Understanding the links between multilateralism & democracy to tackle global challenges more effectively

Jérôme Duberry

Jérôme Duberry, Senior Researcher at the Albert Hirschman Center on Democracy (AHCD) and Managing Director of the Tech Hub,

Geneva Graduate Institute.

Jerome.Duberry@graduateinstitute.ch

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INTRODUCTION

As more artificial intelligence (AI) applications are integrated into everyday life, AI is expected to have a transformative impact on global economic and social structures, similar to the impact of other general-purpose technologies such as the steam engine, electricity, and the Internet.[1] The societal effects and consequences of AI technologies have been widely debated, particularly with regard to their impact on employment,[2] [3] with concerns about job losses in both unskilled and professional fields.[4] But not only. Many experts and policymakers have raised concerns about the resilience of liberal democracies in the AI age. The Cambridge Analytica scandal shed light on illegal data collection practices and AI-powered persuasion tactics that resemble psychological weapons.[5] But these practices are not limited to the U.S. and the U.K., and their implications need to be examined across countries and sectors. Numerous research projects and scholars have attempted to conceptualize the political and social challenges associated with the emergence of digital technologies, including AI, in terms such as "computational politics"[6], "surveillance capitalism"[7] and "platform society"[8].

There is no consensus on as to exactly how to define AI. It means different things to different people. A common view would be to define AI as a scientific discipline in the field of computer science[9] within which several technologies and methodologies exist.[10] Today, most experts associate the term "AI" with machine learning (ML), an approach that emerged with big data and the rapid adoption of social media platforms and connected devices in many parts of the world. In this approach, machines can learn on their own using statistical models without being explicitly programmed. Deep learning is a subcategory of ML that uses a layered structure of algorithms that mimic a neural network to process and classify information.[11] Generative AI (e.g. ChatGPT) is a subset of deep learning that "generates" new content, such as text, photos, videos, code, data. Thus, it is important to note that the term "AI" encompasses multiple technologies with numerous societal implications, making its governance complex. In addition, AI is an emerging technology, which means that its emergence phase remains somewhat uncertain and ambiguous, and its most significant societal impacts lie in the future.[12]

The idea of democratizing technology is not new. Already in 1995, Sclove argued that technological design and practices should be democratized because technologies profoundly affect and partly constitute the circumstances that citizens should be empowered to help shape.[13] More recently, most AI guidelines and declarations call for the inclusion of a wider range of stakeholders in the design and governance of AI, including civil society and youth, to prevent AI from reinforcing existing societal discriminations and widening the digital divide.

This paper addresses two questions: how does AI affect democracy? and how can AI be democratized? The concept and implementation of democracy are highly debated, with various nuanced interpretations. Discussions within political theory have been fruitful, successfully identifying diverse normative, procedural, and structural aspects and implications of democracy[14] [15]. For the purposes of this article, however, it is necessary to distill this extensive field into a few key—though sometimes debated—features of democracy that are relevant to the implications of AI. This paper examines three areas of impact at different analytical levels[16]: at the *individual* level, AI affects citizens' conditions and opportunities to self-rule; at the *group* level, AI gives some groups a competitive advantage and challenges the equality of rights among them; and at the *institutional* level AI affects the

independence of the state to provide services to its citizens. These issues have led to calls for the democratization of AI, understood here in four dimensions: use, development, benefits, and governance.[17] In other words, broader access to and use of AI, as well as inclusive AI development and governance, should lead to a more equitable distribution of AI benefits. However, access to and use of AI builds on existing gaps in digital infrastructure and literacy, namely the digital divide. Moreover, AI development is taking place in a context where AI capabilities, both in terms of computational power and human expertise, are highly concentrated in a few companies in the global North. To address these issues, global and national AI governance mechanisms and AI literacy programs are emerging. However, these two approaches also face a number of challenges.

1. HOW DOES AI AFFECT DEMOCRACY?

The current adoption of AI mirrors previous waves of technological change and their social and political implications. [18] Technologies create frameworks that support the coordination of social, economic, and political life. Technology influence politics and political competition by disproportionately benefiting certain actors, factions, or groups, depending on how well they align with the capabilities and opportunities provided by the current technology.[19] [20] This section explores some of the key implications of AI for democracy. First, it examines how AI is being used to influence opinion formation and modify political behavior, following the flow of data from collection to behavior modification. Second, it discusses how these practices are concentrated in the hands of a small number of actors, which affects the equality of rights among social groups and communities, as well as the independence of states and public institutions.

1.1 AI and data: from data collection to behavior modification

A fundamental principle of democracy is that governments should be elected by the people they will serve. Given the place that digital information ecosystems have taken today and their role in political life as a pseudo-public sphere, AI affects people's ability to self-govern. Another fundamental principle is the need for citizens to be well-informed in order to make a political decision, which implies easy access to a plurality of quality and relevant sources of information, without any form of coercion. As discussed below, AI does not favor access to a plurality of quality and relevant sources of information, and imposes a complex system of surveillance that is hardly compatible with this fundamental principle, especially since this surveillance, which is part of the ecnomic model of online platforms, is often carried out with little or no effective oversight.

AI is at the heart of today's digital communication environments[21] and, more specifically, online platforms. AI processes data collected from users to turn their attention into advertising opportunities. To best understand the role and implications of AI, it can be useful to follow the data flow that starts with (i) data collection practices, (ii) modeling of citizens' behavior, and (iii) AI-driven political communication tactics to shape their behavior.

Data collection practices:
First, AI can automate the process of collecting large amounts of unstructured data from online conversations. Often referred to as opinion mining, sentiment analysis, and web scraping, AI is at the heart of a myriad of surveillance practices conducted by online platforms and third parties, including government intelligence agencies, corporations, data brokers, political parties, and many others. Several types of data are collected, including:
- User demographics, such as name, address, email address, gender, age;
- User's network data, such as contacts and friends in their network;
- Survey or quiz responses, such as Cambridge Analytica's "This is Your Digital Life" quiz, which allowed the company to develop its psychographic profiling capability;
- Behavioral data derived from the user's online activity, such as responses to certain messages or texts;
- Metadata - data about the data - such as time, origin and destination of messages.

In countries where individuals own multiple connected devices and wearables, data collection is enhanced by the ability to track individuals across devices: data can be collected while they sleep

from a wearable device, while they travel from a smartphone, or at work from their computer and websites, social media, and more. It is possible to track individuals throughout the day and collect data nearly 24/7.

