Science and Public Policy, 2024, **51**, 1104–1116
DOI: https://doi.org/10.1093/scipol/scae052
Advance Access Publication Date: 19 September 2024
Article

Mapping science in artificial intelligence policy development: formulation, trends, and influences

Bernardo Cabral [1,2,*] **and Sergio Salles-Filho** [1]

[1]Department of Science and Technology Policy, State University of Campinas, Rua Carlos Gomes, 250, Campinas, São Paulo' 13083-855, Brazil
[2]Department of Economics, Federal University of Bahia, Praça Treze de Maio, nº 6, Salvador, Bahia 40.060-300, Brazil
*Corresponding author. Department of Economics, Federal University of Bahia, Praça Treze de Maio, nº 6. 2º Andar, Sala 206 – Dois de Julho, Salvador, Bahia 40.060-300, Brazil. E-mail: bernardo.cabral@fiocruz.br

This research maps the evolution of artificial intelligence (AI) policy and its scientific underpinnings. First, we analyzed the global AI policy landscape using the Overton policy documents database, which comprises millions of policy documents. Findings reveal a substantial increase in AI policy documents since 2018, with the USA, European Union (EU), and intergovernmental organizations leading policy development efforts. We also analyzed the scientific articles referenced within these policies. The USA stood out as a central hub in the production and funding of AI research, with other Global North countries playing a notable role alongside China. The research cited in AI policy documents predominantly features journals with a high-impact factor, such as *Nature* and *Science*. This analysis aims to deepen the understanding of the AI policy landscape, offering insights for academics and policymakers and contributing to managing AI's global governance.

Keywords: artificial intelligence; policy documents; Overton; bibliometrics.

1. Introduction

Artificial intelligence (AI) encompasses many technologies, including deep learning, machine learning, natural language processing, neural networks, and rule-based systems (Lu 2019). As the evolution of AI accelerates, it plays an increasing role in scientific research and technological innovation (Liu et al. 2020). The emergence and proliferation of large language models, such as ChatGPT, have thrust AI into the limelight, underscoring its potential for transformative impacts across numerous sectors and intensifying the global debate on AI policy (Pflanzer et al. 2023; UNESCO 2023). However, AI poses complex challenges alongside its benefits from ethical concerns to security risks (Howard 2019; Rességuier and Rodrigues 2020; Ryan 2020).

The global emergence of AI as a relevant technological force has reshaped how policymakers and stakeholders perceive technological advancements (Lauterbach 2019). With its profound socioeconomic implications, the rise of AI has carved a distinct niche within policy, moving from being just an auxiliary topic in public policy discussions to becoming the direct target of specific legislation (Agrawal, Gans, and Goldfarb 2019). Such an evolution underscores the recognition of AI's unique position at the intersection of research, ethics, production, commerce, and governance (Mazzucato et al. 2022; OECD 2023a,b).

In response to AI's global impact, AI policy has garnered international attention and emerged as a critical component of technology policy, given its potential impacts and its range of applications (Agrawal, Gans, and Goldfarb 2019; Sætra 2020). Countries worldwide have developed comprehensive AI policies motivated by the urge to leverage AI's potential while mitigating its risks (Danish Government 2019; Ministry of Economic Affairs and Employment of Finland 2019; Switzerland Government 2019; Department for Science Innovation & Technology 2023; National Artificial Intelligence Research Resource Task Force 2023). In March 2017, Canada pioneered the introduction of a national AI strategy; after this, sixty-two national AI strategies have been unveiled, with 2019 witnessing the highest number of releases (Maslej et al. 2023). More recently, at the end of 2023, the European Union (EU) reached a landmark agreement on its AI Act, the first of this kind globally (Council of the European Union 2023).

Additionally, international collaborations have manifested in treaties (UNESCO 2021) and specialized organizations (GPAI 2023; OECD.AI 2023), emphasizing AI's relevance beyond borders and the need for cooperative governance (Guterres 2023). While the G20 published a guide on AI Principles in 2019 (G20 2019), more recently, the G7, under the Hiroshima AI Process, is advancing on the Hiroshima Process International Guiding Principles for Organizations Developing Advanced AI Systems and the Hiroshima Process International Code of Conduct for Organizations Developing Advanced AI Systems (G7 2023). Also, in late October 2023, the UN Secretary-General launched an AI Advisory Body on risks, opportunities, and international governance of AI (United Nations 2023).

This study's central research question is "How have AI policies evolved over the last decade, and what kind of knowledge has been feeding these policies?" Given AI technologies' rapid development and widespread adoption, exploring this question is timely and critical. We aim to contribute to shedding light on global AI policy evolution, mapping different

© The Author(s) 2024. Published by Oxford University Press. All rights reserved. For commercial re-use, please contact reprints@oup.com for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site–for further information please contact journals.permissions@oup.com.

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

stakeholders and the influence of specific countries and organizations. For that, we use the Overton policy documents database, an extensive resource that contains more than 10 million policy documents from various regions (Overton 2023a). Based on the policy documents, we also mapped, from their bibliographic references, the main funders, organizations, countries, and journals of the scientific articles that feed AI policies.

Reflecting on previous studies, numerous scholarly endeavors have explored the contours of AI policies at both national and international levels (Lauterbach 2019; Leufer and Lemoine 2020; Ossewaarde and Gulenc 2020; Roy 2020; Roberts et al. 2021; Du 2023; Filgueiras 2023; Guenduez and Mettler 2023; Roberts et al. 2023b). They have delineated nations' multifaceted strategies from fostering innovation ecosystems (Department for Science Innovation & Technology 2023) to formulating ethical guidelines (Roy 2020; Roche, Wall, and Lewis 2022; Ulnicane 2022). There are also mappings of scientific publications on AI (Tang, Hsiao, and Hwang 2022; Gargiulo et al. 2023), but, to the best of our knowledge, none focus on those cited in policy documents.

Our research adds to the growing body of literature on the intersection of science and policy (Bozeman and Youtie 2017; Cairney and Oliver 2020; Gunn and Mintrom 2021). The growing advocacy for evidence-based policymaking has shown that this is a complex landscape since the study of the relationship between research and policy is both a methodological and analytical challenge (Boaz, Baeza, and Fraser 2011). While part of the literature focuses on the use of research in policy (Williamson et al. 2019), which seeks to identify how scientific research is used, there are also studies on its impact on policy (Louder et al. 2021), where the goal is to establish the causal effect of using scientific evidence in policies. This discourse is enriched by a variety of theoretical and methodological approaches, including the perspective of forward and backward tracking to evaluate how scientific knowledge is integrated into public policy (Newson et al. 2018). While the former looks at the research outputs of researchers as the focus point and tries to understand where their research goes, the latter builds on the policies to identify and analyze the use and impact of the research.

Bibliometric and altmetric analyses have emerged as valuable tools in this endeavor and showed significant relevance in understanding the broader societal implications and applications of research. Previous investigations into Altmetric data have primarily focused on its relationship with traditional scientometric indicators, research impact assessment, and scholarly use of social media (Costas, Zahedi, and Wouters 2015; Sugimoto et al. 2017). However, a limited but growing body of work has begun to explore the phenomenon of research use in policy. For instance, studies have found that a small fraction of Web of Science (WoS) publications, ranging from less than 0.5 per cent to 1.2 per cent, were cited in Altmetric-tracked policy-relevant documents (Bornmann, Haunschild, and Marx 2016; Haunschild and Bornmann 2017). Further insights emerge exploring the coverage of open access (OA) versus non-OA publications in policy documents (Taylor 2020).

This study reveals a significant surge in AI policy documents since 2018, with the USA, EU, and intergovernmental organizations (IGOs) leading policy development efforts. Our analysis highlights the pivotal role of high-impact scientific research, particularly from Global North countries and China, in shaping AI policies. Additionally, we identify the key institutions, funding agencies, and journals that contribute to the scientific ecosystem supporting AI policy formulation.

The paper is structured as follows: Section 2 details our methodology, including data sources and analysis techniques. Section 3 presents our findings on the geographical distribution of AI policy documents, the role of scientific research, and the influence of key stakeholders. Section 4 discusses the implications of these findings within the broader context of AI policymaking. Finally, Section 5 concludes with a summary of our contributions, limitations, and suggestions for future research.

2. Method

The Overton database stands as one of the world's preeminent repositories of policy documents, established by web-crawling publicly accessible documents from a list of over 32,000 institutions, encompassing governments, IGOs, think tanks, and charitable entities (Szomszor and Adie 2022). As of 10 October 2023, it holds 9,377,403 policy records (Overton 2023a).

Each document in Overton undergoes processing to extract pertinent bibliographic information, such as the title, authors, and publication date, complemented by a list of cited references spanning academic literature to other policy documents (Szomszor and Adie 2022). The definition of policy documents within Overton is broad, entailing materials primarily penned for or by policymakers, incorporating reports, clinical guidelines, white papers, legal manuscripts, and more (Bornmann et al. 2022).

Overton offers a wide collection of policy documents, with its indexing superseding other policy document databases, such as Altmetric.com (Maleki and Holmberg 2022; Malkov, Yaqub, and Siepel 2023). Its coverage encompasses documents from 188 countries written in several languages (Overton 2023a), but regions such as mainland China are not adequately represented (Yin et al. 2021). Potential language biases do exist as English documents dominate the database. Additionally, the completeness of data might be affected by inadvertent omissions or missing entries from certain regions (Pinheiro, Vignola-Gagné, and Campbell 2021; Maleki and Holmberg 2022; Szomszor and Adie 2022).

According to Overton, the over-representation of developed countries stems from various factors. Think tanks and IGOs (accounting for 25 per cent of Overton's content) are concentrated in London, Washington, DC, New York, and Brussels. Additionally, the digital footprint of governments also influences this representation as more developed countries have better infrastructure to make documents available online. There are also instances where certain pivotal sources might be overlooked due to gaps in Overton's regional understanding (Overton 2023b).

