OCTOBER 30, 2023

Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1. Purpose. Artificial intelligence (AI) holds extraordinary potential for both promise and peril. Responsible AI use has the potential to help solve urgent challenges while making our world more prosperous, productive, innovative, and secure. At the same time, irresponsible use could exacerbate societal harms such as fraud, discrimination, bias, and disinformation; displace and disempower workers; stifle competition; and pose risks to national security. Harnessing AI for good and realizing its myriad benefits requires mitigating its substantial risks. This endeavor demands a society-wide effort that includes government, the private sector, academia, and civil society.

My Administration places the highest urgency on governing the development and use of AI safely and responsibly, and is therefore advancing a coordinated, Federal Government-wide approach to doing so. The rapid speed at which AI capabilities are advancing compels the United States to lead in this moment for the sake of our security, economy, and society.

In the end, AI reflects the principles of the people who build it, the people who use it, and the data upon which it is built. I firmly believe that the power of our ideals; the foundations of our society; and the creativity, diversity, and decency of our people are the reasons that America thrived in past eras of rapid change. They are the reasons we will succeed again in this moment. We are more than capable of harnessing AI for justice, security, and opportunity for all.

Sec. 2. Policy and Principles. It is the policy of my Administration to advance and govern the development and use of AI in accordance with eight guiding principles and priorities. When undertaking the actions set forth in

this order, executive departments and agencies (agencies) shall, as appropriate and consistent with applicable law, adhere to these principles, while, as feasible, taking into account the views of other agencies, industry, members of academia, civil society, labor unions, international allies and partners, and other relevant organizations:

(a) Artificial Intelligence must be safe and secure. Meeting this goal requires robust, reliable, repeatable, and standardized evaluations of AI systems, as well as policies, institutions, and, as appropriate, other mechanisms to test, understand, and mitigate risks from these systems before they are put to use. It also requires addressing AI systems' most pressing security risks — including with respect to biotechnology, cybersecurity, critical infrastructure, and other national security dangers — while navigating AI's opacity and complexity. Testing and evaluations, including post-deployment performance monitoring, will help ensure that AI systems function as intended, are resilient against misuse or dangerous modifications, are ethically developed and operated in a secure manner, and are compliant with applicable Federal laws and policies. Finally, my Administration will help develop effective labeling and content provenance mechanisms, so that Americans are able to determine when content is generated using AI and when it is not. These actions will provide a vital foundation for an approach that addresses AI's risks without unduly reducing its benefits.

(b) Promoting responsible innovation, competition, and collaboration will allow the United States to lead in AI and unlock the technology's potential to solve some of society's most difficult challenges. This effort requires investments in AI-related education, training, development, research, and capacity, while simultaneously tackling novel intellectual property (IP) questions and other problems to protect inventors and creators. Across the Federal Government, my Administration will support programs to provide Americans the skills they need for the age of AI and attract the world's AI talent to our shores — not just to study, but to stay — so that the companies and technologies of the future are made in America. The Federal Government will promote a fair, open, and competitive ecosystem and marketplace for AI and related technologies so that small developers and entrepreneurs can continue to drive innovation. Doing so requires stopping unlawful collusion and addressing risks from dominant firms' use of key assets such as semiconductors, computing power, cloud storage, and data to disadvantage competitors, and it requires supporting a marketplace that

harnesses the benefits of AI to provide new opportunities for small businesses, workers, and entrepreneurs.

(c) The responsible development and use of AI require a commitment to supporting American workers. As AI creates new jobs and industries, all workers need a seat at the table, including through collective bargaining, to ensure that they benefit from these opportunities. My Administration will seek to adapt job training and education to support a diverse workforce and help provide access to opportunities that AI creates. In the workplace itself, AI should not be deployed in ways that undermine rights, worsen job quality, encourage undue worker surveillance, lessen market competition, introduce new health and safety risks, or cause harmful labor-force disruptions. The critical next steps in AI development should be built on the views of workers, labor unions, educators, and employers to support responsible uses of AI that improve workers' lives, positively augment human work, and help all people safely enjoy the gains and opportunities from technological innovation.

(d) Artificial Intelligence policies must be consistent with my Administration's dedication to advancing equity and civil rights. My Administration cannot — and will not — tolerate the use of AI to disadvantage those who are already too often denied equal opportunity and justice. From hiring to housing to healthcare, we have seen what happens when AI use deepens discrimination and bias, rather than improving quality of life. Artificial Intelligence systems deployed irresponsibly have reproduced and intensified existing inequities, caused new types of harmful discrimination, and exacerbated online and physical harms. My Administration will build on the important steps that have already been taken — such as issuing the Blueprint for an AI Bill of Rights, the AI Risk Management Framework, and Executive Order 14091 of February 16, 2023 (Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government) — in seeking to ensure that AI complies with all Federal laws and to promote robust technical evaluations, careful oversight, engagement with affected communities, and rigorous regulation. It is necessary to hold those developing and deploying AI accountable to standards that protect against unlawful discrimination and abuse, including in the justice system and the Federal Government. Only then can Americans trust AI to advance civil rights, civil liberties, equity, and justice for all.

(e) The interests of Americans who increasingly use, interact with, or

purchase AI and AI-enabled products in their daily lives must be protected. Use of new technologies, such as AI, does not excuse organizations from their legal obligations, and hard-won consumer protections are more important than ever in moments of technological change. The Federal Government will enforce existing consumer protection laws and principles and enact appropriate safeguards against fraud, unintended bias, discrimination, infringements on privacy, and other harms from AI. Such protections are especially important in critical fields like healthcare, financial services, education, housing, law, and transportation, where mistakes by or misuse of AI could harm patients, cost consumers or small businesses, or jeopardize safety or rights. At the same time, my Administration will promote responsible uses of AI that protect consumers, raise the quality of goods and services, lower their prices, or expand selection and availability.

(f) Americans' privacy and civil liberties must be protected as AI continues advancing. Artificial Intelligence is making it easier to extract, re-identify, link, infer, and act on sensitive information about people's identities, locations, habits, and desires. Artificial Intelligence's capabilities in these areas can increase the risk that personal data could be exploited and exposed. To combat this risk, the Federal Government will ensure that the collection, use, and retention of data is lawful, is secure, and mitigates privacy and confidentiality risks. Agencies shall use available policy and technical tools, including privacy-enhancing technologies (PETs) where appropriate, to protect privacy and to combat the broader legal and societal risks — including the chilling of First Amendment rights — that result from the improper collection and use of people's data.

(g) It is important to manage the risks from the Federal Government's own use of AI and increase its internal capacity to regulate, govern, and support responsible use of AI to deliver better results for Americans. These efforts start with people, our Nation's greatest asset. My Administration will take steps to attract, retain, and develop public service-oriented AI professionals, including from underserved communities, across disciplines — including technology, policy, managerial, procurement, regulatory, ethical, governance, and legal fields — and ease AI professionals' path into the Federal Government to help harness and govern AI. The Federal Government will work to ensure that all members of its workforce receive adequate training to understand the benefits, risks, and limitations of AI for their job functions, and to modernize Federal Government information

technology infrastructure, remove bureaucratic obstacles, and ensure that safe and rights-respecting AI is adopted, deployed, and used.

(h) The Federal Government should lead the way to global societal, economic, and technological progress, as the United States has in previous eras of disruptive innovation and change. This leadership is not measured solely by the technological advancements our country makes. Effective leadership also means pioneering those systems and safeguards needed to deploy technology responsibly — and building and promoting those safeguards with the rest of the world. My Administration will engage with international allies and partners in developing a framework to manage AI's risks, unlock AI's potential for good, and promote common approaches to shared challenges. The Federal Government will seek to promote responsible AI safety and security principles and actions with other nations, including our competitors, while leading key global conversations and collaborations to ensure that AI benefits the whole world, rather than exacerbating inequities, threatening human rights, and causing other harms.

Sec. 3. Definitions. For purposes of this order:

(a) The term "agency" means each agency described in 44 U.S.C. 3502(1), except for the independent regulatory agencies described in 44 U.S.C. 3502(5).

(b) The term "artificial intelligence" or "AI" has the meaning set forth in 15 U.S.C. 9401(3): a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations, or decisions influencing real or virtual environments. Artificial intelligence systems use machine- and human-based inputs to perceive real and virtual environments; abstract such perceptions into models through analysis in an automated manner; and use model inference to formulate options for information or action.

(c) The term "AI model" means a component of an information system that implements AI technology and uses computational, statistical, or machine-learning techniques to produce outputs from a given set of inputs.

(d) The term "AI red-teaming" means a structured testing effort to find flaws and vulnerabilities in an AI system, often in a controlled environment and in collaboration with developers of AI. Artificial Intelligence red-teaming is most often performed by dedicated "red teams" that adopt

adversarial methods to identify flaws and vulnerabilities, such as harmful or discriminatory outputs from an AI system, unforeseen or undesirable system behaviors, limitations, or potential risks associated with the misuse of the system.

(e) The term "AI system" means any data system, software, hardware, application, tool, or utility that operates in whole or in part using AI.

(f) The term "commercially available information" means any information or data about an individual or group of individuals, including an individual's or group of individuals' device or location, that is made available or obtainable and sold, leased, or licensed to the general public or to governmental or non-governmental entities.

(g) The term "crime forecasting" means the use of analytical techniques to attempt to predict future crimes or crime-related information. It can include machine-generated predictions that use algorithms to analyze large volumes of data, as well as other forecasts that are generated without machines and based on statistics, such as historical crime statistics.

