

Overcoming the Problems of Artificial Intelligence in the United States: Regulation and Alternative Approaches

Jason Buckweitz and Eli Noam,

Columbia Institute for Tele-Information, Columbia University

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Since 2023, Artificial Intelligence (AI) has received much attention in the United States, a country at the forefront of the technology's development and industry. AI's problems have been widely discussed, leading to extensive discussions about policies to deal with them. This paper reports the various approaches taken in America, starting with governmental regulation and international agreements (Part I) , and moving from there to the alternative methods of dealing with the problems, namely self-regulation, market competition, common law adjudication, and public investments (Part II.)

Part I: AI Regulation in America

In the rapidly evolving landscape of technological innovation, AI stands at the forefront of both opportunity and concern. It is poised to revolutionize industries, reshape economies, and redefine the abilities of mankind. As countries continue to navigate this transformative era, the regulation of AI emerges as a pivotal and pressing concern. The exponential growth of these applications has propelled us into uncharted territory, with these applications raising profound questions about ethics, accountability, and the societal impact of these advanced systems. This report delves into the status of AI regulation in the United States, exploring the intricate web of policies, challenges, and opportunities that shape the policy landscape while striking a delicate balance between fostering innovation and safeguarding societal interests.

Navigating the regulatory landscape in the United States is a challenging task, especially due to the country's federal structure that involves state and even local rules. Part I of this paper will focus on federal-level regulations. To fully comprehend these regulations, it is essential to

take into account the various sources of regulation, including existing laws, proposed legislation, Presidential Executive Orders, House and Senate Administrative rules, Department of Defense issuances, and rules from independent as well as executive administrative agencies such as the Federal Trade Commission and the Federal Communications Commission.

After exploring the regulatory landscape for AI in the United States, this report will delve into international agreements aimed at regulating or establishing a framework for AI. This encompasses both bilateral and multi-state agreements and treaties. It is important to consider the concerns surrounding AI when discussing regulation, but this paper also seeks to highlight the positive opportunities presented by this technology.

The State of US Federal Legislation on Artificial Intelligence

As of February 2024, there are about two dozen federal laws passed that deal with AI. However, none of these laws actively regulate AI. Rather, they are some forms of legislation enabling agencies to spend its budget on certain AI issues. For instance, the National Defense Authorization Act for Fiscal Year 2024, which is a law that authorizes spending for the Department of Defense, contains language that requires the DOD to set up a system to evaluate the use of AI in its systems and report whether it should be used or not. It also sets up a pilot program for using AI to optimize aerial refueling and fuel management.¹ It sets up the infrastructure for the use of AI, such as creating a Chief Digital and Artificial Intelligence Officer who coordinates and oversees military policies. Other legislation includes:

- A law that requires the Office of Management and Budget (the organization responsible for developing the federal budget and overseeing all federal agency policies and inter-agency initiatives) to establish a training program on AI and its use.²
- A law that requires the Office of the Director of National Intelligence to create and review policies for the intelligence community (CIA, NSA, etc.) that handle the use of AI within intelligence gathering and analysis.³

¹ National Defense Authorization Act for Fiscal Year 2024 (Public Law 118-31) <https://www.govinfo.gov/app/details/BILLS-118hr2670enr>

² AI Training Act (Public Law 117-207) <https://www.govinfo.gov/content/pkg/COMPS-17079/pdf/COMPS-17079.pdf>

³ James M. Inhofe National Defense Authorization Act for Fiscal Year 2023 (Public Law 117-263) <https://www.govinfo.gov/app/details/PLAW-117publ263>

- Laws that fund⁴ and implement⁵ the National Artificial Intelligence Initiative that was introduced but never passed in Congress.⁶ The initiative sought to conduct research through various federal agencies. Major parts were then moved into the Defense Authorization Act and put into effect.
- A law that requires the National Science Foundation and National Institute of Standards and Technology to fund research on the topic of AI-generated imagery, specifically “deceptive imagery”. A main area of research is looking for tools that can be used to examine and identify deceptive imagery.⁷ The NSF was also tasked with studying the impact of AI on the workforce of the United States.

- **Proposed Federal Regulation**

In addition to the roughly two dozen laws that have been passed in the United States on the Federal level, several hundred bills that have been proposed in Congress. Each bill is in a different stage of life. Some bills have just been introduced. Others have been referred to a Congressional committee to be discussed, or voted out of committee and even passed the respective chamber but are now awaiting the other chamber to go through its own process of approval. Any bill that has not become law by January 3, 2025, will expire and must start all over again. While few of these bills are likely to be enacted, at least not anytime soon, some of the more interesting proposals should be mentioned:

- A bill that would prohibit the use of AI to initiate the launch of or selection of targets for a nuclear operation.⁸
- A bill that would strip liability protection, referred to in the United States as Section 230 protection, for content platforms when AI is involved in the claim against the platform. A user could, for instance, sue Alphabet’s YouTube for a video uploaded by a third-party user that deploys AI in the creation of the video to

⁴ William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116-283) <https://www.govinfo.gov/app/details/PLAW-116publ283>

⁵ William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116-283) <https://www.govinfo.gov/app/details/PLAW-116publ283>

⁶ National Artificial Intelligence Initiative Act of 2020. <https://www.congress.gov/bill/116th-congress/house-bill/6216/actions>

⁷ Identifying Outputs of Generative Adversarial Networks Act or the IOGAN Act (Public Law 116-258) <https://www.govinfo.gov/app/details/PLAW-116publ258#:~:text=An%20act%20to%20direct%20the,future%2C%20and%20for%20other%20purposes.>

⁸ Block Nuclear Launch by Autonomous Artificial intelligence Act of 2023 <https://www.congress.gov/bill/118th-congress/senate-bill/1394?q=%7B%22search%22%3A%22artificial+intelligence%22%7D&s=4&r=11>

commit a tort (such as defamation about the user). Under current law, the platform is immune from such cases.⁹

- A bill that would prohibit the sale of certain technological components (microprocessors, computers, and other related components) by US entities to anyone in China or Macau.¹⁰
- Various bills would fund programs by government agencies to study things such as the environmental impact of AI¹¹, to pay for finding ‘bugs’ in AI algorithms and to improving them¹², and to develop AI that combat biases against marginalized groups and promote democratic values.¹³
- A bill that would require any material created with AI to contain a disclosure that states that it was generated by AI.^{14 15 16}
- A bill that would recognize the intellectual property rights in a person’s likeness and voice and prohibit that usage in AI without agreement and compensation.¹⁷

- **Executive Orders Regulating AI**

Besides federal laws, regulation on the federal level includes Executive Orders issued by the President of the United States. Three Executive Orders pertain to Artificial Intelligence, one by President Biden, following two by President Trump.

