

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⁹⁰ See Exec. Order No. 13,960, supra note 16; Adrian Cho, United States Establishes a Dozen AI and Quantum Information Science Research Centers, SCIENCE (Aug. 26, 2020, 5:30 PM), https://www.sciencemag.org/news/2020/08/united-states-establishes-dozen-ai-and-

⁸⁵ *Id.*

⁸⁶ *Id*.

⁸⁷ Id.

⁸⁸ See Engstrom & Ho, supra note 45, at 46–50.

⁸⁹ See Exec. Order No. 13,859, supra note 68.

for the regulation of AI applications⁹¹ while emphasizing the need to increase public access to government data concerning AI research and development.⁹² It principally charged the Director of the OMB to strike a balance between ensuring AI applications are implemented in a way that uphold American values while not unnecessarily hindering innovation.⁹³ The order launched the "American AI Initiative" which aimed to direct federal funds and resources towards AI research while establishing "U.S.-led international AI standards."⁹⁴ The plan aimed to redirect funding towards the prioritization of investments in AI, create new federal resources available to AI researchers, have the National Institute of Standards and Technology ("NIST")⁹⁵ establish standards to develop "reliable, robust, trustworthy, secure, portable,

⁹¹ See Exec. Order No. 13,859, *supra* note 68, at § 6 (Guidance for Regulation of AI Applications).

⁹² See id. at § 5 (Data and Computing Resources for AI Research and Development).

⁹³ See id. at § 6(a) ("Within 180 days of the date of this order, the OMB Director, in coordination with the OSTP Director, the Director of the Domestic Policy Council, and the Director of the National Economic Council, and in consultation with any other relevant agencies and key stakeholders as the OMB Director shall determine, shall issue a memorandum to the heads of all agencies that shall: (i) inform the development of regulatory and nonregulatory approaches by such agencies regarding technologies and industrial sectors that are either empowered or enabled by AI, and that advance American innovation while upholding civil liberties, privacy, and American values; and (ii) consider ways to reduce barriers to the use of AI technologies in order to promote their innovative application while protecting civil liberties, privacy, American values, and United States economic and national security.").

⁹⁴ Mark Minevich, *The American AI Initiative: A Good First Step, of Many*, TECHCRUNCH (Aug. 20, 2019, 6:00 PM), https://techcrunch.com/2019/08/20/the-americanai-initiative-a-good-first-step-of-many/ [https://perma.cc/A4NT-6USD].

⁹⁵ NIST Mission, Vision, Core Competencies, and Core Values, NIST, https://www.nist.gov/about-nist/our-organization/mission-vision-values

[https://perma.cc/2W6J-SBZC] (describing NIST as a part of the US Department of Commerce charged with establishing measurements to support US industrial competitiveness among other responsibilities; NIST's mission is "[t]o promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life").

quantum-information-science-research-centers [https://perma.cc/L49X-C2YH]; Press Release, Office Dir. Nat'l Intel., Intelligence Community Releases Artificial Intelligence Principles and Framework (Jul. 23, 2020), https://www.dni.gov/index.php/newsroom/pressreleases/item/2134-intelligence-community-releases-artificial-intelligence-principles-andframework [https://perma.cc/Z54C-E3HA] [hereinafter Intelligence Framework]; DOD Ethical Principles, *supra* note 75; Press Release, Nat'l Inst. Of Standards and Tech. (NIST), Plan Outlines Priorities for Federal Agency Engagement in AI Standards Development (Aug. 12, 2019), https://www.nist.gov/news-events/news/2019/08/plan-outlines-priorities-federalagency-engagement-ai-standards-development [https://perma.cc/TN9A-YPHB] (issuing the plan as a response to Exec. Order No. 13,859 asking NIST to outline the development of technical standards regarding AI to assist in meeting the executive order's objectives); *see also* Exec. Order No. 13,859, *supra* note 68.

and interoperable AI systems," retrain workers in AI, and collaborate with stakeholders at the international level to ensure AI is developed in ways consistent with American values.⁹⁶ The plan however, was critiqued by some as lacking specifics sufficient to put the ideals into action.⁹⁷ As stated by Harvard professor and chairman of President Obama's Council of Economic Advisers responsible for crafting the administration's aforementioned 2016 report Jason Furman, "The administration's American AI Initiative includes all of the right elements; the critical test will be to see if they follow through in a vigorous manner The plan is aspirational with no details and is not self-executing."⁹⁸

