

DAY ONE PROJECT

Fair Artificial Intelligence Research &
Regulation (FAIRR) Bureau

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Summary

Artificial intelligence (AI) is transforming our everyday reality, and it has the potential to save or to cost lives. Innovation is advancing at a breakneck pace, with technology developers engaging in de facto policy-setting through their decisions about the use of data and the embedded bias in their algorithms. Policymakers must keep up. Otherwise, by ceding decision-making authority to technology companies, we face the rising threat of becoming a technocracy. Given the potential benefits and threats of AI to US national security, economy, health, and beyond, a comprehensive and independent agency is needed to lead research, anticipate challenges posed by AI, and make policy recommendations in response. The next administration should create the Fair Artificial Intelligence Research & Regulation (FAIRR) Bureau, which will bring together experts in technology, human behavior, and public policy from all sectors - public, private, nonprofit, and academic - to research and develop policies that enable the United States to leverage AI as a positive force for national security, economic growth, and equity. The FAIRR Bureau will adopt the interdisciplinary, evidence-based approach to AI regulation and policy needed to address this unprecedented challenge.

Challenge and Opportunity

AI-based technologies can be a matter of life or death. For example, the Maneuvering Characteristics Augmentation System (MCAS) automated flight control used in the Boeing 737 MAX has been linked to 189 deaths in the 2018 crash of Lion Air Flight 610 and 157 deaths in the 2019 crash of Ethiopian Airlines Flight 302.¹ However, pilots and passengers were not aware that this new AI system was being used in the plane. There are a vast and growing number of AI applications, and the Federal Government has a responsibility to mitigate the life-threatening risks of AI.

Indeed, AI is becoming ubiquitous in the everyday lives of Americans, from transportation with autonomous vehicles to healthcare, which makes use of deep learning-based automation in radiology. Our national and economic security could be enhanced or threatened by AI. AI is not merely a single technology, but rather a family of technologies with manifold applications that can in turn lead to presently unimaginable new technologies. The American public does not currently trust that advances in AI will benefit Americans or help their finances, health, or safety. According to a 2020 survey conducted by the Pew Research Center, the American public is split on the impacts of AI; when Pew asked if the development of AI has been mostly a good thing or a bad thing for society, 47% of Americans characterized it as more of a good thing and 43% of Americans characterized it as more of a bad thing. Further, Americans are concerned about the impact of AI on income inequality, as 76% of Americans say that it is likely that inequity between

¹ Joseph Herkert, Jason Borenstein, and Keith Miller, "The Boeing 737 MAX: Lessons for Engineering Ethics." *Science and Engineering Ethics* 26, 6 (2020): 2957-2974.

rich and poor would increase if robots and computers perform most of the jobs currently performed by humans.²

The Federal Government must adopt a proactive rather than reactive approach in anticipating the potential risks of AI-based technologies. Given the high expectations of the American public for rapid, useful technological innovation and the intense global competition in the technology sector, subjecting new AI-based technologies to months or years of rigorous testing before release is not a realistic option. A slow process will threaten our technological advantage and leave the public dissatisfied.

Currently, there is a lack of understanding and regulation around AI applications among policymakers. For example, among the five principles underlying Executive Order 13859,³ two involve increasing AI capacity, two involve reducing regulation of AI, and one focuses on building public trust without providing for a mechanism for the transparency that would allow for informed-trust judgments.⁴ Even experts may not be aware of when AI is being used or understand how it works, such as in the case of the MCAS system used in the Boeing 737 MAX. There is a need for greater understanding of AI-based systems that impact human lives, such as algorithms that screen job applications,⁵ make sentencing recommendations,⁶ and filter content in ways that may be biased.⁷ Many people argue that a solution to the potential dangers of AI is to ensure that AI is fair. However, fairness is open to broad interpretation, and often depends on one's viewpoint. More fundamental is an understanding of how AI shifts power in society: frequently away from individual workers, passengers, and patients and into the hands of technological elites and multinational corporations.⁸ The government should create a mechanism to generate consensus among interdisciplinary experts about what it would mean for AI to be fair, accountable, transparent, ethical, and safe within a particular application area. These research results should inform governments and companies about how to regulate AI.

