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Mr. Bertram Lee
National Telecommunications and Information Administration (NTIA)
U.S. Department of Commerce
1401 Constitution Avenue NW
Washington, DC 20230

RE: [Docket Number 240216-0052] Dual Use Foundation Artificial Intelligence
Models with Widely Available Model Weights

Dear Mr. Lee:

The Open Source Initiative (“OSI”) appreciates the opportunity to provide our views on the above referenced matter. As steward of the Open Source Definition,¹ the OSI sets the foundation for Open Source software, a global public good that plays a vital role in the economy and is foundational for most technology we use today. As the leading voice on the policies and principles of Open Source, the OSI helps build a world where the freedoms and opportunities of Open Source software can be enjoyed by all and supports institutions and individuals working together to create communities of practice in which the healthy Open Source ecosystem thrives. One of the most important activities of the OSI, a California public benefit 501(c)(3) organization founded in 1998, is to maintain the Open Source Definition for the good of the community.²

The OSI is encouraged by the work of NTIA to bring stakeholders together to understand the lessons from the Open Source software experience in having a recognized, unified Open Source Definition that enables an ecosystem whose value is estimated to be worth \$8.8 trillion.³ As provided below in more detail, it is essential that federal policymakers encourage Open Source AI models to the greatest extent possible, and work with

¹ The Open Source Definition found at <https://opensource.org/osd>.

² The OSI is a public charity with no beneficial owners and no corporate controllers, but with 80+ civil society Affiliates working on Open Source. We are incorporated in California, USA, but with a global membership and mission of promoting and defending Open Source software on behalf of the general public and of building bridges within its global community.

³ Hoffmann, Manuel and Nagle, Frank and Zhou, Yanuo, The Value of Open Source Software (January 1, 2024). Harvard Business School Strategy Unit Working Paper No. 24-038, Available at SSRN: <https://ssrn.com/abstract=4693148> or <http://dx.doi.org/10.2139/ssrn.4693148>

organizations like the OSI which is endeavoring to create a unified, recognized definition of Open Source AI.

The Power of Open Source

Open Source delivers autonomy and personal agency to software users which enables a development method for software that harnesses the power of distributed peer review and transparency of process. The promise of Open Source is higher quality, better reliability, greater flexibility, lower cost, and an end to proprietary lock-in.

Open Source software is widely used across the federal government and in every critical infrastructure sector. “The Federal Government recognizes the immense benefits of Open Source software, which enables software development at an incredible pace and fosters significant innovation and collaboration.”⁴ For the last two decades, authoritative direction and educational resources have been given to agencies on the use, management and benefits of Open Source software.⁵

Moreover, Open Source software has direct economic and societal benefits. Open Source software empowers companies to develop, test and deploy services, thereby substantiating market demand and economic viability. Furthermore, it reduces costs for essential applications like databases within these services (Hoffmann, Nagle and Zhou found that firms would need to spend 3.5 times more on software than they currently do if OSS did not exist).⁶ By leveraging Open Source, companies can accelerate their progress and focus on innovation. Many of the essential services and technologies of our society and economy are powered by Open Source software, including, e.g., the Internet.⁷

⁴ Office of the National Cyber Director, Executive Office of the President, Cybersecurity and Infrastructure Security Agency, DHS, National Science Foundation, Defense Advanced Research Projects Agency, and Office of Management and Budget, Executive Office of the President, “Request for Information on Open-Source Software Security: Areas of Long-Term Focus and Prioritization”, August 10, 2023, found at: <https://www.federalregister.gov/documents/2023/08/10/2023-17239/request-for-information-on-open-source-software-security-areas-of-long-term-focus-and-prioritization>.

⁵ The earliest and most comprehensive such guidance is the “DoD Open Source Software FAQ”, Office of the DoD CIO, dated 2021-10-28, found at: <https://dodcio.defense.gov/open-source-software-faq/#frequently-asked-questions-regarding-open-source-software-oss-and-the-department-of-defense-dod>. See also, generally, U.S. Digital Services, “Digital Services Playbook” (2014) which encourages a ‘default to open’ policy for federal IT, found at: <https://playbook.cio.gov/>.

