Think7 ITALY 2024

G7 ITALIA 2024

Policy Brief

May 2024

Task Force 4: Science and Digitalization for a Better Future

Democratic Governance of AI Systems and Datasets

Zuzanna Warso, Director of Research, Open Future Foundation
Alek Tarkowski, Director of Strategy, Open Future Foundation

Contributors:
Renata Ávila, CEO, Open Knowledge Foundation
Lea Gimpel, Director of AI & Country Engagement, Digital Public Goods Alliance
Aviya Skowron, Head of Policy and Ethics, EleutherAI
Eleonora Poli, Head of Office, Centre for European Policy (CEP) Rome, Italy
Anselm Küsters, Head of Digitalisation and New Technologies Department, Centre for European Policy (CEP) Berlin, Germany
Anshul Pachouri, Senior Manager, MicroSave Consulting (MSC)
Abhishek Raj, Assistant Manager, MicroSave Consulting (MSC)
Harsh Singh, Technology Associate, MicroSave Consulting (MSC)

Abstract

Progress in AI's capabilities has highlighted a significant concern: the uneven allocation of AI's benefits among and within societies and economies, worsening both domestic and global inequalities. In addition to limiting market competition and innovation, this concentration of power also translates into social challenges: global inequalities, risks of bias and disinformation, replacement of jobs, and lack of democratic control. The Hiroshima AI Process G7 Digital & Tech Ministers statement of 1 December 2023 states that one of the key goals of the process is "to maximize and share the benefits of this technology for the common good worldwide with partners beyond G7". The policy interventions outlined in this brief serve this purpose, by supporting democratization of AI technologies. Ensuring democratic governance of AI can lead to greater oversight and control of AI technologies and systems, levelling the playing field and making AI technologies more accessible, and ensuring that AI deployment respects human rights and democratic values. And at global scale, ensuring democratic governance of AI means addressing concerns for global digital divide and inclusivity, building local capacity and engaging stakeholders in the global majority countries. The brief outlines a set of policy interventions focused on the provision of resources necessary to democratize AI development and use, through digital public infrastructures and digital public goods provided by G7 member states. This includes computing power, training datasets and open-source AI solutions. Additional recommendations concern managing AI-induced labour market changes and ensuring a framework for international and multilateral cooperation.

Introduction: Democratization of AI technologies

Recent developments in the field of artificial intelligence (AI) technologies, and in particular the development of general purpose AI systems (also called generative AI or foundation models), demonstrate that these technologies are reshaping industries and many aspects of our societies. However, progress in AI's capabilities has highlighted a significant concern: the uneven allocation of AI's benefits among and within societies and economies, worsening both domestic and global inequalities.

The AI technology stack is highly concentrated and dominated by a few powerful companies, with similar inequalities observed between jurisdictions (UK Competition and Markets Authority 2024; Narechania and Sitamaran 2024). Competition issues in the AI industry and the need to prevent adverse effects – which challenge fairness and contestability – have been recognized in the Ministerial Declaration from the G7 Industry, Technology and Ministerial meeting in March 2024. Machine learning – the dominant training approach used in AI development today – exhibits the traits typically associated with a natural monopoly (Narechania 2022). A comprehensive analysis of the current competitive practices within the generative AI value chain – spanning infrastructure, training of foundational models and downstream services – has

identified several competition constraints. These include the monopolistic tendencies in the infrastructure sector due to limited chips and suppliers, exclusive training data as well as high switching costs. Furthermore, the "winner-takes-most" nature of general purpose model training is created by significant economies of scale. Startups face challenges in deploying generative AI services against larger firms with privileged access to advanced models, proprietary data, scarce human capital and existing customer bases (Küsters and Kullas 2024).

Thus, AI development and deployment become the next frontier of market concentration in the digital economy. In addition to limiting market competition and innovation, this concentration of power also translates into social challenges: global inequalities, risks of bias and disinformation, replacement of jobs and lack of democratic control.

