

US-China Competition in Artificial Intelligence: Implications on Global Governance

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Abstract

The struggle between the United States and China in artificial intelligence (AI) has the potential to alter the balance of power drastically and has significant ramifications for global governance. The race for technological dominance could begin. The dominating nation in AI may impact world governance by establishing technical norms, forming laws, and limiting access to AI technologies. AI can boost productivity, innovation, and competitiveness through economic growth. As a result, both China and the USA seek to have their economic influence. Geopolitical tensions, ethical issues, technology standards, and data governance may all be impacted. A cooperative and inclusive global governance system that addresses these challenges will be necessary for AI to maximize its potential and lessen its risks. The US is in the lead in the competition in artificial intelligence. Since AI is a worldwide phenomenon, international cooperation is necessary to overcome its problems. Global governance can help governments, organizations, and professionals share knowledge, collaborate, and coordinate to establish best practices and shared research and foster an inclusive and all-encompassing approach to AI development. Under global governance, there are strategies to lessen the possibility of conflicts between these two foes. These include promoting open and transparent government, improving societal understanding, or developing institutions that reduce the likelihood of conflict.

Keywords: AI, Global Governance, US-China Competition.

Introduction

Today, the world is at the cusp of a technological revolution marred by intense competition between global powers. When the Russian president said in this famous speech that the one who controls the AI will be the world's ruler, he hinted at the competition the world will witness in this emerging field. AI is not a stand-alone technology; instead, it is a complementing technology. It becomes a part of specific technology and increases its potential manifolds. Another essential factor of this decade is the growing multi-polarity, where the US is not the only global power. As other poles of power emerge, they pose a threat and competition to the US, which the US is trying to resist. Technology and competition between states are because, due to the technology, these states have massive interdependence on each other. Enormous interdependence in this age of digitization and globalization is considered vulnerable if competition and hostilities are to be

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pursued. Resultantly, there is a massive wave in the US and its alliances to "decouple", "re-risk", or "de-link" with China in the sphere of technology.

AI facilitates other technologies; it has uses in the military, the economy, the medical sciences, IT and communication. The issue is the implications of AI in military, data gathering, surveillance and intelligence. Secondly, as AI technology is developed by the civilian side rather than the military, tech companies are earning massive revenues and also gathering a large amount of data to train their AI systems. The US especially has apprehensions about Chinese companies regarding data gathering. In such a situation, in the first initiatives, both states are trying to manage the AI development within their own boundaries, where both have developed initiatives, rules and acts to guide, monitor and channel the AI development. The US is also becoming part of many multilateral initiatives with like-minded states regarding developing mechanisms to manage or control AI. However, it is important to analyze how the competition among both states will affect AI governance at the global level. There are many genuine concerns regarding the utilization of AI systems in surveillance, intelligence gathering, lethal autonomous weapons and command, control and communication (C3).

Therefore, this paper will first try to explain the jargon and lacunas used to describe what AI actually is. Different types of AI need clarification regarding the term's actual meaning. Global governance is also a broad and diverse concept; the first section of this paper will also elaborate on the definitional aspects of the term governance and global governance. Secondly, before directly explaining the worldwide governance and AI linkage, this chapter will present the current positions of the US and China regarding AI competition, which is an attempt to shed light on the laws, rules, initiatives, and policies both countries have adopted nationally. In the last component of the chapter, global governance initiatives on AI are explained, and the issues that hinder progress on global governance are discussed.

Definitional and Conceptual Understanding of AI and Global Governance

Artificial intelligence (AI) is a field of study and a group of computing technologies modelled after—but frequently operate very differently from—how people utilize their neurological systems and bodies to sense, learn, reason, and act. Since the field's start sixty years ago, there have been considerable advancements, even if the rate of progress has been uneven and unexpected (Stone, 2016).

A variety of distinctive characteristics define emerging technologies. The five essential characteristics of an emergent technology, according to Daniele Rotol, are radical originality, reasonably fast expansion, coherence, noticeable influence, and uncertainty and ambiguity.

According to their definition, an emerging technology is radically novel, growing relatively quickly, and potentially impacting one or more socioeconomic domains significantly. These domains are defined as those observed in terms of the combination of actors, institutions, patterns of interactions among them, and the related processes of knowledge production. However, its most significant influence will come later, so the emerging phase must still be clarified and hazy. (Tinnirello, 2022). AI is considered one of the emerging technologies because it fulfils the aforementioned criteria. However, in emerging technologies, AI seems to me more like a technological change that is equivalent to an internal combustion engine or electricity than a weapon – a missile, submarine or tank. It is an enabler and a general-purpose technology with varied applications from civilian to military domains. (Horowitz, 2018).