⁶ “The Value of Open Source Software”, Working Paper 24-038, *Harvard Business Review*, January 2024, found at: https://www.hbs.edu/ris/Publication%20Files/24-038_51f8444f-502c-4139-8bf2-56eb4b65c58a.pdf.

⁷ BIND is the most commonly used DNS server software on the Internet. See <https://www.isc.org/bind/>. See Chinmayi Sharma, “Tragedy of the Digital Commons”, North Carolina

The Open Source Definition has demonstrated that massive social benefits accrue when the barriers to learning, using, sharing and improving software systems are removed. The core criteria of the Open Source Definition – free redistribution; source code; derived works; integrity of the author's source code; no discrimination against persons or groups; no discrimination against fields of endeavor; distribution of license; license must not be specific to a product; license must not restrict other software; license must be technology-neutral – have given users agency, control and self-sovereignty of their technical choices and a dynamic ecosystem based on permissionless innovation.

A recent study published by the European Commission estimated that companies located in the European Union invested around €1 billion in Open Source Software in 2018, which brought about a positive impact on the European economy of between €65 and €95 billion.⁸

This success and the potency of Open Source software has for the last three decades relied upon the recognized unified definition of Open Source software and the list of Approved Licenses that the Open Source Initiative maintains.⁹

OSI believes this “open” analog is highly relevant to Open Source AI as an emerging technology domain with tremendous potential for public benefit.

Distinguishing the Open Source Definition

The OSI Approved License[®] trademark and program creates a nexus of trust around which developers, users, corporations and governments can organize cooperation on Open Source software. However, it is generally agreed that the Open Source Definition, drafted 26 years ago and maintained by the OSI, does not cover this new era of AI systems.

AI models are not just code; they are trained on massive datasets, deployed on intricate computing infrastructure, and accessed through diverse interfaces and modalities. With traditional software, there was a very clear separation between the code one wrote, the compiler one used, the binary it produced, and what license they had. However, for AI models, many components collectively influence the functioning of the system, including the algorithms, code, hardware, and datasets used for training and testing. The very notion

Law Review, October 2022, found at:

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4245266. See also,

⁸ PRESS RELEASE, “Commission publishes study on the impact of Open Source on the European economy”, 06 September 2021, found at:

<https://digital-strategy.ec.europa.eu/en/news/commission-publishes-study-impact-open-source-european-economy#:~:text=It%20is%20estimated%20that%20companies,65%20and%20%E2%82%AC95%20billion.>

⁹ See <https://opensource.org/licenses> for a full list.

of modifying the source code (which is important in the [Open Source Definition]) becomes fuzzy. For example, there is the key question of whether the training dataset, the model weights, or other key elements should be considered independently or collectively as the source code for the model/weights that have been trained.¹⁰

AI (specifically the Models that it manifests) include a variety of technologies, each is a vital element to all Models.¹¹

This challenge is not new. In its guidance on use of Open Source software, the US Department of Defense distinguished open systems from open standards, that while “different from Open Source software, they are complementary and can work well together”¹²:

“Open standards make it easier for users to (later) adopt an Open Source software program, because users of open standards aren’t locked into a particular implementation. Instead, users who are careful to use open standards can easily switch to a different implementation, including an OSS implementation. ... Open standards also make it easier for OSS developers to create their projects, because the standard itself helps developers know what to do. Creating any interface is an effort, and having a predefined standard helps reduce that effort greatly.

“OSS implementations can help create and keep open standards open. An OSS implementation can be read and modified by anyone; such implementations can quickly become a working reference model (a “sample implementation” or an “executable specification”) that demonstrates what the specification means (clarifying the specification) and demonstrating how to actually implement it. Perhaps more importantly, by forcing there to be an implementation that others can examine in detail, resulting in better specifications that are more likely to be used.