⁹ A bill to waive immunity under section 230 of the Communications Act of 1934 for claims and charges related to generative artificial intelligence. <https://www.congress.gov/bill/118th-congress/senate-bill/1993?s=4&r=9&q=%7B%22search%22%3A%22artificial+intelligence%22%7D>

¹⁰ Closing Loopholes for the Overseas Use and Development of Artificial Intelligence Act <https://www.congress.gov/bill/118th-congress/house-bill/4683?q=%7B%22search%22%3A%22artificial+intelligence%22%7D&s=4&r=13>

¹¹ To require the Administrator of the Environmental Protection Agency to carry out a study on the environmental impacts of artificial intelligence, to require the Director of the National Institute of Standards and Technology to convene a consortium on such environmental impacts, and to require the Director to develop a voluntary reporting system for the reporting of the environmental impacts of artificial intelligence, and for other purposes. <https://www.congress.gov/bill/118th-congress/house-bill/7197?q=%7B%22search%22%3A%22artificial+intelligence%22%7D&s=4&r=5>

¹² Artificial Intelligence Bug Bounty Act of 2023 <https://www.congress.gov/bill/118th-congress/senate-bill/2502?q=%7B%22search%22%3A%22artificial+intelligence%22%7D&s=4&r=6>

¹³ Calling on the United States to champion a regional artificial intelligence strategy in the Americas to foster inclusive artificial intelligence systems that combat biases within marginalized groups and promote social justice, economic well-being, and democratic values. <https://www.congress.gov/bill/118th-congress/house-resolution/649?q=%7B%22search%22%3A%22artificial+intelligence%22%7D&s=4&r=3>

¹⁴ AI Disclosure Act of 2023 <https://www.congress.gov/bill/118th-congress/house-bill/3831/text?s=4&r=36&q=%7B%22search%22%3A%22artificial+intelligence%22%7D>

¹⁵ AI Labeling Act of 2023 <https://www.congress.gov/bill/118th-congress/senate-bill/2691/text?s=4&r=65&q=%7B%22search%22%3A%22artificial+intelligence%22%7D>

¹⁶ Advisory for AI-Generated Content Act <https://www.congress.gov/bill/118th-congress/senate-bill/2765/text?s=5&r=101&q=%7B%22search%22%3A%22artificial+intelligence%22%7D>

- Executive Order 13859¹⁸, signed by President Trump on February 11th, 2019 empowers an American AI Initiative that aims to have the United States lead the development of AI. This initiative is guided by six principles:
 - Work to invest in R&D for the development of AI across non-Federal entities, industry members, academia, and international partners.
 - Provide access to data models while keeping data safe, secure, and private.
 - Reduce barriers to use of AI while protecting American interests.
 - Minimize attack vulnerabilities.
 - Train researchers and workers in the skills needed to develop AI
 - Develop an action plan to keep the United States' advantage as the leader in AI and technology.
- Executive Order 13960¹⁹, signed by President Trump on December 3rd, 2020 authorized the use of AI by federal agencies and sets a common policy guidance aimed at coordinating policy for all agencies. Under this executive order, agencies should design their policies to:
 - Respect the values of the United States, including be consistent with the Constitution.
 - The benefits of the use of AI should significantly outweigh the risks, which should be assessed.
 - Ensure that the use of AI is consistent with the purpose the AI was trained for.
 - Ensure safety, security, and resiliency in AI applications.
 - Agencies should make sure that the work on AI is understandable by experts, including on outcomes.
 - Roles and responsibilities must be clearly defined.

¹⁸ Maintaining American Leadership in Artificial Intelligence, 84 FR 3967
<https://www.federalregister.gov/documents/2019/02/14/2019-02544/maintaining-american-leadership-in-artificial-intelligence>

¹⁹ Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government, 85 FR 78939
<https://www.federalregister.gov/documents/2020/12/08/2020-27065/promoting-the-use-of-trustworthy-artificial-intelligence-in-the-federal-government>

- Regular testing and other mechanisms to monitor for inconsistent outcomes should be performed.
 - Agencies shall act in a manner that is transparent about the use of AI to Congress and to the public at large.
 - Regular audits should be conducted.
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- Executive Order 14110²⁰, signed by President Biden on October 30th, 2023, sets eight principles and requirements for any AI use that is used by a federal agency that falls under the executive branch. It also requires the National Institute of Standards and Technology to create a set of guidelines that ensure the development of safe, secure, and trustworthy AI. These guidelines are not yet completed and are due by August 1st, 2024. The principles that agencies must follow are:
 - To ensure that AI systems are secure, using evaluations and tests for systems to operate as expected.
 - To develop labeling recommendations to identify when something is generated by AI.
 - Investing in programs that develop AI skill sets, including attracting individuals who work in AI to emigrate to the United States.
 - Ensuring that job training and support of education are covered, and that workers will be positively impacted by AI, not undermined or harm market competition.
 - Any AI policy developed by an agency must be dedicated to advancing civil rights and equality, and avoid bias.
 - Enforcing existing consumer protection laws and protect user privacy.
 - The collection of data used for AI must be lawfully obtained, kept secure, and keeps risks about privacy and confidential as much as possible. Also, agencies should use technical tools to protect against risks.

²⁰ Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence, 88 FR 75191
<https://www.federalregister.gov/documents/2023/11/01/2023-24283/safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence>

- Take steps to attract individuals from underrepresented communities into the regulation and oversight of AI.
- When negotiating with other nations, agencies should seek to promote AI safety, and to ensure that AI benefits rather than harms the world.

- **Self-Regulation of Congress**

Within the legislative branch, there is also self-regulation mechanisms that oversee the use of AI. The House of Representatives, through the Chief Administrative Officer, has set up specific rules for the use of AI by staffers. Staffers are only permitted to use ChatGPT Plus, which is a subscription service offered by Open AI. In addition, there are further restrictions. Staffers may only train ChatGPT with non-sensitive data, meaning no classified documentation. AI's use also cannot be used as part of the regular workflow of the office, it is only authorized for evaluation purposes. Offices can try and see how it would help, but it cannot be a regular tool. Finally, privacy settings must always be enabled, so that history is not kept and nothing is sent back to help train OpenAI better. The rules also explicitly prohibit the use of any other version of ChatGPT or any other provider of AI.²¹ The US Senate was slightly less restrictive to its staffers. While it follows the House in restricting use to research and evaluation purposes and requires the use of only publicly available data, it does allow a wider selection of AI tools, permitting the use of ChatGPT, Google BARD, or Microsoft Bing's AI chat.²²

- **Department of Defense/Military Regulations on AI**

The Department of Defense has set up regulations for the use of Artificial Intelligence by the military and associated agencies within its purview. The DOD has put together three strategies, in 2018²³, 2020²⁴, and 2023²⁵. Similar to other sets of AI regulations, the DOD does not establish explicit prohibitions or rules, but rather sets policies and goals.

²¹ CAO Notice on ChatGPT. June 23rd, 2023. <https://www.documentcloud.org/documents/23861503-cao-notice-on-chatgpt>

²² Conversational AI Services Available for Research and Evaluation https://static1.squarespace.com/static/60450e1de0fb2a6f5771b1be/t/657c7053d8dc1e253f63bfb0/1702654035516/Senate_SAA_CIO_Notice_on_Conversational_AI_Services.pdf

²³ Summary of the 2018 Department of Defense Artificial Intelligence Strategy Harnessing AI to Advance Our Security and Prosperity. <https://media.defense.gov/2019/Feb/12/2002088963/-1/-1/1/SUMMARY-OF-DOD-AI-STRATEGY.PDF>

²⁴ DoD AI Education Strategy. Cultivating an AI ready force to accelerate adoption https://www.ai.mil/docs/2020_DoD_AI_Training_and_Education_Strategy_and_Infographic_10_27_20.pdf

²⁵ Department of Defense. Data, Analytics, and Artificial Intelligence Adoption Strategy Accelerating Decision Advantage https://media.defense.gov/2023/Nov/02/2003333300/-1/-1/1/DOD_DATA_ANALYTICS_AI_ADOPTION_STRATEGY.PDF

- Enhance capabilities using AI tech to improve decision making.
- Ensure responsible use of AI.
- Optimize the use of AI by improving the necessary infrastructure.
- Create strong agreements to share data amongst various groups for data models.
- Hire a diverse and well-equipped workforce.