Considering its potential and limitations, we searched in the field "title" (which also includes translated titles for non-English documents) for AI-related terms ("deep learning," "machine learning," "neural networks," and "artificial intelligence") in the Overton snapshot on 30 September 2023. The results for policy documents were then exported to the

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

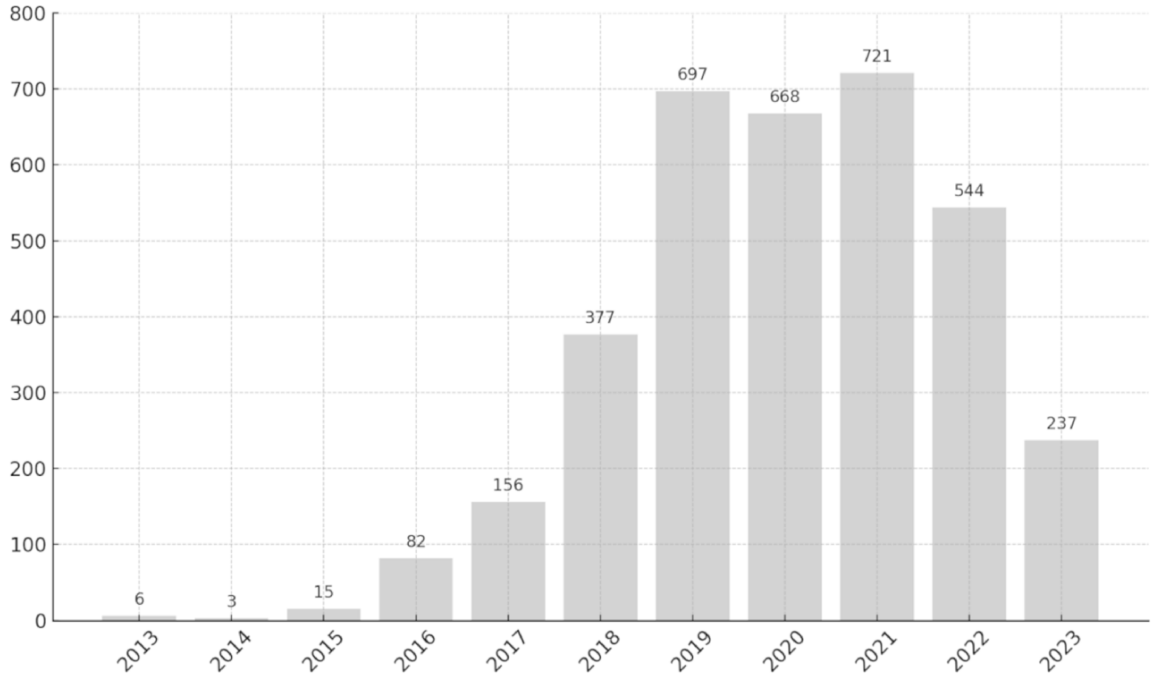

Figure 1. AI policy documents per year. Data from 2023 recorded only up to September.

software VantagePoint for further processing and analysis. The raw data from Overton were cleaned and normalized, and all words were translated into English. Additionally, we also exported the DOIs of scholarly articles cited by these policy documents. We removed all duplicates and ran a search for these DOIs on the WoS and Scopus. The coverage from the WoS (65.3 per cent) and Scopus (66.2 per cent) was similar, but the metadata from the WoS was more comprehensible. Hence, metadata from the search on the WoS was exported to VantagePoint and further analyzed.

3. Results

3.1 Policy documents

The search yielded 3,133 policy documents from fifty-nine countries and 399 sources. Most of the documents were categorized by Overton as publications (84.5 per cent), while 7.5 per cent were classified as working papers and 6.6 per cent as blog posts. Figure 1 shows the temporal distribution of these policy documents. In 2013, only six documents were recorded, rising slightly to fifteen in 2015 and eighty-two in 2016. The trend gained more momentum in 2017, with 156 documents, nearly doubling to 377 in 2018. A marked surge occurred from 2019 to 2021, with the number of documents increasing from 697 in 2019 to a peak of 721 in 2021. However, this was followed by a decline to 544 in 2022. For 2023, only 237 documents were recorded up to September, suggesting a potential continuation of the downward trend observed in the previous year.

Figure 2 illustrates the distribution of these documents across various nations. The USA leads with 793 published policy documents, while the EU follows closely with 681 documents. IGOs have also contributed substantially with 424 documents indicating the importance of international cooperation in AI policy. Other countries, such as the UK, with 377 policy documents, France (190), Sweden (175), and Germany (158), also show commitments to AI policy development. Other notable contributors include Canada (ninety-three), Australia (ninety-two), Belgium (seventy-one), Italy (sixty-five), and Japan (sixty-four). This distribution underscores the widespread recognition of AI's significance and the concerted efforts by various nations and organizations to address its implications through policy.

The organizations with the most published AI policy documents demonstrate a diverse range of contributions from various sectors and regions (Fig. 3). The US House Committees lead with 144 documents, and the United Nations Educational, Scientific and Cultural Organization (UNESCO) follows with 120 publications, emphasizing the global importance of educational, scientific, and cultural considerations in AI development. The Swedish Ministry of Agriculture and Infrastructure has produced 102 documents, reflecting its focus on integrating AI into national infrastructure and agricultural policies. The European Economic and Social Committee and the UK Science and Technology Committee also contribute significantly, with 100 and 99 documents, respectively. Other notable organizations include the Australian Council of Learned Academies (seventy-two), the European Parliamentary Research Service (seventy-one), and EUR-Lex (sixty-six), each playing a vital role in the development and dissemination of AI policy. Additionally, entities like Banca D'Italia (fifty-two), the Joint Research Centre of the European Commission (forty-nine), and the Council of the European Union (forty-two) further underscore the broad spectrum of organizational involvement in AI policymaking.

3.2 Cited references

We also explored the scientific research that was cited by these policy documents. The policy documents on AI have cited

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

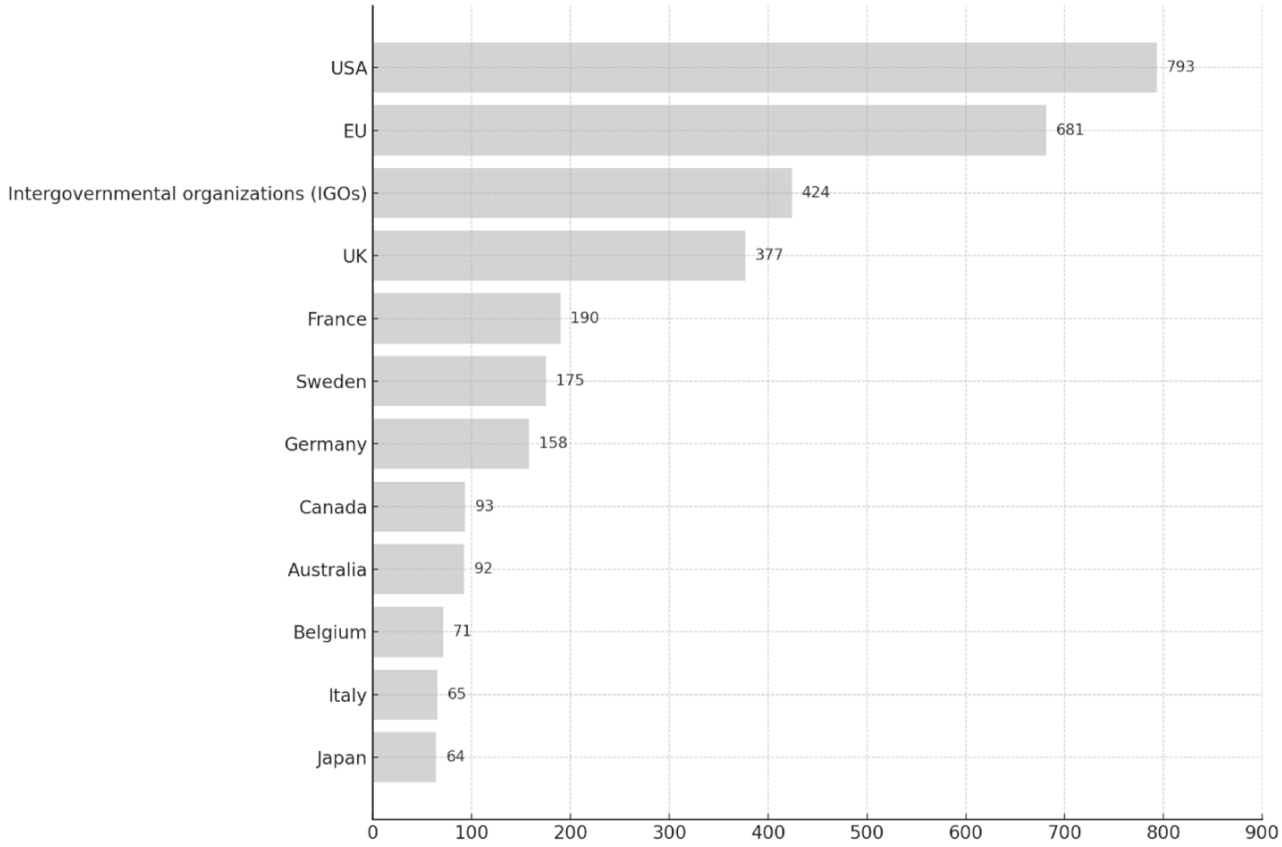

Figure 2. AI policy documents' geographical distribution.