“OSS implementations can help rapidly increase adoption/use of the open standard. OSS programs can typically be simply downloaded and tried out, making it much easier for people to try it out and encouraging widespread use. This also pressures proprietary implementations to limit their prices, and such lower prices for proprietary software also encourages use of the standard.

¹⁰ The OSI was a participant in the “Columbia Convening on “Openness and AI”, a recent gathering of over 40 experts and stakeholders in the field of Artificial Intelligence (AI), sponsored by Mozilla and the Columbia Institute of Global Politics. See <https://blog.mozilla.org/en/mozilla/ai/introducing-columbia-convening-openness-and-ai/#:~:text=Our%20shared%20hope%20is%20that,shared%20understandings%20and%20next%20steps>. A Technical Readout (was well as a companion Policy Readout), to be published shortly, explores these and related issues.

¹¹ See NIST, ‘Artificial Intelligence: Overview’ at <https://www.nist.gov/artificial-intelligence>.

¹² Office of the Chief Information Officer, U.S. Department of Defense, “DoD Open Source Software FAQ”, found at: <https://dodcio.defense.gov/open-source-software-faq/>.

“With practically no exceptions, successful open standards for software have OSS implementations.”¹³

Towards a Unified Vision of what is ‘Open Source AI’

With these essential differentiating elements in mind, last summer, the OSI kicked off a multi-stakeholder process to define the characteristics of an AI system that can be confidently and generally understood to be considered as “Open Source”.

This collaboration utilizes the latest definition of AI system adopted by the Organization for Economic Cooperation and Development ([OECD](#)), and which has been the foundation for NIST’s “AI Risk Management Framework”¹⁴ as well as the European Union’s AI Act:¹⁵

“An AI system is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment.”¹⁶

Since its announcement last summer, the OSI has had an open call for papers and held open webinars in order to collect ideas from the community describing precise problem areas in AI and collect suggestions for solutions.¹⁷ More than 6 community reviews – in Europe, Africa, and various locations in the US – have taken place in 2023, coinciding with a first draft of the Open Source AI Definition.¹⁸ This year, the OSI has coordinated working groups to analyze various foundation models, released three more drafts of the Definition,

¹³ Ibid. See “Q: How does Open Source software work with open systems/open standards?”, found at:

<https://dodcio.defense.gov/open-source-software-faq/#q-how-does-open-source-software-work-with-open-systemsopen-standards>.

¹⁴ Found at: <https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf>. January 2023 by (Adapted from: OECD Recommendation on AI:2019; ISO/IEC 22989:2022)”.

¹⁵ “OECD updates definition of Artificial Intelligence ‘to inform EU’s AI Act’”, *Euractive.com*, November 9, 2023 (updated: November 14, 2023), found at:

<https://www.euractiv.com/section/artificial-intelligence/news/oecd-updates-definition-of-artificial-intelligence-to-inform-eus-ai-act/>.

¹⁶ “OECD Recommendation of the Council on Artificial Intelligence <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449>.

¹⁷ A chronology of relevant activity can be followed at: https://opensource.org/deepdive#see_all_we_achieved_in_2023.

¹⁸ The Open Source AI Definition – draft v. 0.0.6 <https://opensource.org/deepdive/drafts/the-open-source-ai-definition-draft-v-0-0-6>.

hosted bi-weekly public town halls to review and continues to get feedback from a wide variety of stakeholders, including:

- System Creators (makes AI system and/or component that will be studied, used, modified, or shared through an Open Source license;
- License Creators (writes or edits the Open Source license to be applied to the AI system or component; includes compliance;
- Regulators (writes or edits rules governing licenses and systems (e.g. government policy-maker); Licensees (seeks to study, use modify, or share an Open Source AI system (e.g. AI engineer, health researcher, education researcher);
- End Users (consumes a system output, but does not seek to study, use, modify, or share the system (e.g., student using a chatbot to write a report, artist creating an image);
- Subjects (affected upstream or downstream by a system output without interacting with it intentionally; includes advocates for this group (e.g. people with loan denied, or content creators.