The problem here is twofold. First, this constant dataveillance (surveillance using digital methods) is a form of interference and coercion that challenges the ability of citizens to freely form their opinions. Second, research has shown that the heaviest burden of dataveillance has consistently fallen on the poor[22] [23], challenging the equality of rights between groups and communities in democracy.

Citizen behavior modeling:
AI processes the collected data to provide insights into the actions, preferences, and trends within a population, and reveal patterns, correlations, and causal relationships in citizen behavior. By developing models that simulate the behavior of individuals or groups under different scenarios, predictive analytics can predict future behavior based on historical data and current trends. AI can also be used to compare this data with big data collected from billions of other online users around the world and over the past decades, allowing online platforms to more accurately determine the personality type of each online user and predict their future behavior in response to specific advertisements. Each personality type corresponds to multiple criteria, including psychographics and demographics. In their study of more than 3.5 million people, researchers Matz, Kosinski, Nave, and Stillwell showed that "targeting people with persuasive appeals tailored to their psychological profiles can be used to influence their behavior as measured by clicks and conversions"[24]. Their study showed that Facebook "Likes" could help predict sensitive personal characteristics, including sexual orientation, ethnicity, religious and political views, personality traits, intelligence, happiness, use of addictive substances, parental separation, age, and gender. Their model correctly distinguished between gay and straight men 88% of the time, African Americans and Caucasians 95% of the time, and Democrats and Republicans 85% of the time.

However, the promise of AI prediction must be taken with a grain of salt. This is because AI predictions are based on past data and behavior. AI tools are merely "giant mirrors of code, built to consume our words, our choices, our art...and then reflect them back to us" [25]. This has two implications. First, AI reflects our past. It is based on data collected in the past. In other words, it uses data from the past to predict an individual's behavior in the future, assuming that they will maintain the same opinion, behavior, and personality over time. However, people are sometimes irrational and can radically change their opinions and behavior. Unexpected events can lead to changes in perception of causes or issues that AI cannot predict. These limitations must be kept in mind when analyzing the growing role of AI in political communication.

Second, AI can reinforce existing biases and societal discriminations, thereby affecting the equality of rights among members of society. Since most of the data used to train AI comes from biased, discriminatory societies, the machine learning algorithm will also be biased and likely reinforce existing societal discriminations. The discriminatory nature of the datafication of society is well documented. It is also well established that these data systems tend to exacerbate the disadvantages of marginalized or socially excluded groups.[26] However, contemporary datafication is unique in that it blurs the boundaries between 'voluntary' data (such as direct surveys or administrative data collection where the individual is aware) and 'other' data (such as digital surveillance via devices and sensors). For the surveilled citizen, the problem is exacerbated when data collection and analysis is shared between commercial companies and government agencies that provide phones, internet access, or apps. The economics of surveillance also affect fair representation and access to services, as access to

technology increasingly determines visibility. As Shearmur argues, designing social policy based on big data analysis is problematic because it does not represent society as a whole, but only online users, who are not representative of the diversity of society.[27]

AI-driven political communication tactics to shape citizens' behavior.
AI allows online platforms to turn their users into data subjects in order to influence their decisions.[28] Thanks to the data collected and processed by AI, advertisers and political campaigners can refine political strategies and ad targeting with real-time data analytics, allowing them to increase the precision, scope, and scale of political communication[29]. This increases the ability of online platforms to predict the possible future behavior of online users and, consequently, their ability to influence and modify that behavior for the benefit of political actors who can afford to purchase these AI-powered advertising services. This ability and intention to modify the behavior of citizens is what Shoshana Zuboff highlights through her well-known concept of "surveillance capitalism".[30]

The role of AI also raises questions about misinformation and the ethical use of technology in the political process.[31][32] The Cambridge Analytica scandal highlighted the limited oversight and accountability of digital advertising practices. The manipulation of online discourse by bots further complicates the digital landscape, sowing chaos and polarization and challenging the distinction between truth and falsehood[33], which can lead people to distrust all information except that which confirms their existing political views. Bots can project false representations of reality, for example, increasing or decreasing support for certain political movements and silence dissidents.[34] Today, AI is part of the toolkit for disinformation operations, information warfare, and cyberattacks, as recent elections and conflicts have shown.

1.2 Concentration of AI capability

Large technology companies have become powerful political actors, using their substantial financial resources, technological influence, and extensive reach to shape public policy, regulatory frameworks, and even electoral outcomes. Moreover, governments are increasingly relying on their AI capabilities to make their administrative processes more efficient and to offer new public services.

AI affects politics and political competition by disproportionately benefiting certain segments of the population, depending on their ability to benefit from the latest advances in AI technology[35] [36] This dynamic creates a political divide, as those with the skills, resources, and infrastructure to take advantage of AI advances reap significant economic and social benefits. As former Cambridge Analytica CEO Alexander Nix explained at the 2016 Concordia Annual Summit: "If you know the personality of the people you're targeting, you can nuance your messages to resonate more effectively with those key audiences. For a highly neurotic and conscientious audience, you're going to need a message that's rational and fear-based or emotion-based."[37] While this claim is likely more of a marketing slogan than a reality, given the aforementioned limitations of AI prediction, AI-assisted profiling and microtargeting will allow well-funded political actors to automate and personalize political communications in real time, resulting in the ability to reach very large audiences.[38] [39] In other words, "[d]ata-driven campaigning gives you the edge you need to persuade swing voters one way or the other, and also to get certain people to show up at the polls"[40]. Concretely, this means that only the wealthiest political parties and leaders will benefit from AI capabilities to micro-target potential voters before and during elections, which could consequently reinforce existing inequalities in representation between marginalized communities and civil society organizations with fewer

resources and powerful political parties. This could have an impact on agenda-setting by focusing political debate on the issues and framing presented by AI-enabled political actors.