17,835 articles, but only 11,643 (65.3 per cent) had their DOI indexed in the WoS. These results show that many of the references cited by policy documents are not scientific articles or are not indexed in journal databases. These are probably other policy documents, research reports, and gray literature in general—as well as some other articles of lesser quality. Part of the difficulty also lies in the lack of standardization in the references of policy documents, which do not necessarily follow the bibliographic structures used by scientific publications.

The countries with the most cited research in AI policy documents highlight the leading contributors to the academic and policy discourse surrounding AI (Fig. 4). The USA is at the forefront, with 5,706 citations, reflecting its dominant position in AI research and policy influence. The UK follows with 1,967 citations, underscoring its significant role in the global AI research landscape. Germany (953), Canada (736), and Italy (665) also feature prominently, demonstrating their robust research outputs and contributions to AI policy. China, with 644 citations, shows its growing influence in the AI field, while Australia (612), the Netherlands (598), Spain (449), France (432), and Switzerland (431) further illustrate the diverse geographic contributions to AI policy research. Other countries such as Sweden (289), Belgium (255), India (203), Norway (194), Japan (192), and South Korea (167) also make notable contributions. Additionally, Denmark (164), Austria (152), Brazil (152), Singapore (148), Finland (128), and Israel (122) highlight the widespread global engagement in AI research and its integration into policy documents.

Examining authors' affiliations with articles cited by these policy documents, Fig. 5 highlights institutions with a minimum of 100 articles. Harvard University tops the list with 473 records, indicating its prominent role in AI research that influences policy. The Massachusetts Institute of Technology follows with 380 records and Stanford University with 363 records, both demonstrating substantial impacts in the field. The National Bureau of Economic Research has 357 records, while the University of Oxford contributes 317 records, highlighting their extensive research outputs. Other notable institutions include the University of California, Berkeley (242 records), the University of Washington (206 records), and University College London (UCL) (187 records). Columbia University (174 records), the University of Pennsylvania (170 records), and New York University (169 records) also feature prominently.

The main funders of the cited articles provide insights into the geographical landscape of AI research funding. Figure 6 shows the funding agencies with at least forty articles cited by AI policy documents. The US National Science Foundation (NSF) leads with 586 records, indicating its significant investment in AI research. The US National Institutes of Health (NIH) follows with 394 records, showcasing its role in funding health-related AI research. The EU is also a major contributor with 351 records, reflecting its commitment to AI development across Member States. Other notable funding organizations include the National Natural Science Foundation of China, with 204 records, and several UK-based organizations such as the Economic and Social Research

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

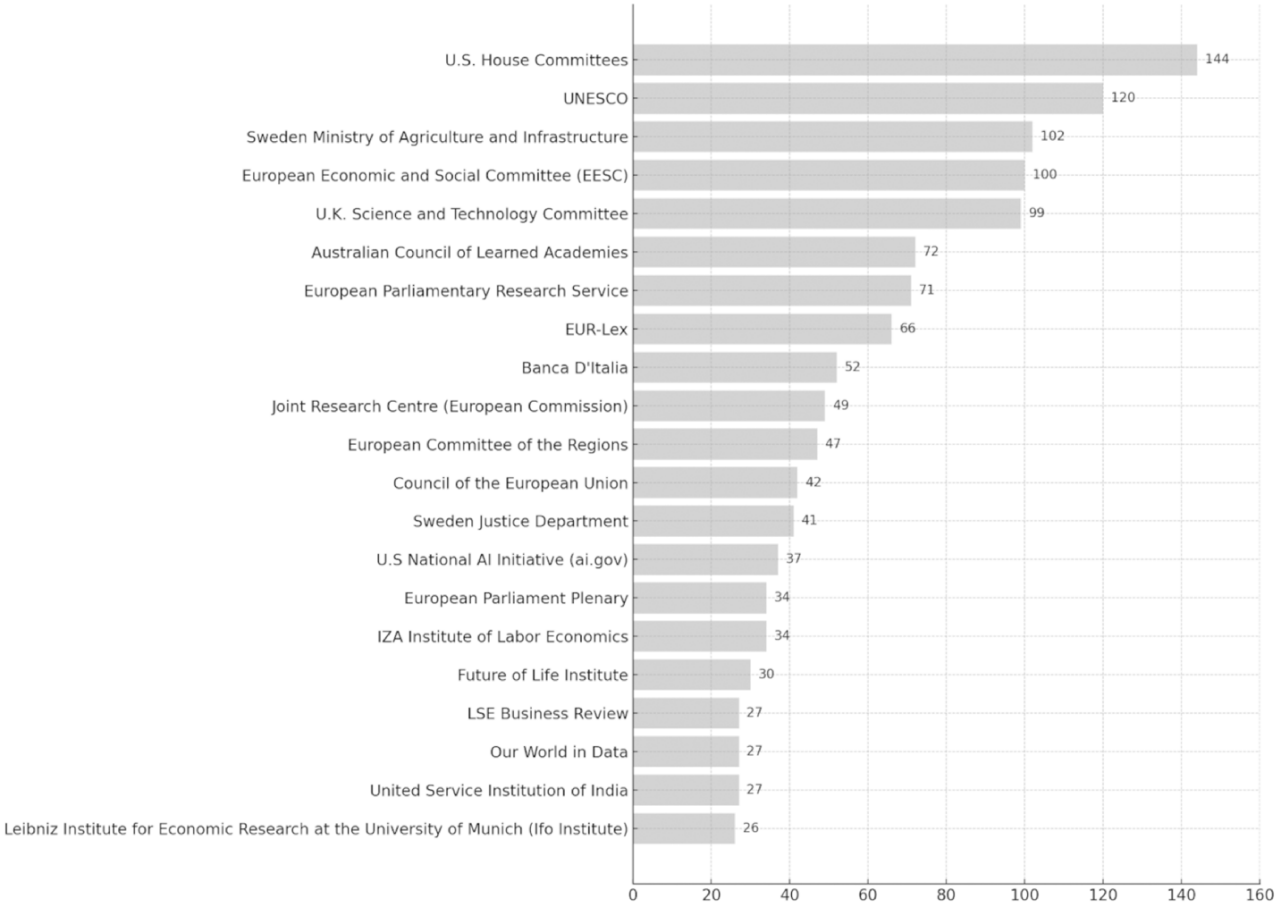

Figure 3. Organizations with the most published policy documents on AI.

Council with 176 records, the Engineering and Physical Sciences Research Council with 140 records, and the Medical Research Council with 114 records.

Figure 7 shows the journals with the most articles cited in AI policy documents and their 2022 impact factor. This sample reflects the interdisciplinary nature of AI research and its broad impact across various fields. *PLoS ONE* leads with 163 citations and an impact factor of 3.7 in 2022, highlighting its broad reach and accessibility. The *American Economic Review* follows closely with 156 citations and a high-impact factor of 9.7, indicating its influence on the economic aspects of AI policy. *Nature*, with 150 citations and a remarkable impact factor of 50.4, underscores its critical role in disseminating high-impact AI research. *Science* also features prominently, with 117 citations and an impact factor of 33.3, further emphasizing the importance of high-impact scientific journals in AI policy. Other notable journals include *JAMA—Journal of the American Medical Association*, with fifty-nine citations and an impact factor of 27.4, and the *New England Journal of Medicine*, with fifty-two citations and an impact factor of 59.2, highlighting the significant role of medical research in AI policy. *The Lancet*, with fifty citations and an impact factor of 40, also emphasizes the importance of medical and health-related AI research.

Our results also offer a glimpse into the content of the AI policy documents and the cited articles. Figure 8 shows the most common Overton tags for AI policy documents and the most common keywords in the articles. The Overton tags highlight "Artificial intelligence" and "Technology" as the most common themes, with counts of 1,531 and 1,424, respectively, followed by "Branches of science" (947), "Human activities" (900), and "Machine learning" (869). Other notable tags include "Cognitive science," "Research," and "Innovation."

On the right side, the keywords from the most cited articles show "Machine learning" and "Artificial intelligence" as the top terms, with 746 and 633 counts, respectively. "Deep learning" (326), "Big data" (200), and "Neural networks" (143) are also prominent features. Additionally, terms like "Ethics," "Social media," and "Privacy" appear frequently, reflecting the broad and interdisciplinary impact of AI research.

4. Discussion

The temporal dynamics of AI policy document production offer insights into the global AI zeitgeist. The post-2018 surge suggests a global awakening to the multifaceted challenges posed by AI in the public sector (Sun and Medaglia 2019). While there was almost no interest in this topic before this decade, it is not difficult to understand how the increasing number of policy documents reflects a reaction to seminal events that underscored AI's societal, ethical, and existential implications. The role of AI in sectors ranging from healthcare (Apell and Eriksson 2023) to defense (AL-Dosari, Fetais, and