The G7 agreed last year on foundational principles that should guide the development of advanced AI systems in the Hiroshima Process. Principle 9 urges organizations to prioritize AI development for the global good and address urgent global challenges, notably the climate crisis, education and global health, in support of the United Nations Sustainable Development Goals (G7 2023b). Reliance on private infrastructures and investments led by the logic of increasing shareholder value becomes a critical bottleneck for attaining these goals. Concentrated efforts to ensure democratic governance of AI are paramount.

The term "democratization of AI" is often deployed and can refer to AI use, AI development, profits from AI and AI governance (Seger et al. 2023b). All these are key aspects of efforts to ensure more fair, sustainable and responsible AI development and deployment. In this brief, we focus on matters of democratic governance as a key aspect of democratizing AI – without which greater access to AI technologies will not necessarily translate into socially beneficial outcomes. Democratic governance of AI should lead to greater oversight and control of AI technologies and systems, levelling the playing field and making AI technologies more accessible, and ensuring that AI deployment respects human rights and democratic values. And at global scale, ensuring democratic governance of AI means addressing concerns for global digital divide and inclusivity, building local capacity and engaging stakeholders in the global majority countries.

To combat global challenges such as the climate crisis, a plethora of innovative solutions that transform business practices, augment capabilities and mitigate climate change impacts are needed. And the way these solutions are developed, deployed and governed matter. At the same time, rising social inequality and market dysfunctionalities originated by lack of effective competition are issues to be tackled as well.

Proposals for public option AI – models designed to further the public interest – are an important aspect of calls for democratic governance of AI (Sanders et al. 2024). Public option AI could be achieved through leveraging a digital public infrastructure (DPI) based approach and developing AI datasets or AI services as digital public goods. Public option AI compliments regulatory efforts

by creating AI systems that are better aligned with public interest goals and under democratic control. This approach aligns closely with the principles outlined in the Hiroshima AI Process Comprehensive Policy Framework (responsible AI practices, ethical guidelines and global collaboration) and the G20 New Delhi declaration (leveraging DPI for inclusive development).

Research on innovation underscores the importance of diverse teams and capabilities; thus, leaving the development of advanced AI solutions to a small group of homogenous developers and organizations is, at best, negligent and, at worst, inexcusable. For example, market concentrations in AI can adversely impact mitigation of climate change. Inappropriate and delayed action in this regard – or entire lack thereof – are extremely costly and will strain countries' budgets for decades to come (Sanderson and O'Neill 2020).

It is in the interest of the leading global economies to diversify AI development capacities, not least to confront pressing issues that threaten wealth, prosperity and people's well-being domestically and globally. However, apart from responsibly open-sourcing models and their components,[1] more is needed to reap the benefits of AI technologies for the public good.

On the importance of public interventions for AI development and the role of G7 member states

The Hiroshima AI Process G7 Digital & Tech Ministers statement of 1 December 2023 states that one of the key goals of the process is "to maximize and share the benefits of this technology for the common good worldwide with partners beyond G7". The policy interventions outlined in this brief serve this purpose. Provision of resources necessary to democratize AI development and use, through digital public infrastructures and digital public goods provided by G7 member states, will serve global cooperation on AI development. And G7 member states are among the countries with greatest capacities to support AI development, not just in the private but also in the public sector (including academic research).

These measures will in particular help bring into life principle 8 ("Prioritize research to mitigate societal, safety and security risks and prioritize investment in effective mitigation measures") and principle 9 ("Prioritize the development of advanced AI systems to address the world's greatest challenges, notably but not limited to the climate crisis, global health and education"). They will create an opportunity to test guidelines and governance frameworks for the development of AI within the scope of projects that are under full public control – and can serve as best case references for other entities.

[1] More on the societal impact of open foundation models and a risk assessment framework can be found in Kapoor et al. 2024.

Recommendations to the G7

Recommendation 1: Invest in public computing power

One of the primary challenges to AI development is the high level of concentration in computing power (large clusters of high-end GPUs) required for training AI models. Only a few industry players own sufficient computing resources to train state of the art, general purpose models. Furthermore, similar industry concentrations occur in cloud computing, needed to deploy AI models and services built on them.