Moreover, a relatively small number of companies have developed the data and the AI capability to process it, resulting in "a situation where a relatively small number of companies now wield a significant amount of power over the social and economic behavior of consumers and populations around the world"[41]. The value of the top six publicly traded technology companies is a good indication of how lucrative this industry is, and will continue to be. For example, in July 2024, Apple had a market cap of $3.335 trillion, Microsoft had a market cap of $3.101 trillion, NVIDIA had a market cap of $2.761 trillion, Alphabet (Google) had a market cap of $2.069 trillion, Amazon had a market cap of $1.871 trillion, and Meta Platforms (Facebook) had a market cap of $1.150 trillion. Combined, these six U.S.-based companies have a net worth of more than $14 trillion, which is greater than the combined nominal GDP of Germany, Japan and India ($12.64 trillion), the world's third, fourth and fifth largest economies, respectively.[42] This concentration of data, AI capabilities, and wealth is leading to the growth of cartels and monopolies[43] and the concentration of power in the hands of those who have developed the ability to collect and control valuable data.[44]

In this context, governments are increasingly dependent on a few large technology companies to develop and deploy AI-powered service tools. As Pascale argues, public authority is "increasingly expressed algorithmically"[45]. The integration of AI into public service delivery builds on a long tradition of research dating back to the 1990s, when the Internet and computer technology began to transform paper-based processes into fully digitized, 24/7 online services. These early e-government initiatives aimed to improve the effectiveness and efficiency of government services, make services more citizen-centric, and increase trust in government.[46] As Sharma et al. argue, "[w]ith rapid digital technological change, it is inevitable for the government to innovate its traditional methods to achieve better citizen engagement, accountability, and interoperability (...)."[47] AI is already being used in healthcare, education, social and cultural services, and to provide automated legal advice at a reduced cost.[48] Governments are turning to these companies for their advanced technological capabilities, expertise, and resources that are often beyond the reach of public institutions. In government administration, AI is seen as a fundamental capability to support the audit and enforcement of regulatory policies related to taxation, environmental protection, and safety.[49] AI applications address government challenges in resource allocation, data analysis, expert shortage, scenario prediction, procedural task management, and data aggregation and summarization.[50]

This reliance can streamline the implementation of AI in public services such as healthcare, transportation, and public safety, potentially increasing efficiency and effectiveness. However, this reliance also raises several concerns. It can lead to a lack of transparency and accountability, as proprietary technologies and algorithms controlled by private companies may not be fully available for public scrutiny. This opacity can hinder government oversight and the ability to ensure that these technologies are used ethically and equitably, and reliance on a few large technology companies can exacerbate existing power imbalances. Developing in-house AI capabilities and diversifying partnerships could help mitigate these risks, and ensure a more balanced and secure approach to integrating AI into public services. However, given the cost, time, and expertise required to develop them, as well as the cybersecurity risks, it is not an easy solution to adopt.

Furthermore, the immense financial resources of large technology companies give them significant political influence. Through extensive lobbying, they can shape policy and regulatory decisions to their advantage. This influence can undermine democratic processes and lead to regulations that favor

corporate interests over the public good. In other words, this concentration of power can undermine democratic governance and reduce the ability of governments to act independently in the best interests of their citizens. In addition, outsourcing critical public services to private technology companies can raise privacy and security concerns. Sensitive personal information handled by these companies may be vulnerable to breach or misuse, requiring robust data protection measures and regulatory frameworks to protect citizens' rights. In addition, the dual-use nature of AI technologies, which can be used for both civilian and military purposes, raises ethical and security concerns. The potential use of AI in warfare and surveillance requires international regulations and treaties to prevent misuse and promote responsible development and deployment. In times of conflict, a technology company may become essential to the functionning of the army, as the war between Ukraine and Russia has shown.[51] The intertwining of government functions with large technology companies also raises questions about long-term sustainability and resilience. If governments become too dependent on a small number of technology companies for essential services, they may face significant risks if those companies experience financial difficulties, cyberattacks, or other disruptions.

2. HOW TO DEMOCRATIZE AI?

In recent years, the question of who contributes to and who benefits from the AI revolution has been raised by many governments, international organizations, technology companies, academia and civil society. In its interim report, the UN High-Level Advisory Panel on AI called for ensuring "the participation of all stakeholders and all countries and regions in collective governance, risk management and the realization of opportunities"[52]. UNESCO's fourth principle for a human rights-based approach to AI highlights the need for "inclusive approaches to AI governance."[53] Most declarations, guidelines and policy recommendations emphasize the importance of including a diversity of voices in AI governance and the need to enable a greater proportion of the population, including girls and women, to contribute to its development and benefit from its use. Several technology companies have also expressed the need to democratize AI, such as Microsoft, which also aims "to democratize artificial intelligence (AI), to take it out of the ivory towers and make it accessible to all." A key part of their plan is to "infuse every application we interact with, on any device, at any time, with intelligence."[54] In academia, the democratization of AI is sparking a debate not only about what it exactly means to democratize AI, but also about whether AI should be democratized.[55] [56] Civil society is also contributing to this debate, with Amnesty International calling for "a guarantee that those who are impacted by these technologies are not only meaningfully involved in decision-making on how AI technology should be regulated, but also that their experiences are continually surfaced and are centred within these discussions."[57]

Thus, "democratizing AI" raises the question of how (and who) participates in the AI revolution, whether at the level of its use, development, benefits, or governance.[58] While it is clear that everything possible must be done to avoid negative societal impacts of AI, the call to democratize AI presents some difficulties. Indeed, the calls are often abstract and do not clearly explain (i) who should be included (all users of global online platforms?), (ii) what part of the AI process should be participatory (e.g., data collection for a predictive justice AI system: Should the AI be trained exclusively on violent crime data? Should the AI company also provide AI cloud services to military or intelligence agencies?), (iii) and how it should be done (how to specifically engage a large number of stakeholders - including non-technical experts - in such a competitive and fast-paced industry).[59] Moreover, the question of democratization is inextricably linked to and builds on other systemic

issues related to digital technologies: the uneven distribution of digital infrastructure (i.e., the digital divide) and the lack of diversity in the science and technology academia and industry.

2.1 AI and the digital divide

The digital divide refers to the gap between individuals, households, businesses, and geographic areas of different socioeconomic levels in their access to, use of, or knowledge of digital technologies. It remains a social challenge in many parts of the world.[60] The divide is perpetuated by structural barriers, including access to digital infrastructure and literacy.[61]

One of the most important aspects of the digital divide is unequal access to Internet infrastructure and connectivity. Many parts of the world, particularly rural and underdeveloped areas, lack of broadband Internet access, reliable electricity, and other necessary infrastructure. This limits the ability of people in these areas to access digital technologies and online resources. Moreover, limited or negative exposure to digital technologies can undermine trust and confidence in these tools, leading to increased disengagement.[62]

Another critical component of the digital divide is the gap in digital literacy and skills. This includes the ability to navigate the Internet, use digital devices, and understand how to use digital tools for education, work, and personal use.[63] Even when people have access to technology, they may not have the knowledge or skills to use it effectively. Economic barriers also contribute significantly to the digital divide. The cost of devices, Internet subscriptions, and other related expenses can be prohibitive for low-income individuals and families. This economic divide means that wealthier individuals and communities have more opportunities to benefit from digital technologies.