The Order produced significant preliminary results in the relatively short time since its release. NIST responded to the directives laid out in the order in late 2019 with a report entitled A Plan for Federal Engagement in Developing Technical Standards and Related Tools.⁹⁹ The Plan identified nine areas of focus for AI standards and established four recommendations for the Federal government to "commit to deeper, consistent, long-term engagement in AI standards development activities to help the United States to speed the pace of reliable, robust, and trustworthy AI technology development."100 Several agencies created and adopted their own guidelines and principles for the use of AI for national security or defense purposes.¹⁰¹ Furthermore, in February 2020, OSTP released its first annual report on the progress made by the Initiative, including committing to doubling federal nondefense investment in AI research and development, updating its AI research and development strategic plan, calling on federal agencies to identify new opportunities to increase access to AI resources, and removing barriers to AI innovation.¹⁰² The White House also announced in August

⁹⁶ Knight, *supra* note 68.

⁹⁷ Engler, *supra* note 15 ("The Biden administration should be more proactive than the Trump White House, which took minimal action to avoid problems associated with the use of algorithms.").

⁹⁸ Knight, *supra* note 68; *see* Minevich, *supra* note 94.

⁹⁹ NIST, U.S. LEADERSHIP IN AI: A PLAN FOR FEDERAL ENGAGEMENT IN DEVELOPING TECHNICAL STANDARDS AND RELATED TOOLS (Aug. 9, 2019), https://www.nist.gov/system/files/documents/2019/08/10/ai_standards_fedengagement_plan _9aug2019.pdf [https://perma.cc/3EUA-CKEE].

¹⁰⁰ Id.

¹⁰¹ See DOD Ethical Principles, *supra* note 75; OFFICE DIR. NAT'L INTEL., INTELLIGENCE PRINCIPLES OF ARTIFICIAL INTELLIGENCE (Jul. 23, 2020), https://www.dni.gov/index.php/features/2763-principles-of-artificial-intelligence-ethics-forthe-intelligence-community [https://perma.cc/487L-2LW8]; Intelligence Framework, *supra* note 90.

¹⁰² THE WHITE HOUSE OFFICE OF SCIENCE AND TECHNOLOGY POLICY, AMERICAN ARTIFICIAL INTELLIGENCE INITIATIVE: YEAR ONE ANNUAL REPORT (Feb. 2020),

2020 a \$1 billion investment in seven research institutes to advance "industries of the future," including AI.¹⁰³

Executive Order 13,859 was followed up with the second AI-focused order, Executive Order 13,960, on December 3, 2020.¹⁰⁴ Executive Order 13,960 directs federal agencies to follow the nine common principles laid out in Executive Order 13,859 for designing, developing, acquiring, and using AI; establishes a common (generalized) policy for implementing these principles; directs all agencies to prepare an inventory of AI use cases by each agency; and directs the General Services Administration to create an AI track within the Presidential Innovation Fellows program to draw in industry experts to work within federal agencies on AI development tasks.¹⁰⁵ As stated by the Executive Order,

The ongoing adoption and acceptance of AI will depend significantly on public trust. Agencies must therefore 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, consistent with applicable law and the goals of Executive Order 13859.¹⁰⁶

Despite the advances made by the Trump executive orders, the Obama Administration report and strategic plan, and other actions, none provide structural change of the OSTP and OIRA kind that we propose.¹⁰⁷ Particulars of our proposal follow below.

III. EMPOWERING OSTP AND OIRA TO REGULATE, IMPLEMENT, AND OVERSEE EFFECTIVE ADMINISTRATIVE AI DEPLOYMENT

The federal government has an opportunity to further capitalize on the consistent progress made in the past two presidential administrations to

¹⁰⁶ Exec. Order No. 13,960, *supra* note 16.

https://trumpwhitehouse.archives.gov/wp-content/uploads/2020/02/American-AI-Initiative-One-Year-Annual-Report.pdf [https://perma.cc/KC9T-9M6B].