The AI field comprehends machines that reproduce capabilities ordinarily consistent with humans' intelligence. These capabilities include language, reasoning, learning and observation. The

emergence of AI benefits human society since it frequently cuts down on the time needed to complete a task. However, more research must be done on how AI will affect global politics. (Johnson, 2021).

On the other hand, when we strive to define "governance", there are different definitions. Vasudha (2008) states, "governance is about the rules of collective decision making in settings where there is a plurality of actors or organizations and where no formal control system can dictate the terms of the relationship between these actors and organizations."

Moreover, instead of direct oversight and supervision, the types of social interaction in governance rely on negotiation, signals, communication, and hegemonic influence (Vasudha, 2008).

They also assert that governance is about decision-making and coordination in the presence of diverse ideas and interests. Dissent and conflict are crucial components of every governance process. For them, governance is practice (Vasudha, 2008).

The objectives of governance need to be comprehended both analytically and empirically as a set of practices rather than through the lens of a wish-list (Vasudha, 2008).

Edler (2014) described governance as the mechanisms by which societal actors and state actors interact and coordinate to regulate issues of societal concern concerning socio-technical systems. This view of governance emphasizes how the government works increasingly in tandem with various stakeholders, such as the corporate sector, civil society, and professional communities. The risks, rewards, and unknown future developments of developing sciences and technologies present unique governance difficulties (Tinnirello, 2022).

At the international system level, "global governance" is defined as a purposeful order that regulates actions for a "common good" on the basis of institutions, processes, norms, formal agreements and informal mechanisms (Benedict, 2002). Moreover, global governance focuses on harmonization between state agencies and private sector organizations regarding laws among states, international regimes, transnational policy networks and hybrid institutions. Global governance and governance had some fundamental differences, especially regarding the lack of development of a "societal contract between citizens and international institutions", which results in not properly developing the right of "legitimacy" to govern.

Thus, this article briefly explains Artificial Intelligence as technology and its sub-fields. Identifying sub-fields is important because it will enable us to understand the dynamics of competition between both global powers rather than broad generalization, which is a dominant phenomenon regarding the "domination in AI" debate. Secondly, US-China competition in AI and subfields will be discussed in detail to understand the competition dynamics. Lastly, implications of these competition dynamics of existing global governance will be explored along with an attempt to find both countries' pathways to strengthen global governance rather than taking the whole international order to mere competition.

Artificial Intelligence

AI is the amalgamation of science and engineering aiming at making intelligent machines, especially intelligent supercomputers and this process of machines making smart decisions does not have to be biologically visible. (McCarthy, 2007). It is also defined as the ability of an artificial agent to achieve its goal not in specific circumstances but in "a wide range of environments (Shane, 2007). Thus, artificial intelligence (AI) is a field that uses robust datasets and computer science to solve problems. It also includes deep learning and machine learning subfields. Artificial Narrow Intelligence (Narrow AI), Artificial General Intelligence (AGI), and Artificial Super Intelligence (ASI) are the two forms of AI on which these subfields are built. (McCarthy, 2007).

Besides what technology is, scholars have yet to determine the nature of AI's abilities. Owing to these differences in understanding, some regarded AI as "disruptive technology", while others discredit the notion of AI being disruptive technology. However, there is a general understanding that AI is a "general-purpose technology". Due to its multiple purposes, many states consider AI a driving or transforming force today. Its utilization would enable one to get both individual or military benefits and societal and economic benefits.

Horowitz (2018) claimed that AI into two broad approaches; one is "Symbolic Artificial Intelligence" based on the creation of expert systems and production rules to allow a machine to find out its action. Second approach is "computational or connectionist approach", where the machine first is to identify the problem and then choose the plausible action.

US-China Comparison in AI

Artificial intelligence is evolving from a technological to an economic, political, strategic and governance problem for global powers and, to a certain degree, defines the balance of power between them. This potential indicates the interests and highlights the reason behind the growing competition in this domain (Horowitz, 2020). Due to the triangle relationship between technology, economy, and military strength, these factors directly affect a nation's capacity to wage and win wars. By influencing a nation's economic conflict, they can also indirectly impact the balance of power.