Being on the wrong side of this divide - often referred to as digital exclusion - results in lower educational outcomes, worsened physical and mental health, and a poorer quality of life.[64] Access to digital technology is increasingly important for educational opportunity. Students in well-connected schools with access to digital tools and resources can engage in more interactive and comprehensive learning experiences. Conversely, students without such access are at a disadvantage, which can affect their academic performance and future opportunities. The digital divide also affects employment opportunities. Many modern jobs require digital literacy and access to technology. Individuals without access to these tools or the skills to use them may find themselves excluded from a significant portion of the job market, leading to further economic inequality. The digital divide can lead to social exclusion, as those without access to technology are unable to fully participate in the digital aspects of modern society. This can affect everything from staying informed through news and social media to accessing government services and engaging in civic activities.

Rapid advances in AI in recent years have enabled a variety of new AI applications, ranging from personalized educational content[65] and AI-assisted decision making[66] to risk profiling in chronic health care[67] and generative tools such as OpenAI's ChatGPT. However, AI has the potential to widen the digital divide in several ways, exacerbating existing inequalities in access to technology, education, and economic opportunity. Indeed, AI technologies often require advanced infrastructure, including high-speed internet, powerful computing resources, and specialized software. Communities or individuals without access to these resources will be left behind as AI-driven innovation advances. Morevoer, AI systems can be expensive to develop and adopt. Businesses and individuals in wealthier regions or with higher incomes can afford to invest in AI and reap the benefits of increased efficiency

and productivity. In contrast, those in lower income brackets may struggle to afford these technologies, widening the economic divide.

In this context, it is crucial to develop AI literacy programs that enable citizens and policymakers to (i) acquire basic AI concepts, skills, knowledge, and attitudes; (ii) understand AI applications and related ethical issues, and how AI may impact their lives; (iii) critically evaluate AI technologies, and finally, (iv) communicate, and collaborate effectively with AI.[68] Indeed, AI literacy is not limited to the ability to use AI technologies, but also includes an understanding of basic AI concepts, as well as ethical, moral, and political challenges related to transparency, privacy, and agency.[69] Teaching about AI cannot be complete without addressing the people, power structures, and political motivations involved in the adoption of automated decision making[70]. As AI systems become more integrated into our daily lives, it is critical to educate citizens about their societal implications.[71] [72]

However, large technology companies from the global North are developing and offering online courses on AI, as well as selling AI applications and products to educators. The increasing commercialization of education through Artificial Intelligence in Education (AIED) and the resulting practical and ideological issues[73] raise many concerns. AIED systems can lead to discriminatory outcomes and decisions, and the use of AIED systems often involves paying a "data rent"[74] for students, teachers, and staff[75]. Google's AIED platform, for example, combines structures and practices of data colonialism, surveillance capitalism, and platformization.[76]

This next wave of AI-driven digitization has the potential to perpetuate the existing digital divide(s) if not implemented responsibly and inclusively. Conversely, if implemented in a way that explicitly addresses the factors that contribute to digital exclusion, it offers the opportunity to close these gaps and improve human capabilities and quality of life for all.[77]

2.2 Lack of diversity in AI development

Although some pioneering women were the first coders and crafted some of the first personal computers and programming languages[78], the field of AI – both in academia and industry – remains largely dominated by a homogeneous white male population. The percentage of women in technology-related roles at leading AI companies is notoriously low, ranging from just under one in three technology-related employees at Netflix to one in five at Google and Microsoft, and even lower at X and Uber.[79] This lack of diversity is often cited as one of the causes of AI bias and discrimination against women and vulnerable populations.[80] While errors can be made either by humans while developing algorithms or by the algorithms themselves, there are "several cases that demonstrate how racism and sexism are part of the architecture and language of technology"[81]. For example, a number of studies in the U.S. have found that facial recognition algorithms tend to have a racial bias.[82] This can lead to discriminatory practices in critical areas such as hiring, law enforcement, and healthcare, where biased algorithms can disadvantage minority groups or perpetuate inequalities. Health-related AI tools that fail to account for gender or ethnic differences in medical data may provide less accurate diagnoses or treatment recommendations for certain groups.

This lack of diversity also has implications for the cultural and linguistic diversity of digital content. Becazse the Internet remains overwhelmingly English - 59 percent of all websites were in English in January 2023 – AI is being trained primarily on English text in the Western world.[83] Moreover, the vast majority of online English text is generated by users based in the United States, which is home to 300 million English speakers live. This means that text generated by large language models (LLMs)

or generative AI (e.g., Open AI ChatGPT) tends to produce standard American English text and has a narrow Western, North American, or even US-centric lens. In addition, users from different countries and backgrounds may choose to use English LLMs due to either the lack of availability of LLMs in their native languages or the superior quality of English LLMs.[84] Without linguistic and cultural diversity, AI systems may struggle with accuracy and relevance. For example, voice assistants and translation tools need to be trained on diverse linguistic data to effectively understand different accents, dialects, and language nuances. Cultural diversity helps identify and mitigate bias in AI systems and ensures that AI technologies are accessible to a wider audience. This includes creating interfaces and content that are inclusive of different languages and cultural norms. As AI technologies are deployed globally, they must be adaptable to different cultural and linguistic contexts. For example, AI-driven health applications should be able to provide accurate and culturally sensitive information to users from diverse backgrounds.

2.3 Inclusive AI governance challenges

At the national and regional level, there have been numerous regulatory efforts in recent years: the European AI Act[85], the Council of Europe Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law[86], the White House Executive Order[87] in the US, or the new Chinese regulation on AI-generated content, which follows other texts to regulating AI in China[88], among others. These different approaches to AI reflect different values and priorities, for example between giving the technology industry free rein to innovate and tighter oversight of the most problematic and risky uses, such as facial recognition.

At the international level, AI has emerged as a critical global issue that requires a comprehensive governance framework.[89] In 2024, while the UN General Assembly adopted a resolution to promote "safe, secure and trustworthy" artificial intelligence (AI) systems[90], the Council of Europe's Committee on AI finalized the Framework Convention on AI, Human Rights, Democracy and the Rule of Law, and G7 ministers agreed to align rules on AI development.