As a result, a "compute divide" occurs (Besiroglu et al. 2024), creating a dependency both for other companies, for academic research and for other public interest initiatives. As a result, a significant portion of what appears to be independent progress in AI development is, in fact, intricately linked to or dependent on the generosity of the industry. This divide also has a global aspect, with the computing resources being concentrated in but a few countries.

The reliance on infrastructures and resources offered by only a few commercial entities poses a widespread challenge that extends beyond AI development. In order to fully democratize AI, the disparity in access to computational resources must be addressed through investment in publicly accessible computational foundations for open-source AI research. In particular, the compute divide needs to be closed in order to support types of research that industry does not incentivize adequately: research on the limitations of AI models, especially with regards to bias; auditing; development of open source AI models and tools; and research on AI systems intended to address specific public interest issues.

Recommendations for G7 actions:

- Establish an international institution supporting research into AI by providing computing power for public interest AI development. Building such capacity should also be the goal of the AI Hub for Sustainable Development, proposed by the G7 Italian Presidency. Over the last year, G7 member states have launched multiple national initiatives aimed at providing public compute resources. This includes the National AI Research Resource (NAIRR) in the United States, the AI Research Resource and the Isembard-AI initiative in the UK, or the European Union's European High-Performance Computing Joint Undertaking and the AI Factories programme. The initiative should build on these efforts. While these initiatives will reduce the compute divide, their national scope is a limitation. Fully closing the gap requires international cooperation and provision of computing power for research and public interest purposes at the global level. The Confederation of Laboratories for AI Research in Europe has proposed that a "CERN for AI" be built, based on the successful example of the original CERN, the European Organization for Nuclear Research. The G7 member states are well positioned to launch such an initiative. The initiative could not only secure necessary computing resources, but also

have the capacity to launch international efforts in AI research and in the development of AI solutions that serve the public interest. An international institution providing computing power and funding AI research would complement proposals for international AI governance bodies.

Recommendation 2: Invest in public datasets

Access to high-quality training data can be another challenge for AI developers, and the current dominance of the AI market by a few tech companies is due in part to their control over data that has been accumulated over time and scraped from the public internet – a controversial practice due to implications on intellectual property rights, quality issues and ethical concerns, including the exploitation of a public resource for proprietary product development.

However, the challenge goes beyond the issue of limited availability. In fact, there are currently two seemingly opposing challenges when it comes to data for AI. On the one hand, there is a need to increase access to data to address power asymmetries in the AI market and make AI serve the needs and interests of different groups. On the other hand, there is a need to curb the use of publicly available data for AI development against the will of data subjects and content creators.

Increasing the availability of high-quality, diverse datasets that meet the Digital Public Goods (DPG) Standard is critical to levelling the playing field for AI development and fostering the development of systems that serve the public interest and serve the needs of diverse groups. The DPG Standard operationalizes the UN's definition of digital public goods[2] with a set of nine indicators, which ensure SDG-relevance, openness, fairness, safety and adherence to applicable laws.

For example, large language models currently rely heavily on English datasets, making it difficult to develop models for other languages. The scarcity of datasets makes achieving comparable performance to English-language models more difficult. Companies building large language models declare decent performance on non-English (primarily European) languages, yet focus on English language still concentrates AI expertise in English-speaking economies and limits usefulness of the models for non-English deployment scenarios. Language-specific models can potentially be more cost-effective and help develop domestic talent.

Making datasets available and must be balanced with the need to protect individual and collective rights related to these resources. To date, the protection of personal data and intellectual property rights, in particular copyright, have served as central legal regimes for regulating data access and use in AI training. Some existing mechanisms, such as gated access to datasets, new licensing

[2] According to the UN Secretary General's Roadmap for Digital Cooperation (UN Secretary General 2020), digital public goods are open-source software, open standards, open data, open AI systems, and open content collections that adhere to privacy and other applicable laws and best practices, do no harm, and help attain the Sustainable Development Goals (SDGs).

schemes,[3] or opt-out mechanisms, aim to operationalize a balanced approach that protects rights and enables access to data. However, these mechanisms are not yet widely adopted, and unified open standards are lacking. Differences between jurisdictions further complicate the situation. The result is a fragmented landscape of data governance practices. This creates uncertainty and potential legal conflicts.