While the DOD does not have a policy prohibiting the use of AI, some AI providers have prohibitions in the opposite direction, limiting the use of their products by militaries. OpenAI, for instance, prohibited use of their product by groups for “weapons development” and “military and warfare”. However, as of January 10th, 2024, OpenAI quietly changed its policy to remove the ban on military and instead stated that its products cannot be used to harm oneself or others, or to develop weapons.²⁶ Other companies, such as Microsoft Azure, Palantir, and Google, did not have similar restrictions to begin with²⁷

- **Federal Agencies Affecting AI Regulation**

Two key independent regulatory agencies in the United States, the Federal Communications Commission (FCC) and the Federal Trade Commission (FTC), are poised to take action when it comes to regulating the use of AI. The FCC has jurisdiction over communications media, including telecom networks, which is how AI systems collect data, access processing, and transmit results. Meanwhile, the FTC is responsible for enforcing consumer protection laws as well as antitrust laws, and is therefore well-positioned to focus on how AI impacts individuals and competition.

As of February 2024, the FCC has only taken one action with regards to AI regulation. Specifically, it issued a declaratory ruling which found that AI technology cannot be used to generate artificial voice communications for use in robocalls. This ruling was in response to generative AI calls that purported to be US elected officials urging individuals to take specific voting actions. However, this ruling was not a new regulation but rather the application of an

²⁶ Biddle, Sam. “OpenAI Quietly Deletes Ban on Using ChatGPT for “Military and Warfare”” The Intercept. January 12, 2024 <https://theintercept.com/2024/01/12/open-ai-military-ban-chatgpt/>

²⁷ Manson, Katrina. “The US Military is Taking Generative AI out for a spin”. Bloomberg July 5, 2023. <https://www.bloomberg.com/news/newsletters/2023-07-05/the-us-military-is-taking-generative-ai-out-for-a-spin>

existing law (the Telephone Consumer Protection Act) to AI-generated content used in this process.²⁸

The FTC introduced a series of proposed regulations pertaining to AI that were open for public feedback and then final versions in 2024. These rules center around deepfake technology, and aim to prevent the fraudulent or harmful impersonation of government and business officials. Under these regulations, companies would be prohibited from producing outputs such as videos, images, and text, if they are aware or have reason to believe that it could cause confusion and harm to consumers.²⁹

US-Europe and US-Asia Joint Agreements on AI Governance and Oversight

The United States is a party to one international treaty on AI, the first of its kind. In addition, , the US has also agreed to an administrative agreement with the EU and has been in discussions with China on a treaty to prevent AI in nuclear weapons.

- **Multilateral Treaty on AI**

In November of 2023 the United States and 17 other signature nations agreed to a non-binding agreement that aims to agree to a develop AI in a safe and secure way.³⁰ The Bletchley Declaration on AI Safety³¹, named for the meeting’s venue in the United Kingdom where pioneering early computer applications in code breaking were conducted during World War 2, addressed AI’s ethical and safety implications. One of the key stipulations of the declaration is its emphasis on prioritizing human safety and well-being in the design and implementation of AI systems. This matches the broader efforts within the AI community to develop AI technologies that are aligned with human values and societal goals.

Moreover, the Bletchley Declaration underscores the importance of transparency and accountability in AI development. It calls for increased transparency in AI algorithms and

²⁸ In the Matter of Implications of Artificial Intelligence Technologies on Protecting Consumers from Unwanted Robocalls and Robotexts. CG Docket No. 23-362 February 8, 2024 <https://docs.fcc.gov/public/attachments/FCC-24-17A1.pdf>

²⁹ FTC Proposes New Protections to Combat AI Impersonation of Individuals. February 15, 2024. FTC <https://www.ftc.gov/news-events/news/press-releases/2024/02/ftc-proposes-new-protections-combat-ai-impersonation-individuals>

³⁰ Satter, Raphael and Diane Bartz. “US, Britain, Other Countries Ink Agreement to Make AI ‘Secure by Design’”, Reuters. November 27, 2023 [https://www.reuters.com/technology/us-britain-other-countries-ink-agreement-make-ai-secure-by-design-2023-11-27/#:~:text=WASHINGTON%2C%20Nov%2027%20\(Reuters\),create%20AI%20systems%20that%20are%20%22](https://www.reuters.com/technology/us-britain-other-countries-ink-agreement-make-ai-secure-by-design-2023-11-27/#:~:text=WASHINGTON%2C%20Nov%2027%20(Reuters),create%20AI%20systems%20that%20are%20%22)

³¹ Policy Ppaer. “The Bletchley Declaration by Countries Attending the AI Safety Summit, 1-2 November 2023” Gov.UK November 1 2023 <https://www.gov.uk/government/publications/ai-safety-summit-2023-the-bletchley-declaration/the-bletchley-declaration-by-countries-attending-the-ai-safety-summit-1-2-november-2023>

decision-making processes to enable better understanding and scrutiny of AI systems' behavior. This transparency is essential for building trust among stakeholders and ensuring that AI technologies are deployed in a manner that is fair and equitable. Additionally, the declaration emphasizes the need for robust governance mechanisms to oversee the development and deployment of AI systems. This includes mechanisms for assessing and mitigating the risks associated with AI technologies, such as bias, discrimination, and unintended consequences.

The Bletchley Declaration on AI Safety is intended to be a guiding framework for a broad range of stakeholders involved in AI research, development, regulation, and deployment. However, as it is non-binding, companies and countries are not required to actually abide by the recommendations.³²

- **US-EU Administrative Agreement on AI.**

In January 2023 the United States and the EU signed an administrative agreement which would be implemented by agencies within the signatory countries.³³ The agreement establishes common ethical principles governing the development and deployment of AI technologies. These principles come from the existing frameworks such as the EU's High-Level Expert Group on AI's Ethics Guidelines and the US National Institute of Standards and Technology's principles for trustworthy AI. The agreement aims to ensure that AI systems prioritize human well-being, fairness, transparency, and accountability, with the goal of building public trust and addressing concerns surrounding the ethical implications of AI.

The agreement emphasizes the importance of promoting innovation and competitiveness in AI while safeguarding privacy and data protection rights. This entails creating mechanisms for the responsible sharing of data between the US and EU, facilitating research collaborations, and fostering interoperability among AI systems. This aims to help harness the full potential of AI to drive economic growth and societal progress while upholding fundamental rights and values. Additionally, the agreement underscores the significance of regulatory convergence and regulatory cooperation between the two regions. This involves streamlining regulatory processes,

³² Yearbook Web Desk. "Explained What Is the Bletchley Declaration"

<https://www.onmanorama.com/news/world/2023/11/03/bletchley-declaration-explained.html>

³³The European Union and the United States of America strengthen cooperation on research in Artificial Intelligence and computing for the Public Good European Commission. January 27, 2023 <https://digital-strategy.ec.europa.eu/en/news/european-union-and-united-states-america-strengthen-cooperation-research-artificial-intelligence>

exchanging best practices, and coordinating efforts to address emerging challenges in AI governance, such as bias mitigation, algorithmic transparency, and safety standards.