As they elucidate the connections between technology and the balance of power, proponents of the adoption capacity theory believe that financial and organizational requirements for adopting a military innovation always influence the states' capability to master any technology as an instrument of power (Horowitz, 2010). According to scholars, two significant trends in global power competitions are the growing US-China geopolitical rivalry and the rapid development of AI technologies worldwide. Both states have recognized and asserted in their policies and statements that emerging technologies will play a decisive role in the contest between them over the future of global power. We lead the AI race in many subcategories, but it is also true that China is trying to catch up and lead in specific other sub-sets of AI. According to the Critical Technologies Tracker by ASPI, China is leading AI in AI algorithms and Hardware acceleration and advanced data analytics. However, the US is leading in this race in Natural language processing and advanced integrated circuit design and fabrications. In some other areas, the US is ahead of China not only because of the capabilities gap but in related industries and talents. Thus, The US is considerably ahead of China regarding industrial structures, corporate environments, AI theory, and microchips. Talent pools, innovation systems, associated hardware development, and computer algorithm development are other domains where US dominance over China is evident. But without a doubt, the critical point to note is that while the US has a "first mover advantage" in the development of AI, China is catching up quickly, and this is considered the beginning of an "arms race" between the two countries.

There are capability gaps between China and the United States despite China's valiant attempts to advance in AI; there are still significant gaps between China and the United States regarding science, technology, linked sectors, and talent. Regarding AI theory and microchips, the United States is well ahead of China, while the latter still needs more breadth and creativity than the former. Undoubtedly, the United States is the global leader in cutting-edge AI technology. Its AI research has benefited from several AI-focused economic methods in addition to having a head start and a strong foundation. While American AI companies started appearing, the first Chinese AI company was founded in 1996.

The United States is a significant leader in AI research and development (R&D) since most of the world's technology behemoths, like Google, Amazon, IBM, and Microsoft, are based in the USA and have assembled some of the most significant AI teams globally. The American military has also enjoyed a clear advantage in information warfare since the 1990s. The U.S.'s advantage over China regarding talent pool, innovation systems, and related hardware development is mainly seen in its dominant position in creating computer algorithms.

Furthermore, China's semiconductor industry produces sophisticated electronic processors far later than planned. According to David Kanter of Real World Insights, "The majority of AI-focused chips are developed by U.S. companies, and analysts predict that China will need help to catch up to achieve its goal of becoming a global hub for innovation in this field by 2030.

The Chinese government has made significant efforts to promote AI research and development to close the gap with the United States. China publishes more academic articles on deep learning each year than the US. During the past few years, Chinese researchers have submitted roughly twice as many patent applications linked to AI. With 26,891 applications for AI patents in 2016, the United States led the world, followed by China with 15,745 applications. However, China received four times as many AI-related patent applications in 2017 as the United States, a significant increase. However, there are still substantial differences in industrial size, product quality, and financial support for AI development between China and the United States.

They are comparing the 1,500 AI companies in China to the almost 2,800 in the United States as of 2017. China's AI market is expanding quickly; in 2017, it was valued at 15 billion RMB; by 2020, it is expected to be valued at over 160 billion RMB. Despite financial investment and policy support, China remained behind the United States in terms of industrial distribution, particularly in the primary, high-grade, and application industries. With 33 companies investing 30 billion RMB in chip technology, the United States continues to lead China, which only has 13 companies investing 1.3 billion RMB in this area. More money was invested in Chinese AI start-ups in 2017 than in their American counterparts, yet questions remain over the profitability and caliber of the industry. China has a shortage of AI expertise, with only 50,000 AI engineers compared to one million in the United States, which impedes business growth even if developers are paid more. (Dingding, 2018).

AI Policies Pursued by the US and China

Before analyzing the impact of these technologies simply on global governance, it is essential to identify the underlying philosophies of both states regarding the use of AI to explore the possible implications for global governance because of their adaptive policies. Since the advancement of AI is commonly regarded as a sign of a nation's all-encompassing might, governments must continue to innovate to gain a competitive edge, especially in AI. China and the US have embraced long-term plans to accelerate AI development and strengthen their positions in the race for the top spot in the industry.