Given the global nature of data governance challenges and the significant influence of the G7 countries, their actions could foster international cooperation to ensure consistency in data governance practices across jurisdictions and promote a balanced approach. By aligning their policies and standards, these countries can set an example for others and promote a more cohesive data governance framework.[4]

Recommendations for G7 actions:

- Support the creation of high-quality datasets accessible for AI development to address global challenges and serve the public interest – especially when new datasets can fill data blindspots. In addition, deployment of these datasets should go hand in hand with the adoption of governance mechanisms that balance data accessibility for AI development with rights protection and risk mitigation. This requires identifying priority areas and allocating funding to support initiatives that create, refine and make available datasets tailored for AI advancement. Aside from quality standards, these datasets must comply with transparency criteria and respect data subjects' preferences as well as content creators' rights.[5]
- Promote inclusive governance of these datasets and encourage collaboration among stakeholders such as researchers, developers, policymakers and civil society groups. Datasets with a significant public impact should be managed as a data commons, with principles and policies that ensure equitable data sharing as a digital public good.[6] This approach enables collective decision-making by either the data subjects or other stakeholders involved in the data governance process, while protecting data rights and serving the public interest.

[3] For instance, the Open Data Commons Licenses (ODCL) regime provides standard terms that support the data commons ecosystem while lowering the cost of transactions and respecting data subjects' right to privacy. For more information, see: Benhamou and Dulong de Rosnay 2023.

[4] The United Nations High Level Advisory Board on Multilateralism (HLAB) proposed, in the 2023 report, the creation of a global data impact hub (HLAB 2023). Such a hub could address in particular the governance of AI training datasets. For a policy brief on designing the hub as a public data common, see: Tarkowski 2023.

[5] The AI Act, recently adopted by the European Union, is the first in its kind regulation that established such data governance standards, including transparency mandates and opt-out mechanisms.

[6] Wikimedia, a key source of training data for generative AI models, is an example of a digital public good that is communally governed at global scale. The BigScience project, initiatied by HuggingFace, GENCI and IDRIS, was an open, large-scale, collaborative research process that led to the deployment of BLOOM, an open large language model. For a proposal for commons-based governance of datasets, see: Tarkowski and Warso 2024.

Recommendation 3: Support for open-source AI development

Democratizing AI development by making AI models and their components widely available under an open-source paradigm will benefit the development of diverse AI applications. Open-source AI is discussed under the Brazilian G20 presidency as a means to provide broad access to AI technologies and, therefore, enable local innovations to improve people's quality of life (G20 Digital Economy Working Group 2023).

Building on recommendations 1 and 2, the G7 should concentrate on fostering an enabling ecosystem for open-source initiatives. While the exact definition of "open-source AI" is still under debate, it's evident that nurturing openness in AI is beneficial to society for two main reasons. Firstly, the values of sound research, reproducibility and transparency, championed by open science, are crucial for developing safe and responsible AI systems. Secondly, open-source development can promote competition, quality and innovation from new entrants and smaller players.[7] Openness enables developers to draw on additional sources of training data that reflect the under-represented cultural, philosophical, linguistic and geographic diversity of majority countries and allow for model alignment practices informed by neglected sources of knowledge, giving way to novel applications.