Finally, the administrative agreement outlines mechanisms for monitoring and enforcing compliance with its provisions. This includes establishing joint oversight bodies or mechanisms for regular consultations between US and EU regulators to assess the implementation of agreed-upon principles and address any discrepancies or challenges that may arise. This seeks to mitigate risks associated with the misuse or unintended consequences of AI technologies. To further this mitigation, the agreement emphasizes the concept of fostering public dialogue and engagement to ensure that AI policies reflect diverse perspectives and uphold democratic values. This involves consulting stakeholders from academia, industry, civil society, and the public at large to inform decision-making and shape the future trajectory of AI governance on both sides of the Atlantic.

- **US-China Treaty on AI and Nuclear Weapon**

In November 2023 it was reported that the United States and China would sign a treaty that would ban the use of AI in several areas, including prohibiting its use in controlling nuclear weapons.³⁴ However, during the meeting in San Francisco, no treaty emerged and both countries keep discussing risk and safety issues.³⁵ Many of the difficulties of putting together a formal treaty appear to revolve around definitional issues, specifically on how to differentiate between an automated system that handles requests from algorithmic-based decision making.

³⁴ Patrick, Igor, Mark Magnier, and Amber Wang. “Exclusive | Biden, Xi set to pledge ban on AI in autonomous weapons like drones, nuclear warhead control: sources” South China Morning Post. November 11, 2023 <https://www.scmp.com/news/china/military/article/3241177/biden-xi-set-pledge-ban-ai-autonomous-weapons-drones-nuclear-warhead-control-sources>

³⁵ Lewis, Jeffrey. “The militarized AI risk that’s bigger than “killer robots”” Vox. November 28, 2023. <https://www.vox.com/future-perfect/2023/11/28/23972547/the-militarized-ai-risk-thats-bigger-than-killer-robots>

Part II: Alternatives to the Direct Regulation of AI

Concerns About Artificial Intelligence

“Artificial intelligence” refers to information technology that can perform functions requiring intelligence when performed by humans. Artificial intelligence, as a topic and research area, has been with us since the mid-1950s. It has proceeded in cycles of expectations and disappointments. As night follows day, scenarios of hype were followed by doomsday alarms. The two are symbiotic. The more powerful and pathbreaking a technology is being touted by its developers and promoters, with their narratives adopted and amplified by breathless media stories, the more worries it raises about its potential for harm. In no time, AI became a shorthand for the aggregate of fears about the future of humanity in a digital future. Dystopian scenarios have abounded. Class divide. Ignorance. Loss of individuality. Loss of jobs. Inequality. Bias. Lack of empathy. Lack of transparency. Lack of creativity. Plagiarism. Loss of privacy. Business manipulation. Security risks. A surveillance state run by tech mega-corporations. Corporate control over an all-controlling technology. Misinformation. Deep fakes³⁶ of politicians mouthing things they never said, and celebrities shown in bogus sexual conduct.

But the greatest of fears is that nobody would be able to control a powerful AI system³⁷, with loss of control over the financial system and unintended military actions. A superior technology taking over and keeping humans as their pets. There are even fears about the changing nature of what it means to be human. AI on top of genetic bio-tech engineering (such as enabled by CRISPR genetic editing technology) has led to predictions that new species may evolve out of the integration of new and improved humans and artificial systems.³⁸ Along the

³⁶ Chainlink. “Use Cases of AI in Blockchain.” May 3, 2023. <https://blog.chain.link/blockchain-ai-use-cases/>.

³⁷ Benjamin Hilton ‘[Preventing an AI-related catastrophe](#)’. Also, [The Alignment Problem](#) by Brian Christian,

³⁸ Jaak Terpandi, in Pew Research Center, June 30, 2022. “The Metaverse in 2040”

way, some thinkers have argued that AI-powered robots should not be treated as slaves but should have their own rights, just as humans do.^{39 40}

Thus, fears of the impact of AI have dominated the narrative. Many of these fears have a real basis, even though some might be exaggerated. Some originate in deep evolutionary fears that trigger Darwinian survival mechanisms. The more recent fear of AI follows that tradition, especially since many of the concerns are legitimate. Yet similarly prevalent in history has been the emergence of self-correction mechanisms. And the question is whether such self-correcting mechanisms are possible and likely.

The fact that AI can have serious problems is not the end of the story. After all, safeguards can be built into the AI itself that will stop it from certain acts. Will this ever be 100% safe? No. But neither is entrusting to a real person the controls over a passenger airplane, or letting an unknown person cook one's family's restaurant meal.

It is not realistic to expect that one could banish AI from human activities.⁴¹ Instead, one must think on how best to embed it with human activities such as learning, creating, analyzing, and directing. One should also recognize the positives of AI technology: enhancing our memory, accelerating mental processing, finding correlations, assessing probabilities, visualizing data, deepening logical reasoning, scheduling tasks, and more. AI is not only a threat but also an opportunity. Its many positive aspects have been overshadowed by the chorus of fears. This is not to deny the problems, and they need to be faced. But any action must balance the positives and the negatives. The potential positives are a long list, often the flip side of the negatives:

Gains for the Economy

- Faster control over financial shocks

³⁹ Abbott, Ryan. *The Reasonable Robot: Artificial Intelligence and the Law*. Cambridge: Cambridge University Press, 2020; Gunkel, David J. *Robot Rights*. Cambridge, MA: The MIT Press, 2018.

Roser, Max. "Artificial intelligence is transforming our world – it is on all of us to make sure that it goes well." *Our World in Data*. December 15, 2022. <https://ourworldindata.org/ai-impact>.

⁴⁰ The British computer scientist David Levy argued that "Any self-aware robot that speaks a known language and is able to recognize moral alternatives, and thus make moral choices, should be considered a worthy 'robot person' in our society, complete with rights and duties." Rosen, Michael. "The Rights and Responsibilities of AI, Seen Through the Autonomy-Automaton Lens." *AEIdeas*. April 21, 2023. <https://www.aei.org/technology-and-innovation/the-rights-and-responsibilities-of-ai-seen-through-the-autonomy-automaton-lens/>.

⁴¹ Howell, Bronwyn. "Should ChatGPT Be Banned in Schools?" *AEI*. February 3, 2023. <https://www.aei.org/technology-and-innovation/should-chatgpt-be-banned-in-schools/>.

