**DATA&
SOCIETY**

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Response to the National Science Foundation's Request for Information on Developing a Roadmap for the Directorate for Technology, Innovation, and Partnerships

Data & Society Research Institute submits this comment in response to the National Science Foundation's (NSF) Request for Information (RFI) on Developing a Roadmap for the Directorate for Technology, Innovation, and Partnerships (TIP). Data & Society is an independent, nonprofit research institute studying the social implications of data-centric technologies, automation, and artificial intelligence. Through empirical research and policy and media engagement, our work illuminates the values and decisions that drive these systems and helps shape futures grounded in equity and human dignity.

We are pleased by the opportunity the RFI presents to highlight the benefits that a public interest and sociotechnically oriented directorate would bring to the American public and AI ecosystem.

First, the roadmap for the TIP directorate should support research agendas that advance the public interest and societal goals of equity, inclusion, access, and justice. Many non-profits, research groups, universities, and civil society organizations with expertise in technology and society issues stand ready to partner on this urgent objective. As rapidly developing technologies are increasingly embedded across society, major gaps stand in the way of ensuring that AI systems comply with safety regulations and uphold people's civil rights. The TIP directorate's focus on funding translational research and establishing partnerships that have societal

impact provides an opportunity to rapidly scale research that addresses societal challenges, rather than just industry goals. This should be structured with the goal of allowing a broad range of communities to meaningfully contribute to and shape a robust, participatory public interest technology ecosystem, with a durable governance infrastructure at its center.

Second, TIP should also lead in supporting and requiring sociotechnical research as a foundation of all its efforts, whether aimed at the public or private sector. Too many harmful examples of AI and other data-centric technologies show the harms of deployment without rigorous research into the contexts of design and deployment that shape real-world impacts and outcomes. All TIP projects should include a central sociotechnical component to ensure that their intended societal impacts are supported by empirical evidence. Requiring sociotechnical research also promotes examining and contending with potential discriminatory impacts at all stages of technological development, deployment, and monitoring.

1. **TIP should support translational research, innovation, and partnerships that advance the public interest and societal goals of equity, inclusion, access, and justice.**

The United States needs an ongoing research framework and commitment to research that centers the often obscured but potentially life-changing impacts of technology on communities' social, cultural, and political experiences and opportunities. The benefits of AI have not been equally nor equitably distributed across the American public. In particular, AI has often amplified and created new discriminatory practices that furthers many communities' marginalization.[1] The United States needs a robust ecosystem of research that explores new and evolving solutions in response to unfolding use cases and applications.

Despite movement toward AI regulation in the United States and internationally, the lack of tools and methodologies to document and make transparent algorithmic systems' accuracy, effectiveness, and potential discriminatory impacts leaves significant room for industry capture and ideological contestation. Funding for projects that advance auditing methods, bias identification, and mitigation methods will help to advance the Biden-Harris administration's vision of technological development—including its commitment to "safeguarding America's rights and safety, from protecting privacy, to addressing bias and disinformation, to making sure AI systems are safe before they are released".[2]

The National Telecommunications and Information Administration's (NTIA) recent call for public input on AI accountability methods (like audits and impact assessments) underscores the need for independent mechanisms to assure the public that an AI system is trustworthy.[3] However, many such approaches focus more on technical system errors and less on the impacts of technology in society.[4] What the United States needs now are public interest tools and

methodologies that define or document harm in holistic ways, particularly ones in which historically marginalized communities have a say in how discrimination is measured, investigated, or documented.[5]

NTIA's call for public input on AI accountability, the White House's partnership with DEF CON, and the voluntary research commitments leading AI companies have made to the White House all highlight the urgent need to develop algorithmic assessment practices.[6] TIP should support projects that advance assessment practices, while prioritizing those that focus on sociotechnical approaches to AI assessment and center the ways in which harm arises among historically marginalized communities.[7] TIP should support projects that investigate the benefits and harms of technology within their social, political, and material context; decontextualized and dehistoricized approaches to technology will only continue to exacerbate inequalities.

