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Article

The International Competitive Landscape and Adjustment of International Relations in the Context of Geopolitics Regarding AIGC Technology Development

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Abstract: This study explores the international competitive landscape of Artificial Intelligence Generated Content (AIGC) technology development and its profound impact on international relations within a broader geopolitical context. As AIGC technology rapidly evolves and permeates various industrial sectors, global technological competition intensifies, significantly affecting global economic development, technological sovereignty, and societal resilience. The comprehensive analysis highlights the intricate dynamics among key global participants, including the United States, China, and the European Union. By examining technological competition, market access barriers, competitive strategies, and emerging cooperation opportunities, this paper delineates how advanced artificial intelligence capabilities are becoming central to geopolitical influence. Furthermore, the rapid development and deployment of AIGC technology fundamentally reshape political relations and redistribute economic interests among nations, posing complex systemic risks and unprecedented challenges for preventive technological governance. To navigate this transformative era, the research emphasizes the critical need for countries to substantially strengthen research and development capabilities and foster domestic innovation ecosystems. Moreover, it is imperative to improve comprehensive legal frameworks and robust ethical guidelines, ensuring that technological advancements align with human-centric values. Ultimately, the study advocates for promoting sustained international cooperation and establishing multilateral dialogues to effectively address the multifaceted opportunities and complex challenges presented by the global proliferation of AIGC technology.

Keywords: aigc technology; geopolitics; international relations; technological competition; technology governance; market access

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1. Introduction

1.1. Research Background and Significance

The rapid development of Artificial Intelligence Generated Content (AIGC) technology has significantly intensified global technological competition. AIGC is transforming the creation and customization of information, enabling unprecedented levels of innovation. This technological shift is not merely a change in media but also has profound implications for various domains, including economic development and ethical considerations. Economically, it offers new opportunities for growth across sectors such as marketing, entertainment, and education, fostering innovation and competitiveness. Additionally, the widespread use of AIGC raises concerns about public trust, social interactions, and ethical issues related to misinformation and bias [1]. Within the context of international dynamics, the advancement of AIGC technology has become a critical

element of strategic planning. Countries are increasingly recognizing the advantages that leadership in AIGC development can provide. Consequently, understanding the global competitive landscape of AIGC technology and its effects on international relations has become highly relevant. This research aims to explore these dynamics, offering insights into how nations are positioning themselves in this emerging technological field and the broader implications for global cooperation.

1.2. Current Research Status at Home and Abroad

Research on AIGC technology in the international community primarily emphasizes technological applications, ethical considerations, and socio-economic impacts. While Western countries lead in innovation and application, some developing nations are striving for progress through adaptation and learning. Domestic studies in this field are steadily increasing, though there remains significant potential for advancing both theoretical depth and practical scope [2].

1.3. Research Objectives and Content

This study examines the international competitive dynamics surrounding AIGC technology development from a geopolitical standpoint, focusing on the strategic approaches adopted by various nations in advancing technology and their adjustments in international relations. The analysis encompasses the military applications of AIGC technology, its economic potential, societal implications, and its influence on global interactions [3, 4].

2. International Competitive Landscape of AIGC Technology

2.1. Main Participants in Technological Competition

The competition for the development of AIGC technology is primarily concentrated among the United States, China, and the European Union. The United States, with its strong technological foundation and innovation capabilities, holds a dominant position in the global market. Major technology companies in the country invest heavily in AIGC technology research and development, driving algorithmic innovation and diversification of applications [5]. These companies utilize extensive computing resources and large-scale data sets to continuously optimize generative models, improving the quality and efficiency of content generation.

China, in contrast, is rapidly advancing its technological capabilities through a combination of policy support and growing market demand. Strategic government initiatives provide clear guidance and resource allocation for AIGC technology development. At the same time, the increasing domestic demand for intelligent content has prompted Chinese technology companies to actively establish themselves in the AIGC sector. These companies are not only increasing investments in research and development but are also accelerating technological advancements through mergers and collaborations [6, 7].

The European Union focuses on advancing AIGC technology within frameworks that emphasize ethical considerations and governance. It prioritizes technological sustainability and social responsibility, introducing various measures aimed at ensuring the safe, transparent, and equitable use of AIGC technology [3]. Policies such as the "Digital Services Act" and "Digital Markets Act" establish stringent standards for technology applications, aiming to safeguard user interests while fostering innovation.

2.2. Technological Barriers and Market Access

Countries have implemented various technological barriers related to AIGC technology standards, market access, and patent protection. These barriers influence the international exchange of technology and intensify competition and friction between nations. Variations in technological standards limit the adaptability of multinational companies' products across different markets, leading to increased research and development costs [8]. For example, technological standards in some regions prioritize

openness and innovation, while others emphasize privacy protection and user rights, necessitating additional compliance adjustments for companies entering those markets.