- New types of jobs
- Efficiency in R&D and acceleration of innovation
- Efficiency in management, finance, HR, compliance, supply, security, and production
- Efficiency in market analysis, marketing, pricing, customer experience
- Increased worker productivity, reduction in repetitive tasks
- Upgraded infrastructure for communications, transportation, and energy

Gains to Society

- Analytics to identify and reduce bias and discrimination
- Tools to reduce human environmental impacts
- New tools for creative activity, new types of content, and new creators
- Improved and targeted public services, health care, and education

Gains to Individuals

- Greater individual access and control of information and content received, with active search and verification, including of political and commercial messages
- Better informed decision making
- Greater ability to create and distribute content
- Lower isolation by relating to personal AI bots
- Tools for the protection of one's personal data

Gains for Democracy

- New forms of participation and mobilization
- Political disinformation more subject to verification
- Better polling
- New tools to bypass governmental and corporate control of information

Gains for Competition

- New markets and new entrants
- Consumers use of intelligent searches reduces dominance of established brands
- Competition in AI quality

There are therefore serious reasons why one should take a hard look before jumping to a regulatory approach. AI and its applications are a rapidly changing and dynamic sector, and rules written today might be irrelevant and innovation-retardant in the near future. And modest rules

today have a tendency to expand with what is known as “mission creep.” Regulations tend to start with protections against obvious abuses but expand into tools of social control. For example, the laudable goal of protecting children soon moves to rules relating to morality more generally, or to what science is acceptable to prevent disinformation, or to what expressions should be suppressed as anti-social.

It is essential to recognize that in dealing with problems of AI, governmental regulation is not the only approach. Before one rushes to set rules and laws one should consider the alternatives. They include:

- Self-regulation
- Market competition
- Common law
- Public ownership, public utilities, public support

Self-Regulation

In the US, one preferred approach, promoted by the industry, was self-regulation. The positives and negatives of such approach are:

- A faster, better informed, and more flexible process run by experts and companies and not by government bureaucrats operating under strict and slow procedures.
- An ability to maintain control in areas where governments have limited authority, such as speech. However, that is also a serious negative, especially when it is induced by governments without direct authority.
- The negative potential for anti-competitive industry coordination and cartels, and a potential absence of due process protections.

Seven major AI firms launched an industry-led body to develop safety standards while Washington policymakers were debating whether a governmental AI regulator should be

established.⁴² The industry group advocated a set of principles for safe AI, such as third-party security checks and watermarking of AI-generated content, to reduce the spread of misinformation.⁴³ Many of these practices had already been adopted by OpenAI, Google, and Microsoft.

But is it likely that the leading AI companies would meaningfully restrain themselves, either individually or collectively? The AI leadership is actually mindful of the problems and yet are also swept away by market realities. A paradox of AI is that its own most active promoters and developers are also the ones most worried about it.⁴⁴ They fear that AI could lead into unintended directions and outsmart their human creators.⁴⁵ Even as central a figure as Sam Altman, CEO of OpenAI, the developer of ChatGPT, structured his organization to resist the temptations of commercializing a potentially dangerous product. Altman also supported the notion of licensing the most powerful AI platforms, possibly by a new government agency.⁴⁶ Licensees would have to conform to certain requirements to keep their license.

Even with such an attitude at the company's top, a major development team left OpenAI in 2021 because of their belief that Altman had abandoned safety as a priority.⁴⁷ They founded Anthropic, which soon became a major AI company.

In 2023, a major battle over control of OpenAI broke out, to global fascination. The board controlling the non-profit OpenAI voted to fire Altman, largely due to a split in ideology. Altman was pushing to increase the company's profit orientation, promoting the alliance with Microsoft, and leading a funding round that would have valued the company at \$90 billion. The non-profit members of the board, concerned about the powers and threats of AI, wanted to move

⁴² Zakrzewski, Cat & Nitasha Tiku. "AI companies form new safety body, while Congress plays catch-up." *Washington Post*. July 26, 2023. <https://www.washingtonpost.com/technology/2023/07/26/ai-regulation-created-google-openai-microsoft/>.

⁴³ Kang, Cecilia. "In U.S., Regulating A.I. Is in Its 'Early Days'." *New York Times*. July 21, 2023. <https://www.nytimes.com/2023/07/21/technology/ai-united-states-regulation.html>.

⁴⁴ Metz, Cade et al. "Ego, Fear and Money: Hot the A.I. Fuse Was Lit." *New York Times*. December 3, 2023. <https://www.nytimes.com/2023/12/03/technology/ai-openai-musk-page-altman.html>.

⁴⁵ Metz, Cade et al. "Ego, Fear and Money: Hot the A.I. Fuse Was Lit." *New York Times*. December 3, 2023. <https://www.nytimes.com/2023/12/03/technology/ai-openai-musk-page-altman.html>.

⁴⁶ Chatterjee, Mohar & Rebecca Kern. "Washington confronts a new AI fight." *Politico*. May 17, 2023. <https://www.politico.com/news/2023/05/17/washington-confronts-a-new-ai-fight-00097425>.

⁴⁷ Kim, Hokyung. "Inside the A.I. Arms Race That Changed Silicon Valley Forever." *New York Times*. December 7, 2023. <https://www.nytimes.com/2023/12/05/technology/ai-chatgpt-google-meta.html>.

more slowly. But their move backfired. The vast majority of employees declared their solidarity with Altman, and major investors in the company such as Microsoft balked. Altman was reinstated as the CEO while the opposing board members were removed.⁴⁸ The profit imperative had prevailed.

The chief rival to the Microsoft/OpenAI alliance is Google (Alphabet). In 2012, both Google and Facebook tried to buy the British AI pioneering startup DeepMind. To be acquired, that company set two conditions: no military usage; and an independent oversight board consisting of technologists and ethicists.⁴⁹ Facebook offered more money but did not accept the conditions, and thus Google was able to acquire DeepMind. To show its commitment to DeepMind's concerns, Google gave a significant leadership role to Demis Hassabis, DeepMind's founder – and a pessimist when it comes to the potential threats from AI. Yet when ChatGPT became a public sensation in 2022, Google rushed an unfinished product (Bard) into the public, and its inadequacies embarrassed the company and led to a \$100 billion loss in market value.⁵⁰ In 2023, Google rushed out another AI product, Gemini. The public reactions were scathing, many of them centered on the “wokeness” of the responses, including a rewriting of history⁵¹ or refusing to produce recipes for foie gras due to ethical concerns.⁵² This pointed to a fundamental problem of AI, namely to the likelihood of an ideological bias to steer the central nodes of the information society, controlled by profit-oriented private companies.

The noted physicist Stephen Hawking warned in 2014 about AI: "The development of full artificial intelligence could spell the end of the human race." In 2023, a declaration was issued calling for a six-month pause in “giant AI experiments”: Signatories included Elon Musk, Steve Wozniak and Andrew Yang⁵³ Silicon Valley leaders, periodically summoned to testify to

⁴⁸ Kim, Hokyung. “Inside OpenAI’s Crisis Over the Future of Artificial Intelligence” *New York Times*, December 9, 2023. <https://www.nytimes.com/2023/12/09/technology/openai-altman-inside-crisis.html>

⁴⁹ Metz, Cade et al. “Ego, Fear and Money: Hot the A.I. Fuse Was Lit.” *New York Times*. December 3, 2023. <https://www.nytimes.com/2023/12/03/technology/ai-openai-musk-page-altman.html>.