Currently, TIP has programs in the arenas of Open-Source Ecosystems and Lab-to-Market, but not explicitly for public policy development. Guided by the Biden-Harris administration's goals and outputs (such as the AI Bill of Rights) and the urgency of charting a course for algorithmic accountability, supporting research into governance methodologies that policy-makers should incorporate should be a central part of TIP's roadmap.[8]

TIP should prioritize partnering with nonprofits, universities, public interest groups, and impacted communities. Centering, valuing, and funding those with lived experience and expertise in the impacts of algorithmic harm and discrimination is critical to build a research directorate that has wide social impact and benefit. It also requires partnering with non-academic institutions who work with and for the public.[9]

2. TIP should be a leader in supporting—and indeed, requiring—sociotechnical research as fundamental to all its efforts, whether they be aimed at the public or private sector.

An effective, holistic research directorate depends on investments in sociotechnical expertise. Sociotechnical research is a field of knowledge that assesses the use of technologies not in a vacuum but atop human, material, and cultural infrastructures. Because AI is not simply a technical domain—it affects human beings, communities, work and labor relations, private and state systems of surveillance, the environment, and more—broad sociotechnical expertise, drawing from the humanities and other non-technical fields, must be core to all AI research. Accordingly, Data & Society echoes calls by the White House's Office of Science and Technology Policy,[10] the National Institute of Standards and Technology,[11] and the National AI Advisory Committee[12] for a sociotechnical approach to AI research.

Absent broader engagement with experts on society, politics, economy, and culture, technical research is likely to reproduce patterns of incomplete, biased, and discriminatory solutions.

Even in areas of research that do not seem to impact civil rights, grave harms can occur.[13] The US government should lead in funding sociotechnical research that makes the country a leader in technical and qualitative bias and discrimination correction, and mitigation methods.

For too long, technological development has unfolded with little regard for protecting and uplifting the American people, especially communities subjected to stigmatization, economic disinvestment, and systemic discrimination.[14] Our recommendations aim to center the public interest in TIP's year 1–3 roadmap and enable our algorithmic accountability ecosystem to have lasting positive impact. By supporting translational research, innovation, and partnerships that advance the public interest and societal goals of equity, inclusion, access, and justice—and centering sociotechnical research in all its projects—TIP has the potential to impact the future of algorithmic accountability policy in the US and abroad.

Respectfully submitted,

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Endnotes

1   Joy Buolamwini and Timnit Gebru. "Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification." *FAT* (2018); Mary Madden, Michele Gilman, Karen Levy, and Alice Marwick. "Privacy, Poverty, and Big Data: A Matrix of Vulnerabilities for Poor Americans". 95 *Wash. U. L. Rev.* 053 (2017). Available at: https://openscholarship.wustl.edu/law_lawreview/vol95/iss1/6; "Troll Patrol Findings: Using Crowdsourcing, Data Science & Machine Learning to Measure Violence and Abuse against Women on Twitter." (December 18, 2018). https://decoders.amnesty.org/projects/troll-patrol/findings.

2   The White House. "Remarks by President Biden on Seizing the Opportunities and Managing the Risks of Artificial Intelligence." (June 20, 2023). https://www.whitehouse.gov/briefing-room/speeches-remarks/2023/06/20/remarks-by-president-biden-on-seizing-the-opportunities-and-managing-the-risks-of-artificial-intelligence/.