Furthermore, differences in patent policies across countries have contributed to the establishment of technological barriers. Disparities in intellectual property protection between certain nations complicate technology transfer and collaboration [3]. Companies often encounter diverse legal frameworks and market regulations when applying for patents, which can impede the pace of technological innovation. Consequently, the creation of technological barriers by various countries serves not only to safeguard their interests but also to maintain strategic advantages in global competition.

2.3. Competitive Strategies and Cooperative Opportunities

Countries are adopting various strategies to enhance their competitiveness in AIGC technology, including increasing research and development investments, fostering international collaboration, and forming technological alliances. Governments and enterprises are focusing on establishing national laboratories and innovation funds to secure a leading position in the global market. Additionally, international cooperation is gaining importance as nations recognize that relying solely on domestic capabilities is insufficient to achieve a decisive advantage in AIGC technology. Collaborative efforts, such as partnerships between major global players, facilitate resource sharing and accelerate technological development and application [8].

The formation of technological alliances provides new avenues for cooperation among nations. By partnering with leading global technology companies, academic institutions, and research organizations, countries can utilize external resources to expedite their research and development processes. These collaborative relationships contribute to technological progress and foster mutual development in AIGC technology, while also reducing competitive pressures and encouraging shared advancements on a global scale [9].

3. Impact of AIGC Technology on International Relations

3.1. Reconstruction of Political Relations

The development of AIGC technology has significantly influenced interactions between countries. On one hand, technologically advanced nations possess greater influence in global affairs. These nations can utilize their advanced AIGC technology to gain advantages in areas such as diplomacy, defense, and economic development. For instance, some countries leverage their leadership in artificial intelligence and data processing to shape international standards and frameworks, thereby influencing the trajectory of global technological progress. This technological edge not only enhances their role in global governance but also strengthens their position in multilateral discussions.

Conversely, nations that lag in technological development may face risks of reduced participation in global dynamics. These countries, which lack the necessary infrastructure and investment to engage with the AIGC technology ecosystem, often find it challenging to compete effectively on the global stage [10]. This can lead to diminished influence in international affairs and potential exclusion from key economic and political processes. Such disparities in technological advancement may deepen global inequalities, creating new divisions in international relations.

3.2. Redistribution of Economic Interests

The application of AIGC technology introduces new opportunities for economic growth while simultaneously reshaping the distribution of economic interests. As this technology becomes integrated across various industries, it is driving significant transformations in the global economic landscape. The ability to effectively utilize such technology has a direct influence on a country's economic strength and global competitiveness [11]. Nations that advance in AIGC technology can secure leading roles in the digital economy, smart manufacturing, and service sectors, thereby attracting

greater investment and talent. This redistribution of economic interests is evident not only at the national level but also among enterprises and individuals. Large technology companies can enhance productivity and profitability through AIGC, whereas smaller businesses and traditional industries may face challenges to their survival. These shifts in economic dynamics could lead to structural adjustments in societies and intensify competition on an international scale.

3.3. Security Risks and Preventive Measures

The widespread adoption of AIGC technology has introduced significant challenges related to cybersecurity and information protection [12]. Issues such as unauthorized access to sensitive information, algorithmic bias, and the dissemination of inaccurate content have emerged, creating concerns for technological integrity and operational reliability. Addressing these challenges requires enhanced collaboration among countries to develop effective preventive mechanisms. For instance, the international community can strengthen defenses against cyber threats through coordinated information sharing and joint initiatives. Additionally, establishing comprehensive frameworks and guidelines is essential to ensure the responsible application of AIGC technology, safeguarding individual privacy and maintaining data integrity. Furthermore, the creation of transnational technological oversight systems is particularly critical. Through cooperative efforts, countries can jointly establish technology standards and security protocols, minimizing the risk of misuse and fostering public confidence in AIGC technology, thereby supporting its sustainable development.

4. Response Strategies and Policy Recommendations

4.1. Strengthening Technological R&D and Innovation

Countries should increase investment in the research and development of AIGC technology to promote innovation and maintain a competitive edge in the global arena. Governments can incentivize enterprises and research institutions to enhance their efforts in advancing AIGC technology through special funds, tax benefits, and policy support. Particular emphasis should be placed on key areas such as core algorithms, data processing, and model training, with prioritized resource allocation to drive technological breakthroughs and commercialization. Additionally, fostering collaboration between universities, research institutions, and enterprises is essential for the effective conversion and application of technology. Establishing platforms for industry-academia-research cooperation can facilitate technical exchanges and collaborations, accelerating the transition of innovative results from laboratories to practical production. For example, some countries have implemented Public-Private Partnership models to encourage enterprises to participate in basic research through collaborative projects, enabling rapid technology implementation. Simultaneously, nations should focus on talent cultivation, particularly for professionals specializing in the AIGC field. By offering scholarships, graduate programs, and vocational training, they can nurture interdisciplinary talent to meet the demands of the rapidly evolving AIGC technology market. This approach ensures that countries maintain continuous innovation capabilities in future technological competition.