⁵⁰ Coulter, Martin and Greg Bensinger. “Alphabet Shares Dive After Google AI Chatbot Bard Flubs Answer in Ad.” *Reuters*. February 8, 2023. <https://www.reuters.com/technology/google-ai-chatbot-bard-offers-inaccurate-information-company-ad-2023-02-08/>

⁵¹ Roth, Emma. “Google Explains Gemini’s ‘Embarrassing’ AI Pictures of Diverse Nazis.” *The Verge* February 23, 2024 <https://www.theverge.com/2024/2/23/24081309/google-gemini-embarrassing-ai-pictures-diverse-nazi>

⁵² Douthat, Ross. “Should We Fear the Woke AI?” *The New York Times*. February 24, 2024 <https://www.nytimes.com/2024/02/24/opinion/google-gemini-artificial-intelligence.html>

⁵³ <https://www.nytimes.com/2023/03/29/technology/ai-artificial-intelligence-musk-risks.html>

Congress, agreed that caution was needed. Their motivations were mixed: to signal their sensitivity; to lower pressure to governmental intervention; to make sure that regulations would hamper new and unproven entrants more than the allegedly responsible incumbents; and to establish a regulatory umbrella that would provide shelter when it came to the unknown potential liability for the unproven applications of an unproven technology.

Thus, several AI- savvy Silicon Valley leaders advocated to create a breathing space for reflection and for the establishment of rules and controls over the emerging AI juggernauts. This is similar to what happened after the development of the first atomic bombs, when serious scientists involved directly or indirectly in their development, such as Robert Oppenheimer, Leo Szilard, and Nils Bohr wanted their use stopped or internationally controlled. Part of this is explainable by their understanding of the terrifying force of the new technology; and part might be an reluctance to assume responsibility for their own creation's reality beyond the science. For AI, we can observe AI leaders advocating caution about further development. These well-meaning calls will be as ineffective as those of their nuclear predecessors 80 years earlier, indeed even less so, since at that time a handful decision makers, mostly in the U.S. government, could have held off things for a few years. But now, with many thousands of aspiring scientists, hundreds of competing companies, and dozens of rival nations, the AI development process cannot be stopped. Investors have stampeded towards companies active in the AI field.

And thus, the fears about AI turning into a dangerous force were pushed aside by the imperatives of market competition.⁵⁴ Soon, despite their collective hand-wringing before Congress, Meta's Mark Zuckerberg, Elon Musk, Microsoft's Satya Nadella, Google's Sudar Pichai, all forged ahead.⁵⁵ A Microsoft manager wrote to employees "Speed is even more important than ever.... It would be an absolutely fatal error in this moment to worry about things that can be fixed later."⁵⁶

⁵⁴ Kim, Hokyong. "Inside the A.I. Arms Race That Changed Silicon Valley Forever." *New York Times*. December 7, 2023. <https://www.nytimes.com/2023/12/05/technology/ai-chatgpt-google-meta.html>.

⁵⁵ Kim, Hokyong. "Inside the A.I. Arms Race That Changed Silicon Valley Forever." *New York Times*. December 7, 2023. <https://www.nytimes.com/2023/12/05/technology/ai-chatgpt-google-meta.html>.

⁵⁶ Kim, Hokyong. "Inside the A.I. Arms Race That Changed Silicon Valley Forever." *New York Times*. December 7, 2023. <https://www.nytimes.com/2023/12/05/technology/ai-chatgpt-google-meta.html>.

Nor did the companies back up their AI fears with money. Critics observed that the estimate for investments in AI safety and alignment with societal goals for 2020 was \$10-\$50 million. In the same period, investments in AI were \$153 billion.⁵⁷ Thus, it is unlikely that companies would or could self-constrain themselves in the face of rapid technology development, intense competition, global entrants, national industrial policies, and shareholder expectations.

And in any event, would we want these companies to be the ultimate gatekeepers of what intelligence is approved in the information society? Some of the same people who complain about the power of large digital now want these same platforms to police processing, to sanitize content, and to become the arbiter of what is truth rather than disinformation and of what is just and fair, as opposed to false and hateful.

The perspective for self-regulation is therefore dim. It might exist to flesh out governmental regulations, in a form of “regulated self-regulation.” But it will not be a significant mechanism to deal with the problems. Yet this does not mean that governmental regulation is the default alternative. There are alternatives.

Market Competition

Right now, an AI platform can exert substantial control over its users. By setting the parameters for its algorithms, it can filter, block, ban, exclude, engage in price differentiation, collect data, and police the behavior of individuals, retailers, and content providers. It might even operate the financial flows, with its own private money tokens. It adjudicates disputes on its platform. It can admit some content and algorithms and suppress others. It is a government, judiciary, rule maker, central bank, definer of truth, and chief censor. All this creates significant gatekeeping power.

How to deal with this? One obvious option is consumer choice. For the user, one way to deal with gatekeeping power is to have multiple platforms to choose from. This is a good concept, but it is difficult for multiple platforms to survive, or for a consumer to search for the

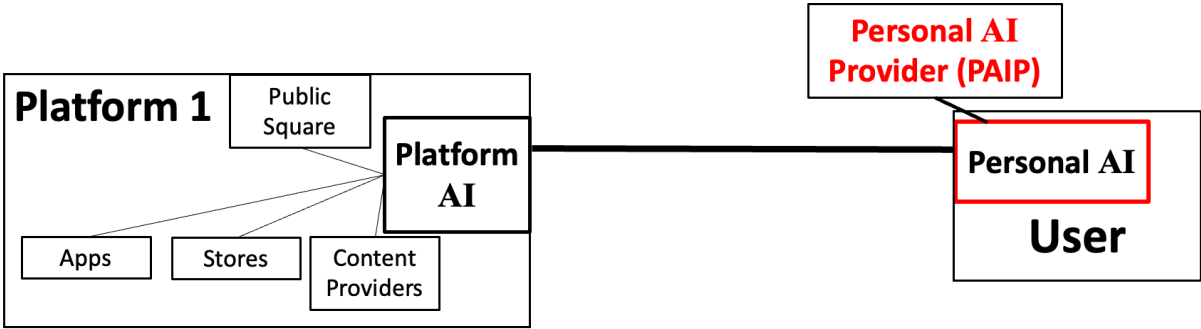
⁵⁷ Roser, Max. “Artificial intelligence is transforming our world – it is on all of us to make sure that it goes well.” *Our World in Data*. December 15, 2022. <https://ourworldindata.org/ai-impact>.

content or terms of service they seek. It is doable but not convenient. This would be the conventional approach to competition. But there is another and more powerful way that is likely to emerge, requiring much less ongoing intervention: for the user to have a *personal AI* tool.

Personal AI means that there is an AI module, controlled by the users, which follows their preferences and instructions and acts on their behalf. It can filter content and ads, take recommendations from trusted sources, identify preferred content and products and search for them, locate the best price, find news and assess its veracity, shield children, and block malicious actors. It becomes a personal assistant, concierge, receptionist, companion, data bank, and trusted gatekeeper. It creates a perimeter of protection against the inflow of unwanted information and against the unwanted outflows of personal information.

One might object that this is far too complicated for a regular consumer to manage. And this would be correct. Which is why all this would be done on the consumer's behalf by a new type of business – personal AI providers. They would be agents to harness AI to a user's needs. They will service the user's AI module remotely or operate it in their own facilities. They could service many individual users and give them scale and countervailing consumer power.

Graph 1: Provider of Personal-AI



Who would be such Personal AI providers? A whole range of organizations could be involved. Tech companies, or non-profits providing a service to their members, consumer

electronics companies, and more. They would charge a subscription or provide their own advertising or do it for free for their members. It could be a competitive market.⁵⁸

One must stop thinking of AI as being only a tool of large organizations threatening the individual and start thinking of it as also a tool for the individual. What Personal AI does is to change the imbalance of power between individuals and large organizations. And as it does so, it changes the rationale for some forms of regulation that were premised, with good reason, on that imbalance, with the goal to rectify that imbalance.

