

AI Geopolitics: Competition for Technological Dominance

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ABSTRACT

Artificial intelligence (AI) is increasingly reshaping global power by linking technological innovation with economic competitiveness, national security, military capability, and geopolitical influence. This study, "AI Geopolitics: Competition for Technological Dominance," examines how AI is transforming international competition, particularly the strategic rivalry between the United States and China. Using a qualitative-dominant comparative design supported by quantitative secondary evidence, the study analyses AI research and innovation, frontier models, semiconductors, computing infrastructure, investment, talent, data, military applications, technological statecraft, and international governance. Drawing on neorealism, complex interdependence, and dependency theory, it demonstrates that AI has become a multidimensional source of national power. The United States maintains major advantages in frontier AI, private investment, cloud infrastructure, semiconductor design, and research ecosystems, while China has developed significant capabilities in AI research, patents, industrial deployment, manufacturing, robotics, and technological self-reliance. The study further finds that advanced semiconductors, computing capacity, data centers, energy, talent, and capital are critical foundations of AI power, making technological chokepoints important instruments of geopolitical statecraft. Export controls, industrial policies, investment restrictions, and technology partnerships are therefore reshaping global AI competition. Nevertheless, complete technological decoupling remains unlikely because AI development depends on globally distributed supply chains, multinational corporations, research networks, and interconnected technological infrastructures. The study consequently characterizes the emerging order as "competitive technological interdependence" rather than a conventional AI Cold War. While the United States and China remain the principal competitors, Taiwan, the European Union, Japan, South Korea, India, Gulf states, and other actors hold strategically important positions within the broader AI ecosystem. The study concludes that future AI power will depend not only on superior algorithms but also on control and security of the wider ecosystem of research, talent, capital, data, semiconductors, computing, energy, industrial capacity, standards, and governance, with significant implications for technological sovereignty, international security, global inequality, and the governance of emerging technologies.

Keywords: Artificial Intelligence; AI Geopolitics; Technological Dominance; U.S.–China Competition; Technological Sovereignty; Semiconductors; Strategic Competition; Global Governance; Technological Interdependence; International Relations.

INTRODUCTION

Artificial intelligence (AI) has emerged as one of the most strategically significant technologies of the twenty-first century, transforming not only economic and technological systems but also the

foundations of international power. The evolution of AI from symbolic and rule-based approaches to machine learning, deep learning, generative AI, large language models and foundation models has significantly expanded its capabilities and applications. AI is increasingly integrated into manufacturing, finance, healthcare, education, public administration, defence, intelligence and cybersecurity, making it a general-purpose technology with the potential to influence multiple dimensions of national power (Calvino et al., 2025). Its rapid development has therefore shifted AI from being primarily a scientific and commercial domain to becoming an important arena of geopolitical competition.

The geopolitical importance of AI derives from its ability to transform technological capabilities into economic, military and strategic advantages. States with advanced AI ecosystems can potentially increase productivity, strengthen industrial competitiveness, accelerate scientific innovation, improve intelligence and surveillance, enhance military decision-making and develop sophisticated cyber capabilities. AI can consequently function as a force multiplier of national power. However, technological leadership in AI does not depend solely on producing advanced algorithms or models. It requires access to critical resources, including high-quality data, skilled researchers, financial capital, advanced semiconductors, computing power, data centres, energy and digital infrastructure. The Organisation for Economic Co-operation and Development (OECD, 2025) therefore emphasises the importance of computing infrastructure and semiconductor supply chains in determining the development and deployment of advanced AI.

This transformation has made AI increasingly central to great-power competition, particularly between the United States and China. The United States possesses significant advantages in frontier AI development, private investment, venture capital, cloud computing, semiconductor design, leading technology companies and research institutions. China, however, has developed substantial capabilities in AI research, publications, citations, patents, manufacturing and industrial deployment, supported by strong state involvement in technological development. The *AI Index Report 2026* indicates that the United States produced 59 notable AI models in 2025 compared with 35 from China, while China continued to lead in AI publications, citations and patent grants (Stanford Institute for Human-Centered Artificial Intelligence [Stanford HAI], 2026). These indicators demonstrate that AI competition is multidimensional and cannot be reduced to a simple comparison of frontier models.