¹⁰³ Michael Kratsios & Chris Liddell, *The Trump Administration is Investing \$1 Billion in Research Institutes to Advance Industries of the Future*, OFFICE SCI. TECH. & POL'Y (Aug. 26, 2020), https://trumpwhitehouse.archives.gov/articles/trump-administration-investing-1-billion-research-institutes-advance-industries-future/ [https://perma.cc/FSK2-7DZB].

¹⁰⁴ Exec. Order No. 13,960, *supra* note 16.

¹⁰⁵ *Id.*; *President Trump Signs Executive Order on Promoting Trustworthy AI in the Federal Government*, HPCWIRE (Dec. 4, 2020), https://www.hpcwire.com/off-the-wire/president-trump-signs-executive-order-on-promoting-trustworthy-ai-in-the-federal-government/ [https://perma.cc/5FUG-G66A].

¹⁰⁷ Duane C. Pozza et al., Administration Releases New Executive Order Directing Federal Agencies on Artificial Intelligence (AI), WILEY (Dec. 4, 2020), https://www.wiley.law/alert-Administration-Releases-New-Executive-Order-Directing-Federal-Agencies-on-Artificial-Intelligence [https://perma.cc/XQ4P-2YUF].

deploy AI efficaciously, thoughtfully, and rapidly in administrative agencies. In the absence of legislative enactment, but in furtherance of the spirit of the National Artificial Intelligence Initiative Act of 2020, the Biden Administration could make the proposed OSTP-OIRA changes expeditiously via an Executive Order or Presidential Memorandum. In a relatively short time span, the Trump Administration established a framework of principles to ensure that federal agencies adopting AI do so in a way that maintains public trust and upholds American values.¹⁰⁸ It did this while laying the groundwork for creating a centralized repository for the tracking of AI use cases across all agencies.¹⁰⁹ This emphasis on continuing to develop AI capabilities and appropriate regulation has advanced the U.S.; at the same time, more is needed.

The effectiveness of the steps taken by the Trump and Obama Administrations will largely depend on how agencies utilize the policies that have been laid out.¹¹⁰ Several organizations have already put forth their thoughts on how the new administration should handle AI regulation.¹¹¹ The Biden Administration's challenge will be to strike the appropriate balance between regulation and emphasized innovation. Underregulating AI in government risks deploying systems that undermine U.S. constitutional and statutory requirements of equal protection and discriminating against vulnerable groups on account of race, sex, or other factors.¹¹² Overregulating AI risks stifling American technical innovation.¹¹³ These stakes carry national security implications.

Maintaining the position of the U.S. in AI will take a concerted effort of industry and the federal government, both in the national security space and otherwise.¹¹⁴ As stated by the vice chairman of Nasdaq in a recent CNBC interview regarding AI, "the U.S. already is leading, but it needs more . . . of

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¹⁰⁸ See supra Section II.B.

¹⁰⁹ Id.

¹¹⁰ Brandi Vincent, *What Trump's Order on Trustworthy AI Might Mean for Agencies*, NEXTGOV (Dec. 14, 2020), https://www.nextgov.com/emerging-tech/2020/12/what-trumps-order-trustworthy-ai-might-mean-agencies/170752/ [https://perma.cc/3X6A-9HVX].

¹¹¹ Engler, *supra* note 15; Khari Johnson, *AI Weekly: Tech, Power, and Building the Biden Administration*, VENTURE BEAT (Nov. 13, 2020, 4:04 PM), https://venturebeat.com/2020/11/13/ai-weekly-tech-power-and-building-the-bidenadministration/ [https://perma.cc/M83X-RZ5D].

¹¹² See supra footnote 48.

¹¹³ See Andrea O'Sullivan, Don't Let Regulators Ruin AI, MIT TECH. REV. (Oct. 24, 2017), https://www.technologyreview.com/s/609132/dont-let-regulators-ruin-ai [https://perma.cc/AX38-B3BK].