Several publications recently claimed that open-sourcing highly-capable models could come at the cost of substantial risks, such as the creation of novel biological and chemical weapons (Carter et al. 2023) and destabilizing democratic societies by weaponizing AI-generated disinformation (Seger et al. 2023b). The majority of these claims are unvalidated,[8] especially when assessing the *marginal risk* of open models compared to closed models or existing technology like web search (Kapoor et al. 2024). Furthermore, AI safety concerns are not limited to open models but concern closed models simultaneously. More rigor needs to be brought into this policy debate. One promising idea to this end is the exploration of marginal risk: assessing whether open models exacerbate risk relative to existing closed models, and analysing how open models contribute to risk mitigation (Kapoor et al. 2024). In addition, AI safety research is best served by making model components and related knowledge artefacts available (Mozilla Foundation 2023); as mentioned earlier, today's rapid progress in AI capability development and appropriate safeguards would not be possible otherwise.[9]

---

7 For an in-depth elaboration of why support for the open approach to AI should be a priority for policy makers see: Creative Commons et al. 2023. Although the concrete recommendations included in this paper were formulated in the context of the AI Act, the analysis has a global relevance.

8 One notable exception are harmful, AI-generated images such as non-consensual intimate imagery (NCII), for which researchers have already begun to develop mitigation measures like curating training data, regulating prompts for output generation and filter options. For more information, see: Qu et al. 2023.

9 For example, open-source AI models and open datasets enabled foundational research in memorization (Carlini et al. 2023), watermarking (Kirchenbauer et al. 2023) and AI safety (Yang et al. 2023). See Table A1 in Kapoor et al. (2024) for more examples.

Recommendations for G7 actions:

- When allocating funds for AI projects, governments should prioritize supporting open-source initiatives. Additionally, in funding AI development, governments should ensure that any resources generated from this funding, including datasets, are shared as openly as possible.
- Governments should strengthen the open-source ecosystem by promoting the use of open-source AI solutions in the public sector. This could include encouraging the use of open-source software by government agencies through measures such as establishing procurement policies that favour open-source software. There is also the need to build capacity inside the public administration (Balbo di Vinadio et al. 2022).

Recommendation 4: Managing AI-induced labour market changes

An equitable labour market is pivotal for any well-functioning democracy. Indeed, any efficient democratic system should depend not only on a balanced distribution of power, but also on an acceptable living standard for all citizens as well as the opportunity for meaningful work. The above conditions could only be ensured by fair and inclusive labour policies for the AI era. Yet, the rapid advancement of AI technologies, particularly general-purpose AI tools, is poised to significantly change the global labour market landscape. While these changes promise greater efficiency and innovation, they also raise concerns about job displacement, skills mismatches and the exacerbation of social inequalities, which affect democratic participation and citizens' trust. The democratic development of generative AI therefore requires a proactive approach to labour market and social policies to ensure that the workforce is prepared for the jobs of the future, ensuring overall social resilience in fragile political and economic times, whereby democratic standards are challenged.

However, this democratic vision and embedding of AI-induced labour market changes is at risk. Based on a meta-analysis of existing research, we estimate that 10 per cent of jobs in Europe are at risk of displacement in the short to medium term (Küsters and Poli 2024). More generally, around 33 per cent of jobs in developed countries could be negatively affected by AI (Cazzaniga et al. 2024). The same data source suggests that overall exposure to AI is 40 per cent in emerging market economies and 26 per cent in low-income countries. Unlike traditional automation, which has primarily affected low-skilled jobs, generative AI also threatens creative and high-skilled positions (Hui et al. 2023; Albanesi et al. 2023). Overall, displacement through AI could lead to increased unemployment, income inequality and social unrest if not adequately addressed, which will inevitably affect democratic standards. In this context, the potential of universal basic income (UBI) schemes should be explored by G7 leaders as a form of social insurance to help workers mitigate the labour market transformations brought about by AI and create adequate living standards as the basis of functioning democracies.

In addition, the AI revolution will require a workforce with new skills and competencies, for instance related to natural language processing (NLP) analytics or data labelling. Within the G7

discussions on how to coordinate actions and govern AI risks related to democratic governance, there is an urgent need to push forward comprehensive upskilling and reskilling initiatives as well as flexible and adaptable education and training systems that can respond to the evolving needs of citizens and the labour market.