4.2. Improving Legal Regulations and Ethical Frameworks

Establishing and refining legal frameworks and ethical guidelines for AIGC technology is essential to ensure its responsible and compliant application. Laws tailored to the unique characteristics of AIGC development should address areas such as data privacy, intellectual property, and algorithm transparency, ensuring that technological applications respect individual rights. Additionally, fostering public understanding and acceptance of AIGC technology is crucial for its healthy development [13]. Public education initiatives, information dissemination, and science outreach campaigns can help increase societal awareness, alleviate concerns about emerging technologies, and build trust through transparent communication and inclusive participation. Furthermore,

the creation of ethical guidelines is equally significant. Collaborative efforts to establish standards for AIGC technology can promote fairness and impartiality in its applications, mitigating risks such as algorithmic bias. Ethical review committees can evaluate the societal impacts of technological applications, guiding businesses to prioritize social responsibility in their development and deployment processes.

4.3. Promoting International Cooperation and Dialogue

In the development of AIGC technology, nations should enhance international collaboration, share technological advancements and experiences, and foster an open and inclusive technological ecosystem. Addressing global technological challenges requires countries to work together in a cooperative manner. This can be achieved through international organizations or bilateral and multilateral cooperation mechanisms that facilitate technology exchange and joint projects. For instance, co-hosting international conferences and seminars can provide platforms to share best practices in AIGC technology research, application, and policy development. Such initiatives not only improve mutual understanding but also encourage joint technological progress and help prevent the isolation of technological advancements. Furthermore, engaging in multi-level dialogues and exchanges can effectively reduce misunderstandings and promote collaboration. In the technology sector, establishing regular communication mechanisms allows for timely updates on technological developments and policy adjustments, minimizing risks associated with information gaps. By maintaining effective communication channels, nations can identify shared interests, advance the development and application of AIGC technology, and contribute to sustainable global economic growth.

5. Future Outlook

5.1. Trends in Technological Development

The future development of AIGC technology is expected to be accompanied by more advanced algorithms and enhanced computational capabilities. With ongoing progress in machine learning and deep learning technologies, future AIGC systems are anticipated to generate increasingly complex and high-quality content. These advancements are likely to extend beyond text generation to encompass multimedia content creation, including images, audio, and video, thereby enriching user experiences. Furthermore, the emergence of quantum computing and edge computing is projected to significantly accelerate the application and evolution of AIGC technology. Quantum computing's robust computational power can process more intricate data sets, greatly improving the operational efficiency and responsiveness of AIGC systems. This capability will facilitate real-time content generation and processing, particularly in domains such as finance and healthcare, where speed and precision are critical. The development of edge computing is expected to enable the deployment of AIGC technology across a broader range of scenarios, such as smart homes and intelligent transportation systems. By decentralizing computational power to the network edge, this approach can reduce latency and enhance data processing efficiency, allowing AIGC to operate on a wider array of devices and platforms. These advancements are anticipated to not only drive technological dissemination but also stimulate the emergence of new industries, thereby broadening the application scope of AIGC.

5.2. Ethics and Social Responsibility

As AIGC technology becomes more widespread, ethical issues are expected to gain prominence. The rapid advancement of technology introduces various potential risks, such as algorithmic bias, privacy concerns, and the dissemination of misinformation. It is essential to enhance research on technological ethics to ensure that applications align with societal values and to mitigate the adverse effects of technological misuse.

In this context, it is important to establish ethical standards and frameworks to guide the development and application of AIGC technology. These frameworks should address

not only the safety of the technology itself but also its broader implications for society and the environment [14]. Promoting public engagement and oversight is crucial to ensuring transparency and accountability, which are fundamental for fostering trust and societal acceptance.

Simultaneously, education and training should complement technological advancements. Public education initiatives can enhance societal understanding of AIGC technology and increase awareness of ethical considerations, thereby reducing the risks associated with misuse. Encouraging technology companies to integrate ethical principles into their product design and development processes is vital for promoting the responsible and sustainable growth of AIGC technology.

5.3. Dynamic Adjustments in International Relations

AIGC technology is expected to continuously shape the dynamics of international relations, necessitating flexible responses and timely adjustments in diplomatic strategies. As technological advancements progress, the interplay between competition and collaboration among nations in the AIGC domain will evolve. Countries with advanced technological capabilities may gain a stronger position in global affairs, while those lagging behind could face challenges in maintaining relevance.