The competition for AI dominance is also inseparable from the geopolitics of semiconductors and advanced computing. Frontier AI systems require enormous computational resources and highly advanced chips, while the production of these technologies remains concentrated among a limited number of firms and countries. This has encouraged major powers to pursue industrial policies, export controls, investment restrictions, domestic semiconductor production and technological partnerships to reduce strategic vulnerabilities and strengthen technological autonomy (OECD, 2025). As a result, AI competition increasingly overlaps with broader struggles over technological supply chains, economic security and strategic control of critical technologies.

At the same time, the global AI system remains deeply interconnected. Advanced AI development depends upon international flows of capital, research, talent, semiconductor components, manufacturing capabilities and digital infrastructure. Consequently, the emerging geopolitical environment cannot be understood simply as a new technological Cold War. Instead, it represents a complex relationship between competition and interdependence, in which states seek technological superiority while remaining dependent on internationally distributed capabilities. Countries such as Japan, South Korea, India and members of the European Union also possess important positions in AI research, semiconductor technologies, digital infrastructure and AI governance, demonstrating that the emerging AI order extends beyond a purely bilateral U.S.–China rivalry.

The consequences of this competition are particularly important for the future distribution of global power. If advanced AI capabilities remain concentrated among a small number of technologically dominant states and corporations, existing economic and technological inequalities may be reinforced,

creating new forms of technological dependence for developing countries. Conversely, wider access to AI infrastructure, knowledge and skills could enable countries to improve productivity, governance, healthcare, education and other development outcomes. Thus, the geopolitical significance of AI concerns not only which state develops the most powerful technology, but also who controls the critical resources, infrastructures and standards that determine access to AI capabilities.

Against this background, this study examines AI Geopolitics: Competition for Technological Dominance by analyzing AI as an emerging instrument and source of geopolitical power. The study conceptualizes technological dominance as the capacity to develop, control and sustain the broader AI ecosystem—including research and human capital, data, investment, semiconductors, computing infrastructure, energy and advanced AI applications—and to translate these capabilities into economic, military, technological and strategic influence. The central argument is that AI geopolitical power is not determined by model performance alone; rather, it emerges from control over the wider technological ecosystem that enables AI innovation and its conversion into national power. The research therefore focuses particularly on the evolving U.S.–China competition while examining its wider implications for the structure of international power, technological interdependence and the emerging global order.

Research Objectives

1. To examine the emergence of artificial intelligence as a strategic technology and analyse how advances in AI capabilities, computing infrastructure, semiconductors, data, human capital, and investment are contributing to the transformation of global technological and geopolitical power.
2. To critically analyze the competition between the United States and China for AI technological dominance, with particular focus on their technological capabilities, innovation ecosystems, semiconductor and computing strategies, industrial policies, and efforts to achieve strategic and technological autonomy.
3. To assess the broader geopolitical implications of the global AI competition for international power relations, technological interdependence, economic and national security, global AI governance, and the technological position of developing countries, and to propose policy-oriented recommendations for addressing emerging challenges and opportunities.

LITERATURE REVIEW

The literature on artificial intelligence (AI) has expanded rapidly as AI has moved from a primarily scientific and commercial technology to a strategic capability with implications for international power. Earlier scholarship largely examined AI through the perspectives of technological innovation, automation and economic productivity, whereas recent studies increasingly investigate its consequences for international security, strategic competition and global governance. This shift is particularly important for understanding AI geopolitics, because technological capability increasingly influences the ability of states to generate economic, military and diplomatic power. Horowitz (2018) argues that AI can influence the balance of power by altering the capabilities available to states, while later scholarship emphasizes that the geopolitical consequences of AI depend on how states acquire, integrate and control the technological resources necessary for its development.

A significant strand of literature examines AI as an emerging component of national and geopolitical power. AI can increase economic productivity, accelerate scientific discovery, improve intelligence collection, enhance military decision-making and strengthen cyber and information capabilities. This multidimensional character distinguishes AI from many conventional technologies. Calvino et al. (2025) identify generative AI as possessing important characteristics of a general-purpose technology because of its broad applicability, continuous improvement and potential to stimulate innovation across sectors. From a geopolitical perspective, this means that AI capabilities can potentially generate effects across several dimensions of national power simultaneously. The literature therefore increasingly conceptualizes AI as a force multiplier rather than an isolated technological capability.