To boost democratic governance by tackling the negative AI externalities on citizens welfare and access to the job market, we recommend the following actions for the G7:

- Explore the idea of introducing UBI schemes: G7 leaders should task an international organisation, such as the OECD, to map UBI experiments conducted across the globe to assess positive effects as well as negative externalities in terms of rising public costs or instances of moral hazard (Kangas et al. 2019). The aim of this exercise would be to provide a strong analytical basis for the development of a G7 UBI model that could raise democratic standards and citizens' trust in democratic governance of AI by providing workers with support to compensate for possible job losses and facilitate smooth transitions to new employment opportunities, for example by enabling sufficient retraining during transition periods.
- Conduct simulation exercises or stress tests regarding the financing of UBI schemes: Financing a comprehensive UBI programme would require substantial resources, potentially leading to increased taxation or the reallocation of existing welfare funds. Due to fiscal constraints of democratic governments, we suggest that any UBI schemes should be linked to the productivity gains from the rapid deployment of generative AI services (Küsters and Poli 2024). However, such an option should be evaluated through simulation exercises to avoid imposing ineffective burdens on private firms that could affect their investment in innovation.
- Promote AI literacy and skills development: Democratising AI also means that G7 countries should share lessons learned and collect best practices on how to integrate AI literacy into their education systems, from primary education to lifelong learning programmes. This includes not only technical skills related to AI and data science, but also soft skills such as critical thinking, creativity and adaptability, which are fundamental tools for functioning democracies.[10] Similarly, the G7 should encourage collaboration between governments, educational institutions and the private sector to develop training programmes that are closely aligned with an AI-driven labour market.

Recommendation 5: Framework for international and multilateral cooperation

As AI technologies become increasingly integral to societal and economic functions, we need to build robust policy and regulatory frameworks and institutional structures to regulate and govern AI. Around 70 countries have taken more than 1000 policy initiatives of AI. These policy initiatives include national strategies, public consultation of stakeholders and experts, emerging AI-related regulations, etc. (OECD AI Policy Observatory 2024). Many of these policy initiatives are often designed and implemented in isolation. Lack of multi-stakeholder cooperation is leading

[10] In this regard, Finland's public "The Elements of AI" course (https://www.elementsofai.com) is a prime example.

to these fragmented governance efforts, disparate regulatory frameworks, and uneven adoption of ethical standards on AI globally, opening up the window for risks associated with privacy and algorithmic biases (Renda et al. 2020). The absence of a harmonized global governance structure poses significant challenges such as a lack of interoperability in the governance efforts and a lack of global consensus on AI standards for data labelling and testing, data protection and exchange protocols (UN AI Advisory Body 2023). As advocated by the UN, implementing a unified global governance framework for AI will reduce the risks associated with its deployment and bridge governance gaps that are divided between regions and sectors (UN AI Advisory Body 2023).

This policy framework comprises the guiding principles and a code of conduct to address the impact of advanced AI systems. Principles 10, 11 and 12 of Hiroshima Process Guiding Principles emphasize the importance of the development of international technical standards, and datasets to promote the responsible use of AI systems (G7 2023a). It will help solve the challenge of lack of standardization and transparency in the training dataset and solutions (GovStack 2022). Global cooperation in building these high-quality datasets would lead to the development responsible of AI solutions that could be used across borders.

Hence, to stimulate innovation within a secure and ethical framework, the following recommendations are proposed to the G7, with an emphasis on creating a robust, harmonious and responsible system of AI global governance.