Plan of Action

We propose establishing an independent agency, the Fair Artificial Intelligence Research & Regulation (FAIRR) Bureau, whose research mission would be modeled on the Patient-Centered

² Cary Funk, Alec Tyson, Brian Kennedy, and Courtney Johnson, "Science and Scientists Held in High Esteem Across Global Publics: Yet there is ambivalence in many publics over developments in AI, workplace automation, food science," Pew Research Center (September 29, 2020).

³ The White House (2019), "Executive Order on Maintaining American Leadership in Artificial Intelligence."

⁴ Kenneth R. Fleischmann and William A. Wallace, "A Covenant with Transparency: Opening the Black Box of Models," *Communications of the ACM* 48, 5 (2005): 93-97.

⁵ Cathy O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* (New York: Broadway Books, 2017).

⁶ Nicol Turner Lee, "Detecting Racial Bias in Algorithms and Machine Learning," *Journal of Information, Communication and Ethics in Society* 16, 3 (2018): 252-260.

⁷ Nicol Turner Lee, "Detecting Racial Bias in Algorithms and Machine Learning," *Journal of Information, Communication and Ethics in Society* 16, 3 (2018): 252-260.

⁸ Pratyusha Kalluri, "Don't Ask if AI Is Good or Fair, Ask How It Shifts Power," *Nature* 583 (2020): 169.

Outcomes Research Institute (PCORI) created through the Patient Protection and Affordable Care Act, and whose policy mission would be modeled on the Consumer Financial Protection Bureau (CFPB) created through the Dodd-Frank Wall Street Reform and Consumer Protection Act. The FAIRR Bureau would use an evidence-based approach to AI regulation and policy.

The FAIRR Bureau would conduct research and evaluation and make policy recommendations for the Federal Government on AI applications. In addition, the FAIRR Bureau would serve as a coordinated multi-sector and interdisciplinary hub for education and outreach on the safe and equitable use of AI. Since AI will continue to permeate the daily lives of Americans, the Federal Government must provide the public with reliable information on the safe use of AI. The initial priorities in AI-based applications of the FAIRR Bureau would include: the Future of Work (retraining workers for the AI workplace, AI bias in hiring); National Security (election security, drones/robots in combat); Health (COVID/vaccine misinformation, unbiased clinical trials in sampling and interpretation); criminal and social justice (facial recognition, biased sentencing algorithms); and transportation (safe aviation; automated vehicles). These priorities would evolve dynamically over time.

The FAIRR Bureau will centralize the Federal Government's activities in AI research and regulation through a strategic plan with a mission, vision, and core values that drive budget priorities. The Bureau will work with several federal agencies, cabinet departments, and the White House to coordinate national strategy on AI priorities.

FAIRR Bureau's research and evaluation efforts will be led by domain experts from a wide range of academic disciplines, including but not limited to, computer science, electrical engineering, information science, media studies, science and technology studies, and public policy. The Bureau's regulation and policy efforts will be led by nonpartisan professional staff and will involve representatives from a wide range of stakeholder groups. Organizations that could be invited to appoint representatives would include corporate trade associations and associations of computing professionals, such as the Association for Computing Machinery (ACM), the Computing Research Association (CRA), and the Institute of Electrical and Electronics Engineers (IEEE) Standards Association; nonprofit organizations such as the World Economic Forum, the Association for Research on Nonprofit Organizations and Voluntary Action (ARNOVA), and the Public Interest Technology University Network (PIT-UN); and public sector organizations such as the International City Managers Association (ICMA), the US Conference of Mayors, and the National Association of State Chief Information Officers (NASCIO).

Conclusion

Given the immense life-and-death stakes of AI, there is a need for evidence-based policymaking to depoliticize AI funding and regulation. We need to design AI that will benefit all Americans to maintain our economic, military, and moral power. The FAIRR Bureau will engage leading experts from across academia in cutting-edge research on the implications of AI to discern its benefits

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and harms, and then feed these findings into proactively regulating the development and use of AI. Thus, the FAIRR Bureau is needed to ensure that AI does not further concentrate power among elites, but rather, benefits all Americans, with an emphasis on combatting systemic inequities and achieving justice for all.

Frequently Asked Questions

What is your definition of fairness?

One of the goals of the FAIRR Bureau will be to develop a robust definition of AI fairness that considers the involved power dynamics, arguing that we must use AI to lift up and empower people rather than to take away jobs and endanger them.