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

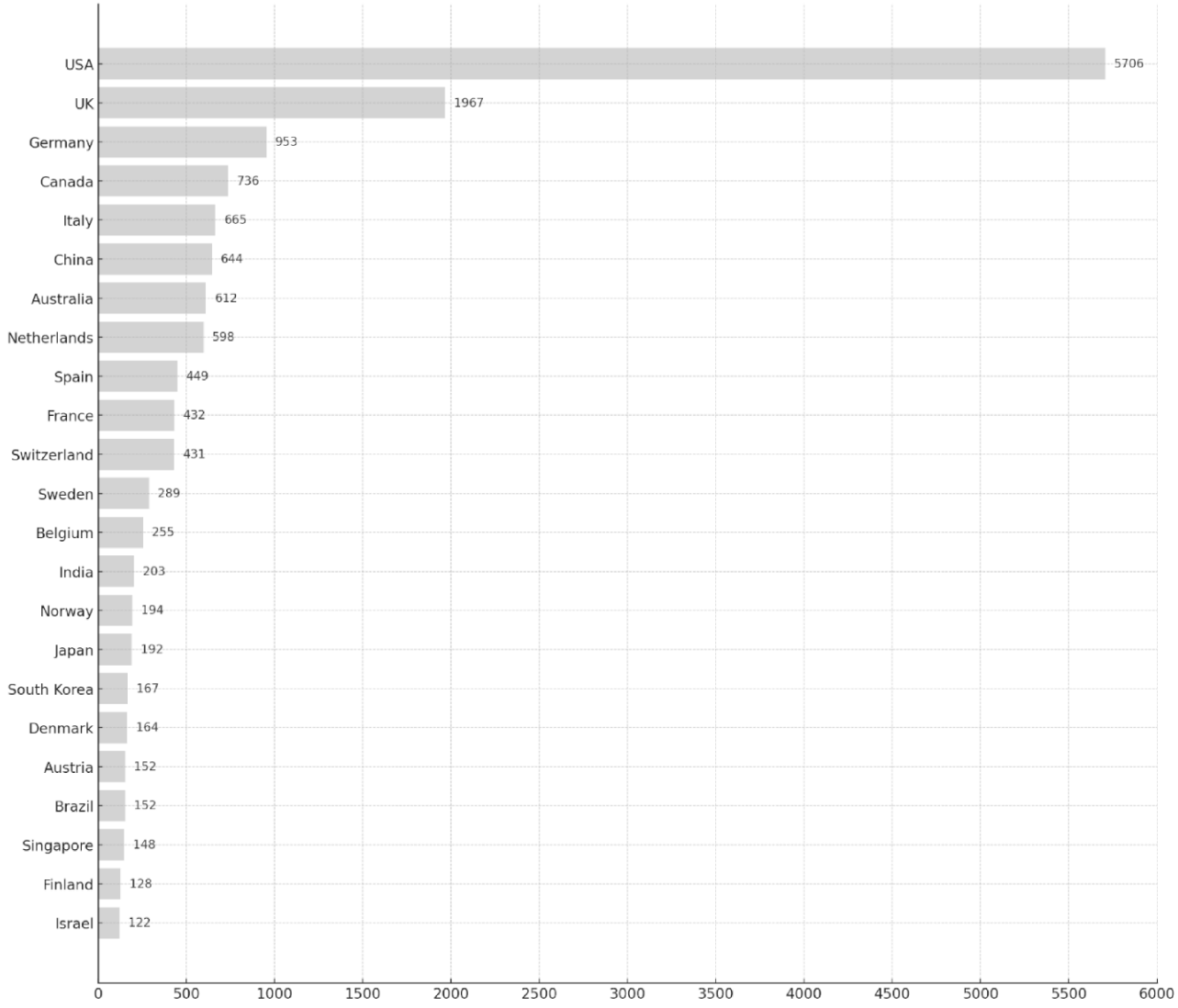

Figure 4. Geographical distribution of articles cited by AI policy documents.

Kucukvar 2022) and its potential influence on democratic processes (Jungherr 2023) are key to understanding the increasing relevance of this topic in policy documents. However, the decrease in recent years might indicate a consolidation phase, influenced by major policy initiatives like the EU AI Act, or shifting priorities within the AI policy landscape, concentrating efforts into fewer but more comprehensive documents. Additionally, it is essential to interpret these findings with caution, especially concerning data from non-English-speaking countries, where language and regional biases may affect representation in the Overton database.

As for the number of documents per country, they may be partially explained by the greater transparency in democratic countries regarding their technology policies (Barrett, Dommett, and Kreiss 2021). Additionally, the USA' leadership in AI policy document production reflects its historical position as the core driver of AI innovation (Mazzucato et al. 2022) and its dominance in the number of AI scientists and engineers (O'Meara 2019) and companies (Lauterbach 2019). In September 2016, three pivotal reports laid the groundwork for the USA's approach to AI. The first, "Preparing for the Future of Artificial Intelligence," provided recommendations on AI regulations, public R&D, automation, ethics and fairness, and security. The subsequent report, "National Artificial Intelligence Research and Development Strategic Plan," delineated a strategic vision for publicly funded R&D in AI. The final piece, "Artificial Intelligence, Automation, and the Economy," looked into the ramifications of automation and proposed policies to amplify the benefits of AI while mitigating its potential costs (Lauterbach 2019).

By 2018, building on these foundational reports, the USA signaled a "hands-off" approach to AI, emphasizing a more laissez-faire stance, allowing for innovation with minimal regulatory encumbrances (Agrawal, Gans, and Goldfarb 2019). Until late October 2023, the USA's national AI policy operated under a 2019 executive order, "Maintaining American Leadership in Artificial Intelligence." This document represented the USA's strategic vision, positioning AI as a pivotal technology in maintaining its global leadership, focusing on technological supremacy and geopolitical positioning, especially in the context of rising competitors like China (AI Now Institute 2023). More recently, the Biden-Harris Administration issued

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

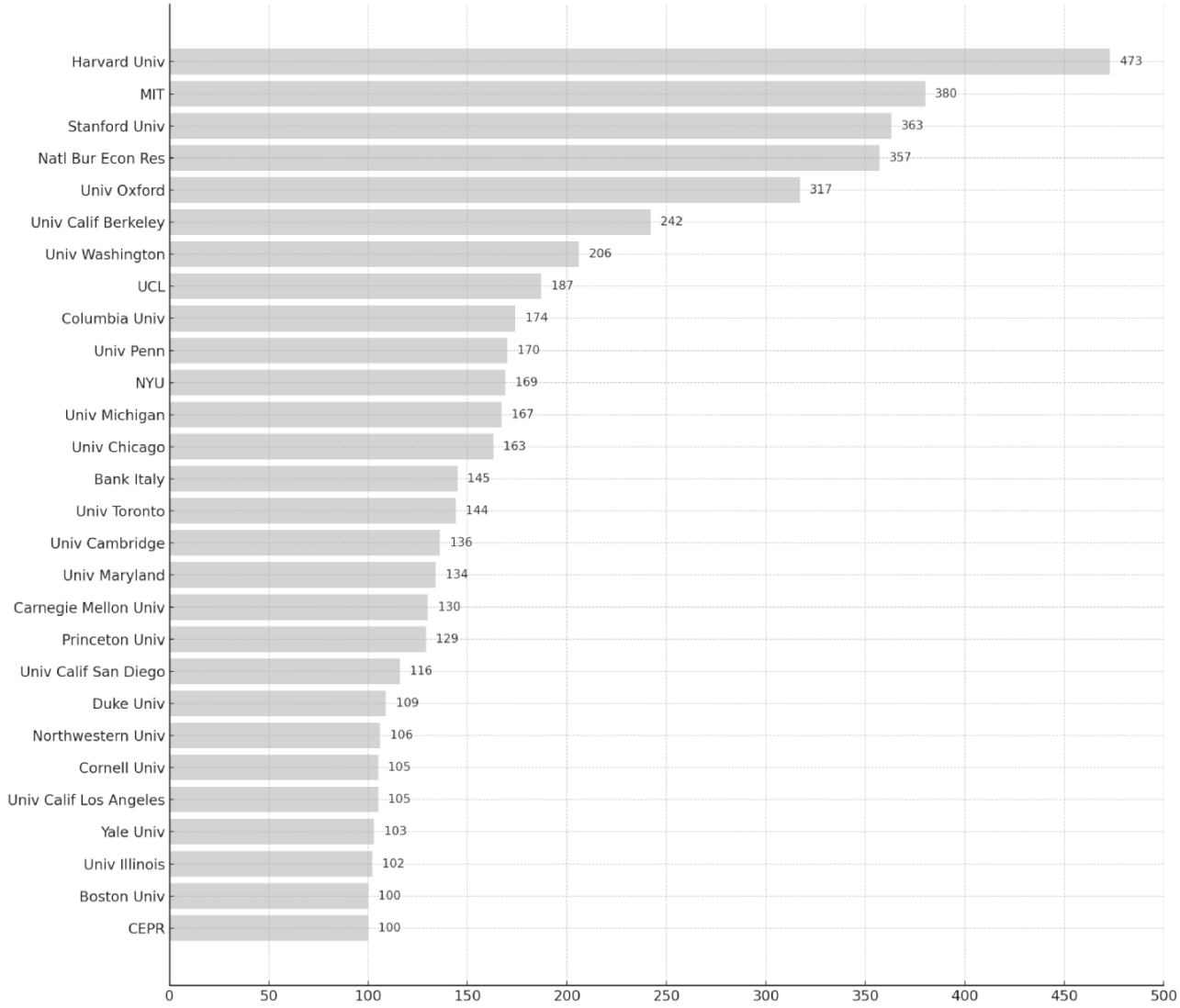

Figure 5. Organizations with the most articles cited in AI policy documents.

an Executive Order with new standards for AI safety and security, a new proposed regulation on privacy, and concern for equity and civil rights (White House 2023).

On the other hand, the UK's prominence in the AI policy landscape can be traced back to its strategic emphasis on emerging technologies post-Brexit (Roberts et al. 2023a). Recognizing AI and big data as "Grand Challenges," the UK government envisioned a future where the country would lead in these domains (Department for Business Energy & Industrial Strategy 2017). This vision was backed by significant investments nearing £1 billionfor AI research and development (Department for Science, Innovation and Technology, Department for Business and Trade, Office for Artificial Intelligence, Department for Digital, Culture, Media & Sport, & Department for Business E & IS 2019). Concurrently, establishing dedicated governance bodies, such as the Office for AI and the Centre for Data Ethics and Innovation, showcased the UK's commitment to ethical and effective AI deployment (Roberts et al. 2023a).