To navigate these changes, nations should actively pursue technological collaboration and sharing, fostering joint progress through multilateral cooperation frameworks [15]. Such partnerships can elevate technological capabilities across countries and reduce competitive pressures. By sharing technological advancements, nations can achieve mutually advantageous outcomes and contribute to sustainable global economic development.

Additionally, countries should prioritize research on the implications of AIGC technology for international relations and adapt their diplomatic approaches to align with the evolving global environment [15]. Flexible strategies can uncover opportunities for collaboration amidst technological competition, promoting a more balanced and harmonious international landscape. These adjustments will enable nations to capitalize on emerging opportunities in the AIGC field while mitigating potential challenges.

6. Conclusion

This paper has conducted an in-depth exploration of the international competitive landscape of AIGC technology and its impact on adjustments in international relations. In the context of globalization, the development of AIGC technology not only affects competitive relationships among countries but also reshapes the global political and economic landscape. As AIGC technology continues to mature, countries' strategies and choices regarding technological research and development, application, and governance will directly influence their positions in the international arena. AIGC technology demonstrates substantial potential for enhancing productivity and driving economic growth, but it also brings multiple challenges, including ethical concerns, information security, and technological barriers. These issues affect domestic development and may also have far-reaching implications for international relations. Therefore, while pursuing technological advancement, countries must pay close attention to relevant ethical and social responsibilities to ensure the sound development of technology. In the context of global competition, countries should seize opportunities and strengthen cooperation to achieve sustainable technological development and stable adjustments in international relations. By establishing multi-layered cooperation mechanisms, countries can share resources and experience, promote joint development, and reduce friction arising from technological competition. Such cooperation can not only enhance technological capacity across countries but also promote global economic prosperity and stability. Future research could further examine the applications of AIGC technology in different fields and its broader implications for international stability. As technology continues to advance, the potential of AIGC in areas such as healthcare, education, and defense-related applications remains to be further explored. At the same time, how to promote openness

and cooperation in technology while protecting broader public interests will remain an important issue for countries to address. Through in-depth research and pragmatic policy formulation, countries can better respond to the challenges and opportunities presented by AIGC technology, thereby contributing to global sustainable development.

References

1. J. Allwood, D. Traum, and K. Jokinen, "Cooperation, dialogue and ethics," *International Journal of Human-Computer Studies*, vol. 53, no. 6, pp. 871–914, 2000.
2. E. Effah Ameyaw and A. P. Chan, "Identifying public-private partnership (PPP) risks in managing water supply projects in Ghana," *Journal of Facilities Management*, vol. 11, no. 2, pp. 152–182, 2013.
3. M. Mills, H. P. Blossfeld, S. Buchholz, D. Hofäcker, F. Bernardi, and H. Hofmeister, "Converging divergences? An international comparison of the impact of globalization on industrial relations and employment careers," *International Sociology*, vol. 23, no. 4, pp. 561–595, 2008.
4. M. Tonry, "Prediction and classification: Legal and ethical issues," *Crime and Justice*, vol. 9, pp. 367–413, 1987.
5. V. Smil, *Transforming the twentieth century: technical innovations and their consequences*. Oxford University Press, 2006.
6. P. J. Lyth, "Book Review: Flying in the Face of Competition: The Policies and Diplomacy of Airline Regulatory Reform in Britain, the USA and the European Community, 1968–94," *The Journal of Transport History*, vol. 17, no. 2, pp. 171–172, 1996.
7. J. Birkler, J. C. Graser, M. V. Arena, C. R. Cook, and G. Lee, "Assessing competitive strategies for the joint strike fighter: Opportunities and options". RAND Corporation, 2001.
8. C. Grimpe and K. Hussinger, "Market and technology access through firm acquisitions: Beyond one size fits all," unpublished.
9. J. Zeng, "ChatGPT as a security threat: US–China security dilemma in the generative AI race," *The British Journal of Politics and International Relations*, vol. 13691481251389415, 2025.
10. A. He, *AI development and governance in China amid geopolitical tensions*. CIGI Papers, no. 338, 2025.
11. T. W. Hung, "Beijing's Mandarin Knowledge Monopolization and Weaponization of Large Language Models," *Information Warfare*, vol. 76, 2025.
12. R. Yi and J. Zhang, "Competing for International Discourse Power in the Digital Platform Era An Embedded Model and Case Analysis," *Journal of Global Trends in Social Science*, vol. 2, no. 10, pp. 1–9, 2025.
13. Z. Gao, W. Jiang, H. Ren, K. Wang, and Y. Wu, *AI Sovereignty*, unpublished, 2025.
14. F. C. Lima, "From Generative AI to Critical Minerals: The Geopolitical Dimensions of Artificial Intelligence," unpublished, 2025.
15. Z. Wang, "Generative AI-Making and State-Making: Sovereign AI race and the future of digital geopolitics," *Politics and Governance*, vol. 13, 2025.

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