(h) The term "critical and emerging technologies" means those technologies listed in the February 2022 Critical and Emerging Technologies List Update issued by the National Science and Technology Council (NSTC), as amended by subsequent updates to the list issued by the NSTC.

(i) The term "critical infrastructure" has the meaning set forth in section 1016(e) of the USA PATRIOT Act of 2001, 42 U.S.C. 5195c(e).

(j) The term "differential-privacy guarantee" means protections that allow information about a group to be shared while provably limiting the improper access, use, or disclosure of personal information about particular entities.

(k) The term "dual-use foundation model" means an AI model that is trained on broad data; generally uses self-supervision; contains at least tens of billions of parameters; is applicable across a wide range of contexts; and that exhibits, or could be easily modified to exhibit, high levels of performance at tasks that pose a serious risk to security, national economic security, national public health or safety, or any combination of those matters, such as by:

(i) substantially lowering the barrier of entry for non-experts to design, synthesize, acquire, or use chemical, biological, radiological, or nuclear (CBRN) weapons;

(ii) enabling powerful offensive cyber operations through automated vulnerability discovery and exploitation against a wide range of potential targets of cyber attacks; or

(iii) permitting the evasion of human control or oversight through means of deception or obfuscation.

Models meet this definition even if they are provided to end users with technical safeguards that attempt to prevent users from taking advantage of the relevant unsafe capabilities.

(l) The term "Federal law enforcement agency" has the meaning set forth in section 21(a) of Executive Order 14074 of May 25, 2022 (Advancing Effective, Accountable Policing and Criminal Justice Practices To Enhance Public Trust and Public Safety).

(m) The term "floating-point operation" means any mathematical operation or assignment involving floating-point numbers, which are a subset of the real numbers typically represented on computers by an integer of fixed precision scaled by an integer exponent of a fixed base.

(n) The term "foreign person" has the meaning set forth in section 5(c) of Executive Order 13984 of January 19, 2021 (Taking Additional Steps To Address the National Emergency With Respect to Significant Malicious Cyber-Enabled Activities).

(o) The terms "foreign reseller" and "foreign reseller of United States Infrastructure as a Service Products" mean a foreign person who has established an Infrastructure as a Service Account to provide Infrastructure as a Service Products subsequently, in whole or in part, to a third party.

(p) The term "generative AI" means the class of AI models that emulate the structure and characteristics of input data in order to generate derived synthetic content. This can include images, videos, audio, text, and other digital content.

(q) The terms "Infrastructure as a Service Product," "United States Infrastructure as a Service Product," "United States Infrastructure as a

Service Provider," and "Infrastructure as a Service Account" each have the respective meanings given to those terms in section 5 of Executive Order 13984.

(r) The term "integer operation" means any mathematical operation or assignment involving only integers, or whole numbers expressed without a decimal point.

(s) The term "Intelligence Community" has the meaning given to that term in section 3.5(h) of Executive Order 12333 of December 4, 1981 (United States Intelligence Activities), as amended.

(t) The term "machine learning" means a set of techniques that can be used to train AI algorithms to improve performance at a task based on data.

(u) The term "model weight" means a numerical parameter within an AI model that helps determine the model's outputs in response to inputs.

(v) The term "national security system" has the meaning set forth in 44 U.S.C. 3552(b)(6).

(w) The term "omics" means biomolecules, including nucleic acids, proteins, and metabolites, that make up a cell or cellular system.

(x) The term "Open RAN" means the Open Radio Access Network approach to telecommunications-network standardization adopted by the O-RAN Alliance, Third Generation Partnership Project, or any similar set of published open standards for multi-vendor network equipment interoperability.

(y) The term "personally identifiable information" has the meaning set forth in Office of Management and Budget (OMB) Circular No. A-130.

(z) The term "privacy-enhancing technology" means any software or hardware solution, technical process, technique, or other technological means of mitigating privacy risks arising from data processing, including by enhancing predictability, manageability, disassociability, storage, security, and confidentiality. These technological means may include secure multiparty computation, homomorphic encryption, zero-knowledge proofs, federated learning, secure enclaves, differential privacy, and synthetic-data-generation tools. This is also sometimes referred to as "privacy-preserving technology."

(aa) The term “privacy impact assessment” has the meaning set forth in OMB Circular No. A-130.

(bb) The term “Sector Risk Management Agency” has the meaning set forth in 6 U.S.C. 650(23).

(cc) The term “self-healing network” means a telecommunications network that automatically diagnoses and addresses network issues to permit self-restoration.

(dd) The term “synthetic biology” means a field of science that involves redesigning organisms, or the biomolecules of organisms, at the genetic level to give them new characteristics. Synthetic nucleic acids are a type of biomolecule redesigned through synthetic-biology methods.

(ee) The term “synthetic content” means information, such as images, videos, audio clips, and text, that has been significantly modified or generated by algorithms, including by AI.

(ff) The term “testbed” means a facility or mechanism equipped for conducting rigorous, transparent, and replicable testing of tools and technologies, including AI and PETs, to help evaluate the functionality, usability, and performance of those tools or technologies.

(gg) The term “watermarking” means the act of embedding information, which is typically difficult to remove, into outputs created by AI — including into outputs such as photos, videos, audio clips, or text — for the purposes of verifying the authenticity of the output or the identity or characteristics of its provenance, modifications, or conveyance.

Sec. 4. Ensuring the Safety and Security of AI Technology.

4.1. Developing Guidelines, Standards, and Best Practices for AI Safety and Security. (a) Within 270 days of the date of this order, to help ensure the development of safe, secure, and trustworthy AI systems, the Secretary of Commerce, acting through the Director of the National Institute of Standards and Technology (NIST), in coordination with the Secretary of Energy, the Secretary of Homeland Security, and the heads of other relevant agencies as the Secretary of Commerce may deem appropriate, shall:

(i) Establish guidelines and best practices, with the aim of promoting consensus industry standards, for developing and deploying safe, secure, and

trustworthy AI systems, including:

(A) developing a companion resource to the AI Risk Management Framework, NIST AI 100-1, for generative AI;

(B) developing a companion resource to the Secure Software Development Framework to incorporate secure development practices for generative AI and for dual-use foundation models; and

(C) launching an initiative to create guidance and benchmarks for evaluating and auditing AI capabilities, with a focus on capabilities through which AI could cause harm, such as in the areas of cybersecurity and biosecurity.

(ii) Establish appropriate guidelines (except for AI used as a component of a national security system), including appropriate procedures and processes, to enable developers of AI, especially of dual-use foundation models, to conduct AI red-teaming tests to enable deployment of safe, secure, and trustworthy systems. These efforts shall include:

(A) coordinating or developing guidelines related to assessing and managing the safety, security, and trustworthiness of dual-use foundation models; and

(B) in coordination with the Secretary of Energy and the Director of the National Science Foundation (NSF), developing and helping to ensure the availability of testing environments, such as testbeds, to support the development of safe, secure, and trustworthy AI technologies, as well as to support the design, development, and deployment of associated PETs, consistent with section 9(b) of this order.

(b) Within 270 days of the date of this order, to understand and mitigate AI security risks, the Secretary of Energy, in coordination with the heads of other Sector Risk Management Agencies (SRMAs) as the Secretary of Energy may deem appropriate, shall develop and, to the extent permitted by law and available appropriations, implement a plan for developing the Department of Energy's AI model evaluation tools and AI testbeds. The Secretary shall undertake this work using existing solutions where possible, and shall develop these tools and AI testbeds to be capable of assessing near-term extrapolations of AI systems' capabilities. At a minimum, the Secretary shall develop tools to evaluate AI capabilities to generate outputs that may

represent nuclear, nonproliferation, biological, chemical, critical infrastructure, and energy-security threats or hazards. The Secretary shall do this work solely for the purposes of guarding against these threats, and shall also develop model guardrails that reduce such risks. The Secretary shall, as appropriate, consult with private AI laboratories, academia, civil society, and third-party evaluators, and shall use existing solutions.

4.2. Ensuring Safe and Reliable AI. (a) Within 90 days of the date of this order, to ensure and verify the continuous availability of safe, reliable, and effective AI in accordance with the Defense Production Act, as amended, 50 U.S.C. 4501 *et seq.*, including for the national defense and the protection of critical infrastructure, the Secretary of Commerce shall require:

(i) Companies developing or demonstrating an intent to develop potential dual-use foundation models to provide the Federal Government, on an ongoing basis, with information, reports, or records regarding the following:

(A) any ongoing or planned activities related to training, developing, or producing dual-use foundation models, including the physical and cybersecurity protections taken to assure the integrity of that training process against sophisticated threats;

(B) the ownership and possession of the model weights of any dual-use foundation models, and the physical and cybersecurity measures taken to protect those model weights; and

(C) the results of any developed dual-use foundation model's performance in relevant AI red-team testing based on guidance developed by NIST pursuant to subsection 4.1(a)(ii) of this section, and a description of any associated measures the company has taken to meet safety objectives, such as mitigations to improve performance on these red-team tests and strengthen overall model security. Prior to the development of guidance on red-team testing standards by NIST pursuant to subsection 4.1(a)(ii) of this section, this description shall include the results of any red-team testing that the company has conducted relating to lowering the barrier to entry for the development, acquisition, and use of biological weapons by non-state actors; the discovery of software vulnerabilities and development of associated exploits; the use of software or tools to influence real or virtual events; the possibility for self-replication or propagation; and associated measures to meet safety objectives; and

(ii) Companies, individuals, or other organizations or entities that acquire, develop, or possess a potential large-scale computing cluster to report any such acquisition, development, or possession, including the existence and location of these clusters and the amount of total computing power available in each cluster.