The G7 should collaborate with multilateral and global institutions such as the UN, OECD, Global Partnership on Artificial Intelligence (GPAI) and G20 to implement the following recommendations:

- Establishment of a task force to bring more harmonization on various policy initiatives by different countries on AI: The G7 should create a task force for facilitating the harmonization of policies, support implementation and promote learning across borders, thereby avoiding governance silos and ensuring cohesive policy development. This would aid in bridging the capacity gap between various countries in the development and implementation of policy and regulatory framework on AI. This will help in strengthening existing efforts towards building a unified global governance framework for AI.
- Establishment of a code of conduct for developing training datasets for building AI solutions: The G7, should establish a code of conduct for the development and training of AI datasets. This would enable implementation safeguards to check for biases and risks at early stages. This will greatly help developing and under-developed countries to avoid risks from non-transparent AI solutions.
- Developing monitoring and evaluation framework for AI solutions: The G7, should create a working group dedicated to developing a monitoring and evaluation framework for the assessment of deployed AI solutions. The framework will focus on assessing public perception, and adoption and continuously monitor the deployed AI solutions for risks and biases.

References

Albanesi, Stefania et al. 2023. New technologies and jobs in Europe. *ECB Working Paper Series* 2831. https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2831~fabeeb6849.en.pdf

Balbo di Vinadio, Tommaso, et al. 2022. *Artificial intelligence and digital transformation: competencies for civil servants*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000383325

Benhamou, Yaniv, and Dulong de Rosnay, Melanie. 2023. Open Data Commons Licenses (ODCL): Licensing personal and non personal data supporting the commons and privacy. *SSRN* 12 December. http://doi.org/10.2139/ssrn.4662511

Besiroglu, Tamay, et al. 2024. The compute divide in machine learning: A threat to academic contribution and scrutiny? *arXiv* 8 January. https://doi.org/10.48550/arXiv.2401.02452

Carlini, Nicholas, et al. 2023. Quantifying memorization across neural language models. *arXiv* 6 March. https://doi.org/10.48550/arXiv.2202.07646

Carter, Sarah R., et al. 2023. The convergence of artificial intelligence and the life sciences: Safeguarding technology, rethinking goveranance, and preventing catastrophe. *NTI Reports* October. https://www.nti.org/?p=40028

Cazzaniga, Mauro, et al. 2024. Gen-AI: Artificial intelligence and the future of work. *IMF Staff Discussion Notes* 2024/001. https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2024/01/14/Gen-AI-Artificial-Intelligence-and-the-Future-of-Work-542379

Creative Commons, et al. 2023. *Supporting open source and open science in the EU AI Act*. https://creativecommons.org/?p=67418

G7. 2023a. *G7 Hiroshima AI process: G7 digital & tech ministers' statement: Annex 1: Hiroshima process international guiding principles for all AI actors*. http://www.g7.utoronto.ca/ict/2023-statement-2.html

G7. 2023b. *Hiroshima process international guiding principles for organizations developing advanced AI system*. http://www.g7.utoronto.ca/summit/2023hiroshima/231030-ai-principles.html

G20 Digital Economy Working Group. 2023. *G20 Brasil 2024 Digital Economy Working Group Issue Note*. https://www.g20.org/pt-br/documentos/issue-note-digital-economy.pdf/@@download/file

GovStack Community of Practice. 2022. *GovStack definitions: Understanding the relationship between digital public infrastructure, building blocks & digital public goods*. https://digitalpublicgoods.net/DPI-DPG-BB-Definitions.pdf

HLAB-UN High Level Advisory Board on Multilateralism. 2023. *A breakthrough for people and planet: Effective and inclusive global governance for today and the future*. https://highleveladvisoryboard.org/breakthrough

Hui, Xiang, Reshef, Oren, and Zhou, Luofeng. 2023. The short-term effects of generative artificial intelligence on employment: Evidence from an online labor market. *CESifo Working Papers* 10601. https://www.cesifo.org/en/node/77192

Kangas, Olli, et al. 2019. *The basic income experiment 2017–2018 in Finland: Preliminary results*. Helsinki: Ministry of Social Affairs and Health. http://urn.fi/URN:ISBN:978-952-00-4035-2

Kapoor, Sayash, et al. 2024. On the societal impact of open foundation models. *arXiv* 27 February. https://doi.org/10.48550/arXiv.2403.07918

Kirchenbauer, John, et al. 2023. A watermark for large language models. *arXiv* 6 June. https://doi.org/10.48550/arXiv.2301.10226