Several important international bodies have been established to address the governance of AI. The Global Partnership on AI[91] (GPAI), launched in 2020 by 15 founding countries, represents an effort to support the ethical adoption of AI globally. Its goal is to foster collaboration and promote responsible AI development (GPAI, 2024). Another notable initiative is the Trade and Technology Council, established in 2021 to coordinate trade and technology policies, including those related to AI, between the European Union and the United States (EU-US Trade and Technology Council[92]). The UN High-Level Advisory Body on AI[93], established in 2023, is tasked with advancing recommendations for international AI governance, highlighting the UN's increasing involvement in AI oversight. In addition, the United Kingdom has established the AI Safety Institute[94] to advance global knowledge on AI safety and governance.

In addition, new governance principles have been developed to guide their ethical use. The Convention on Certain Conventional Weapons[95] has been discussing the governance of lethal autonomous weapons systems (LAWS) since 2014, reflecting ongoing concerns about the militarization of AI. The OECD adopted AI ethics principles[96] in 2019, which were subsequently endorsed by G20 leaders, marking a significant step forward in international consensus on AI ethics (OECD, 2024). In 2021, all 193 UNESCO member states adopted a Recommendation on the Ethics of Artificial Intelligence[97], which provides a framework for signatories to develop legal and ethical guidelines for AI (UNESCO, 2021). More recently, the G7's Hiroshima AI Process[98] and the BRICS

countries' formation of an "AI Study Group"[99] in 2023 reflect ongoing international efforts to improve AI governance. In 2024, the Council of Europe adopted a legally binding international convention on AI and human rights, signaling a commitment to protect fundamental rights in the context of AI development.

Private sector stakeholders have also been active in shaping AI governance. International standards bodies, such as the International Standard Organization (ISO) and the International Electrotechnical Commission (IEC), have published standards for AI that, while voluntary, can influence industry practices and regulatory requirements.[100] The Frontier Model Forum[101], founded in 2023 by major technology companies, aims to establish governance mechanisms for advanced AI systems. Similarly, the Partnership on AI[102] (PAI), founded in 2016, engages technology companies, civil society organizations, and academic institutions to develop guidelines and inform public policy.

Despite these efforts, global AI governance faces three types of governance gaps: representation, coordination, and implementation.

Representation gap:
First, the capacity to develop and regulate AI is currently concentrated in a few nations and organizations. AI governance remains predominantly led by experts from governments, and large tech companies in the global North. This concentration of power results in decision-making processes that often overlook the perspectives and needs of marginalized communities and non-expert stakeholders, particularly from the Global South. As a result, the policies and standards set in AI governance tend to reflect the interests and values of a narrow group, potentially exacerbating existing inequalities and overlooking critical ethical and societal considerations. Moreover, AI is perceived as a source of competitive advantage, leading to strategic policies. China's policy of military-civilian fusion and its Belt and Road Initiative aim to harness AI for economic and security benefits, creating tensions with countries such as the United States, which has imposed export controls to curb China's AI development. Similarly, the EU's pursuit of digital sovereignty also highlights the competitive dynamics at play.[103] The lack of consensus on policy responses among major players such as the European Union, the United States, and China has led to fragmented approaches to governance.[104] This fragmentation complicates efforts to develop a coherent international governance framework.

Moreover, standard development organizations such as the International Setting Organization (ISO) and the International Telecommunication Union (ITU) play an important role in global AI governance and the interoperability of these technologies. However, they are often criticized for privatization[105] and a perceived lack of legitimacy, as they set broad standards based on their own organizational interests[106]. Large corporations, particularly those based in the US, are seen as the main beneficiaries of this privatization of standard setting.[107] Similar criticisms of the influence of corporate power and the capture of decision-making processes can be found for multilateral institutions.[108] Civil society and the Global South remain significantly underrepresented and engaged in standard-setting processes.[109]

Coordination gap:
Second, the global AI governance landscape is characterized by a polycentric structure with fragmented initiatives. Coordination between UN bodies that discuss the governance of Lethal Autonomous Weapon Systems (LAWS) and technical standards organizations remains limited, resulting in siloed efforts and fragmented governance.[110]

Third, high-level principles and international agreements often lack specificity and fail to translate into actionable outcomes. For example, implementation of AI fairness principles varies widely across regions, and progress in institutions such as UNESCO and GPAI has been slow.[111]

While significant progress has been made in establishing international bodies and principles for AI governance, the field faces significant challenges. Given these regulatory divergences, coupled with increasing barriers to international supply chains for AI chips (e.g., the CHIPS Act in the U.S. and the European Chips Act), there is a risk of global decoupling, which calls for increased international cooperation on global AI governance and standard setting. Moreover, global AI governance is emerging in a highly polarized and uncertain geopolitical landscape with the growing role of the technology industry in policy spheres. Addressing these issues will be critical to developing a robust global framework that can effectively manage the ethical and practical implications of AI technologies.

3. CONCLUDING REMARKS

As mentioned previously, one of the key challenges for the democratization of AI is to further reduce the digital divide, increase AI and digital literacy among populations that are still poorly represented in the AI industry and academia, especially girls and women, but also among policymakers, in order to increase diversity in AI development and governance. This should enable a better sharing of the benefits and risks of AI, and also the co-creation of democratic futures where the role of technology and AI is shaped by those first affected and a diversity of stakeholders. How can this bed achieved? Given the application of AI to so many areas of activity, it will necessarily be both sectoral and collaborative across disciplines and sectors.

With its many international intergovernmental and non-governmental organizations, major corporations and universities, Geneva could become a sandbox for testing new approaches to literacy and technology co-design. The Office of the United Nations High Commissioner for Human Rights (OHCHR), for example, emphasizes the need for a coordinated response from the multilateral system and the various actors involved in addressing global challenges. Its call to action stresses the importance of cooperation between states, businesses, civil society and individuals to ensure that AI serves the best interests of humanity. This vision includes co-creating a world where technology supports the universal advancement of human dignity and rights. By promoting governance and accountability frameworks, such as the UN Guiding Principles on Business and Human Rights and the OECD Guidelines for Responsible Business Conduct, OHCHR provides strong safeguards for the responsible development of AI, which is essential for the future resilience of democracy. In addition, OHCHR's B-Tech project is an excellent example of how technology governance can be integrated into human rights frameworks. This project aims to integrate human rights considerations into the development and deployment of digital technologies, ensuring that technology is aligned with broader societal values. [112]

As the use of AI in healthcare grows, the World Health Organization (WHO) is also playing a critical role in the democratization of AI and a participatory, inclusive approach to governance. WHO's 2023 regulatory considerations highlight the intersection of health, technology, and human rights to ensure that technological advances, including AI, contribute positively to global health outcomes. Similarly, the International Telecommunication Union (ITU), which plays a central role in global governance and technology standardization, organizes an annual AI for Good Summit[113] online and in person, bringing together numerous high-level speakers and experts in Geneva.