In that sense, the emergence of personal AI might be seen in the future as a watershed moment in the relation of the individual and the surrounding world and its institutions. Though all this will take time to work itself out, of course.

Regulations to Enable AI Competition

There are problems with such a system, too. They include:

- Market power in the running of personal AI could emerge
- Today's major platforms will try hard to hamper the access of alternative AI, and regulation might be needed to assure it
- Perhaps most troublesome, some users will use the capabilities of their personal AI in ways that are offensive – in both senses of the word—to wreak havoc, insult, lie, cheat, and steal

Thus, the system of personal AI solves some problems and creates new ones. A reliance on market forces does not mean a *laissez faire*, hands-off approach. Competition does not necessary happen by itself, but often requires protection from monopolistic dominance by various forms of regulation. Such market structure has often emerged in the digital sector, based on the fundamental economic forces of high fixed costs, low marginal costs, high network externalities,

⁵⁸ They need not write or manage the AI software themselves – given the effort and expense required-- but they could use such modules as provided by other specialized companies, the AI Engines.

and low distance sensitivity. In consequence, a variety of regulatory measures have been deployed to support competition. These include:

- Protection against monopolistic market power and behavior: Antitrust
- Protection of access
- Interoperability

Antitrust. Anti-monopoly measures include the denial of approval to mergers and acquisitions. They require a careful definition of markets and market shares, and often the identification of harm to consumers, to competitors, and to competition. A governmental process is thus likely.

Access. Similarly, establishing access means protecting the non-discriminatory ability of others to utilize a dominant platform, an issue of special importance in the case of platforms with market power that are vertically integrated into more competitive services. One cannot expect that large AI platforms would willingly enable independent providers of AI services and applications to access and interact with those of the large platforms. In consequence, one key element of enabling competition would be an access to the platforms' APIs. These Application Programming Interfaces are the specification for how a software application could be used by another program. They represent the interfaces a software system presents to the outside world accessing that system, and what kind of inputs to provide and outputs to expect. These APIs are designed to allow outside programmers and companies access to a portion of the system, without giving them full access. For example, most airlines have open APIs to retrieve flight schedules, and online travel services like Expedia can offer consumers an integrated travel planning tool.

Netflix used to provide a free public API which gave such access to its film and TV series catalog. This allowed independent programmers to plug in and develop consumer products. An example was the app "A Better Queue", which made recommendations of movies worth watching on Netflix. This service, and others like it, were ended when Netflix closed off the API in 2014, limiting access to select partners. In another case, the FTC argues that Facebook's anticompetitive use of its APIs allowed it to "deter and suppress" competitive threats.⁵⁹

⁵⁹ Federal Trade Commission v. Facebook United States District Court for the District of Columbia Case No: 1:20-cv-03590. Filed 01/13/2021.

Interoperability. The aim is to enable competition by reducing market power that exists in ‘silos’ or eco-systems that are closed, with users and providers unable to connect to other modules. Requirements for interoperability help to overcome such market segmentation. However, the technical standardization process of hardware and software is cumbersome. It is often industry-political and country-protectionist. It is hard to change a standard of interoperation once it is set, to establish its conditions of service, and to police its reality. This can thus also function as a retardant to tech innovation.

The Common Law Approach

The regulatory approach, exemplified by Europe’s Artificial Intelligence Act, is both a policy approach and also a strategic move to dominate global regulatory substance. That approach is a proactive, *ex-ante* regulation. Conversely, as discussed earlier in this paper, the United States regulatory involvements have been fairly minor relative to its size in the AI sector. While there have been some activities in Congress, in regulatory agencies, and in Presidential Executive Orders, there has been no comprehensive or even partial regulatory approach. Partly this was due to a counter-push against regulation as being anti-innovation and counter to American economic and technology interests, since regulations would squander its lead. But the difference in the approach has much deeper philosophical and historical roots. Avoiding specific *ex-ante* regulation does not mean paralysis. Instead, the leading edge of legal concern has been through the court system. It reflects the more general approach of the US to advance certain issues through stepwise and gradual court decisions that take on precedential weight. Cases have included issues of discrimination, copyright, autonomous cars, privacy, and more. This is the classic approach of common law, which prefers an *ex-post* resolution of actual conflicts instead of the *ex-ante* anticipation of potential ones, as in the EU approach.

The problems with the Brussels methodology are that AI is an explosively developing technology that is fundamental and all-pervasive. This means that it is almost impossible to foresee problems in theoretical abstraction, to foresee unanticipated side-effects, to factor in the cost of barriers to innovation⁶⁰, or to balance the positives and the negatives, the social and

⁶⁰ Cuéllar, Mariano-Florentino. “A Common Law for the Age of Artificial Intelligence: Incremental Adjudication, Institutions, and Relational Non-Arbitrariness.” *Columbia Law Review* 119, no. 7 (November 2019): 1773-1791.

private costs, as one does in other areas. For example, in transportation, speed limits for automobiles are a balance between safety concerns and the transportation needs of individuals and society. How to prevent a whole bunch of positive sounding mandates – “you can never be too safe” – which legislators and regulators cannot resist? If machines ran the world on risk reduction principles, we would have no industrial revolution based on iron and coal, no airplanes, no automobiles.

In those cases where the problems are fairly predictable, there almost always already exist laws and legal treatments that encompass such behavior. If AI, for example, were to be used to kill or to defraud somebody, existing laws against homicide and fraud would already suffice.

What needs to be developed are not broad general and high-sounding principles, but fact-based specifics in the gray zones of interpretation. For example, would a company be liable if its AI technology caused an accident? Or, if it *failed* to deploy a safety-enhancing AI technology?⁶¹ Similarly, what the extent of responsibility and liability of an AI platform is for misdeeds by its users? Or, what if an AI system makes humans take a wrong purchasing decision,⁶² provides a flawed medical diagnosis, or breaches a contract in their behalf? Or, what would constitute ‘fair use’ by an LLM platform?

This is not to deny entirely a place for *ex-ante* regulation. It is justified where there is a high downside risk for something to have very bad consequences – such as in the case of a medical drug—or where the risks and benefits are well-understood and not speculative. But one should keep in mind that specific rules and performance standards might not necessarily improve social performance. Where there is a line drawn, companies will get just to the line to stay in compliance with the law, but will not attempt to do better, as they might do when the standard is more general.

The conclusion is that a flexible and dynamic case-by-case adjudication must play an important role in establishing a societal framework for dealing with the emerging technology as

⁶¹ Cuéllar, Mariano-Florentino. “A Common Law for the Age of Artificial Intelligence: Incremental Adjudication, Institutions, and Relational Non-Arbitrariness.” *Columbia Law Review* 119, no. 7 (November 2019): 1773-1791.

⁶² Cuéllar, Mariano-Florentino. “A Common Law for the Age of Artificial Intelligence: Incremental Adjudication, Institutions, and Relational Non-Arbitrariness.” *Columbia Law Review* 119, no. 7 (November 2019): 1773-1791.

it moves into all aspects of life and work.⁶³ This does not mean the absence of relevant statutory laws and regulations – though many already exist, as developed over decades and centuries—but to reserve these for clear and actual problems, narrowly tailored. It is true that court cases take time, but fixing flawed legislation can be even costlier and slower.