What obstacles and pushback do you anticipate in launching a new agency?

There is often political resistance to change. There is also political resistance among the party in power to give up control to an independent agency. However, there has never been a greater need for reliance on independent experts, and hindsight should demonstrate the need to depoliticize science and technology and to ensure that we have evidence-based policy.

If we do need federal research and coordination around this issue, why do we need a new agency? Can we accomplish this within a current agency?

Currently, there is no clear pipeline from basic research agencies such as the National Science Foundation to policymaking. We need to centralize these efforts within an independent agency that does both, so that the research can inform the policymaking and vice versa. Further, given the present funding structure for the National Science Foundation, political pressures can influence research funding decisions. So, greater independence and autonomy is needed to ensure science, rather than politics, drives funding decisions.⁹

How can funding for the FAIRR Bureau be justified, especially during a public health crisis?

The COVID-19 pandemic has only served to further illustrate the urgent need for a research-driven approach to developing and regulating AI, including the use of AI in contact tracing, in facilitating remote work, and, more ominously, in spreading health disinformation via bots. The costs of failing to regulate AI will exceed the costs of proactive investments in research and regulation related to the ethics of AI.

How will the FAIRR Bureau engage a diverse array of stakeholders?

Building on the White House Future of Artificial Intelligence Initiative, the FAIRR Bureau will engage stakeholders from across government, industry, academia, nonprofits, and the public. Further, the FAIRR Bureau will draw inspiration from the Partnership on AI, which brings together industry leaders to help steer the direction of innovation in AI toward more equitable and just outcomes; the Algorithmic Justice League, which works toward similar goals from an academic perspective; and the World Economic Forum, which does the same from a nonprofit perspective.

⁹ Dietram Scheufele, "(New) Political Interfaces in the Life Sciences," *Politics and the Life Sciences* 37, 1 (2018): 78-87.

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The FAIRR Bureau also will build upon the citizen science movement to ensure engagement of members of the public, which can help identify problems and adopt solutions before major societal disruption occurs. The FAIRR Bureau also will represent the US at the Global Partnership on AI (GPAI).

What is an example of a potential success for the FAIRR Bureau?

One potential goal of the FAIRR Bureau could be to develop a heuristic to evaluate the fairness of an AI-based system from the perspective of different stakeholders. Algorithmic bias cannot be solved by one-size-fits-all solutions. It is critical to understand how different communities may be affected by AI and to take steps to mitigate harms and expand benefits, especially relative to communities that traditionally have been underserved by technology like the many urban and rural communities excluded from broadband internet. Then, there could be a certification process, perhaps both with a minimum standard for approval of new technologies by the FCC, and a higher standard for ethically exemplary AI that might be equivalent to an energy star certification.

About the Authors



Kenneth R. Fleischmann is a Professor in the School of Information at the University of Texas at Austin, and the Founding Chair of Good Systems, a UT Grand Challenge.¹⁰ His research focuses on the ethics of AI, including the role of human values such as transparency, trust, and human agency in the design and use of AI-based technologies. His research has been funded by NSF, IARPA, Microsoft Research, Cisco, Micron Foundation, and the Public Interest Technology University Network. His research has been published in venues such as JASIST, JMIR, CSCW, CIKM, ASSETS, SocialCom, Computer, and Communications of the ACM. His collaborative research has been awarded the iConference Best Paper Award, the ASIS&T SIG-USE Best Information Behavior Conference Paper Award, the ASIST SIG-SI Social Informatics Best Paper Award,¹¹ the Civic Futures Award for Designing for the 100%, and the MetroLab Innovation of the Month.



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¹⁰ The University of Texas at Austin, "Good Systems, a UT Grand Challenge," <http://goodsystems.utexas.edu>.

¹¹ Kenneth R. Fleischmann, Cindy Hui, and William A. Wallace, "The Societal Responsibilities of Computational Modelers: Human Values and Professional Codes of Ethics," *Journal of the Association for Information Science and Technology* 68, 3 (2017): 543-552.



About the Day One Project

The Day One Project is dedicated to democratizing the policymaking process by working with new and expert voices across the science and technology community, helping to develop actionable policies that can improve the lives of all Americans, and readying them for Day One of the next presidential term. For more about the Day One Project, visit dayoneproject.org.