By capitalizing on the expertise and initiatives of these Geneva-based organizations, the city can position itself as a center of democracy that not only addresses current challenges, but also anticipates future needs. Through sustained dialogue, action, and collaboration, Geneva can unite diverse stakeholders in a common mission to ensure that technological progress strengthens democratic governance and human rights for all.

[1] Russell, S. J., & Norvig, P. (2016). *Artificial intelligence: a modern approach*. Pearson.

[2] Acemoglu, D., & Restrepo, P. (2018). The race between man and machine: Implications of technology for growth, factor shares, and employment. *American economic review, 108*(6), 1488-1542.

[3] Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. WW Norton & Company.

[4] Boyd, R., & Holton, R. J. (2018). Technology, innovation, employment and power: Does robotics and artificial intelligence really mean social transformation?. *Journal of Sociology, 54*(3), 331-345.

[5] Cadwalladr, C. & Graham-Harrison, E. (2018). Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach. *The Guardian*. Accessible at: https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election

[6] Tufekci, Z. (2014). Engineering the public: Big data, surveillance and computational politics. *First Monday*. Accessible at: https://firstmonday.org/ojs/index.php/fm/article/view/4901/4097

[7] Zuboff, S. (2023). The age of surveillance capitalism. In: Longhofer, W. & Winchester, D. (eds.) *Social theory re-wired*. Routledge, pp. 203-213.

[8] Van Dijck, J., Poell, T., & De Waal, M. (2018). *The platform society: Public values in a connective world*. Oxford university press.

[9] Mitchell, M. (2020). *Artificial intelligence: A guide for thinking humans*. Macmillan.

[10] Samoili, S., Lopez Cobo, M., Delipetrev, B., Martinez-Plumed, F., Gomez Gutierrez, E. and De Prato, G., (2021). AI Watch. Defining Artificial Intelligence 2.0, EUR 30873 EN, Publications Office of the European Union, Luxembourg.

[11] Ibid

[12] Rotolo, D., Hicks, D., & Martin, B. R. (2015). What is an emerging technology?. *Research policy, 44*(10), 1827-1843.

[13] Sclove R (1995) *Democracy and technology*. Guilford Press, New York

[14] Dahl, R. A. (2020). *On democracy*. Yale university press.

[15] Przeworski, A. (2018). *Why bother with elections?*. John Wiley & Sons.

[16] Himmelreich, J. (2023). Against "democratizing AI". *AI & Society*, *38*(4), 1333-1346.

[17] Seger, E., Ovadya, A., Siddarth, D., Garfinkel, B., & Dafoe, A. (2023, August). Democratising AI: Multiple meanings, goals, and methods. In *Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society* (pp. 715-722).

[18] Jungherr, A. (2023). Artificial intelligence and democracy: A conceptual framework. *Social media + society*, *9*(3).

[19] Castells, M. (2013). *Communication power*. Oxford University Press.

[20] Jungherr, A., Posegga, O., & An, J. (2019). Discursive power in contemporary media systems: A comparative framework. *The International Journal of press/politics*, *24*(4), 404-425.

[21] Turkle, S. (2011). *Life on the Screen*. Simon and Schuster.

[22] Masiero, S. (2016). The origins of failure: seeking the causes of design–reality gaps. *Information Technology for Development*, *22*(3), 487-502.

[23] Gilliom, J. (2001). *Overseers of the poor: Surveillance, resistance, and the limits of privacy*. University of Chicago Press.

[24] Matz, S. C., Kosinski, M., Nave, G., & Stillwell, D. J. (2017). Psychological targeting as an effective approach to digital mass persuasion. *Proceedings of the national academy of sciences*, *114*(48), 12714-12719.

[25] Vallor, S. (2024). *The AI Mirror: How to Reclaim Our Humanity in an Age of Machine Thinking*. Oxford University Press.

[26] Taylor, L. (2017). What is data justice? The case for connecting digital rights and freedoms globally. *Big Data & Society*, *4*(2).

[27] Shearmur, R. (2015). Far from the madding crowd: Slow innovators, information value, and the geography of innovation. *Growth and Change*, *46*(3), 424-442.

[28] Aho, B., & Duffield, R. (2020). Beyond surveillance capitalism: Privacy, regulation and big data in Europe and China. *Economy and Society*, *49*(2), 187-212.

[29] Bradshaw, S., & Howard, P. N. (2018). The global organization of social media disinformation campaigns. *Journal of International Affairs*, *71*(1.5), 23-32.

[30] Zuboff, S. (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. Public Affairs.

[31] Tran, T., Valecha, R., Rad, P., & Rao, H. R. (2020). Misinformation harms: A tale of two humanitarian crises. *IEEE Transactions on Professional Communication*, *63*(4), 386-399.

[32] Allen, J., Howland, B., Mobius, M., Rothschild, D., & Watts, D. J. (2020). Evaluating the fake news problem at the scale of the information ecosystem. *Science advances*, *6*(14), eaay3539.

[33] Bjola, C., & Pamment, J. (2018). *Countering online propaganda and extremism: The Dark Side of digital diplomacy*. Routledge.

[34] Ibid.

[35] Bimber, B. (2003). *Information and American democracy: Technology in the evolution of political power*. Cambridge University Press.

[36] Castells, M. (2013). *Communication power*. Oxford University Press.

[37] Nix, A. (2016). The Power of Big Data and Psychographics. 2016 Concordia Annual Summit. Accessible at: https://www.youtube.com/watch?v=n8Dd5aVXLCc

[38] Duberry, J. (2023). AI and data-driven political communication (re) shaping citizen–government interactions. In: Nah, S. (ed.). *Research Handbook on Artificial Intelligence and Communication* (pp. 231-245). Edward Elgar Publishing.