The strongest body of geopolitical scholarship concerns the emerging U.S.–China technological competition. The United States and China have invested heavily in AI research, infrastructure, talent and industrial applications, while increasingly treating AI as a matter of national security and strategic competitiveness. U.S. advantages are particularly evident in frontier-model development, private investment, venture capital, cloud computing and leading technology firms, whereas China has developed substantial capabilities in research output, patenting, industrial applications and manufacturing. The *AI Index Report 2026* demonstrates the multidimensional nature of this rivalry: the United States produced 59 notable AI models in 2025 compared with China's 35, while China maintained advantages in AI publications, citations and patent grants (Stanford Institute for Human-Centered Artificial Intelligence [Stanford HAI], 2026). These differences indicate that AI dominance cannot be assessed through a single indicator and that technological leadership remains contested across different stages of the AI value chain.

The literature on technology and geopolitical power provides an important foundation for understanding this competition. Farrell and Newman (2019) demonstrate that states can transform positions within global networks into sources of geopolitical leverage through what they describe as "weaponized interdependence." This argument is particularly relevant to AI because advanced AI depends on internationally distributed resources, including semiconductors, computing infrastructure, cloud services, capital, data and technological expertise. States controlling strategically important nodes within these networks can potentially use technological dependence as an instrument of economic and geopolitical influence. Consequently, technological power increasingly involves not only inventing technologies but also controlling critical infrastructures, standards, supply chains and technological chokepoints (Joshi, S. (2025).

This argument is particularly evident in semiconductor geopolitics, which has become inseparable from AI competition. Advanced AI systems depend heavily on high-performance processors and sophisticated semiconductor manufacturing. The global semiconductor industry is highly specialized, with different stages of production concentrated in different countries and firms. Taiwan's central position in advanced chip manufacturing, the role of TSMC, the importance of South Korean memory producers and the strategic significance of ASML's semiconductor-manufacturing equipment demonstrate the geographically distributed nature of AI's technological foundations. OECD (2025) highlights the concentration of AI infrastructure and advanced semiconductor capabilities and argues that such concentration creates both economic and strategic dependencies. The growing use of export controls and investment restrictions further illustrates how semiconductor capabilities have become instruments of geopolitical competition (Rizvi, S. A. A. (2026).

The literature increasingly recognizes that AI infrastructure extends beyond semiconductors. Computing power, GPUs, cloud platforms, data centers, telecommunications networks and energy are essential to training and deploying advanced AI models. The physical infrastructure of AI therefore constitutes an important but sometimes overlooked source of geopolitical power. Stanford HAI (2026) reports that the United States hosts more than 5,400 data centers, substantially more than any other country, demonstrating the concentration of computational infrastructure. This concentration has strategic implications because access to computing capacity can influence which countries and companies are capable of developing frontier AI systems. AI technological dominance should therefore be examined through the entire infrastructure chain rather than through software and algorithms alone.

Another important literature examines the relationship between AI and military power. Horowitz (2018) argues that AI may influence military competition through autonomous systems, intelligence, surveillance, targeting, logistics and decision support. AI also has implications for cyber operations and information warfare because machine-learning systems can process enormous volumes of information and potentially automate elements of offensive and defensive operations. However, the literature remains divided over whether AI will fundamentally transform warfare or primarily improve existing military capabilities. This debate is relevant to the present research because military AI capabilities cannot be separated from the broader technological ecosystems that support them. States with stronger

semiconductor, computing, research and industrial capacities may be better positioned to translate AI innovation into military advantage.

AI also represents an increasingly important dimension of economic power. AI has the potential to influence productivity, automation, labour markets, innovation and industrial competitiveness. Countries that successfully integrate AI into their economies may gain productivity and technological advantages, while countries unable to access advanced AI infrastructure may face widening technological gaps. This has encouraged states to pursue national AI strategies, public investment and industrial policies designed to strengthen domestic technological capabilities. Mazzucato (2013) demonstrates the importance of state intervention in shaping technological innovation, while contemporary AI strategies indicate that governments increasingly perceive technological capacity as a strategic economic asset rather than merely a market outcome.