(b) The Secretary of Commerce, in consultation with the Secretary of State, the Secretary of Defense, the Secretary of Energy, and the Director of National Intelligence, shall define, and thereafter update as needed on a regular basis, the set of technical conditions for models and computing clusters that would be subject to the reporting requirements of subsection 4.2(a) of this section. Until such technical conditions are defined, the Secretary shall require compliance with these reporting requirements for:

(i) any model that was trained using a quantity of computing power greater than 10^{26} integer or floating-point operations, or using primarily biological sequence data and using a quantity of computing power greater than 10^{23} integer or floating-point operations; and

(ii) any computing cluster that has a set of machines physically co-located in a single datacenter, transitively connected by data center networking of over 100 Gbit/s, and having a theoretical maximum computing capacity of 10^{20} integer or floating-point operations per second for training AI.

(c) Because I find that additional steps must be taken to deal with the national emergency related to significant malicious cyber-enabled activities declared in Executive Order 13694 of April 1, 2015 (Blocking the Property of Certain Persons Engaging in Significant Malicious Cyber-Enabled Activities), as amended by Executive Order 13757 of December 28, 2016 (Taking Additional Steps to Address the National Emergency With Respect to Significant Malicious Cyber-Enabled Activities), and further amended by Executive Order 13984, to address the use of United States Infrastructure as a Service (IaaS) Products by foreign malicious cyber actors, including to impose additional record-keeping obligations with respect to foreign transactions and to assist in the investigation of transactions involving foreign malicious cyber actors, I hereby direct the Secretary of Commerce, within 90 days of the date of this order, to:

(i) Propose regulations that require United States IaaS Providers to submit a report to the Secretary of Commerce when a foreign person

transacts with that United States IaaS Provider to train a large AI model with potential capabilities that could be used in malicious cyber-enabled activity (a "training run"). Such reports shall include, at a minimum, the identity of the foreign person and the existence of any training run of an AI model meeting the criteria set forth in this section, or other criteria defined by the Secretary in regulations, as well as any additional information identified by the Secretary.

(ii) Include a requirement in the regulations proposed pursuant to subsection 4.2(c)(i) of this section that United States IaaS Providers prohibit any foreign reseller of their United States IaaS Product from providing those products unless such foreign reseller submits to the United States IaaS Provider a report, which the United States IaaS Provider must provide to the Secretary of Commerce, detailing each instance in which a foreign person transacts with the foreign reseller to use the United States IaaS Product to conduct a training run described in subsection 4.2(c)(i) of this section. Such reports shall include, at a minimum, the information specified in subsection 4.2(c)(i) of this section as well as any additional information identified by the Secretary.

(iii) Determine the set of technical conditions for a large AI model to have potential capabilities that could be used in malicious cyber-enabled activity, and revise that determination as necessary and appropriate. Until the Secretary makes such a determination, a model shall be considered to have potential capabilities that could be used in malicious cyber-enabled activity if it requires a quantity of computing power greater than 10^{26} integer or floating-point operations and is trained on a computing cluster that has a set of machines physically co-located in a single datacenter, transitively connected by data center networking of over 100 Gbit/s, and having a theoretical maximum compute capacity of 10^{20} integer or floating-point operations per second for training AI.

(d) Within 180 days of the date of this order, pursuant to the finding set forth in subsection 4.2(c) of this section, the Secretary of Commerce shall propose regulations that require United States IaaS Providers to ensure that foreign resellers of United States IaaS Products verify the identity of any foreign person that obtains an IaaS account (account) from the foreign reseller. These regulations shall, at a minimum:

(i) Set forth the minimum standards that a United States IaaS Provider must require of foreign resellers of its United States IaaS Products to verify

the identity of a foreign person who opens an account or maintains an existing account with a foreign reseller, including:

(A) the types of documentation and procedures that foreign resellers of United States IaaS Products must require to verify the identity of any foreign person acting as a lessee or sub-lessee of these products or services;

(B) records that foreign resellers of United States IaaS Products must securely maintain regarding a foreign person that obtains an account, including information establishing:

(1) the identity of such foreign person, including name and address;

(2) the means and source of payment (including any associated financial institution and other identifiers such as credit card number, account number, customer identifier, transaction identifiers, or virtual currency wallet or wallet address identifier);

(3) the electronic mail address and telephonic contact information used to verify a foreign person's identity; and

(4) the Internet Protocol addresses used for access or administration and the date and time of each such access or administrative action related to ongoing verification of such foreign person's ownership of such an account; and

(C) methods that foreign resellers of United States IaaS Products must implement to limit all third-party access to the information described in this subsection, except insofar as such access is otherwise consistent with this order and allowed under applicable law;

(ii) Take into consideration the types of accounts maintained by foreign resellers of United States IaaS Products, methods of opening an account, and types of identifying information available to accomplish the objectives of identifying foreign malicious cyber actors using any such products and avoiding the imposition of an undue burden on such resellers; and

(iii) Provide that the Secretary of Commerce, in accordance with such standards and procedures as the Secretary may delineate and in consultation with the Secretary of Defense, the Attorney General, the Secretary of

Homeland Security, and the Director of National Intelligence, may exempt a United States IaaS Provider with respect to any specific foreign reseller of their United States IaaS Products, or with respect to any specific type of account or lessee, from the requirements of any regulation issued pursuant to this subsection. Such standards and procedures may include a finding by the Secretary that such foreign reseller, account, or lessee complies with security best practices to otherwise deter abuse of United States IaaS Products.

(e) The Secretary of Commerce is hereby authorized to take such actions, including the promulgation of rules and regulations, and to employ all powers granted to the President by the International Emergency Economic Powers Act, 50 U.S.C. 1701 *et seq.*, as may be necessary to carry out the purposes of subsections 4.2(c) and (d) of this section. Such actions may include a requirement that United States IaaS Providers require foreign resellers of United States IaaS Products to provide United States IaaS Providers verifications relative to those subsections.

4.3. Managing AI in Critical Infrastructure and in Cybersecurity. (a) To ensure the protection of critical
infrastructure, the following actions shall be taken:

(i) Within 90 days of the date of this order, and at least annually thereafter, the head of each agency with relevant regulatory authority over critical infrastructure and the heads of relevant SRMAs, in coordination with the Director of the Cybersecurity and Infrastructure Security Agency within the Department of Homeland Security for consideration of cross-sector risks, shall evaluate and provide to the Secretary of Homeland Security an assessment of potential risks related to the use of AI in critical infrastructure sectors involved, including ways in which deploying AI may make critical infrastructure systems more vulnerable to critical failures, physical attacks, and cyber attacks, and shall consider ways to mitigate these vulnerabilities. Independent regulatory agencies are encouraged, as they deem appropriate, to contribute to sector-specific risk assessments.

(ii) Within 150 days of the date of this order, the Secretary of the Treasury shall issue a public report on best practices for financial institutions to manage AI-specific cybersecurity risks.

(iii) Within 180 days of the date of this order, the Secretary of Homeland Security, in coordination with the Secretary of Commerce and with SRMAs and other regulators as determined by the Secretary of

Homeland Security, shall incorporate as appropriate the AI Risk Management Framework, NIST AI 100-1, as well as other appropriate security guidance, into relevant safety and security guidelines for use by critical infrastructure owners and operators.

(iv) Within 240 days of the completion of the guidelines described in subsection 4.3(a)(iii) of this section, the Assistant to the President for National Security Affairs and the Director of OMB, in consultation with the Secretary of Homeland Security, shall coordinate work by the heads of agencies with authority over critical infrastructure to develop and take steps for the Federal Government to mandate such guidelines, or appropriate portions thereof, through regulatory or other appropriate action. Independent regulatory agencies are encouraged, as they deem appropriate, to consider whether to mandate guidance through regulatory action in their areas of authority and responsibility.

(v) The Secretary of Homeland Security shall establish an Artificial Intelligence Safety and Security Board as an advisory committee pursuant to section 871 of the Homeland Security Act of 2002 (Public Law 107-296). The Advisory Committee shall include AI experts from the private sector, academia, and government, as appropriate, and provide to the Secretary of Homeland Security and the Federal Government's critical infrastructure community advice, information, or recommendations for improving security, resilience, and incident response related to AI usage in critical infrastructure.

(b) To capitalize on AI's potential to improve United States cyber defenses:

(i) The Secretary of Defense shall carry out the actions described in subsections 4.3(b)(ii) and (iii) of this section for national security systems, and the Secretary of Homeland Security shall carry out these actions for non-national security systems. Each shall do so in consultation with the heads of other relevant agencies as the Secretary of Defense and the Secretary of Homeland Security may deem appropriate.

(ii) As set forth in subsection 4.3(b)(i) of this section, within 180 days of the date of this order, the Secretary of Defense and the Secretary of Homeland Security shall, consistent with applicable law, each develop plans for, conduct, and complete an operational pilot project to identify, develop, test, evaluate, and deploy AI capabilities, such as large-language models, to

aid in the discovery and remediation of vulnerabilities in critical United States Government software, systems, and networks.