[39] Duberry, J. (2022). *Artificial intelligence and democracy: risks and promises of AI-mediated citizen–government relations*. Edward Elgar Publishing.

[40] Wakefield, J. (2019). Brittany Kaiser calls for Facebook political ad ban at Web Summit. *BBC World*. Retrieved July 10, 2024, from https://www.bbc.com/news/technology-50234144

[41] Aho, B., & Duffield, R. (2020). Beyond surveillance capitalism: Privacy, regulation and big data in Europe and China. *Economy and Society, 49*(2), 187-212.

[42] Largest tech companies by market cap: https://companiesmarketcap.com/tech/largest-tech-companies-by-market-cap/

[43] Wu, T. (2017). *The attention merchants: The epic scramble to get inside our heads*. Vintage.

[44] Mayer-Schonberger, V., & Ramge, T. (2018). A big choice for big tech: share data or suffer the consequences. *Foreign Affairs, 97*, 48.

[45] Pasquale, F. (2015) *The Black Box Society: The Secret Algorithms that Control Money and Information*. Cambridge, MA: Harvard University Press.

[46] Ubaldi, B. & Okubo, T. (2020). *OECD Digital Government Index (DGI): Methodology and 2019 results*. OECD Publications.

[47] Sharma, G. D., Yadav, A., & Chopra, R. (2020). Artificial intelligence and effective governance: A review, critique and research agenda. *Sustainable Futures, 2*, 100004.

[48] Nissan, E. (2017). Digital technologies and artificial intelligence's present and foreseeable impact on lawyering, judging, policing and law enforcement. *Ai & Society, 32*, 441-464.

[49] Coglianese, C., & Lehr, D. (2016). Regulating by robot: Administrative decision making in the machine-learning era. *Georgetown Law Journal, 105*, 1147.

[50] Mehr, H., Ash, H., & Fellow, D. (2017). Artificial intelligence for citizen services and government. *Ash Center for Democratic Governance and Innovation Harvard Kennedy School, no. August, 1*, 12.

[51] Paton Walsh, N, Marquardt, A., Davey-Attlee F., & Gak, K. (2024). Ukraine relies on Starlink for its drone war. Russia appears to be bypassing sanctions to use the devices too. *CNN*. Accessible at: https://edition.cnn.com/2024/03/25/europe/ukraine-starlink-drones-russia-intl-cmd/index.html

[52] UN High Level Advisory Body on AI (2023). Interim Report: Governing AI for humanity. Accessible at : https://www.un.org/sites/un2.un.org/files/ai_advisory_body_interim_report.pdf

[53] UNESCO. Ethics of Artificial Intelligence: The Recommendation. Accessible at: https://www.unesco.org/en/artificial-intelligence/recommendation-ethics

[54] Microsoft News Center (2016). Democratizing AI:For Every Person and Organization. *Microsoft Features*. Accessible at: https://news.microsoft.com/features/democratizing-ai/ Cited in Seger, E., Ovadya, A., Siddarth, D., Garfinkel, B., & Dafoe, A. (2023, August). Democratising AI: Multiple meanings, goals, and methods. In *Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society* (pp. 715-722).

[55] Himmelreich, J. (2023). Against "democratizing AI". *AI & Society, 38*(4), 1333-1346.

[56] Murphy, J. W., & Taylor, R. R. (2023). To democratize or not to democratize AI? That is the question. *AI and Ethics*, 1-7.

[57] Nolan, D., Maryam H. & Kleinman M. (2024). The Urgent but Difficult Task of Regulating Artificial Intelligence . Amnesty International. Accessible at: https://www.amnesty.org/en/latest/campaigns/2024/01/the-urgent-but-difficult-task-of-regulating-artificial-intelligence/

[58] Seger, E., Ovadya, A., Siddarth, D., Garfinkel, B., & Dafoe, A. (2023, August). Democratising AI: Multiple meanings, goals, and methods. In *Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society* (pp. 715-722).

[59] Himmelreich, J. (2023). Op Cit.

[60] Lythreatis, S., Singh, S. K., & El-Kassar, A. N. (2022). The digital divide: A review and future research agenda. *Technological Forecasting and Social Change, 175*, 121359.

[61] Bentley, S. V., Naughtin, C. K., McGrath, M. J., Irons, J. L., & Cooper, P. S. (2024). The digital divide in action: how experiences of digital technology shape future relationships with artificial intelligence. *AI and Ethics*, 1-15.

[62] Van Dijk, J., & Hacker, K. (2003). The digital divide as a complex and dynamic phenomenon. *The information society, 19*(4), 315-326.

[63] Hintz, A., Dencik, L., & Wahl-Jorgensen, K. (2018). *Digital citizenship in a datafied society*. John Wiley & Sons.

[64] Van Dijk, J. A. G. M. (2020, August). Closing the digital divide: The role of digital technologies on social development, well-being of all and the approach of the Covid-19 pandemic. In *Virtual Expert Group UN Meeting on "Socially just transition towards sustainable development: The role of digital technologies on social development and well-being of all.*

[65] Kabudi, T., Pappas, I., & Olsen, D. H. (2021). AI-enabled adaptive learning systems: A systematic mapping of the literature. *Computers and Education: Artificial Intelligence, 2*, 100017.

[66] Lysaght, T., Lim, H. Y., Xafis, V., & Ngiam, K. Y. (2019). AI-assisted decision-making in healthcare: the application of an ethics framework for big data in health and research. *Asian Bioethics Review, 11*, 299-314.

[67] Lin, Y. K., Chen, H., Brown, R. A., Li, S. H., & Yang, H. J. (2017). Healthcare predictive analytics for risk profiling in chronic care. *Mis Quarterly, 41*(2), 473-496.

[68] Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence, 2*, 100041.

[69] Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education promises and implications for teaching and learning*. Center for Curriculum Redesign.

[70] Miao, F., & Holmes, W. (2021). *International Forum on AI and the Futures of Education, developing competencies for the AI Era, 7-8 December 2020: synthesis report*. UNESCO.

[71] Markauskaite, L., Marrone, R., Poquet, O., Knight, S., Martinez-Maldonado, R., Howard, S., ... & Siemens, G. (2022). Rethinking the entwinement between artificial intelligence and human learning: What capabilities do learners need for a world with AI?. *Computers and Education: Artificial Intelligence, 3*, 100056.