What is Open Source AI?

An Open Source AI is an AI system made available to the public under terms that grant the freedoms to:

- Use the system for any purpose and without having to ask for permission.
- Study how the system works and inspect its components.
- Modify the system for any purpose, including to change its output.
- Share the system for others to use with or without modifications, for any purpose.

Precondition to exercise these freedoms is to have access to the preferred form to make modifications to the system.¹⁹

The OSI expects to wrap up and report the outcome of in-person and online meetings and anticipates having the draft endorsed by at least 5 reps for each of the stakeholder groups with a formal announcement of the results in late October.

To address the need to define rules for maintenance and review of this new Open Source AI Definition, the OSI Board of Directors²⁰ approved the creation of a new committee to

¹⁹ The latest drafts can always be found on opensource.org/deepdive/drafts.

²⁰ The OSI is managed by a member-elected board of directors that is the ultimate authority responsible for the organization. More information on the OSI board and governance can be found at: <https://opensource.org/board>.

oversee the development of the Open Source AI Definition, approve version 1.0, and set rules for the maintenance of Definition.

Some preliminary observations based on these efforts to date:

- It is generally recognized, as indicated above, that the Open Source Definition as created for software does not completely cover this new era of Open Source AI. This is not a software-only issue and is not something that can be solved by applying the same exact terms in the new territory of defining Open Source AI. The Open Source AI definition will start from the core motivation of the need to ensure users of AI systems retain their autonomy and personal agency.
- To the greatest degree practical, Open Source AI should not be limited in scope, allowing users the right to adopt the technology for any purpose. One of the key lessons and underlying successes of the Open Source Definition is that field-of-use restrictions deprive creators of software to utilize tools in a way to affect positive outcomes in society.
- Reflecting on the past 20-to-30 years of learning about what has gone well and what hasn't in terms of the open community and the progress it has made, it's important to understand that openness does not automatically mean ethical, right or just. Other factors such as privacy concerns and safety when developing open systems come into play, and in each element of an AI model – and when put together as a system — there is an ongoing tension between something being open and being safe, or potentially harmful.
- Open Source AI systems lower the barrier for stakeholders outside of large tech companies to shape the future of AI, enabling more AI services to be built by and for diverse communities with different needs that big companies may not always address.
- Similarly, Open Source AI systems make it easier for regulators and civil society to assess AI systems for compliance with laws protecting civil rights, privacy, consumers, and workers. They increase transparency, education, testing and trust around the use of AI, enabling researchers and journalists to audit and write about AI systems' impacts on society.
- Open source AI systems advance safety and security by accelerating the understanding of their capabilities, risks and harms through independent research, collaboration, and knowledge sharing.
- Open source AI systems promote economic growth by lowering the barrier for innovators, startups, and small businesses from more diverse communities to build and use AI. Open models also help accelerate scientific research because they can be less expensive, easier to fine-tune, and supportive of reproducible research.

The OSI looks forward to working with NTIA as it considers the comments to this RFI, and stands ready to participate in any follow on discussions to this or the general topic of 'Dual Use Foundation Artificial Intelligence Models With Widely Available Model Weights'. As shared above, it is essential that federal policymakers encourage Open Source AI models to the greatest extent possible,²¹ and work with organizations like the OSI and others who are endeavoring to create a unified, recognized definition of Open Source AI.

Respectfully submitted,

THE OPEN SOURCE INITIATIVE

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²¹ "Openness and Transparency in AI Provide Significant Benefits for Society", Joint Letter from civil society organizations to Secretary Gina Raimundo (U.S. Department of Commerce), March 25, 2024, found at: <https://cdt.org/wp-content/uploads/2024/03/Civil-Society-Letter-on-Openness-for-NTIA-Process-March-25-2024.pdf>.