A further body of literature addresses AI governance and international institutional competition. The United Nations, OECD, G7, G20, European Union, United States and China have developed different approaches to AI regulation, safety and technological development. These approaches reflect different political, economic and strategic priorities. The European Union has placed greater emphasis on risk-based regulation and fundamental rights, the United States has historically emphasized innovation and private-sector leadership, while China has pursued a state-centered approach combining technological development, national security and regulatory control. The emergence of competing governance approaches suggests that international AI standards may themselves become an arena of geopolitical influence. Thus, technological dominance increasingly includes the ability to shape the rules and standards under which AI is developed and deployed.

The literature on the Global South provides an important counterpoint to great-power-centered analyses. Many developing countries lack advanced computing infrastructure, semiconductor manufacturing capabilities, specialized AI talent, research investment and domestic technological ecosystems. This creates the possibility of a widening AI divide between technologically advanced and developing states. Dependency theory and the concept of data colonialism provide useful perspectives for analyzing these relationships. Couldry and Mejias (2019) argue that large-scale data extraction can reproduce asymmetric structures of power, while dependency perspectives emphasize the structural consequences of relying on external technological systems. Applied to AI, these arguments raise concerns about dependence on foreign cloud platforms, foundation models, digital infrastructure and technological expertise.

This research addresses by examining AI dominance as an ecosystem-based form of geopolitical power. The central research question underlying the literature review is therefore: Does AI fundamentally transform geopolitics, or does it primarily amplify existing forms of power? The study argues that AI does both. It reinforces existing economic and military capabilities while simultaneously creating new forms of technological dependence, infrastructure-based power and strategic vulnerability.

THEORETICAL FRAMEWORK

The study adopts an integrated theoretical framework combining Neorealism, Complex Interdependence, Dependency Theory and the Technology–Power perspective. Each theoretical approach explains a different dimension of AI geopolitical competition.

Neorealism provides the principal explanation for great-power competition. Waltz (1979) argues that states operate in an anarchic international system and seek capabilities that enhance their security and relative power. AI fits this framework because advanced technological capabilities can improve economic strength, military effectiveness, intelligence and strategic autonomy. The U.S.–China AI competition can therefore be interpreted as a technological security dilemma in which efforts by one state to strengthen its AI capabilities generate incentives for the other to respond. AI investment,

semiconductor restrictions, domestic industrial policies and technological alliances can consequently be understood as instruments of technological balancing.

However, Neorealism alone cannot adequately explain the extensive interdependence underlying AI development. Complex Interdependence, developed by Keohane and Nye (2012), highlights the importance of transnational corporations, multiple channels of interaction, international institutions and economic networks. AI development depends upon multinational companies, global supply chains, international research collaboration and cross-border investment. This perspective therefore explains why major powers can simultaneously compete and remain technologically dependent upon one another. Farrell and Newman (2019) further demonstrate how interdependence can become a source of geopolitical leverage when states control critical network positions.

Dependency Theory provides a framework for examining the implications of AI competition for developing countries. Frank (1966) emphasises the structural relationship between technologically advanced centres and dependent peripheral economies. In the contemporary AI environment, dependence may occur through foreign cloud platforms, computing infrastructure, foundation models, semiconductor supply chains and specialised technological expertise. Couldry and Mejias (2019) extend this argument through the concept of data colonialism, drawing attention to the power generated through large-scale data extraction and control. This theoretical perspective is particularly useful for assessing whether AI is generating new forms of technological dependency and inequality.

Finally, the Technology–Power perspective focuses on the material and institutional foundations through which technological capabilities generate political influence. Technological power includes not only innovation but also control over infrastructure, standards, production networks, knowledge and technological chokepoints. This perspective is particularly relevant to semiconductors, GPUs, data centres, cloud infrastructure and AI standards. It complements Neorealism by explaining the mechanisms through which technological capabilities are converted into geopolitical leverage.

The combined framework provides a coherent explanation of the central phenomenon under investigation. Neorealism explains why states compete for AI dominance; Complex Interdependence explains why this competition occurs within globally connected technological networks; Dependency Theory explains the unequal consequences of AI competition for developing countries; and the Technology–Power perspective explains how infrastructure, standards and technological chokepoints generate geopolitical leverage. Together, these perspectives support the central proposition of the study that AI dominance is ecosystem power rather than merely model power. This integrated approach provides the theoretical foundation for examining how the competition for AI technological dominance is reshaping contemporary international power relations.