China is an emerging global power, and it is regarded as an immediate threat by the US; according to its national security strategy, China is a threat because of its potential, capability and actions to challenge US interests in many spheres. Beijing's economic and political influence would be a challenge, and technological developments not only facilitate military interests but also provide states with the capability to exert influence and create economic interdependence, facilitating political partnerships and alliances. Beijing recognizes the impact of AI on political and military power, and the private and public sectors equally recognize the "critical" implications of AI in the country's future in every aspect. China's president, Xi Jinping, has been propagating that he wants

to make China a “great science and technology power” since 2017. At the 20th Party Congress in October 2022, Xi said that “innovation” is the critical component of the China innovation drive and China would “resolutely win the battle over key and core technologies”. Western scholars believe that China values the potential of AI not only for economic and social welfare but also for securing its domestic rule and projecting its power internationally. It is also believed that due to the social benefits of AI, Chinese society is more receptive and open towards the adaptation of AI, contrary to the US. These surveys and China's capacity to knit AI in its societal, economic, political and military spheres led to many Western scholars' belief that “China will win the race for AI” inevitably. Chinese development of AI technologies is not without precaution and institutional measures to exercise control over the untested potential of AI. Many institutional factors would control the extent of the developments in AI. Beijing deliberately induces some of these factors, while other factors are the limitations that will arise during the journey to merge AI in all systems. In summary, while China strives for various advancements in AI, it must consistently navigate the delicate balance between fostering innovation through openness, regulating business practices, and maintaining strict political control over all aspects of Chinese society. Considering these evolving trends, policymakers in the United States must refrain from predetermined judgments about China's strengths and weaknesses. Instead, they should continuously reassess their evaluations in response to the dynamic developments in this field (Au, 2023).

As far as the US is concerned regarding the policy on AI, in 2016, the White House Office of Science and Technology Policy (OSTP) released two reports titled Preparing for the Future of the AI and Networking and Information Technology Research and Development Sub-Committee. The findings of these reports suggest that the US government must “seize the opportunity” in the field of AI, and US national strategy should aim to foster innovation across the industry and academia. In its 2017 National Security Strategy Report, the Trump Administration reiterated its support by stating that the US will prioritize emerging technologies critical to economic growth and security, such as data science, encryption, autonomous technologies, gene editing, new materials, nanotechnologies and AI. Then Defense Secretary James Mattis also said that the US would invest in new technologies such as nuclear deterrence, missile defense and AI to help prepare the armed forces.

There is a dominant view that China will adopt certain aspects of AI technology better than the US because of the difference in the “national operating system”. As AI enables states to exercise their power in data collection and analysis, it could be a tool for authoritarian regimes, a view many Western scholars hold. According to former CEO of Google, Eric Schmidt, “If the USSR had been able to leverage the kind of sophisticated data observation, collection and analytics employed by the digital companies, it might have won the Cold War. Thus, China's advantage in size, data collection, and national determination has allowed it to close the gap with American tech leaders over the past decade.

Recently, the US issued the National AI Initiative of 2020 that calls for ensuring “continued US leadership in AI research and development. On the legislative account, the US is primarily focused on encouraging and guiding the government's use of AI, including the steps to acquire AI technologies in Federal Governments (AI in Govt. Act of 2020).

In October 2022, the Biden Administration issued its flagship AI policy document, “Blueprint for an AI Bill of Rights”, which aims to set priorities among a diverse and comprehensive set of federal agencies. However, the office that made this blueprint is without any legal authority. Thus, the nature of the document is entirely voluntary. However, in October 2023, the Biden Administration signed an executive order on “Safe, Secure, and Trust-Wise Development and Use of AI”

(Anderson, 2023). This document, or EO, is based on eight guiding principles, which set new standards and regulations for AI safety. However, the general belief before this EO was that the US policy on AI was “fragmented”, “voluntary”, and “slow to materialize” despite substantial investments in AI and research and development and governance on the issue remains decentralized and inconsistent (Au, 2023).

Common perceptions that China's AI policy is readily compromising governance in favor of security-focused AI applications differ from the exact representation of ground realities, where China continuously develops new regulations according to changes in AI technology. Its rules on these technologies are based on much-nuanced oversight, “though still favoring pragmatic balance over hard limits on innovation” (Au, 2023).

Two significant developments in the twenty-first century's second decade have combined to shape the third decade that we have just entered. The United States and its two main rivals, China and Russia, are becoming more competitive, a defining feature of the geopolitical landscape. Simultaneously, the scientific landscape is marked by noteworthy advancements in artificial intelligence that offer enormous strategic and economic benefits to those who take advantage of them (Schmidt, 2022).