In the context of AI policy development, the EU and its Member States, including France, Sweden, and Germany, have been engaged in AI policy discourse. The EU's approach is multifaceted, influenced by economic competition, institutional structures, and domestic political preferences (Justo-Hanani 2022). This intricate interplay has resulted in incremental rather than radical policy shifts. The EU's emphasis on a "trustworthy human-centric AI" approach is seen as a strategic move to distinguish itself from the USA and China's AI trajectories, focusing on ethical and value-based leadership in the AI domain (Ulnicane 2022). The emphasis on grounding its approach in the so-called European values has led to the creation of pivotal documents such as the High-Level Expert Group (HLEG) on AI's Ethics Guidelines for Trustworthy AI and their Policy and Investment Recommendations, as well as the European Commission's White Paper on AI—a European approach to excellence and trust (Leufer and Lemoine 2020).

At the end of 2023, after months of discussions, the EU reached a provisional agreement for its AI Act. It adopts a "risk-based" regulatory approach, categorizing AI systems based on their potential societal harm and applying more stringent regulations to those with higher-risk profiles. The agreement delineates several key aspects: the establishment

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

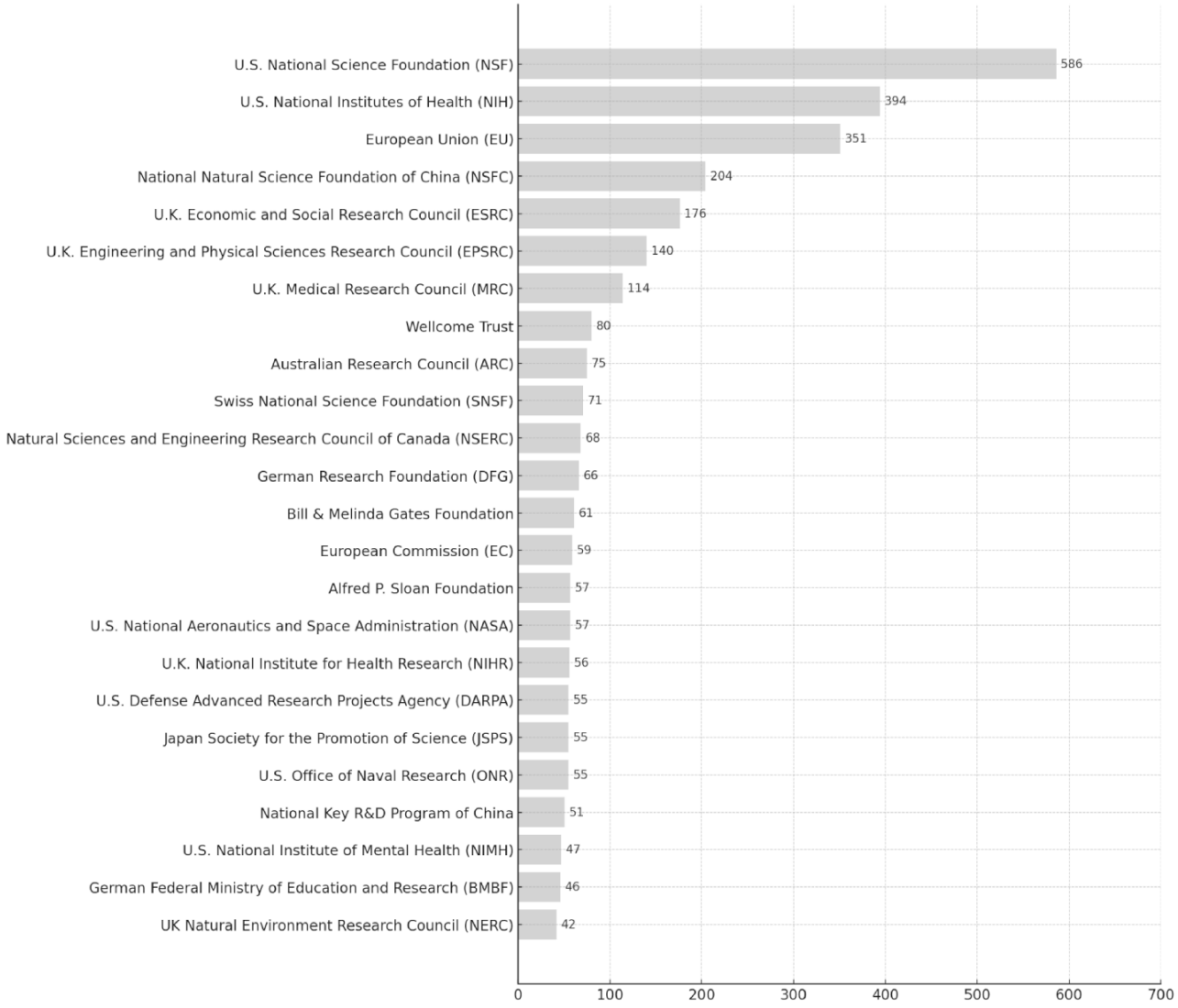

Figure 6. Funding agencies that financed the highest number of articles cited by AI policy documents.

of an EU-level governance system with enforcement capabilities, a nuanced list of prohibitions (including conditions under which remote biometric identification by law enforcement is permissible), and comprehensive requirements for high-risk AI systems, such as the mandatory conduct of a fundamental rights impact assessment prior to deployment. Emulating the global influence of the General Data Protection Regulation, the AI Act is poised to set a global standard for AI regulation, addressing multifaceted challenges ranging from the systemic risks posed by general-purpose AI models to specific prohibitions against certain AI practices like indiscriminate scraping of facial images and predictive policing (Council of the European Union 2023; Gasser 2023; Hutson 2023).

As for specific organizations, the diverse landscape paints a picture of a global multistakeholder dialogue on AI. The US House Committees' proactive role suggests a legislative concern with AI and its applications and impacts from counterterrorism (House of Representatives 2019a) to financial services (House of Representatives 2019b), with a substantial increase in the total number of proposed bills that relate to AI in the country (Maslej et al. 2023). On the other hand, UNESCO also makes significant contributions, with documents on the ethical aspects of AI (UNESCO 2021), AI applications on education (UNESCO 2019), sustainable development (UNESCO 2019), and even ChatGPT's impact (UNESCO 2023). The European entities' active engagement adds to the continent's engagement on this agenda, where national and supranational bodies collaboratively shape policy frameworks (Ossewaarde and Gulenc 2020).

Beyond the analysis of policy documents, the results from cited research also help paint a picture of the knowledge ecosystem that supports AI policy development. For instance, we have found evidence of the under-representation of countries from the global south in producing articles that transition into these policies. In contrast, countries from the global north dominate in terms of both cited articles and policy document production. This disparity raises questions about the global inclusivity of research influencing policy decisions. The prominence of the USA and the UK, the ones with the most cited articles, further underscores this observation. China's significant presence in cited research is a testament to its growing influence and the weightage of its research in policymaking,

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

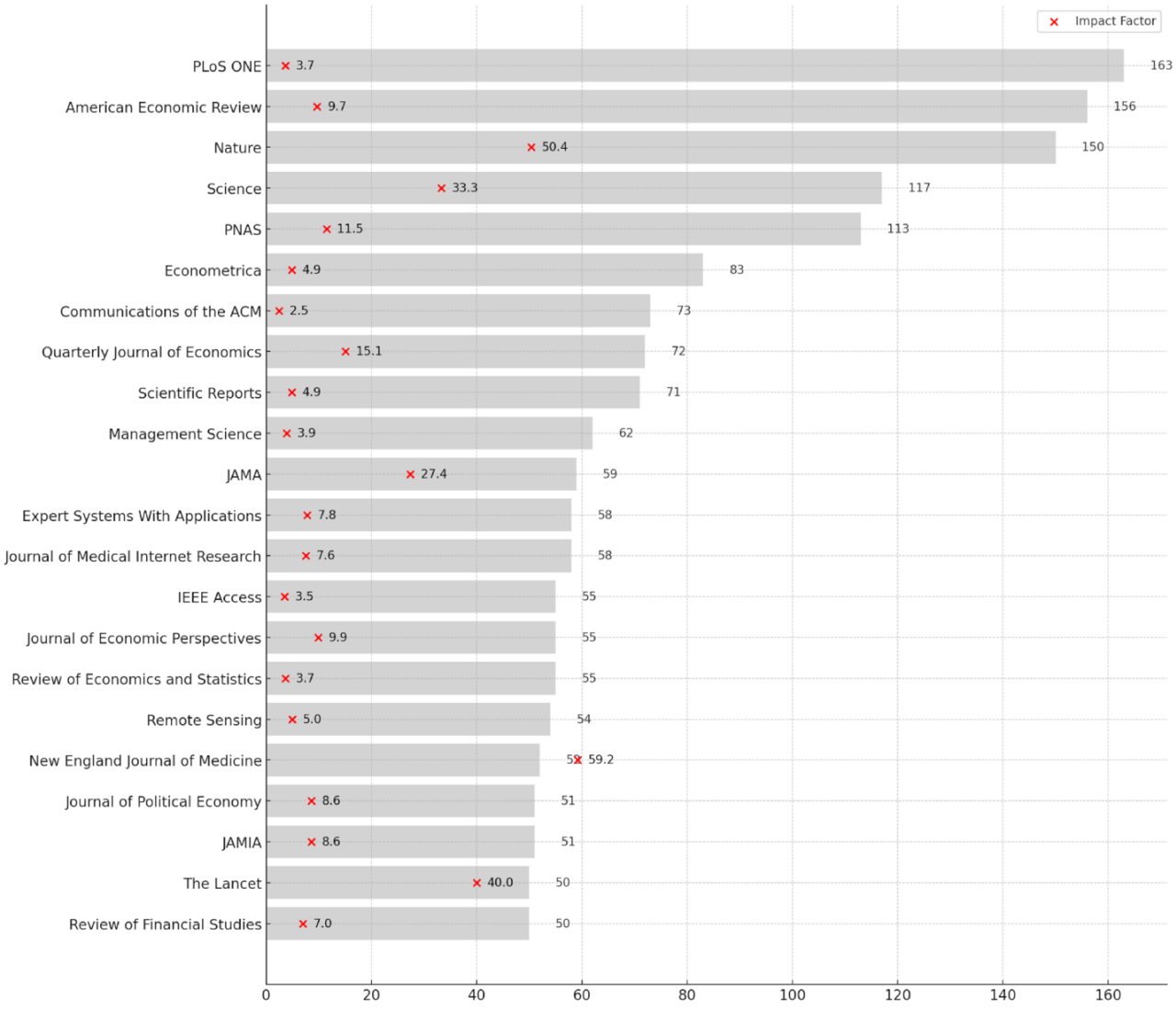

Figure 7. Journals with the most articles cited in AI policy documents and their 2022 impact factor.

despite its limited number of policy documents in our Overton search (only twenty-six). Overall, this reinforces that documents from countries in the global south, especially China, are not adequately represented in the database (Yin et al. 2021).