RESEARCH METHODOLOGY

This study adopts a qualitative-dominant comparative methodology, supported by quantitative secondary evidence, to examine AI Geopolitics: Competition for Technological Dominance. The methodology is designed to analyse how advances in artificial intelligence are being converted into economic, technological, military and geopolitical power, with particular attention to the strategic competition between the United States and China.

The study follows a critical and interpretive research orientation. This approach is appropriate because AI capabilities are unevenly distributed across countries and are influenced by access to computing infrastructure, semiconductors, capital, skilled human resources, research capacity and technological supply chains. The research therefore does not treat AI leadership simply as a technological ranking but examines how technological capabilities contribute to national power and geopolitical influence.

A comparative case-study design is employed, with the United States and China serving as the primary cases. These countries are selected because they represent the two most significant competitors in

contemporary AI development and possess substantial capabilities in AI research, investment, computing infrastructure, semiconductor technologies and strategic applications. The European Union, Japan, South Korea, Taiwan, India and selected developing countries are considered where necessary to explain the wider AI ecosystem, technological interdependence and global consequences of U.S.–China competition.

The research is based on secondary data obtained from credible international organizations, governments, academic institutions and technology research organizations. Major sources include the United Nations, OECD, World Bank, WIPO, UNESCO, ITU, IEA and WTO, alongside the Stanford AI Index and peer-reviewed academic literature. Government documents from the United States, China and other relevant countries are used to analyze national AI strategies, industrial policies, export controls and technological partnerships. Selected corporate and industry data are used to examine AI investment, semiconductor production, computing infrastructure and technological capabilities, with such information cross-checked against independent sources.

To measure technological dominance, the study uses interconnected technological, infrastructural, economic and strategic indicators. Technological indicators include AI publications, citations, patents, notable AI models and model performance. Infrastructure indicators include advanced computing capacity, GPUs, data centers, cloud infrastructure and semiconductor manufacturing. Economic indicators include AI investment, research and development and venture capital. Strategic indicators include military AI development, export controls, technology alliances and national AI strategies. These indicators are assessed collectively to reflect the study's central argument that AI dominance depends on a broader technological ecosystem rather than on model performance alone.

The collected evidence is analyzed through comparative, thematic and trend analysis. Comparative analysis identifies differences and similarities between U.S. and Chinese AI capabilities and strategies. Thematic analysis is used to examine recurring issues such as technological sovereignty, national security, strategic autonomy, semiconductor competition and AI governance. Trend analysis is applied to quantitative indicators to identify changes in AI capabilities and investment over time. Cross-case analysis then places U.S.–China competition within the wider global AI ecosystem.

Finally, reliability and validity are strengthened through source triangulation. Major findings are cross-checked across international organizations, government documents, academic research and recognized research institutions. Priority is given to peer-reviewed studies and primary institutional data, while corporate information is used cautiously and verified through independent sources. This methodological approach enables the study to provide an evidence-based assessment of how technological capabilities, infrastructure and strategic policies are shaping the contemporary competition for AI technological dominance and its implications for global geopolitical power.

Ai Geopolitical Competition and Global Technological Power

Artificial intelligence has emerged as a major arena of contemporary geopolitical competition because advanced AI capabilities increasingly influence economic productivity, technological innovation, military effectiveness, intelligence, cybersecurity and national security. The competition is therefore not limited to developing superior AI models; it increasingly concerns control over the broader ecosystem of research, talent, data, capital, semiconductors, computing infrastructure, energy, industrial capacity and technological standards. The United States and China remain the principal competitors, but the wider AI ecosystem also involves the European Union, Japan, South Korea, Taiwan, India, Gulf states and developing countries. This section examines these interconnected dimensions to assess how AI is reshaping the distribution of global technological and geopolitical power.

Evolution of AI Geopolitical Competition

The early development of artificial intelligence was concentrated primarily in academic and government research institutions, particularly in the United States. During this period, AI was largely understood as a scientific and technological field rather than as a central instrument of geopolitical competition. The emergence of machine learning, deep learning, large datasets, cloud computing and specialized processors gradually changed this situation. AI became increasingly scalable and commercially valuable, allowing technological capabilities to influence productivity, innovation and national competitiveness.