The Global AI Index, which ranks nations according to their progress in AI, is the most thorough effort to date. It provides various insights into how the world's competitors compare. The Index's designers evaluated nations using 143 variables that covered multiple topics, including infrastructure, R&D, government strategy, and commercial activity. Of course, this is just a moment in time. However, the importance of AI talent indicators for determining present performance and potential future trends becomes apparent. For instance, the United States outperforms China in the talent area by a large margin (scoring five times higher). Additionally, it has commanding positions in both commercial and research AI.

The best talent produces the best research and advances the best commercial items, which are organically associated variables. Regarding AI skills, several Western allies—including the United Kingdom, Canada, Germany, the Netherlands, and France—perform better than China. This raises concerns about the extent to which European nations can take advantage of this top-notch talent pool in the wake of Brexit and amid the developing legislative framework for AI within the EU. India is second only to the United States regarding AI talent, but its overall capability is lower than China's. Over time, India can become a dominant state in the global AI arena if it can bolster its position in other domains like national infrastructure, government policy, and commercial application. China and the United States, who rank first and second overall, are in a class of their own. The next category comprises only partners and allies of the United States and includes about ten countries with similar overall scores.

The artificial intelligence revolution, which will change industry, government, and society, has advanced significantly this year. The emergence of ChatGPT and the accompanying race among major tech firms to create their own generative AI models has sparked a very open discussion about how to handle the risks associated with this novel technology appropriately. There has been a lot of chatter but not much comprehension. In 62 nations that have opted to invest in artificial intelligence, the Global AI Index strives to explain it. It's the first time countries have been ranked according to three categories of analysis: investment, innovation, and implementation. With a 100 out of 100, the US topped all three central pillars—Implementation, Innovation, and Investment—taking the first position overall. The US is mighty in investment thanks to excellent ratings in the Commercial Investment sub-pillar. China scored 62 out of 100, retaining its position behind the

US in innovation and investment and placing second overall. China performs very well on the Development sub-pillar of invention.

Both countries are considering the dominance of AI and related technologies. China is determined to catch up with the US, while the US targets China as a “key” competitor in AI developments. So, the first aspect happening globally due to China-US competitive dynamics is that other states are also becoming part of it. To take more benefit out of this race, other states have asked the US to support their AI initiatives. Moreover, to keep the advantage over other countries, especially China, there is a need to attract the best talent in AI to the US or allied nations.

To curb China’s developments in AI, the US has initiated the process of limiting Chinese investments in US tech companies and vice-versa.

The U.S. government aims to intensify efforts in formulating AI technical standards, recognizing that standardization enhances the competitiveness of U.S. companies and plays a crucial role in setting the pace of global competition. The U.S. government is actively working on establishing an international AI technology surveillance system and maintaining an updated cybersecurity protection mechanism. This emphasis on monitoring AI technology development in other countries is underscored in the White House's 2016 report, "Preparing for the Future of Artificial Intelligence," which stresses the urgent need to compile a list of AI hotspots requiring international participation and supervision (Preparing for the Future of Artificial Intelligence, 2016). The Chinese government has implemented policies to attract AI talents globally, focusing on Chinese graduates in AI-related fields from universities and research institutions in developed nations. According to LinkedIn's Global AI Talent report, there is an average annual growth rate of about 14 per cent for AI graduates returning to China and a 10 per cent growth rate for individuals with overseas working experience in the AI sector. Simultaneously, China is imposing barriers to the entry of foreign AI companies and restricting the cross-border flow of data.

AI Developments in International System

Western Europe, East Asia, and North America are the three nations with the next-highest scores. Overall, Singapore performs well, the UK excels in research and commercial investment, and Germany performs exceptionally in implementation. Nigeria and Kenya are the worst performers in South America and Africa, which are far behind. The Index tracks nations over time to determine who is leading or trailing in the global AI race. The fourth generation of the Index is the 2023 update. The United States and China continue to hold the top two spots historically. Singapore has dramatically improved its position throughout time, moving up from tenth to sixth in 2021 and then back to third in 2023.