This under-representation is also evident when considering the total production of articles on AI over the last 5 years (available in the Supplementary material). China leads the way in article production, with almost twice as many publications as the USA in this period. India and Saudi Arabia also stand out among the countries with the most publications, but they are not among the countries with the most publications cited in AI policy documents. In general, the production of the global south rivaled that of the global north in terms of quantity, without, however, being cited as much in policy documents. Previous research has signaled that these two different groups of countries have different research focus on AI—service industry applications in the global north versus big data and innovative technologies in the global south—and, after trailing in a number of published AI articles between 2010 and 2015, from 2016 to 2020, there was a significant increase in AI research output from global south countries (Tang, Hsiao, and Hwang 2022).

The most cited institutions also reinforce the predominance of American institutions, with reduced participation from three of the UK's leading universities (Oxford, Cambridge, and UCL). The location of the cited AI research in the USA mostly coincides with the location of the companies that adopted AI the most, like Silicon Valley, Boston, New York, and Pennsylvania (Mcelheran et al. 2023). It is also noteworthy that the Bank of Italy, which was also among the main authors of AI policy documents published on different topics, from machine learning for sector classifications (Massaro, Vannini, and Giudice 2020) to credit scoring (Di Patti et al. 2022), is also present.

Additionally, the funding landscape provides a lens into the strategic priorities of nations and regions. The USA funds AI research through different institutions from the NSF and NIH to National Aeronautics and Space Administration and the Office of Naval Research. Considering AI as a general-purpose technology (Agrawal, Gans, and Goldfarb 2019), it makes sense to see AI being funded for different purposes,

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

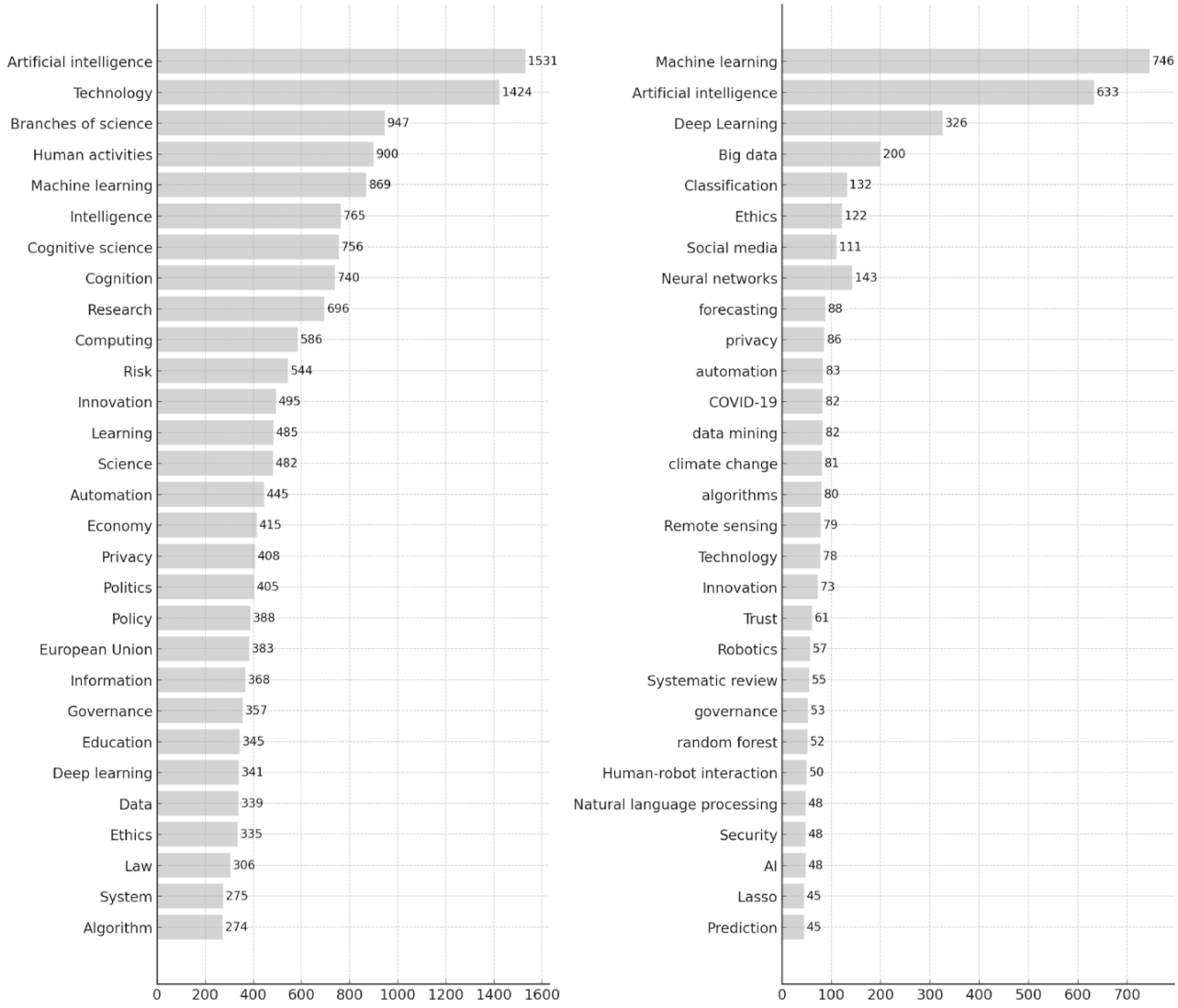

Figure 8. Most common Overton tags for AI policy documents and most common keywords in the most cited articles.

including military ones. In December 2022, a report detailing the AI R&D budget for public sector departments and agencies involved in the Networking and Information Technology Research and Development Program and the National Artificial Intelligence Initiative showed that nondefense US government agencies dedicated $1.7 billion to AI R&D in 2022 and proposed a budget of $1.8 billion for the following year (National Science and Technology Council 2022). Again, the relevance of China as a funder of research cited in AI policy documents contrasts with the small number of documents that it has in our Overton search. However, this high funding output aligns with China's AI strategy (Wu et al. 2020; Roberts et al. 2021; Yang and Huang 2022).

As for the journals most cited in policy documents, these results provide a comprehensive overview of the most influential journals in AI policymaking. Overall, the cited research has a high-impact factor, including some of the most prestigious journals in the scientific community: *Nature*, *Science*, *New England Journal of Medicine*, and *The Lancet*. While impact factor as a metric is not impervious to criticism (Larivière and Sugimoto 2019), an article's retraction due to misconduct is more frequent among journals with low-impact factors (Campos-Varela, Villaverde-Castañeda, and Ruano-Raviña 2020). Considering previous findings on retracted articles cited in policy documents (Malkov, Yaqub, and Siepel 2023), one can assume that AI policy documents benefit when citing research published in higher-impact factor journals.

While it is challenging to analyze the content of the policy documents in detail, the comparison between Overton's classification and the keywords in cited research offers valuable insights into the themes and topics addressed in each text. While both datasets highlight a strong focus on core AI technologies such as "Artificial Intelligence" and "Machine Learning," a divergence is observed in the emphasis on broader societal and ethical aspects. Policy documents demonstrate a broader consideration of AI's societal impact, with prominent tags like "Policy," "Governance," and "Ethics." In contrast, as indicated by the frequent citation of terms such as "deep learning" and "big data" and specific methods such as "neural networks," "random forest, (The random forest method is a regression tree approach that employs bootstrap aggregation and random predictor selection to attain a high level

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

of predictive accuracy (Rigatti 2017))" and "LASSO, (Least Absolute Shrinkage and Selection Operator (LASSO) regression is a penalized regression technique used to address the issues of overfitting and optimism bias in statistical models (Ranstam and Cook 2018))" academic literature leans more toward advancing specific technical areas.

The alignment in core technical areas indicates a correlation between research and policy, which is essential for informed policy development. However, the differences in emphasis highlight the need for academia to integrate broader societal concerns into their research agenda and for policymakers to stay updated with technical advancements to formulate effective regulations. This intersection of technology and societal impact is critical for AI's responsible development and integration (Schiff et al. 2021). The findings underscore the importance of continuous dialogue and collaboration between researchers and policymakers, ensuring that AI advancements are aligned with societal needs and ethical considerations (Fjeld et al. 2020).

5. Final remarks

Using the Overton policy database, our analysis of the AI policy landscape identified the USA, the EU, the UK, and several European nations as leading contributors to AI policy document production. A notable increase in policy documents post-2018 indicates a global recognition of AI's challenges and opportunities. The interplay between policy documents and their scientific foundations highlighted the prominence of the USA's research ecosystem, with significant contributions from other developed countries and China. In summary, the AI policy landscape reflects broader geopolitical, technological, and socioeconomic dynamics.