¹¹⁴ National Security Commission, *supra* note 3, at 7–14.

a strategic approach involving the government."¹¹⁵ At bottom, America's reliance on the private sector for AI advancement is insufficient.¹¹⁶ The government must take the lead in creating fundamental developments in the field; and proper, efficient regulation is key to accomplishing this objective. The passage of the U.S. Innovation and Competition Act embodies a sizable capital investment by government in American AI technical advancement, though its effect on regulation in the AI space is indeterminate at this early juncture.¹¹⁷

The task outlined in the recent Executive Order 13,960 of taking inventory of all AI use cases already employed in federal agencies is a daunting objective. When asked whether OMB as currently situated was appropriately resourced to document every federal AI application, Larson and Brookings Institution Rubenstein Fellow for Governance Studies Alex Engler stated that he is "skeptical" due to the "sheer volume of what's currently in place today."¹¹⁸ This opinion overlays with a finding in the ACUS Report.¹¹⁹ Empowering the resources the government already has in place may be the best way to appropriately regulate government use of AI going forward while accomplishing the policies and tasks laid out in Trump's executive orders.

The OMB Memorandum, M-21-06, *Guidance for Regulation of Artificial Intelligence Applications*, has already advised that agencies implementing AI should follow the risk-based approach of Executive Order 12,866 "to consider the degree and nature of the risks posed by various activities within their jurisdiction."¹²⁰ We believe the OMB subagency,

¹¹⁵ Abigail Ng, *The U.S. Government Needs to Get Involved in the A.I. Race Against China, Nasdaq Executive Says,* CNBC (Nov. 26, 2020, 1:32 AM), https://www.cnbc.com/2020/11/25/nasdaq-executive-on-the-us-china-artificial-intelligence-race.html [https://perma.cc/TLN6-WSX2] (quoting Edward Knight, vice chairman of Nasdaq); see also National Security Commission, supra note 3, at 25.

¹¹⁶ See, e.g., Jonathan Vanian, *White House Proposes Big Increase in A.I. and Quantum Spending While Cutting Other Sciences*, FORTUNE (Feb. 11, 2020), https://fortune.com/2020/02/11/white-house-a-i-funding/ [https://perma.cc/JYL3-EH6U] (noting that Carnegie Mellon University professor Sridhar Tayur commends the proposed increased federal government spending on AI and quantum because he believes that companies like Google and Facebook, despite spending billions annually on AI, do not spend their funds on fundamental research like the government does).

¹¹⁷ Cat Zakrzewski, *The Technology 202: The Senate Approved a Massive Investment in* U.S. Tech Competitiveness, WASH. POST (June 9, 2021, 9:19 AM), https://www.washingtonpost.com/politics/2021/06/09/technology-202-senate-approvedmassive-investment-us-tech-competitiveness/ [https://perma.cc/3RGS-LE8A].

¹¹⁸ Vincent, *supra* note 110.

¹¹⁹ Engstrom et al., *supra* note 1, at 6 (noting how diverse and widespread the government's AI toolkit is).

¹²⁰ Memorandum, *supra* note 62, at 4.

OIRA, in concert with OSTP, to be the ideal institutions to regulate agency AI implementations, and the Executive Order's methodology to be the ideal foundational framework for evaluating individual AI implementations' risks. OIRA has overseen the implementation of numerous government-wide policies and has reviewed numerous draft regulations under Executive Order 12,866, making it well-situated to scale its regulatory role to capture administrative AI. As part of its current duties, OIRA publicly discloses certain elements of its review process, including which changes are made based on OIRA's recommendations.¹²¹ Such AI-related public disclosures provided by a newly empowered OIRA would critically help accomplish the goal of building public trust in the administrative adoption and acceptance of AI as described in Executive Order 13,859 and outlined more broadly by other organizations.¹²² As the source of much of the material produced by the American AI Initiative, OSTP would work well with OIRA to accomplish effective AI oversight. This preliminary work would also situate OSTP well to determine what technical and anti-bias standards should exist and would enable the agency to keep OIRA informed on what should be appropriate oversight. As a part of the Executive Branch, OSTP is well positioned to coordinate among agencies, and government and nongovernmental subject matter experts.¹²³ OSTP and OIRA could consult with ACUS and NIST to commission further studies on AI usage in regulatory agencies.

For the purposes of tackling the major problems associated with unsound utilizations of AI, the federal government needs an institutional structure to keep up with industry and the technical acumen to be able to benchmark, test, and utilize such systems to comply with the Constitution's restraints on government and the myriad of federal nondiscrimination statutes, especially on the basis of race and sex.¹²⁴ Potential structural deficiencies have also emerged in the government's cybersecurity infrastructure in general, most recently with the SolarWinds hack.¹²⁵ A

¹²¹ COPELAND, *supra* note 21, at i.