(iii) As set forth in subsection 4.3(b)(i) of this section, within 270 days of the date of this order, the Secretary of Defense and the Secretary of Homeland Security shall each provide a report to the Assistant to the President for National Security Affairs on the results of actions taken pursuant to the plans and operational pilot projects required by subsection 4.3(b)(ii) of this section, including a description of any vulnerabilities found and fixed through the development and deployment of AI capabilities and any lessons learned on how to identify, develop, test, evaluate, and deploy AI capabilities effectively for cyber defense.

4.4. Reducing Risks at the Intersection of AI and CBRN Threats. (a) To better understand and mitigate the risk of AI being misused to assist in the development or use of CBRN threats — with a particular focus on biological weapons — the following actions shall be taken:

(i) Within 180 days of the date of this order, the Secretary of Homeland Security, in consultation with the Secretary of Energy and the Director of the Office of Science and Technology Policy (OSTP), shall evaluate the potential for AI to be misused to enable the development or production of CBRN threats, while also considering the benefits and application of AI to counter these threats, including, as appropriate, the results of work conducted under section 8(b) of this order. The Secretary of Homeland Security shall:

(A) consult with experts in AI and CBRN issues from the Department of Energy, private AI laboratories, academia, and third-party model evaluators, as appropriate, to evaluate AI model capabilities to present CBRN threats — for the sole purpose of guarding against those threats — as well as options for minimizing the risks of AI model misuse to generate or exacerbate those threats; and

(B) submit a report to the President that describes the progress of these efforts, including an assessment of the types of AI models that may present CBRN risks to the United States, and that makes recommendations for regulating or overseeing the training, deployment, publication, or use of these models, including requirements for safety evaluations and guardrails for mitigating potential threats to national security.

(ii) Within 120 days of the date of this order, the Secretary of Defense,

in consultation with the Assistant to the President for National Security Affairs and the Director of OSTP, shall enter into a contract with the National Academies of Sciences, Engineering, and Medicine to conduct — and submit to the Secretary of Defense, the Assistant to the President for National Security Affairs, the Director of the Office of Pandemic Preparedness and Response Policy, the Director of OSTP, and the Chair of the Chief Data Officer Council — a study that:

(A) assesses the ways in which AI can increase biosecurity risks, including risks from generative AI models trained on biological data, and makes recommendations on how to mitigate these risks;

(B) considers the national security implications of the use of data and datasets, especially those associated with pathogens and omics studies, that the United States Government hosts, generates, funds the creation of, or otherwise owns, for the training of generative AI models, and makes recommendations on how to mitigate the risks related to the use of these data and datasets;

(C) assesses the ways in which AI applied to biology can be used to reduce biosecurity risks, including recommendations on opportunities to coordinate data and high-performance computing resources; and

(D) considers additional concerns and opportunities at the intersection of AI and synthetic biology that the Secretary of Defense deems appropriate.

(b) To reduce the risk of misuse of synthetic nucleic acids, which could be substantially increased by AI's capabilities in this area, and improve biosecurity measures for the nucleic acid synthesis industry, the following actions shall be taken:

(i) Within 180 days of the date of this order, the Director of OSTP, in consultation with the Secretary of State, the Secretary of Defense, the Attorney General, the Secretary of Commerce, the Secretary of Health and Human Services (HHS), the Secretary of Energy, the Secretary of Homeland Security, the Director of National Intelligence, and the heads of other relevant agencies as the Director of OSTP may deem appropriate, shall establish a framework, incorporating, as appropriate, existing United States Government guidance, to encourage providers of synthetic nucleic acid sequences to implement comprehensive, scalable, and verifiable synthetic

nucleic acid procurement screening mechanisms, including standards and recommended incentives. As part of this framework, the Director of OSTP shall:

(A) establish criteria and mechanisms for ongoing identification of biological sequences that could be used in a manner that would pose a risk to the national security of the United States; and

(B) determine standardized methodologies and tools for conducting and verifying the performance of sequence synthesis procurement screening, including customer screening approaches to support due diligence with respect to managing security risks posed by purchasers of biological sequences identified in subsection 4.4(b)(i)(A) of this section, and processes for the reporting of concerning activity to enforcement entities.

(ii) Within 180 days of the date of this order, the Secretary of Commerce, acting through the Director of NIST, in coordination with the Director of OSTP, and in consultation with the Secretary of State, the Secretary of HHS, and the heads of other relevant agencies as the Secretary of Commerce may deem appropriate, shall initiate an effort to engage with industry and relevant stakeholders, informed by the framework developed under subsection 4.4(b)(i) of this section, to develop and refine for possible use by synthetic nucleic acid sequence providers:

(A) specifications for effective nucleic acid synthesis procurement screening;

(B) best practices, including security and access controls, for managing sequence-of-concern databases to support such screening;

(C) technical implementation guides for effective screening; and

(D) conformity-assessment best practices and mechanisms.

(iii) Within 180 days of the establishment of the framework pursuant to subsection 4.4(b)(i) of this section, all agencies that fund life-sciences research shall, as appropriate and consistent with applicable law, establish that, as a requirement of funding, synthetic nucleic acid procurement is conducted through providers or manufacturers that adhere to the framework, such as through an attestation from the provider or manufacturer. The Assistant to the President for National Security Affairs

and the Director of OSTP shall coordinate the process of reviewing such funding requirements to facilitate consistency in implementation of the framework across funding agencies.

(iv) In order to facilitate effective implementation of the measures described in subsections 4.4(b)(i)-(iii) of this section, the Secretary of Homeland Security, in consultation with the heads of other relevant agencies as the Secretary of Homeland Security may deem appropriate, shall:

(A) within 180 days of the establishment of the framework pursuant to subsection 4.4(b)(i) of this section, develop a framework to conduct structured evaluation and stress testing of nucleic acid synthesis procurement screening, including the systems developed in accordance with subsections 4.4(b)(i)-(ii) of this section and implemented by providers of synthetic nucleic acid sequences; and

(B) following development of the framework pursuant to subsection 4.4(b)(iv)(A) of this section, submit an annual report to the Assistant to the President for National Security Affairs, the Director of the Office of Pandemic Preparedness and Response Policy, and the Director of OSTP on any results of the activities conducted pursuant to subsection 4.4(b)(iv)(A) of this section, including recommendations, if any, on how to strengthen nucleic acid synthesis procurement screening, including customer screening systems.

4.5. Reducing the Risks Posed by Synthetic Content.

To foster capabilities for identifying and labeling synthetic content produced by AI systems, and to establish the authenticity and provenance of digital content, both synthetic and not synthetic, produced by the Federal Government or on its behalf:

(a) Within 240 days of the date of this order, the Secretary of Commerce, in consultation with the heads of other relevant agencies as the Secretary of Commerce may deem appropriate, shall submit a report to the Director of OMB and the Assistant to the President for National Security Affairs

identifying the existing standards, tools, methods, and practices, as well as the potential development of further science-backed standards and techniques, for:

(i) authenticating content and tracking its provenance;

(ii) labeling synthetic content, such as using watermarking;

(iii) detecting synthetic content;

(iv) preventing generative AI from producing child sexual abuse material or producing non-consensual intimate imagery of real individuals (to include intimate digital depictions of the body or body parts of an identifiable individual);

(v) testing software used for the above purposes; and

(vi) auditing and maintaining synthetic content.

(b) Within 180 days of submitting the report required under subsection 4.5(a) of this section, and updated periodically thereafter, the Secretary of Commerce, in coordination with the Director of OMB, shall develop guidance regarding the existing tools and practices for digital content authentication and synthetic content detection measures. The guidance shall include measures for the purposes listed in subsection 4.5(a) of this section.

(c) Within 180 days of the development of the guidance required under subsection 4.5(b) of this section, and updated periodically thereafter, the Director of OMB, in consultation with the Secretary of State; the Secretary of Defense; the Attorney General; the Secretary of Commerce, acting through the Director of NIST; the Secretary of Homeland Security; the Director of National Intelligence; and the heads of other agencies that the Director of OMB deems appropriate, shall — for the purpose of strengthening public confidence in the integrity of official United States Government digital content — issue guidance to agencies for labeling and authenticating such content that they produce or publish.

(d) The Federal Acquisition Regulatory Council shall, as appropriate and consistent with applicable law, consider amending the Federal Acquisition Regulation to take into account the guidance established under subsection

4.5 of this section.

4.6. Soliciting Input on Dual-Use Foundation Models with Widely Available Model Weights. When the weights for a dual-use foundation model are widely available — such as when they are publicly posted on the Internet — there can be substantial benefits to innovation, but also substantial security risks, such as the removal of safeguards within the model. To address the risks and potential benefits of dual-use foundation models with widely available weights, within 270 days of the date of this order, the Secretary of Commerce, acting through the Assistant Secretary of Commerce for Communications and Information, and in consultation with the Secretary of State, shall:

(a) solicit input from the private sector, academia, civil society, and other stakeholders through a public consultation process on potential risks, benefits, other implications, and appropriate policy and regulatory approaches related to dual-use foundation models for which the model weights are widely available, including:

(i) risks associated with actors fine-tuning dual-use foundation models for which the model weights are widely available or removing those models' safeguards;

(ii) benefits to AI innovation and research, including research into AI safety and risk management, of dual-use foundation models for which the model weights are widely available; and

(iii) potential voluntary, regulatory, and international mechanisms to manage the risks and maximize the benefits of dual-use foundation models for which the model weights are widely available; and

(b) based on input from the process described in subsection 4.6(a) of this section, and in consultation with the heads of other relevant agencies as the Secretary of Commerce deems appropriate, submit a report to the President on the potential benefits, risks, and implications of dual-use foundation models for which the model weights are widely available, as well as policy and regulatory recommendations pertaining to those models.