Understanding the evolution of AI policy is essential as AI technologies become integral to various sectors and our daily lives. As nations and regions vie for leadership in the AI arena, the policies they formulate will determine the direction of AI's evolution, ensuring that its benefits are universally accessible and its risks are effectively mitigated. The active engagement of diverse entities, from national legislative bodies to international organizations and supranational entities, highlights the global, multistakeholder engagement on AI, emphasizing the importance of collaborative governance in managing its implications.

This study contributes to the literature by offering a comprehensive, data-driven global AI policy landscape analysis. By shedding light on geography, temporal dynamics, and the interplay between policy and research, our findings provide insights for scholars, policymakers, and stakeholders. As the world faces an AI-driven paradigm shift, this research offers a glimpse of the state of the art of public policies on AI and the knowledge on which they are based.

However, it also has some limitations. The reliance on the Overton policy database, while extensive, may introduce certain geographic and linguistic biases. We also only conducted a restricted mapping of policy documents on AI, without including any specific embodied AI technology (e.g. autonomous vehicles and robotics), which could generate different results and insights. Additionally, the lack of standardization in the references of policy documents means that the coverage of DOIs is not complete, and therefore, some of the references cannot be mapped and analyzed in the article. Finally, the research primarily focuses on policy documents and their cited scientific articles, which may not fully encompass the broader spectrum of influences on AI policy development, such as informal networks, expert consultations, and unpublished research—which would be better explored in qualitative analysis. It is also important to note that understanding the full impact of scientific research on policy development is a much more complex endeavor than mapping cited references in policy documents.

As for future research, the methodological contribution to understanding how and where research is carried out, which later becomes an input for policies, makes it possible to carry out similar research for other topics. With the growing call for evidence-based policymaking, it is important to understand how scientific knowledge is used in public policy (Bozeman and Youtie 2017; Cairney and Oliver 2020; Eden and Wagstaff 2021; Gunn and Mintrom 2021).

Supplementary data

Supplementary data is available at *SCIPOL* online.

Conflict of interest statement. None declared.

Funding

This study was funded by the Sao Paulo Research Foundation (FAPESP).

Data availability

The data for this study is available from the corresponding author upon reasonable request.

References

Agrawal, A., Gans, J., and Goldfarb, A. (2019) 'Economic Policy for Artificial Intelligence', *Innovation Policy and the Economy*, 19: 139–59.

AI Now Institute. (2023) 'Tracking the US and China AI Arms Race'. https://ainowinstitute.org/publication/tracking-the-us-and-china-ai-arms-race.

AL-Dosari, K., Fetais, N., and Kucukvar, M. (2022) 'Artificial Intelligence and Cyber Defense System for Banking Industry: A Qualitative Study of AI Applications and Challenges', *Cybernetics and System*, 55: 302–30.

Apell, P. and Eriksson, H. (2023) 'Artificial Intelligence (AI) Healthcare Technology Innovations: The Current State and Challenges from a Life Science Industry Perspective', *Technology Analysis and Strategic Management*, 35: 179–93.

Barrett, B., Dommett, K., and Kreiss, D. (2021) 'The Capricious Relationship between Technology and Democracy: Analyzing Public Policy Discussions in the UK and US', *Policy & Internet*, 13: 522–43.

Boaz, A., Baeza, J., and Fraser, A. (2011) 'Effective Implementation of Research into Practice: An Overview of Systematic Reviews of the Health Literature', *BMC Research Notes*, 4: 212.

Bornmann, L. et al. (2022) 'How Relevant Is Climate Change Research for Climate Change Policy? An Empirical Analysis Based on Overton Data', *PLoS One*, 17: 1–24.

Bornmann, L., Haunschild, R., and Marx, W. (2016) 'Policy Documents as Sources for Measuring Societal Impact: How Often Is Climate Change Research Mentioned in Policy-related Documents?', *Scientometrics*, 109: 1477–95.

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

Bozeman, B. and Youtie, J. (2017) 'Socioeconomic Impacts and Public Value of Government-funded Research: Lessons from Four US National Science Foundation Initiatives', *Research Policy*, 46: 1387–98.
Cairney, P. and Oliver, K. (2020) 'How Should Academics Engage in Policymaking to Achieve Impact?', *Political Studies Review*, 18: 228–44.
Campos-Varela, I., Villaverde-Castañeda, R., and Ruano-Raviña, A. (2020) 'Retraction of Publications: A Study of Biomedical Journals Retracting Publications Based on Impact Factor and Journal Category', *Gaceta Sanitaria*, 34: 430–4.
Costas, R., Zahedi, Z., and Wouters, P. (2015) 'Do "Altmetrics" Correlate with Citations? Extensive Comparison of Altmetric Indicators with Citations from a Multidisciplinary Perspective', *The Journal of the Association for Information Science and Technology*, 66: 2003–19.
Council of the European Union (2023) 'Artificial Intelligence Act: Council and Parliament Strike a Deal on the First Rules for AI in the World', Press Release, https://www.consilium.europa.eu/en/press/press-releases/2023/12/09/artificial-intelligence-act-council-and-parliament-strike-a-deal-on-the-first-worldwide-rules-for-ai/, accessed 11 Dec. 2023.
Danish Government (2019) 'National Strategy for Artificial Intelligence'. https://en.digst.dk/media/19337/305755_gb_version_final-a.pdf.
Department for Business Energy & Industrial Strategy (2017) 'Industrial Strategy: Building a Britain Fit for the Future [White Paper]', London.
Department for Science, Innovation and Technology, Department for Business and Trade, Office for Artificial Intelligence, Department for Digital, Culture, Media & Sport, & Department for Business E & IS. (2019) 'AI Sector Deal [Policy Paper]', London.
Department for Science Innovation & Technology (2023) 'A Pro-innovation Approach to AI Regulation'. https://www.gov.uk/government/publications/ai-regulation-a-pro-innovation-approach/white-paper.
Di Patti, E. B. et al. (2022) 'Intelligenza artificiale nel credit scoring. Analisi di alcune esperienze nel sistema finanziario italiano'. https://www.bancaditalia.it/pubblicazioni/qef/2022-0721/QEF_721_IT.pdf.
Du, M. (2023) 'Policy Regulation of Artificial Intelligence: A Review of the Literature', *Frontiers in Artificial Intelligence and Applications*, 367: 407–15.
Eden, L. and Wagstaff, M. F. (2021) 'Evidence-based Policymaking and the Wicked Problem of SDG 5 Gender Equality', *Journal of International Business Studies*, 4: 28–57.
Filgueiras, F. (2023) 'Designing Artificial Intelligence Policy: Comparing Design Spaces in Latin America', *Latin American Policy*, 14: 5–21.
Fjeld, J. et al. (2020) 'Principled Artificial Intelligence: Mapping Consensus in Ethical and Rights-based Approaches to Principles for AI', SSRN Electronic Journal.
G20 (2019) 'G20 Ministerial Statement on Trade and Digital Economy'. https://www.mofa.go.jp/files/000486596.pdf.
G7. (2023) 'G7 Leaders' Statement on the Hiroshima AI Process', https://www.mofa.go.jp/files/100573466.pdf, accessed 3 Apr. 2024.
Gargiulo, F. et al. (2023) 'A Meso-scale Cartography of the AI Ecosystem', *Quantitative Science Studies*, 4: 574–93.
Gasser, U. (2023) 'An EU Landmark for AI Governance', *Science*, 380: 1203.
GPAI (2023) 'Global Partnership on Artificial Intelligence (GPAI)', https://www.gpai.ai/about/, accessed 28 Sept. 2023.
Guenduez, A. A. and Mettler, T. (2023) 'Strategically Constructed Narratives on Artificial Intelligence: What Stories Are Told in Governmental Artificial Intelligence Policies?', *Government Information Quarterly*, 40: 101719.
Gunn, A. and Mintrom, M. (2021) 'Where Evidence-based Policy Meets Research Impact', *The Australian Journal of Public Administration*, 80: 544–53.
Guterres, A. (2023) 'Secretary-General Urges Security Council to Ensure Transparency, Accountability, Oversight, in First Debate on Artificial Intelligence', pp. 8–10.
Haunschild, R. and Bornmann, L. (2017) 'How Many Scientific Papers Are Mentioned in Policy-related Documents? An Empirical Investigation Using Web of Science and Altmetric Data', *Scientometrics*, 110: 1209–16.
House of Representatives (2019a) 'Artificial Intelligence and Counterterrorism: Possibilities and Limitations'. https://www.congress.gov/116/chrg/CHRG-116hhrg38781/CHRG-116hhrg38781.pdf.
House of Representatives (2019b) 'Perspectives on Artificial Intelligence: Where We Are and the Next Frontier in Financial Services'. https://democrats-financialservices.house.gov/uploadedfiles/chrg-116hhrg39737.pdf.
Howard, J. (2019) 'Artificial Intelligence: Implications for the Future of Work', *American Journal of Industrial Medicine*, 62: 917–26.
Hutson, M. (2023) 'Rules to Keep AI in Check: Nations Carve Different Paths for Tech Regulation', *Nature*, 620: 260–3.
Jungherr, A. (2023) 'Artificial Intelligence and Democracy: A Conceptual Framework', *Social Media + Society*, 9.
Justo-Hanani, R. (2022) 'The Politics of Artificial Intelligence Regulation and Governance Reform in the European Union', *Policy Sciences*, 55: 137–59.
Larivière, V. and Sugimoto, C. R. (2019) 'The Journal Impact Factor: A Brief History, Critique, and Discussion of Adverse Effects BT', in W. Glänzel et al. (eds) *Springer Handbook of Science and Technology Indicators*, pp. 3–24. Cham: Springer.
Lauterbach, A. (2019) 'Artificial Intelligence and Policy: Quo Vadis?', *Digital Policy, Regulation Government*, 21: 238–63.
Leufer, D. and Lemoine, L. (2020) 'Europe's Approach to Artificial Intelligence: How AI Strategy Is Evolving',
Liu, J. et al. (2020) 'Influence of Artificial Intelligence on Technological Innovation: Evidence from the Panel Data of China's Manufacturing Sectors', *Technological Forecasting and Social Change*, 158: 120142.
Louder, E. et al. (2021) 'A Synthesis of the Frameworks Available to Guide Evaluations of Research Impact at the Interface of Environmental Science, Policy and Practice', *Environmental Science Policy*, 116: 258–65.
Lu, Y. (2019) 'Artificial Intelligence: A Survey on Evolution, Models, Applications and Future Trends', *Journal of Management Analysis*, 6: 1–29.
Maleki, A. and Holmberg, K. (2022) 'Comparing Coverage of Policy Citations to Scientific Publications in Overton and Altmetric.com', *Informaatiotutkimus*, 41: 92–6.
Malkov, D., Yaqub, O., and Siepel, J. (2023) 'The Spread of Retracted Research into Policy Literature', *Quantitative Science Studies*, 4: 68–90.
Maslej, N. et al. (2023) 'Artificial Intelligence Index Report 2023', Stanford.
Massaro, P., Vannini, I., and Giudice, O. (2020) 'Institutional Sector Cassifier, a Machine Learning Approach'.
Mazzucato, M. et al. (2022) 'Governing Artificial Intelligence in the Public Interest', London. https://www.ucl.ac.uk/bartlett/public-purpose/sites/bartlett_public_purpose/files/governing_ai_in_public_interest.pdf.
Mcelheran, K. et al. (2023) 'AI Adoption in America: Who, What, and Where'. https://www2.census.gov/ces/wp/2023/CES-WP-23-48.pdf.
Ministry of Economic Affairs and Employment of Finland (2019) 'Leading the Way into the Age of Artificial Intelligence: Final