¹²² Exec. Order No. 13,859, *supra* note 68; Engstrom et al., *supra* note 1, at 75; OECD Principles, *supra* note 73.

¹²³ SARGENT & SHEA, *supra* note 18, at 20 ("OSTP Directors can serve as a communication conduit between the [Executive Office of the President] and the federal and nonfederal [science and technology] community.").

¹²⁴ See, e.g., Bostock v. Clayton Cnty., Ga., 140 S. Ct. 1731, 1753–54 (2020) (construing the plain meaning of "because of sex" in the employment discrimination protections of the Civil Rights Act of 1964 more broadly to include discrimination on the basis of sexual orientation and gender identity).

¹²⁵ Eric Geller, *Biden Aide Calls SolarWinds Top Priority as New Details Emerge*, POLITICO (Jan. 4, 2021, 10:00 AM), https://www.politico.com/newsletters/weekly-

centralized regulatory infrastructure body may be able to address these related issues. Evidence of changes that reflect a more unified control structure to adjust to evolving challenges are clear in the latest NDAA, particularly with the establishment of a new Senate-approved National Cyber Director "to coordinate the federal government's various digital missions and serve as the president's principle cyber adviser."¹²⁶ Situated within the Executive Office of the President, the National Cyber Director and their staff will have responsibilities including presidential advising; pruning of federal policies, guidelines, and regulations; and providing interagency coordination for incident response.¹²⁷ The passage of the NDAA establishing the National Cyber Director with its White House and interagency coordinating responsibilities could reflect a willingness within the now-Democrat led Congress to have more centralized control structures within the Executive Branch for regulating administrative (or general) application of AI.

To effectively accomplish the structural solution of an empowered OSTP-OIRA AI regulatory entity, OIRA will need to change and grow through the hiring of additional data and computer scientists and engineers to build on the resident knowledge of the federal government regarding AI. In addition, OMB's Office of General Council will likely need to appropriately staff its ranks with subject matter experts specializing in AI, who can bridge the gap between the technical nuances of agency AI implementations and applicable laws and policies. This greater technical expertise will also likely have the added benefit of better enabling the Executive Branch to reduce its repeated cyber exposure and by extension, America's cyber exposure by virtue of the vast data on American businesses and individuals that the government possesses. In other words, having more technical expertise within regulatory entities optimally positioned to command a holistic view of the federal administrative state-in addition to helping ensure AI use cases adhere to consistent legal and ethical principles-will have a halo effect of ensuring there are government AI subject-matter experts who will be part of a more-resilient cybersecurity infrastructure that agencies, like the Cybersecurity and Infrastructure Security Agency, protect. The Brookings Institute has similarly suggested

cybersecurity/2021/01/04/biden-aide-calls-solarwinds-top-priority-as-new-details-emerge-792539 [https://perma.cc/5KPF-MSWV] (discussing reports that the Department of Homeland Security's Cybersecurity and Infrastructure Security Agency may have insufficient resources to "provide direct support" to the SolarWinds investigation).

¹²⁶ *Id.*; Robert Chesney, *The NDAA's National Cyber Director: Justifications, Authorities and Lingering Questions*, LAWFARE (Dec. 7, 2020), https://www.lawfareblog.com/ndaas-national-cyber-director-justifications-authorities-andlingering-questions [https://perma.cc/2TVF-56QZ].

¹²⁷ Chesney, *supra* note 126.

that the auditing of agency AI systems could be accomplished by OSTP using its existing authority to hire additional data scientists into the United States Digital Service through the aforementioned Presidential Innovation Fellows program.¹²⁸

Regardless of whether Executive Orders 13,859 and 13,960 are revoked,¹²⁹ OIRA should still have a central role alongside OSTP as part of the structural Executive Branch solution to the issue of AI regulation in administrative agencies. And while advisory boards and committees can serve a valuable purpose to draw attention to an issue or to attract the knowledge of industry or those of complementary disciplines, it will be the career government employees with institutional expertise who will be helpful in promoting the long-term promise of responsible and efficacious deployment of administrative AI.

¹²⁸ Engler, *supra* note 15.