4.7. Promoting Safe Release and Preventing the Malicious Use of Federal Data for AI Training.To improve public data access and manage security risks, and consistent with the objectives of the Open, Public, Electronic, and

Necessary Government Data Act (title II of Public Law 115-435) to expand public access to Federal data assets in a machine-readable format while also taking into account security considerations, including the risk that information in an individual data asset in isolation does not pose a security risk but, when combined with other available information, may pose such a risk:

(a) within 270 days of the date of this order, the Chief Data Officer Council, in consultation with the Secretary of Defense, the Secretary of Commerce, the Secretary of Energy, the Secretary of Homeland Security, and the Director of National Intelligence, shall develop initial guidelines for performing security reviews, including reviews to identify and manage the potential security risks of releasing Federal data that could aid in the development of CBRN weapons as well as the development of autonomous offensive cyber capabilities, while also providing public access to Federal Government data in line with the goals stated in the Open, Public, Electronic, and Necessary Government Data Act (title II of Public Law 115-435); and

(b) within 180 days of the development of the initial guidelines required by subsection 4.7(a) of this section, agencies shall conduct a security review of all data assets in the comprehensive data inventory required under 44 U.S.C. 3511(a)(1) and (2)(B) and shall take steps, as appropriate and consistent with applicable law, to address the highest-priority potential security risks that releasing that data could raise with respect to CBRN weapons, such as the ways in which that data could be used to train AI systems.

4.8. Directing the Development of a National Security Memorandum. To develop a coordinated executive branch approach to managing AI's security risks, the Assistant to the President for National Security Affairs and the Assistant to the President and Deputy Chief of Staff for Policy shall oversee an interagency process with the purpose of, within 270 days of the date of this order, developing and submitting a proposed National Security Memorandum on AI to the President. The memorandum shall address the governance of AI used as a component of a national security system or for military and intelligence purposes. The memorandum shall take into account current efforts to govern the development and use of AI for national security systems. The memorandum shall outline actions for the Department of Defense, the Department of State, other relevant agencies, and the Intelligence Community to address the national security risks and potential benefits posed by AI. In particular, the memorandum shall:

(a) provide guidance to the Department of Defense, other relevant agencies, and the Intelligence Community on the continued adoption of AI capabilities to advance the United States national security mission, including through directing specific AI assurance and risk-management practices for national security uses of AI that may affect the rights or safety of United States persons and, in appropriate contexts, non-United States persons; and

(b) direct continued actions, as appropriate and consistent with applicable law, to address the potential use of AI systems by adversaries and other foreign actors in ways that threaten the capabilities or objectives of the Department of Defense or the Intelligence Community, or that otherwise pose risks to the security of the United States or its allies and partners.

Sec. 5. Promoting Innovation and Competition.

5.1. Attracting AI Talent to the United States. (a) Within 90 days of the date of this order, to attract and retain talent in AI and other critical and emerging technologies in the United States economy, the Secretary of State and the Secretary of Homeland Security shall take appropriate steps to:

(i) streamline processing times of visa petitions and applications, including by ensuring timely availability of visa appointments, for noncitizens who seek to travel to the United States to work on, study, or conduct research in AI or other critical and emerging technologies; and

(ii) facilitate continued availability of visa appointments in sufficient volume for applicants with expertise in AI or other critical and emerging technologies.

(b) Within 120 days of the date of this order, the Secretary of State shall:

(i) consider initiating a rulemaking to establish new criteria to designate countries and skills on the Department of State's Exchange Visitor Skills List as it relates to the 2-year foreign residence requirement for certain J-1 nonimmigrants, including those skills that are critical to the United States;

(ii) consider publishing updates to the 2009 Revised Exchange Visitor Skills List (74 FR 20108); and

(iii) consider implementing a domestic visa renewal program under 22 C.F.R. 41.111(b) to facilitate the ability of qualified applicants, including

highly skilled talent in AI and critical and emerging technologies, to continue their work in the United States without unnecessary interruption.

(c) Within 180 days of the date of this order, the Secretary of State shall:

(i) consider initiating a rulemaking to expand the categories of nonimmigrants who qualify for the domestic visa renewal program covered under 22 C.F.R. 41.111(b) to include academic J-1 research scholars and F-1 students in science, technology, engineering, and mathematics (STEM); and

(ii) establish, to the extent permitted by law and available appropriations, a program to identify and attract top talent in AI and other critical and emerging technologies at universities, research institutions, and the private sector overseas, and to establish and increase connections with that talent to educate them on opportunities and resources for research and employment in the United States, including overseas educational components to inform top STEM talent of nonimmigrant and immigrant visa options and potential expedited adjudication of their visa petitions and applications.

(d) Within 180 days of the date of this order, the Secretary of Homeland Security shall:

(i) review and initiate any policy changes the Secretary determines necessary and appropriate to clarify and modernize immigration pathways for experts in AI and other critical and emerging technologies, including O-1A and EB-1 noncitizens of extraordinary ability; EB-2 advanced-degree holders and noncitizens of exceptional ability; and startup founders in AI and other critical and emerging technologies using the International Entrepreneur Rule; and

(ii) continue its rulemaking process to modernize the H-1B program and enhance its integrity and usage, including by experts in AI and other critical and emerging technologies, and consider initiating a rulemaking to enhance the process for noncitizens, including experts in AI and other critical and emerging technologies and their spouses, dependents, and children, to adjust their status to lawful permanent resident.

(e) Within 45 days of the date of this order, for purposes of considering updates to the "Schedule A" list of occupations, 20 C.F.R. 656.5, the Secretary of Labor shall publish a request for information (RFI) to solicit public input,

including from industry and worker-advocate communities, identifying AI and other STEM-related occupations, as well as additional occupations across the economy, for which there is an insufficient number of ready, willing, able, and qualified United States workers.

(f) The Secretary of State and the Secretary of Homeland Security shall, consistent with applicable law and implementing regulations, use their discretionary authorities to support and attract foreign nationals with special skills in AI and other critical and emerging technologies seeking to work, study, or conduct research in the United States.

(g) Within 120 days of the date of this order, the Secretary of Homeland Security, in consultation with the Secretary of State, the Secretary of Commerce, and the Director of OSTP, shall develop and publish informational resources to better attract and retain experts in AI and other critical and emerging technologies, including:

(i) a clear and comprehensive guide for experts in AI and other critical and emerging technologies to understand their options for working in the United States, to be published in multiple relevant languages on AI.gov; and

(ii) a public report with relevant data on applications, petitions, approvals, and other key indicators of how experts in AI and other critical and emerging technologies have utilized the immigration system through the end of Fiscal Year 2023.

5.2. Promoting Innovation. (a) To develop and strengthen public-private partnerships for advancing innovation, commercialization, and risk-mitigation methods for AI, and to help promote safe, responsible, fair, privacy-protecting, and trustworthy AI systems, the Director of NSF shall take the following steps:

(i) Within 90 days of the date of this order, in coordination with the heads of agencies that the Director of NSF deems appropriate, launch a pilot program implementing the National AI Research Resource (NAIRR), consistent with past recommendations of the NAIRR Task Force. The program shall pursue the infrastructure, governance mechanisms, and user interfaces to pilot an initial integration of distributed computational, data, model, and training resources to be made available to the research community in support of AI-related research and development. The Director of NSF shall identify Federal and private sector computational, data,

software, and training resources appropriate for inclusion in the NAIRR pilot program. To assist with such work, within 45 days of the date of this order, the heads of agencies whom the Director of NSF identifies for coordination pursuant to this subsection shall each submit to the Director of NSF a report identifying the agency resources that could be developed and integrated into such a pilot program. These reports shall include a description of such resources, including their current status and availability; their format, structure, or technical specifications; associated agency expertise that will be provided; and the benefits and risks associated with their inclusion in the NAIRR pilot program. The heads of independent regulatory agencies are encouraged to take similar steps, as they deem appropriate.

(ii) Within 150 days of the date of this order, fund and launch at least one NSF Regional Innovation Engine that prioritizes AI-related work, such as AI-related research, societal, or workforce needs.

(iii) Within 540 days of the date of this order, establish at least four new National AI Research Institutes, in addition to the 25 currently funded as of the date of this order.

(b) Within 120 days of the date of this order, to support activities involving high-performance and data-intensive computing, the Secretary of Energy, in coordination with the Director of NSF, shall, in a manner consistent with applicable law and available appropriations, establish a pilot program to enhance existing successful training programs for scientists, with the goal of training 500 new researchers by 2025 capable of meeting the rising demand for AI talent.

(c) To promote innovation and clarify issues related to AI and inventorship of patentable subject matter, the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office (USPTO Director) shall:

(i) within 120 days of the date of this order, publish guidance to USPTO patent examiners and applicants addressing inventorship and the use of AI, including generative AI, in the inventive process, including illustrative examples in which AI systems play different roles in inventive processes and how, in each example, inventorship issues ought to be analyzed;

(ii) subsequently, within 270 days of the date of this order, issue additional guidance to USPTO patent examiners and applicants to address

other considerations at the intersection of AI and IP, which could include, as the USPTO Director deems necessary, updated guidance on patent eligibility to address innovation in AI and critical and emerging technologies; and

(iii) within 270 days of the date of this order or 180 days after the United States Copyright Office of the Library of Congress publishes its forthcoming AI study that will address copyright issues raised by AI, whichever comes later, consult with the Director of the United States Copyright Office and issue recommendations to the President on potential executive actions relating to copyright and AI. The recommendations shall address any copyright and related issues discussed in the United States Copyright Office's study, including the scope of protection for works produced using AI and the treatment of copyrighted works in AI training.