The highest-scoring nations are all in Western Europe, East Asia and North America. Singapore scores well across the board, the UK has an edge in Research and Commercial Investment, and Germany scores highly on Implementation. South America and Africa lag significantly, with Nigeria and Kenya coming in the bottom two. The Index follows countries over time to track who is racing ahead or falling behind in the Global AI race. The 2023 update is the fourth iteration of the Index. The US and China maintain their historical positions in first and second. Singapore has increased significantly over time, rising from tenth to sixth place in 2021 and again to third place in 2023. The UK has fallen to fourth for the first time, although its score relative to previous years remains stable. Canada closely follows it.

Besides these countries, Russia is also investing significantly in AI in the military sphere. However, as this is not the paper's focus, it will not be discussed here.

Three pillars

The 111 variables that comprise the Global AI Index were gathered from 62 governments, 28 distinct public and private data sources, and others. Talent, Infrastructure, Operating Environment, Research and Development, Government Strategy, and Commercial are the seven sub-pillars that make up this pillar.

1. Implementation

This group includes talent, operating environment, and infrastructure—the concept of talent centers on the accessibility of experts in artificial intelligence solutions. Infrastructure evaluates the dependability and size of the infrastructure, from electricity and internet to supercomputing capabilities. The regulatory environment and societal perceptions of artificial intelligence are the focus of the operating environment.

2. Innovation

Innovation has two components: research and development. The scope of specialized study and researchers is examined, together with the quantity of publications and citations in reliable academic journals. The primary focus of action is creating the core platforms and algorithms supporting cutting-edge artificial intelligence initiatives.

3. Investment contains two things: Government Strategy and Commercial aspect

Government Strategy examines financial commitments and national strategies to determine the level of commitment national governments make to artificial intelligence. The commercial focus is the level of startup activity, investment, and business activities based on artificial intelligence. (White, 2023).

Global Initiatives to Govern AI

At the global level, current global governance mechanisms on the legalization of AI include the UNESCO-approved "Recommendation on the Ethics of AI", formulated in November 2021 after two years of efforts. As its name reflects that the resolution is just a "recommendation", it lessens its legal relevance. The UNESCO recommendation suffers from the "UN Resolution effect," meaning resolutions or non-binding declarations are drafted to gain more comprehensive support. Thus, they could be more crystalized and more specific. Other than efforts generated from the UN platform, states have initiated specific multilateral initiatives to address the ethical dimensions of AI and foster international cooperation among various stakeholders. However, primarily, these initiatives are based on cooperation between Western states and their allies, including the AI initiatives under the Organization of Economic Cooperation and Development and the Global Partnerships on AI (Villarino, 2023). The Council of Europe (CoE), known for its pivotal role in digital and data-related legal instruments, including the European Convention on Human Rights and the Budapest Convention on Cybercrime, has led AI governance. With a global impact, the Budapest Convention on Cybercrime has garnered 67 ratifications or accessions, extending beyond Europe to countries like Canada, the United States, Australia, Nigeria, and Japan. In September 2019, the CoE established the Ad Hoc Committee on AI (CAHAI) to explore a comprehensive legal framework for AI development. In June 2022, the Committee of Ministers directed the successor body, the Committee on Artificial Intelligence, to swiftly advance the creation of such a framework based on CAHAI's groundwork (Veale, 2023). Another major initiative by US President Kamala Harris is the "Political Declaration on the Responsible Military Use of AI and Autonomy", signed by 31 countries. The 1st Global AI Safety Summit was held in Britain on Nov. 1 and 2, 2023. The summit is essential for its declaration, known as the "Bletchley Declaration", by over 28 countries, including the US and China. The focus of the Bletchley Declaration is also

ethical ground, where the focus was to develop and deploy AI in a way that must be "human-centric, trustworthy and responsible" (Jamy, 2023).

Signatures by both states are essential developments because they reflect a specific recognition in Washington and Beijing that, ultimately, particular issues will only be overcome through mutual collaboration.

Problems in the Way of AI Governance

All those initiatives and actions are based on two-pronged approaches. Firstly, states are willing to negotiate on AI, but only with like-minded states or allies. These like-minded states are part of certain norms, initiatives, regulations and multilateral bodies. Secondly, as far as the strategic competition over AI between significant powers, especially between China and the USA, both are primarily practicing restrictions and regulations to deny the benefits of AI to its adversary.