Küsters, Anselm, and Kullas, Matthias. 2024. Competition in generative artificial intelligence: cepInput in answer to the European Commission's call for contributions. *cepInputs* 6/2024. https://www.cep.eu/en/eu-topics/details/cep/competition-in-generative-artificial-intelligence-cepinput.html

Küsters, Anselm, and Poli, Eleonora. 2024. Resisting or rebooting the rise of the robots? Reinventing the idea of basic income insurance for the age of generative AI, *cepStudies* 2/2024. https://www.cep.eu/en/eu-topics/details/cep/resisting-or-rebooting-the-rise-of-the-robots-cepstudy.html

Mozilla Foundation. 2023. *Joint statement on AI safety and openness*. https://open.mozilla.org/letter

Narechania, Tejas N. 2022. Machine learning as natural monopoly. *Iowa Law Review* 107(4): 1543-1614. https://ilr.law.uiowa.edu/node/9106

Narechania, Tejas N., and Sitaraman, Ganesh. 2024. An antimonopoly approach to governing artificial intelligence. *SSRN* 22 April. https://doi.org/10.2139/ssrn.4597080

OECD AI Policy Observatory. 2024. *National AI policies & strategies*. https://oecd.ai/en/dashboards/overview

Qu, Yiting, et al. 2023. Unsafe diffusion: on the generation of unsafe images and hateful memes from text-to-image models. *arXiv* 16 August. https://doi.org/10.48550/arXiv.2305.13873

Renda, Andrea, et al. 2021. *Study to support an impact assessment of regulatory requirements for artificial intelligence in Europe*. Luxembourg: Publications Office of the EU. https://doi.org/10.2759/523404

Sanders, Nathan, Schneier, Bruce, and Eisen, Norman. 2024. How public AI can strengthen democracy. *Brookings Commentaries* 4 March. https://www.brookings.edu/?p=1761253

Sanderson, Benjamin M., and O'Neill, Brain C. 2020. Assessing the costs of historical inaction on climate change. *Scientific Reports* 10 (2020): 9173. https://doi.org/10.1038/s41598-020-66275-4

Seger, Elizabeth, et al. 2023a. Democratising AI: Multiple meanings, goals, and methods. In Rossi, Francesca, et al., eds. *AIES '23: Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society*: 715-722. https://doi.org/10.1145/3600211.3604693

Seger, Elizabeth, et al. 2023b. *Open-sourcing highly capable foundation models: An evaluation of risks, benefits, and alternative methods for pursuing open-source objectives*. Centre for the Governance of AI. https://www.governance.ai/research-paper/open-sourcing-highly-capable-foundation-models

Tarkowski, Alek. 2023. Public data commons as a policy framework for the data impact hub and the mutual commitment framework. *UNU-CPR Working Papers* November. https://unu.edu/node/34094

Tarkowski, Alek, and Warso, Zuzanna. 2024. Commons-based data set governance for AI. *Open Future Papers*. https://openfuture.eu/publication/commons-based-data-set-governance-for-ai

UK Competition and Markets Authority. 2024. *AI foundation models: Update paper*. https://www.gov.uk/government/publications/ai-foundation-models-update-paper

UN AI Advisory Body. 2023. *Interim report: Governing AI for humanity*. https://www.un.org/en/ai-advisory-body

UN Secretary General. 2020. *Roadmap for digital cooperation*. https://www.un.org/en/content/digital-cooperation-roadmap

Yang, Xianjun et al. 2023. Shadow alignment: The ease of subverting safely-aligned language models. *ArXiv* 4 October. https://doi.org/10.48550/arXiv.2310.02949

About Think7

Think7 (T7) is the official think tank engagement group of the Group of 7 (G7). It provides research-based policy recommendations for G7 countries and partners. The Istituto Affari Internazionali (IAI) and Istituto per gli Studi di Politica Internazionale (ISPI) are the co-chairs of T7 under Italy's 2024 G7 presidency.