(d) Within 180 days of the date of this order, to assist developers of AI in combatting AI-related IP risks, the Secretary of Homeland Security, acting through the Director of the National Intellectual Property Rights Coordination Center, and in consultation with the Attorney General, shall develop a training, analysis, and evaluation program to mitigate AI-related IP risks. Such a program shall:

(i) include appropriate personnel dedicated to collecting and analyzing reports of AI-related IP theft, investigating such incidents with implications for national security, and, where appropriate and consistent with applicable law, pursuing related enforcement actions;

(ii) implement a policy of sharing information and coordinating on such work, as appropriate and consistent with applicable law, with the Federal Bureau of Investigation; United States Customs and Border Protection; other agencies; State and local agencies; and appropriate international organizations, including through work-sharing agreements;

(iii) develop guidance and other appropriate resources to assist private sector actors with mitigating the risks of AI-related IP theft;

(iv) share information and best practices with AI developers and law enforcement personnel to identify incidents, inform stakeholders of current legal requirements, and evaluate AI systems for IP law violations, as well as develop mitigation strategies and resources; and

(v) assist the Intellectual Property Enforcement Coordinator in

updating the Intellectual Property Enforcement Coordinator Joint Strategic Plan on Intellectual Property Enforcement to address AI-related issues.

(e) To advance responsible AI innovation by a wide range of healthcare technology developers that promotes the welfare of patients and workers in the healthcare sector, the Secretary of HHS shall identify and, as appropriate and consistent with applicable law and the activities directed in section 8 of this order, prioritize grantmaking and other awards, as well as undertake related efforts, to support responsible AI development and use, including:

(i) collaborating with appropriate private sector actors through HHS programs that may support the advancement of AI-enabled tools that develop personalized immune-response profiles for patients, consistent with section 4 of this order;

(ii) prioritizing the allocation of 2024 Leading Edge Acceleration Project cooperative agreement awards to initiatives that explore ways to improve healthcare-data quality to support the responsible development of AI tools for clinical care, real-world-evidence programs, population health, public health, and related research; and

(iii) accelerating grants awarded through the National Institutes of Health Artificial Intelligence/Machine Learning Consortium to Advance Health Equity and Researcher Diversity (AIM-AHEAD) program and showcasing current AIM-AHEAD activities in underserved communities.

(f) To advance the development of AI systems that improve the quality of veterans' healthcare, and in order to support small businesses' innovative capacity, the Secretary of Veterans Affairs shall:

(i) within 365 days of the date of this order, host two 3-month nationwide AI Tech Sprint competitions; and

(ii) as part of the AI Tech Sprint competitions and in collaboration with appropriate partners, provide participants access to technical assistance, mentorship opportunities, individualized expert feedback on products under development, potential contract opportunities, and other programming and resources.

(g) Within 180 days of the date of this order, to support the goal of strengthening our Nation's resilience against climate change impacts and

building an equitable clean energy economy for the future, the Secretary of Energy, in consultation with the Chair of the Federal Energy Regulatory Commission, the Director of OSTP, the Chair of the Council on Environmental Quality, the Assistant to the President and National Climate Advisor, and the heads of other relevant agencies as the Secretary of Energy may deem appropriate, shall:

(i) issue a public report describing the potential for AI to improve planning, permitting, investment, and operations for electric grid infrastructure and to enable the provision of clean, affordable, reliable, resilient, and secure electric power to all Americans;

(ii) develop tools that facilitate building foundation models useful for basic and applied science, including models that streamline permitting and environmental reviews while improving environmental and social outcomes;

(iii) collaborate, as appropriate, with private sector organizations and members of academia to support development of AI tools to mitigate climate change risks;

(iv) take steps to expand partnerships with industry, academia, other agencies, and international allies and partners to utilize the Department of Energy's computing capabilities and AI testbeds to build foundation models that support new applications in science and energy, and for national security, including partnerships that increase community preparedness for climate-related risks, enable clean-energy deployment (including addressing delays in permitting reviews), and enhance grid reliability and resilience; and

(v) establish an office to coordinate development of AI and other critical and emerging technologies across Department of Energy programs and the 17 National Laboratories.

(h) Within 180 days of the date of this order, to understand AI's implications for scientific research, the President's Council of Advisors on Science and Technology shall submit to the President and make publicly available a report on the potential role of AI, especially given recent developments in AI, in research aimed at tackling major societal and global challenges. The report shall include a discussion of issues that may hinder the effective use of AI in research and practices needed to ensure that AI is used responsibly for research.

5.3. Promoting Competition. (a) The head of each agency developing policies and regulations related to AI shall use their authorities, as appropriate and consistent with applicable law, to promote competition in AI and related technologies, as well as in other markets. Such actions include addressing risks arising from concentrated control of key inputs, taking steps to stop unlawful collusion and prevent dominant firms from disadvantaging competitors, and working to provide new opportunities for small businesses and entrepreneurs. In particular, the Federal Trade Commission is encouraged to consider, as it deems appropriate, whether to exercise the Commission's existing authorities, including its rulemaking authority under the Federal Trade Commission Act, 15 U.S.C. 41 *et seq*., to ensure fair competition in the AI marketplace and to ensure that consumers and workers are protected from harms that may be enabled by the use of AI.

(b) To promote competition and innovation in the semiconductor industry, recognizing that semiconductors power AI technologies and that their availability is critical to AI competition, the Secretary of Commerce shall, in implementing division A of Public Law 117-167, known as the Creating Helpful Incentives to Produce Semiconductors (CHIPS) Act of 2022, promote competition by:

(i) implementing a flexible membership structure for the National Semiconductor Technology Center that attracts all parts of the semiconductor and microelectronics ecosystem, including startups and small firms;

(ii) implementing mentorship programs to increase interest and participation in the semiconductor industry, including from workers in underserved communities;

(iii) increasing, where appropriate and to the extent permitted by law, the availability of resources to startups and small businesses, including:

(A) funding for physical assets, such as specialty equipment or facilities, to which startups and small businesses may not otherwise have access;

(B) datasets — potentially including test and performance data — collected, aggregated, or shared by CHIPS research and development programs;

(C) workforce development programs;

(D) design and process technology, as well as IP, as appropriate; and

(E) other resources, including technical and intellectual property assistance, that could accelerate commercialization of new technologies by startups and small businesses, as appropriate; and

(iv) considering the inclusion, to the maximum extent possible, and as consistent with applicable law, of competition-increasing measures in notices of funding availability for commercial research-and-development facilities focused on semiconductors, including measures that increase access to facility capacity for startups or small firms developing semiconductors used to power AI technologies.

(c) To support small businesses innovating and commercializing AI, as well as in responsibly adopting and deploying AI, the Administrator of the Small Business Administration shall:

(i) prioritize the allocation of Regional Innovation Cluster program funding for clusters that support planning activities related to the establishment of one or more Small Business AI Innovation and Commercialization Institutes that provide support, technical assistance, and other resources to small businesses seeking to innovate, commercialize, scale, or otherwise advance the development of AI;

(ii) prioritize the allocation of up to $2 million in Growth Accelerator Fund Competition bonus prize funds for accelerators that support the incorporation or expansion of AI-related curricula, training, and technical assistance, or other AI-related resources within their programming; and

(iii) assess the extent to which the eligibility criteria of existing programs, including the State Trade Expansion Program, Technical and Business Assistance funding, and capital-access programs — such as the 7(a) loan program, 504 loan program, and Small Business Investment Company (SBIC) program — support appropriate expenses by small businesses related to the adoption of AI and, if feasible and appropriate, revise eligibility criteria to improve support for these expenses.

(d) The Administrator of the Small Business Administration, in coordination with resource partners, shall conduct outreach regarding, and

raise awareness of, opportunities for small businesses to use capital-access programs described in subsection 5.3(c) of this section for eligible AI-related purposes, and for eligible investment funds with AI-related expertise — particularly those seeking to serve or with experience serving underserved communities — to apply for an SBIC license.

Sec. 6. Supporting Workers.(a) To advance the Government's understanding of AI's implications for workers, the following actions shall be taken within 180 days of the date of this order:

(i) The Chairman of the Council of Economic Advisers shall prepare and submit a report to the President on the labor-market effects of AI.

(ii) To evaluate necessary steps for the Federal Government to address AI-related workforce disruptions, the Secretary of Labor shall submit to the President a report analyzing the abilities of agencies to support workers displaced by the adoption of AI and other technological advancements. The report shall, at a minimum:

(A) assess how current or formerly operational Federal programs designed to assist workers facing job disruptions — including unemployment insurance and programs authorized by the Workforce Innovation and Opportunity Act (Public Law 113-128) — could be used to respond to possible future AI-related disruptions; and

(B) identify options, including potential legislative measures, to strengthen or develop additional Federal support for workers displaced by AI and, in consultation with the Secretary of Commerce and the Secretary of Education, strengthen and expand education and training opportunities that provide individuals pathways to occupations related to AI.