AI Governance is undoubtedly uncharted territory, where the civilian community leads the dynamics of technology available in civil society, primarily innovations, which give this particular innovation a different characteristic from technological developments of the past, where military-industrial complexes had the leading role. Furthermore, AI-related technologies have transboundary issues; thus, governing them by a single set of rules requires more than one. When specifically, AI is an umbrella term under which many technologies operate as the technological sphere is marred with competition. Competing actors use governance as a lobbying mechanism or tool. Thus, to gain an advantage over competitors, states use governance models. In the past, with many technologies due to fear of proliferation, export cartels like the Nuclear Suppliers Group (NSG), Missile Technology Control Regime and Wassenaar Group came into being. The existence of these cartels and export control mechanisms serve in the hands of powerful states as a tool to manage technological proliferation. In the case of AI, this role could be replicated by the multinational companies working in this domain as they have an edge, and this sphere of technological competition is led mainly by private companies. Their essential role in initiating or sometimes forestalling the efforts to govern AI reasonably must be addressed.

This competition to gain an advantage is also bringing about the race to "regulate AI", which means new global regulatory competition is emerging between the global powers (Smuha, 2021). Regulation of AI technology is a walk on a tightrope to find a balance between "protection and innovation", where states constantly analyze the impact of regulatory intervention and the cost of non-intervention (Smuha, 2021). Regulations and governance in AI are two-edged swords. On the one hand, states are using regulations and instruments to attain the benefits of AI by denying their competitors the same by presenting themselves as more lucrative markets. On the other hand, in certain other domains of AI, the degree of "harmonization" among laws, regulations and norms between states has started an effort to create global regulatory standards for AI.

Global governance Tools and methods can be used to regulate AI to find a balance between the "impact of intervention and cost of non-intervention". In 1999, Lawrence Lessig, in an attempt to explain regulation in the cyber field, identified four modulations of rules: laws, social norms, the market and the architecture or design of technological applications (Lessig, 1999). These regulatory approaches and tools shape the extensive landscape within which regulators operate, bringing specific responsibilities. Before taking new actions, regulators must understand existing regulations and the limits of their toolsets based on jurisdiction. For instance, the European Union's regulatory powers are confined by competencies granted by Member States. Regulators are expected to use evidence-based methods to identify suitable tools and anticipate consequences, including economic, social, and legal aspects, when addressing AI opportunities and risks, facing

various challenges in the process (Smuha, 2021). The US has significantly restricted China's access to advanced technology through industrial policies and multilateral frameworks. In response, China is aggressively pursuing global leadership in semiconductor-dependent technologies, accelerating the development of indigenous capabilities to overcome technological barriers imposed by the US (Technology trade controls and US–China competition, 2023). According to Lawrence Lessig's model of implementing regulations in AI, this paper will first analyze the role of laws and norms in AI. At the moment, at least 60 countries have adopted a national AI policy to guide developments within their boundaries (Kerry, 2021). The international landscape for the governance of AI is also marked with competition; it is relatively diverse and based on state-driven initiatives, where the focus is on fostering cooperation only among partners or like-minded states. Mainly, the debate around AI global governance is focused on states becoming part of partnerships or creating "standards" instead of regulations and international laws, which is a source of regulatory failures of experts developing these technologies. Moreover, standardization creates the issue of "who creates them" (Demortain, 2017). Standardization also undermines international laws, such as equity between states and sovereignty, creating a "private global control regime" run by few (Villarino, 2023).

Moreover, a need for more trust among states is also visible when developing global mechanisms in any emerging field. Realists argue that international states pursue power-maximizing behaviors to secure their national interests. Therefore, they need help to cut their power by entering into a governance model. It is essential to understand that arms control and disarmament mechanisms already in place might have played their role in the Cold War but are now redundant. In this regard, lack of political will and distrust are becoming significant hurdles in framing cooperative governance mechanisms. The world is in the uncharted territory of AI growth in the capitalist economic system, where humanitarian and ethical concerns are growing with technological evolution.

Conclusion

The competition between the United States and China in artificial intelligence (AI) can drastically alter the balance of power and have significant ramifications for global governance. There may be an impact on data governance, technology standards, ethical dilemmas, and geopolitical tensions. If AI is to realize its full potential and reduce its risks, it will require a collaborative and inclusive global governance framework that tackles these issues. The US is leading in a competition involving artificial intelligence. Since artificial intelligence (AI) is a worldwide phenomenon, solving its issues will require international cooperation. To establish best practices, share research, and promote an inclusive and comprehensive approach to AI development, global governance can assist governments, organizations, and professionals exchange knowledge, work together, and coordinate their efforts.

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