[72] Touretzky, D., Gardner-McCune, C., Martin, F., & Seehorn, D. (2019, July). Envisioning AI for K-12: What should every child know about AI?. In *Proceedings of the AAAI conference on artificial intelligence* (Vol. 33, No. 01, pp. 9795-9799).

[73] Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European Journal of Education, 57*(4), 542-570.

[74] Sadowski, J. (2020). The internet of landlords: Digital platforms and new mechanisms of rentier capitalism. *Antipode, 52*(2), 562-580.

[75] Komljenovic, J. (2021). The rise of education rentiers: digital platforms, digital data and rents. *Learning, Media and Technology, 46*(3), 320-332.

[76] Sujon, Z. (2021). Disruptive play or platform colonialism? The contradictory dynamics of Google expeditions and educational virtual reality.

[77] Bentley, S. V., Naughtin, C. K., McGrath, M. J., Irons, J. L., & Cooper, P. S. (2024). The digital divide in action: how experiences of digital technology shape future relationships with artificial intelligence. *AI and Ethics*, 1-15.

[78] Hollings, T., Burgman, M., van Andel, M., Gilbert, M., Robinson, T., & Robinson, A. (2018). How do you find the green sheep? A critical review of the use of remotely sensed imagery to detect and count animals. *Methods in Ecology and Evolution, 9*(4), 881-892.

[79] Richter, F. (2019). Female Workers in the Tech Industry: The Tech World Is Still a Man's World. *Statista Infographics*. Accessible at : https://www.statista.com/chart/4467/female-employees-at-tech-companies/

[80] Cave, S. (2020). The problem with intelligence: its value-laden history and the future of AI. In *Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society*, pp. 29-35.

[81] Noble, S. U. (2018). Algorithms of oppression: How search engines reinforce racism. In *Algorithms of oppression*. New York university press.

[82] Buolamwini, J., & Gebru, T. (2018). Gender shades: Intersectional accuracy disparities in commercial gender classification. In *Conference on fairness, accountability and transparency*, pp. 77-91.

[83] Shwartz, V. (2024). Artificial intelligence needs to be trained on culturally diverse datasets to avoid bias. *The Conversation*. Accessible at: https://theconversation.com/artificial-intelligence-needs-to-be-trained-on-culturally-diverse-datasets-to-avoid-bias-222811

[84] Ibid.

[85] European Parliament (2023). EU AI Act: first regulation on artificial intelligence. Accessible at: https://www.europarl.europa.eu/topics/en/article/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence

[86] Council of Europe. Committee on Artificial Intelligence (CAI). Accessible at: https://www.coe.int/en/web/artificial-intelligence/cai

[87] The White House. (2023). FACT SHEET: President Biden Issues Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence. Accessible at: 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/

[88] Sheehan, M. (2023). China's AI Regulations and How They Get Made. *Carnegie Endowment for International Peace*. Accessible at: https://carnegieendowment.org/research/2023/07/chinas-ai-regulations-and-how-they-get-made?lang=en

[89] Roberts, H., Hine, E., Taddeo, M., & Floridi, L. (2024). Global AI governance: barriers and pathways forward. *International Affairs, 100*(3), 1275-1286.

[90] United Nations. (2024). General Assembly adopts landmark resolution on artificial intelligence. Accessible at: https://news.un.org/en/story/2024/03/1147831

[91] The Global Partnership on Artificial Intelligence (GPAI). Accessible at: https://gpai.ai

[92] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/stronger-europe-world/eu-us-trade-and-technology-council_en

[93] European Commission (2024). EU-US Trade and Technology Council. Accessible at: https://www.un.org/techenvoy/ai-advisory-body

[94] AI Safety Institute. Accessible at: https://www.aisi.gov.uk

[95] United Nations Office for Disarmament Affairs. The Convention on Certain Conventional Weapons. Accessible at: https://disarmament.unoda.org/the-convention-on-certain-conventional-weapons/

[96] OECD. AI Principles. Accessible at: https://oecd.ai/en/ai-principles

[97] UNESCO. Ethics of Artificial Intelligence: The Recommendation. Accessible at: https://www.unesco.org/en/artificial-intelligence/recommendation-ethics

[98] Hiroshima AI Process. Accessible at: https://www.soumu.go.jp/hiroshimaaiprocess/en/index.html

[99] CGTN (2023). Xi says BRICS countries agree to take quick action on AI research. Accessible at: https://news.cgtn.com/news/2023-08-23/Xi-says-BRICS-countries-agree-to-take-quick-action-on-AI-research-1mvr5d8R3B6/index.html

[100] Büthe, T., & Mattli, W. (2011). *The new global rulers: The privatization of regulation in the world economy*. Princeton University Press.

[101] Frontier Model Forum. Accessible at: https://www.frontiermodelforum.org

[102] Partnership on AI. Accessible at: https://partnershiponai.org

[103] Johnson, J. (2023). *AI and the Bomb: Nuclear strategy and risk in the digital age*. Oxford University Press.

[104] Samson, D., Ellis, A., & Black, S. (2022). *Business model transformation: the AI & cloud technology revolution*. Routledge.

[105] DeNardis, L. (2012). Hidden levers of Internet control: An infrastructure-based theory of Internet governance. *Information, Communication & Society,* 15(5), 720-738.

[106] Harcourt, A., Christou, G., & Simpson, S. (2020). *Global standard setting in internet governance*. Oxford University Press.

[107] Carr, M. (2015). Power plays in global internet governance. *Millennium, 43*(2), 640-659.

[108] Manahan, M. A., & Kumar, M. (2021). *The great takeover: Mapping of multistakeholderism in global governance*. People's Working Group on Multistakeholderism.

[109] Taggart, J., & Abraham, K. J. (2024). Norm dynamics in a post-hegemonic world: multistakeholder global governance and the end of liberal international order. *Review of International Political Economy, 31*(1), 354-381.

[110] Cihon, P., Maas, M. M., & Kemp, L. (2020). Fragmentation and the future: investigating architectures for international AI governance. *Global Policy, 11*(5), 545-556.

[111] Veale, M., Matus, K., & Gorwa, R. (2023). AI and global governance: modalities, rationales, tensions. *Annual Review of Law and Social Science, 19*(1), 255-275.

[112] OHCHR B-Tech Project. Accessible at : https://www.ohchr.org/fr/business/b-tech-project

[113] AI for Good Summit. Accessible at : https://aiforgood.itu.int/summit24/