(b) To help ensure that AI deployed in the workplace advances employees' well-being:

(i) The Secretary of Labor shall, within 180 days of the date of this order and in consultation with other agencies and with outside entities, including labor unions and workers, as the Secretary of Labor deems appropriate, develop and publish principles and best practices for employers that could be used to mitigate AI's potential harms to employees' well-being and maximize its potential benefits. The principles and best practices shall include specific steps for employers to take with regard to AI, and shall cover,

at a minimum:

(A) job-displacement risks and career opportunities related to AI, including effects on job skills and evaluation of applicants and workers;

(B) labor standards and job quality, including issues related to the equity, protected-activity, compensation, health, and safety implications of AI in the workplace; and

(C) implications for workers of employers' AI-related collection and use of data about them, including transparency, engagement, management, and activity protected under worker-protection laws.

(ii) After principles and best practices are developed pursuant to subsection (b)(i) of this section, the heads of agencies shall consider, in consultation with the Secretary of Labor, encouraging the adoption of these guidelines in their programs to the extent appropriate for each program and consistent with applicable law.

(iii) To support employees whose work is monitored or augmented by AI in being compensated appropriately for all of their work time, the Secretary of Labor shall issue guidance to make clear that employers that deploy AI to monitor or augment employees' work must continue to comply with protections that ensure that workers are compensated for their hours worked, as defined under the Fair Labor Standards Act of 1938, 29 U.S.C. 201 *et seq.*, and other legal requirements.

(c) To foster a diverse AI-ready workforce, the Director of NSF shall prioritize available resources to support AI-related education and AI-related workforce development through existing programs. The Director shall additionally consult with agencies, as appropriate, to identify further opportunities for agencies to allocate resources for those purposes. The actions by the Director shall use appropriate fellowship programs and awards for these purposes.

Sec. 7. Advancing Equity and Civil Rights.

7.1. Strengthening AI and Civil Rights in the Criminal Justice System. (a) To address unlawful discrimination and other harms that may be exacerbated by AI, the Attorney General shall:

(i) consistent with Executive Order 12250 of November 2, 1980

(Leadership and Coordination of Nondiscrimination Laws), Executive Order 14091, and 28 C.F.R. 0.50-51, coordinate with and support agencies in their implementation and enforcement of existing Federal laws to address civil rights and civil liberties violations and discrimination related to AI;

(ii) direct the Assistant Attorney General in charge of the Civil Rights Division to convene, within 90 days of the date of this order, a meeting of the heads of Federal civil rights offices — for which meeting the heads of civil rights offices within independent regulatory agencies will be encouraged to join — to discuss comprehensive use of their respective authorities and offices to: prevent and address discrimination in the use of automated systems, including algorithmic discrimination; increase coordination between the Department of Justice's Civil Rights Division and Federal civil rights offices concerning issues related to AI and algorithmic discrimination; improve external stakeholder engagement to promote public awareness of potential discriminatory uses and effects of AI; and develop, as appropriate, additional training, technical assistance, guidance, or other resources; and

(iii) consider providing, as appropriate and consistent with applicable law, guidance, technical assistance, and training to State, local, Tribal, and territorial investigators and prosecutors on best practices for investigating and prosecuting civil rights violations and discrimination related to automated systems, including AI.

(b) To promote the equitable treatment of individuals and adhere to the Federal Government's fundamental obligation to ensure fair and impartial justice for all, with respect to the use of AI in the criminal justice system, the Attorney General shall, in consultation with the Secretary of Homeland Security and the Director of OSTP:

(i) within 365 days of the date of this order, submit to the President a report that addresses the use of AI in the criminal justice system, including any use in:

(A) sentencing;

(B) parole, supervised release, and probation;

(C) bail, pretrial release, and pretrial detention;

(D) risk assessments, including pretrial, earned time, and early

release or transfer to home-confinement determinations;

(E) police surveillance;

(F) crime forecasting and predictive policing, including the ingestion of historical crime data into AI systems to predict high-density "hot spots";

(G) prison-management tools; and

(H) forensic analysis;

(ii) within the report set forth in subsection 7.1(b)(i) of this section:

(A) identify areas where AI can enhance law enforcement efficiency and accuracy, consistent with protections for privacy, civil rights, and civil liberties; and

(B) recommend best practices for law enforcement agencies, including safeguards and appropriate use limits for AI, to address the concerns set forth in section 13(e)(i) of Executive Order 14074 as well as the best practices and the guidelines set forth in section 13(e)(iii) of Executive Order 14074; and

(iii) supplement the report set forth in subsection 7.1(b)(i) of this section as appropriate with recommendations to the President, including with respect to requests for necessary legislation.

(c) To advance the presence of relevant technical experts and expertise (such as machine-learning engineers, software and infrastructure engineering, data privacy experts, data scientists, and user experience researchers) among law enforcement professionals:

(i) The interagency working group created pursuant to section 3 of Executive Order 14074 shall, within 180 days of the date of this order, identify and share best practices for recruiting and hiring law enforcement professionals who have the technical skills mentioned in subsection 7.1(c) of this section, and for training law enforcement professionals about responsible application of AI.

(ii) Within 270 days of the date of this order, the Attorney General shall, in consultation with the Secretary of Homeland Security, consider those best practices and the guidance developed under section 3(d) of

Executive Order 14074 and, if necessary, develop additional general recommendations for State, local, Tribal, and territorial law enforcement agencies and criminal justice agencies seeking to recruit, hire, train, promote, and retain highly qualified and service-oriented officers and staff with relevant technical knowledge. In considering this guidance, the Attorney General shall consult with State, local, Tribal, and territorial law enforcement agencies, as appropriate.

(iii) Within 365 days of the date of this order, the Attorney General shall review the work conducted pursuant to section 2(b) of Executive Order 14074 and, if appropriate, reassess the existing capacity to investigate law enforcement deprivation of rights under color of law resulting from the use of AI, including through improving and increasing training of Federal law enforcement officers, their supervisors, and Federal prosecutors on how to investigate and prosecute cases related to AI involving the deprivation of rights under color of law pursuant to 18 U.S.C. 242.

7.2. Protecting Civil Rights Related to Government Benefits and Programs. (a) To advance equity and civil rights, consistent with the directives of Executive Order 14091, and in addition to complying with the guidance on Federal Government use of AI issued pursuant to section 10.1(b) of this order, agencies shall use their respective civil rights and civil liberties offices and authorities — as appropriate and consistent with applicable law — to prevent and address unlawful discrimination and other harms that result from uses of AI in Federal Government programs and benefits administration. This directive does not apply to agencies' civil or criminal enforcement authorities. Agencies shall consider opportunities to ensure that their respective civil rights and civil liberties offices are appropriately consulted on agency decisions regarding the design, development, acquisition, and use of AI in Federal Government programs and benefits administration. To further these objectives, agencies shall also consider opportunities to increase coordination, communication, and engagement about AI as appropriate with community-based organizations; civil-rights and civil-liberties organizations; academic institutions; industry; State, local, Tribal, and territorial governments; and other stakeholders.

(b) To promote equitable administration of public benefits:

(i) The Secretary of HHS shall, within 180 days of the date of this order and in consultation with relevant agencies, publish a plan, informed by the guidance issued pursuant to section 10.1(b) of this order, addressing the use

of automated or algorithmic systems in the implementation by States and localities of public benefits and services administered by the Secretary, such as to promote: assessment of access to benefits by qualified recipients; notice to recipients about the presence of such systems; regular evaluation to detect unjust denials; processes to retain appropriate levels of discretion of expert agency staff; processes to appeal denials to human reviewers; and analysis of whether algorithmic systems in use by benefit programs achieve equitable and just outcomes.

(ii) The Secretary of Agriculture shall, within 180 days of the date of this order and as informed by the guidance issued pursuant to section 10.1(b) of this order, issue guidance to State, local, Tribal, and territorial public-benefits administrators on the use of automated or algorithmic systems in implementing benefits or in providing customer support for benefit programs administered by the Secretary, to ensure that programs using those systems:

(A) maximize program access for eligible recipients;

(B) employ automated or algorithmic systems in a manner consistent with any requirements for using merit systems personnel in public-benefits programs;

(C) identify instances in which reliance on automated or algorithmic systems would require notification by the State, local, Tribal, or territorial government to the Secretary;

(D) identify instances when applicants and participants can appeal benefit determinations to a human reviewer for reconsideration and can receive other customer support from a human being;

(E) enable auditing and, if necessary, remediation of the logic used to arrive at an individual decision or determination to facilitate the evaluation of appeals; and

(F) enable the analysis of whether algorithmic systems in use by benefit programs achieve equitable outcomes.

7.3. Strengthening AI and Civil Rights in the Broader Economy. (a) Within 365 days of the date of this order, to prevent unlawful discrimination from AI used for hiring, the Secretary of Labor shall publish guidance for

Federal contractors regarding nondiscrimination in hiring involving AI and other technology-based hiring systems.

(b) To address discrimination and biases against protected groups in housing markets and consumer financial markets, the Director of the Federal Housing Finance Agency and the Director of the Consumer Financial Protection Bureau are encouraged to consider using their authorities, as they deem appropriate, to require their respective regulated entities, where possible, to use appropriate methodologies including AI tools to ensure compliance with Federal law and:

(i) evaluate their underwriting models for bias or disparities affecting protected groups; and

(ii) evaluate automated collateral-valuation and appraisal processes in ways that minimize bias.