A final speculation: if a system of case-by-case adjudication prevails, based on precedents and general principles, is it possible that at some future point an AI system will be able to decide the case? If so, a system could emerge where the AI would write, through the aggregate of its small decisions, the law of AI itself.

Thus, to simplify, one could summarize the emerging approaches:

- America: Common law applied to private platforms
- Europe: Statutory law applied to regulated private platforms
- China: Statutory law applied to platforms that will be increasingly treated as regulated public utilities

Public Ownership, Public Utilities, Public Support

Another approach to create the positives of AI and also deal with negatives such as private market power, is for government to establish or support alternatives provision. It can do so by way of subsidies to private or non-profit entities, joint public-private ventures, or outright public operations.

It can also reduce the independent scope of private companies by making them public utilities, with the requirement to serve everyone under similar conditions. Requirements of access and interoperability move an AI platform in the direction of a public utility. The question is whether these platforms are essential infrastructure and might therefore be treated as public utilities; or whether they are high-tech innovators pushing the envelope and should be given a wide latitude.

⁶³ Yang, S. Alex & Angela Huyue Zhang. “The Case for Regulating Generative AI Through Common Law.” *Project Syndicate*. February 15, 2024. <https://www.project-syndicate.org/commentary/european-union-ai-act-could-impede-innovation-by-s-alex-yang-and-angela-huyue-zhang-2024-02>.

Overall, given the rapid and dynamic trajectory of the AI sector, neither public ownership nor public utility status seem promising approaches. They better fit stable and slow-moving industries such as water, electric power distribution, or rail transport.

A more promising approach is that of a direct governmental role through support subsidies and through private-public partnerships.

Examples for government support of AI operations (beyond R&D support)

- South Korea: The Ministry of ICT, Science, and Future Planning invested almost US\$200 million to stimulate a government-led IT ecosystem.⁶⁴
- China: Shanghai municipality put \$1.5B towards metaverse development.⁶⁵
- France: A €500 million initiative to create “AI champions”.⁶⁶
- United Kingdom: \$125 million to build nine AI research hubs to support projects in education, policing, and regulation.⁶⁷
- Germany: €1.6 billion initiative to develop skills and fund AI companies.⁶⁸ This includes a \$30 million investment in a company trying to capture and train real-time brain data for use in AI.⁶⁹
- Singapore: A digital twin lets users visualize in 3D how the city will develop in response to population growth and construction.⁷⁰
- Saudi Arabia: builds a \$500B city, “Neom”, with digital twin to allow citizens to experience the city before it is fully functional.⁷¹

⁶⁴ <https://accelerationeconomy.com/metaverse/a-metaverse-of-nations-why-governments-are-making-big-moves-into-the-metaverse/>

⁶⁵ <https://blockworks.co/shanghai-allocates-1-5b-to-metaverse-development-fund/>

⁶⁶ News Wires. “France to Invest €500 Million to Fund AI ‘Champions’. Macron says” France 24 June 15, 2023. <https://www.france24.com/en/europe/20230615-macron-wants-to-boost-ai-calls-for-smart-rules-that-don-t-impede-tech-growth>

⁶⁷ ‘AI Moving Fast’: UK to Spend \$125m on AI Hubs, Regulation”. Al Jazeera. February 6, 2024. <https://www.aljazeera.com/economy/2024/2/6/uk-to-spend-125m-on-ai-research-and-regulation>

⁶⁸ Clasen, Alina. “Germany Launches AI Action Plan to Boost Investments, European Cooperation”. Euractiv.com November 8, 2023 <https://www.euractiv.com/section/artificial-intelligence/news/german-ai-action-plan-the-answer-to-chinese-and-us-dominance/>

⁶⁹ Clasen, Alina. “Germany Pens EU’s Largest Single Funding for AI Brain Data Research”. Euractiv. December 19, 2023 <https://www.euractiv.com/section/research-innovation/news/german-pens-eus-largest-single-funding-for-ai-brain-data-research/>

⁷⁰ <https://blogs.worldbank.org/digital-development/can-metaverse-offer-benefits-developing-countries>

⁷¹ <https://blogs.worldbank.org/digital-development/can-metaverse-offer-benefits-developing-countries>

- India: a PPP plan for government to provide AI companies with a cluster of thousands of GPUs for shared processing.⁷²
- Pittsburgh, PA: Smart Traffic System with adaptive traffic signals, aiming to reduce travels delays in Pittsburgh by about 20 percent.⁷³
- Santa Monica, CA: AI-based social app, providing an interactive map to digital experiences and shopping in the city’s retail district where people can collect tokens as they move around the city.⁷⁴
- New York: a \$20 million public investment in a PPP between IBM, New York State, and several universities in various AI projects.⁷⁵
- New York: Seed funding to create Generative AI Avatars.⁷⁶
- Connecticut/California: a federally-funded PPP of private company and university developing the use of AI to create and produce enzymes to recycle plastic.⁷⁷

This public-private approach has significant upside opportunities, especially for the developing/under-developed world.

Conclusion

AI has been on a roller-coaster from giddy hype to primal fear. Investors look for near-term returns, not social optimization. Policymakers, being risk-averse, focus on the downsides, real or

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⁷³ <https://www.americacityandcounty.com/2022/04/18/report-governments-stand-to-benefit-from-metaverse-and-its-associated-technologies/>

⁷⁴ <https://www.americacityandcounty.com/2022/04/18/report-governments-stand-to-benefit-from-metaverse-and-its-associated-technologies/>

⁷⁵ “Governor Hochul Announces \$20 Million Public-Private Investment to Advance Artificial Intelligence Goals” New York State. October 16, 2023. <https://www.governor.ny.gov/news/governor-hochul-announces-20-million-public-private-investment-advance-artificial-intelligence>

⁷⁶ Empire State Development Announces First Series of Investments from the New York State Small Business Credit Initiative’s Pre-Seed and Seed Matching Fund Program. New York State. June 28, 2023 <https://esd.ny.gov/esd-media-center/press-releases/esd-announces-first-series-investments-from-ny-ssbci-pre-seed-and-seed-matching-fund-program>

⁷⁷ New Public-Private Partnerships Look to AI and Enzymes to Break Down Plastic and Textile Waste. Waste 360 October 12, 2023 <https://www.waste360.com/sustainability/new-public-private-partnerships-look-to-ai-and-enzymes-to-break-down-plastic-and-textile-waste>

imagined. A good case can be made for the societal and business upsides, but to be credible it must come from outside the industry itself.

There are two basic perspectives, one of proactive, *ex ante*, regulatory protection; and the other one of dealing with problems as they arise. Neither approach excludes the other. There is room for both, and the question for policymakers is what the proper balance is.

Just as important is the attitude towards AI. We should we be optimistic about AI's future as a positive force beyond the negatives. Not just because of the efficiency gains. While a good number of the concerns with AI are serious and troubling, one should also recognize it as a new fundamental instrument in the toolset of humanity and creativity.⁷⁸ As we deploy the lessons from the past we should also look ahead with hope.

⁷⁸ Dhillon, Sunny. "How AI Will Augment Human Creativity in Film Production." *Variety*. July 20, 2023. <https://variety.com/vip/how-artificial-intelligence-will-augment-human-creatives-in-film-and-video-production-1235672659/>.