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025

Report of Finland's Artificial Intelligence Programme 2019'. https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/161688/41_19_Leading%20the%20way%20into%20the%20age%20of%20artificial%20intelligence.pdf?sequence=4.

National Artificial Intelligence Research Resource Task Force (2023) 'Strengthening and Democratizing the US Artificial Intelligence Innovation Ecosystem'. https://www.ai.gov/wp-content/uploads/2023/01/NAIRR-TF-Final-Report-2023.pdf.

National Science and Technology Council (2022) 'Supplement to the President's FY 2023 Budget', Washington. https://www.nitrd.gov/fy2023-nitrd-naiio-supplement/.

Newson, R. et al. (2018) 'Looking Both Ways: A Review of Methods for Assessing Research Impacts on Policy and the Policy Utilisation of Research', *Health Research Policy and Systems*, 16: 54.

OECD (2023a) 'Regulatory Sandboxes in Artificial Intelligence', Paris. https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/07/regulatory-sandboxes-in-artificial-intelligence_a44aae4f/8f80a0e6-en.pdf.

OECD (2023b) 'Initial Policy Considerations for Generative Artificial Intelligence', pp. 1–40. https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/09/initial-policy-considerations-for-generative-artificial-intelligence_1a9ab450/fae2d1e6-en.pdf.

OECD.AI (2023) 'OECD.AI Policy Observatory', https://oecd.ai/en/, accessed 28 Sept. 2023.

O'Meara, S. (2019) 'Will China Lead the World in AI by 2030?', *Nature*, 572: 427–8.

Ossewaarde, M. and Gulenc, E. (2020) 'National Varieties of Artificial Intelligence Discourses: Myth, Utopianism, and Solutionism in West European Policy Expectations', *Computer (New York)*, 53: 53–61.

Overton. (2023a) 'Search Policy Documents', https://app.overton.io/dashboard.php, accessed 10 Oct. 2023.

Overton (2023b) 'How International Are Your Sources?', https://help.overton.io/article/how-international-are-your-sources/, accessed 10 Oct. 2023.

Pflanzer, M. et al. (2023) 'Embedding AI in Society: Ethics, Policy, Governance, and Impacts', *AI Security Operations Center*, 38: 1267–71.

Pinheiro, H., Vignola-Gagné, E., and Campbell, D. (2021) 'A Large-scale Validation of the Relationship between Cross-disciplinary Research and Its Uptake in Policy-related Documents, Using the Novel Overton Altmetrics Database', *Quantitative Science Studies*, 2: 616–42.

Ranstam, J. and Cook, J. A. (2018) 'LASSO Regression', *The British Journal of Surgery*, 105: 1348–1348.

Rességuier, A., and Rodrigues, R. (2020) 'AI Ethics Should Not Remain Toothless! A Call to Bring Back the Teeth of Ethics', *Big Data and Society*, 7.

Rigatti, S. J. (2017) 'Random Forest', *Journal of Insurance Medicine (New York, N.Y.)*, 47: 31–9.

Roberts, H. et al. (2021) 'The Chinese Approach to Artificial Intelligence: An Analysis of Policy, Ethics, and Regulation', *AI Security Operations Center*, 36: 59–77.

Roberts, H. et al. (2023a) 'Artificial Intelligence Regulation in the United Kingdom: A Path to Good Governance and Global Leadership?', *The Internet Policy Review*, 12: 2–31.

Roberts, H. et al. (2023b) 'Governing Artificial Intelligence in China and the European Union: Comparing Aims and Promoting Ethical Outcomes', *The Information Society*, 39: 79–97.

Roche, C., Wall, P. J., and Lewis, D. (2022) 'Ethics and Diversity in Artificial Intelligence Policies, Strategies and Initiatives', *AI and Ethics*, 3: 1095–115.

Roy, V. V. (2020) 'AI Watch-National Strategies on Artificial Intelligence: A European Perspective in 2019'. https://publications.jrc.ec.europa.eu/repository/handle/JRC122684.

Ryan, M. (2020) 'In AI We Trust: Ethics, Artificial Intelligence, and Reliability', *Science and Engineering Ethics*, 26: 2749–67.

Sætra, H. S. (2020) 'A Shallow Defence of a Technocracy of Artificial Intelligence: Examining the Political Harms of Algorithmic Governance in the Domain of Government', *Technology in Society*, 62: 101283.

Schiff, D. et al. (2021) 'AI Ethics in the Public, Private, and NGO Sectors: A Review of a Global Document Collection', *IEEE Transactions on Technology and Society*, 2: 31–42.

Sugimoto, C. R. et al. (2017) 'Scholarly Use of Social Media and Altmetrics: A Review of the Literature', *The Journal of the Association for Information Science and Technology*, 68: 2037–62.

Sun, T. Q. and Medaglia, R. (2019) 'Mapping the Challenges of Artificial Intelligence in the Public Sector: Evidence from Public Healthcare', *Government Information Quarterly*, 36: 368–83.

Switzerland Government (2019) 'Executive Summary—Challenges of Artificial Intelligence'. https://www.kmu.admin.ch/dam/kmu/en/dokumente/FaktenundTrends/herausforderungen-der-kuenstlichen-intelligenz.pdf.download.pdf/challenges-ki_e.pdf.

Szomszor, M. and Adie, E. (2022) 'Overton: A Bibliometric Database of Policy Document Citations', *Quantitative Science Studies*, 3: 624–50.

Tang, K.-Y., Hsiao, C.-H., and Hwang, G.-J. (2022) 'A Scholarly Network of AI Research with an Information Science Focus: Global North and Global South Perspectives', *PLoS One*, 17: e0266565.

Taylor, M. (2020) 'An Altmetric Attention Advantage for Open Access Books in the Humanities and Social Sciences', *Scientometrics*, 125: 2523–43.

Ulnicane, I. (2022) 'Artificial Intelligence in the European Union: Policy, Ethics and Regulation', in T. Hoerber, G. Weber, and I. Cabras (eds) *The Routledge Handbook of European Integrations*, pp. 254–69. London: Routledge.

UNESCO (2019) 'Artificial Intelligence for Sustainable Development: Synthesis Report, Mobile Learning Week 2019', Bibl Digit UNESDOC, pp. 11–45. https://unesdoc.unesco.org/ark:/48223/pf0000368028.

UNESCO (2021) 'Recommendation on the Ethics of Artificial Intelligence'. https://unesdoc.unesco.org/ark:/48223/pf0000381137.

UNESCO (2023) 'Foundation Models Such as ChatGPT through the Prism of the UNESCO Recommendation on the Ethics of Artificial Intelligence'. https://unesdoc.unesco.org/ark:/48223/pf0000385629.

United Nations (2023) 'UN Secretary-General Launches AI Advisory Body on Risks, Opportunities, and International Governance of Artificial Intelligence', New York. https://www.un.org/sites/un2.un.org/files/231025_press-release-aiab.pdf

White House (2023) 'FACT SHEET: President Biden Issues Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence', Statements and Releases, https://www.whitehouse.gov/briefing-room/statements-releases/2023/10/30/fact-sheet-president-biden-issues-executive-order-on-safe-secure-and-trustworthy-artificial-intelligence/, accessed 30 Oct. 2023.

Williamson, A. et al. (2019) 'Increasing the Capacity of Policy Agencies to Use Research Findings: A Stepped-wedge Trial', *Health Research Policy and Systems*, 17: 14.

Wu, F. et al. (2020) 'Towards a New Generation of Artificial Intelligence in China', *Nature Machine Intelligence*, 2: 312–6.

Yang, C. and Huang, C. (2022) 'Quantitative Mapping of the Evolution of AI Policy Distribution, Targets and Focuses over Three Decades in China', *Technological Forecasting and Social Change*, 174: 121188.

Yin, Y. et al. (2021) 'Coevolution of Policy and Science during the Pandemic', *Science*, 371: 128–30.

Downloaded from https://academic.oup.com/spp/article/51/6/1104/7762079 by UFBA - Biblioteca Central user on 08 October 2025