3   The National Telecommunications and Information Administration. "AI Accountability Policy Request for Comment." (April 11, 2023). https://ntia.gov/issues/artificial-intelligence/request-for-comments

4   Delaram Golpayegani, Harshvardhan J. Pandit, and Dave Lewis. "To Be High-Risk, or Not To Be—Semantic Specifications and Implications of the AI Act's High-Risk AI Applications and Harmonised Standards." In *Proceedings of the 2023 ACM Conference on Fairness, Accountability, and Transparency* (FAccT '23). Association for Computing Machinery, New York, NY, USA, 905–915. https://doi.org/10.1145/3593013.3594050

5   Emanuel Moss, Elizabeth Anne Watkins, Ranjit Singh, Madeleine Clare Elish, and Jacob Metcalf. (June 29, 2021). *Assembling Accountability: Algorithmic Impact Assessment for the Public Interest.* Available at: https://datasociety.net/wp-content/uploads/2021/06/Assembling-Accountability.pdf; Jacob Metcalf, Emanuel Moss, and Ranjit Singh. "The Social Life of Algorithmic Harms." (*Points* February 15, 2023). https://datasociety.net/library/the-social-life-of-algorithmic-harms/; Algorithmic Justice League. "The Crash Project." https://www.ajl.org/crash-project

6   The White House. "Fact Sheet: Biden-Harris Administration Secures Voluntary Commitments from Leading Artificial Intelligence Companies to Manage the Risks Posed by AI." (July 21, 2023). https://www.whitehouse.gov/briefing-room/statements-releases/2023/07/21/fact-sheet-biden-harris-administration-secures-voluntary-commitments-from-leading-artificial-intelligence-companies-to-manage-the-risks-posed-by-ai/ The White House. "Fact Sheet: Biden-Harris Administration Announces New Actions to Promote Responsible AI Innovation that Protects Americans' Rights and Safety." (May 4, 2023). https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/04/fact-sheet-biden-harris-administration-announces-new-actions-to-promote-responsible-ai-innovation-that-protects-americans-rights-and-safety/

7   An example of this includes Data & Society's Algorithmic Impact Methods Lab, which will develop robust public interest methodologies to evaluate how increasingly ubiquitous automated decision-making systems impact people's lives and society at large.

8   An example of this includes Data & Society's Public Tech Leadership Collaborative, which aims to build the trust-based relationships that bridge the worlds of academia and government and enable ongoing, adaptive support.

9   An example of this includes the Invisible Institute's and the Human Rights Data Analysis Group's project Beneath the Surface, which uses participatory AI to investigate gender-based violence at the hands of the police.

10   Blueprint for an AI Bill of Rights, 14 (describing "practical technical and sociotechnical approaches to protecting rights, opportunities, and access") (emphasis added).

11   National Institute of Standards and Technology. *Artificial Intelligence Risk Management Framework*. (Jan. 26, 2023). 1. https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf ("AI systems are inherently socio-technical in nature[.]").

12   National Artificial Intelligence Advisory Committee. Year 1 Report. (May 2023). 37. https://www.ai.gov/wp-content/uploads/2023/05/NAIAC-Report-Year1.pdf (recommendation to "[d]evelop a research base and community of experts focused on sociotechnical research in the AI R&D ecosystem").

13   Tzachor A, Devare M, King B, Avin S, Ó hÉigeartaigh S. "Responsible Artificial Intelligence in Agriculture Requires Systemic Understanding of Risks and Externalities." *Nature Machine Intelligence* 4 (Feb 2022): 104–109. https://www.nature.com/articles/s42256-022-00440-4.epdf.

14   Sidney Perkowitz. "The bias in the machine: Facial recognition technology and racial disparities." MIT Case Studies in Social and Ethical Responsibilities of Computing https://doi. org/10.21428/2c646de5 62272586, no. 5 (2021): 15.; Michele Gilman. *Poverty Lawgorithms*. Data & Society (Sep. 15, 2020), https://datasociety.net/library/poverty-lawgorithms/; Sayash Kapoor, Solon Barocas, and Arvind Narayanan. (October 4, 2022). "Against Predictive Optimization: On the Legitimacy of Decision-Making Algorithms that Optimize Predictive Accuracy". Available at SSRN: https://ssrn.com/abstract=4238015; Data for Black Lives. (n.d.). Data Capitalism. https://datacapitalism.d4bl.org/.