(c) Within 180 days of the date of this order, to combat unlawful discrimination enabled by automated or algorithmic tools used to make decisions about access to housing and in other real estate-related transactions, the Secretary of Housing and Urban Development shall, and the Director of the Consumer Financial Protection Bureau is encouraged to, issue additional guidance:

(i) addressing the use of tenant screening systems in ways that may violate the Fair Housing Act (Public Law 90-284), the Fair Credit Reporting Act (Public Law 91-508), or other relevant Federal laws, including how the use of data, such as criminal records, eviction records, and credit information, can lead to discriminatory outcomes in violation of Federal law; and

(ii) addressing how the Fair Housing Act, the Consumer Financial Protection Act of 2010 (title X of Public Law 111-203), or the Equal Credit Opportunity Act (Public Law 93-495) apply to the advertising of housing, credit, and other real estate-related transactions through digital platforms, including those that use algorithms to facilitate advertising delivery, as well as on best practices to avoid violations of Federal law.

(d) To help ensure that people with disabilities benefit from AI's promise while being protected from its risks, including unequal treatment from the use of biometric data like gaze direction, eye tracking, gait analysis, and hand

motions, the Architectural and Transportation Barriers Compliance Board is encouraged, as it deems appropriate, to solicit public participation and conduct community engagement; to issue technical assistance and recommendations on the risks and benefits of AI in using biometric data as an input; and to provide people with disabilities access to information and communication technology and transportation services.

Sec. 8. Protecting Consumers, Patients, Passengers, and Students. (a) Independent regulatory agencies are encouraged, as they deem appropriate, to consider using their full range of authorities to protect American consumers from fraud, discrimination, and threats to privacy and to address other risks that may arise from the use of AI, including risks to financial stability, and to consider rulemaking, as well as emphasizing or clarifying where existing regulations and guidance apply to AI, including clarifying the responsibility of regulated entities to conduct due diligence on and monitor any third-party AI services they use, and emphasizing or clarifying requirements and expectations related to the transparency of AI models and regulated entities' ability to explain their use of AI models.

(b) To help ensure the safe, responsible deployment and use of AI in the healthcare, public-health, and human-services sectors:

(i) Within 90 days of the date of this order, the Secretary of HHS shall, in consultation with the Secretary of Defense and the Secretary of Veterans Affairs, establish an HHS AI Task Force that shall, within 365 days of its creation, develop a strategic plan that includes policies and frameworks — possibly including regulatory action, as appropriate — on responsible deployment and use of AI and AI-enabled technologies in the health and human services sector (including research and discovery, drug and device safety, healthcare delivery and financing, and public health), and identify appropriate guidance and
resources to promote that deployment, including in the following areas:

(A) development, maintenance, and use of predictive and generative AI-enabled technologies in healthcare delivery and financing — including quality measurement, performance improvement, program integrity, benefits administration, and patient experience — taking into account considerations such as appropriate human oversight of the application of AI-generated output;

(B) long-term safety and real-world performance monitoring of AI-

enabled technologies in the health and human services sector, including clinically relevant or significant modifications and performance across population groups, with a means to communicate product updates to regulators, developers, and users;

(C) incorporation of equity principles in AI-enabled technologies used in the health and human services sector, using disaggregated data on affected populations and representative population data sets when developing new models, monitoring algorithmic performance against discrimination and bias in existing models, and helping to identify and mitigate discrimination and bias in current systems;

(D) incorporation of safety, privacy, and security standards into the software-development lifecycle for protection of personally identifiable information, including measures to address AI-enhanced cybersecurity threats in the health and human services sector;

(E) development, maintenance, and availability of documentation to help users determine appropriate and safe uses of AI in local settings in the health and human services sector;

(F) work to be done with State, local, Tribal, and territorial health and human services agencies to advance positive use cases and best practices for use of AI in local settings; and

(G) identification of uses of AI to promote workplace efficiency and satisfaction in the health and human services sector, including reducing administrative burdens.

(ii) Within 180 days of the date of this order, the Secretary of HHS shall direct HHS components, as the Secretary of HHS deems appropriate, to develop a strategy, in consultation with relevant agencies, to determine whether AI-enabled technologies in the health and human services sector maintain appropriate levels of quality, including, as appropriate, in the areas described in subsection (b)(i) of this section. This work shall include the development of AI assurance policy — to evaluate important aspects of the performance of AI-enabled healthcare tools — and infrastructure needs for enabling pre-market assessment and post-market oversight of AI-enabled healthcare-technology algorithmic system performance against real-world data.

(iii) Within 180 days of the date of this order, the Secretary of HHS shall, in consultation with relevant agencies as the Secretary of HHS deems appropriate, consider appropriate actions to advance the prompt understanding of, and compliance with, Federal nondiscrimination laws by health and human services providers that receive Federal financial assistance, as well as how those laws relate to AI. Such actions may include:

(A) convening and providing technical assistance to health and human services providers and payers about their obligations under Federal nondiscrimination and privacy laws as they relate to AI and the potential consequences of noncompliance; and

(B) issuing guidance, or taking other action as appropriate, in response to any complaints or other reports of noncompliance with Federal nondiscrimination and privacy laws as they relate to AI.

(iv) Within 365 days of the date of this order, the Secretary of HHS shall, in consultation with the Secretary of Defense and the Secretary of Veterans Affairs, establish an AI safety program that, in partnership with voluntary federally listed Patient Safety Organizations:

(A) establishes a common framework for approaches to identifying and capturing clinical errors resulting from AI deployed in healthcare settings as well as specifications for a central tracking repository for associated incidents that cause harm, including through bias or discrimination, to patients, caregivers, or other parties;

(B) analyzes captured data and generated evidence to develop, wherever appropriate, recommendations, best practices, or other informal guidelines aimed at avoiding these harms; and

(C) disseminates those recommendations, best practices, or other informal guidance to appropriate stakeholders, including healthcare providers.

(v) Within 365 days of the date of this order, the Secretary of HHS shall develop a strategy for regulating the use of AI or AI-enabled tools in drug-development processes. The strategy shall, at a minimum:

(A) define the objectives, goals, and high-level principles required for appropriate regulation throughout each phase of drug development;

(B) identify areas where future rulemaking, guidance, or additional statutory authority may be necessary to implement such a regulatory system;

(C) identify the existing budget, resources, personnel, and potential for new public/private partnerships necessary for such a regulatory system; and

(D) consider risks identified by the actions undertaken to implement section 4 of this order.

(c) To promote the safe and responsible development and use of AI in the transportation sector, in consultation with relevant agencies:

(i) Within 30 days of the date of this order, the Secretary of Transportation shall direct the Nontraditional and Emerging Transportation Technology (NETT) Council to assess the need for information, technical assistance, and guidance regarding the use of AI in transportation. The Secretary of Transportation shall further direct the NETT Council, as part of any such efforts, to:

(A) support existing and future initiatives to pilot transportation-related applications of AI, as they align with policy priorities articulated in the Department of Transportation's (DOT) Innovation Principles, including, as appropriate, through technical assistance and connecting stakeholders;

(B) evaluate the outcomes of such pilot programs in order to assess when DOT, or other Federal or State agencies, have sufficient information to take regulatory actions, as appropriate, and recommend appropriate actions when that information is available; and

(C) establish a new DOT Cross-Modal Executive Working Group, which will consist of members from different divisions of DOT and coordinate applicable work among these divisions, to solicit and use relevant input from appropriate stakeholders.

(ii) Within 90 days of the date of this order, the Secretary of Transportation shall direct appropriate Federal Advisory Committees of the DOT to provide advice on the safe and responsible use of AI in transportation. The committees shall include the Advanced Aviation Advisory Committee, the Transforming Transportation Advisory Committee, and the Intelligent Transportation Systems Program Advisory Committee.

(iii) Within 180 days of the date of this order, the Secretary of Transportation shall direct the Advanced Research Projects Agency-Infrastructure (ARPA-I) to explore the transportation-related opportunities and challenges of AI — including regarding software-defined AI enhancements impacting autonomous mobility ecosystems. The Secretary of Transportation shall further encourage ARPA-I to prioritize the allocation of grants to those opportunities, as appropriate. The work tasked to ARPA-I shall include soliciting input on these topics through a public consultation process, such as an RFI.

(d) To help ensure the responsible development and deployment of AI in the education sector, the Secretary of Education shall, within 365 days of the date of this order, develop resources, policies, and guidance regarding AI. These resources shall address safe, responsible, and nondiscriminatory uses of AI in education, including the impact AI systems have on vulnerable and underserved communities, and shall be developed in consultation with stakeholders as appropriate. They shall also include the development of an "AI toolkit" for education leaders implementing recommendations from the Department of Education's AI and the Future of Teaching and Learning report, including appropriate human review of AI decisions, designing AI systems to enhance trust and safety and align with privacy-related laws and regulations in the educational context, and developing education-specific guardrails.

(e) The Federal Communications Commission is encouraged to consider actions related to how AI will affect communications networks and consumers, including by:

(i) examining the potential for AI to improve spectrum management, increase the efficiency of non-Federal spectrum usage, and expand opportunities for the sharing of non-Federal spectrum;

(ii) coordinating with the National Telecommunications and Information Administration to create opportunities for sharing spectrum between Federal and non-Federal spectrum operations;

(iii) providing support for efforts to improve network security, resiliency, and interoperability using next-generation technologies that incorporate AI, including self-healing networks, 6G, and Open RAN; and

(iv) encouraging, including through rulemaking, efforts to combat