A major strategic turning point occurred in 2017 when China released its *New Generation Artificial Intelligence Development Plan*. The strategy identified AI as a major driver of economic and technological transformation and established the ambition of making China a global AI innovation center by 2030 (State Council of the People's Republic of China, 2017). This development contributed to the broader transformation of AI from a commercial technology into a strategic national capability. The United States simultaneously increased its attention to AI research, defence applications and technological competition, while private investment expanded rapidly.

The emergence of generative AI represented another major turning point. The release of ChatGPT in 2022 accelerated public and commercial adoption of large language models and foundation models. AI development subsequently moved rapidly from specialized applications toward general-purpose systems capable of generating text, images, code, audio and other forms of content. The scale of investment illustrates the significance of this transformation. Stanford HAI estimates that global corporate AI investment reached approximately **\$581.7 billion in 2025**, while private investment reached \$344.7 billion (Stanford Institute for Human-Centered Artificial Intelligence [Stanford HAI], 2026).

AI has consequently become closely connected to national security. Governments increasingly recognize that advanced AI can contribute to intelligence analysis, autonomous systems, cyber operations, surveillance, logistics and military decision-making. This has transformed competition over AI infrastructure into a security issue. Semiconductor export controls introduced by the United States against China provide a particularly important example because advanced computing chips and semiconductor-manufacturing technologies have increasingly been treated as strategic assets rather than ordinary commercial products.

United States: Maintaining AI Technological Leadership

The United States possesses a highly developed AI ecosystem combining universities, government research institutions, venture capital, technology companies, semiconductor design, cloud infrastructure and frontier AI laboratories. Its principal advantage is therefore systemic rather than dependent on one particular company or technology.

American companies—including NVIDIA, Microsoft, Google, Amazon, Meta, OpenAI and Anthropic—occupy important positions across the AI value chain. NVIDIA is particularly important because its accelerators provide much of the computing power required to train and operate advanced AI models. Microsoft, Amazon and Google dominate major segments of cloud computing, while OpenAI, Anthropic, Google and other laboratories contribute to frontier-model development.

The United States also possesses a substantial financial advantage. Stanford HAI estimates that U.S. private AI investment reached \$285.9 billion in 2025, compared with \$12.4 billion in China. The United States also recorded 1,953 newly funded AI companies in 2025, compared with 161 in China (Stanford HAI, 2026). These figures demonstrate the strength of the American venture-capital and technology-startup ecosystem, although private-investment figures alone do not capture China's substantial state-directed investment.

The United States remains particularly strong in frontier-model development. In 2025, U.S.-based organizations produced 59 notable AI models, compared with 35 from China. However, the technological gap has narrowed considerably. Stanford HAI reports that U.S. and Chinese models repeatedly exchanged the lead during 2025 and that by March 2026 the leading U.S. model's advantage was only approximately 2.7% (Stanford HAI, 2026). This evidence challenges the assumption that American leadership in frontier models automatically constitutes comprehensive technological dominance.

The United States also possesses a major advantage in computing infrastructure. Stanford HAI identifies 5,427 data centers in the United States, more than ten times the number in any other country (Stanford HAI, 2026). The concentration of hyper scale cloud infrastructure gives American companies an important advantage in training and deploying advanced models.

Nevertheless, American technological power contains structural vulnerabilities. The United States remains dependent on foreign manufacturing for some of its most advanced semiconductors, particularly Taiwanese foundries. The concentration of advanced semiconductor production in Taiwan creates a strategic vulnerability because disruption in the Taiwan Strait could have consequences for the global AI supply chain. The United States also faces increasing electricity requirements associated with expanding AI data centers and competition for specialized technological talent.

Stanford HAI reports that the number of AI researchers and developers moving to the United States has fallen substantially since 2017, indicating that maintaining technological leadership will increasingly depend on the country's ability to attract and retain global talent (Stanford HAI, 2026).

China: AI Ascendancy and Technological Self-Reliance

China has developed a comprehensive national strategy aimed at integrating AI into economic development, industrial modernization, public administration and national defense. The 2017 *New Generation Artificial Intelligence Development Plan* remains an important foundation of this strategy, linking AI leadership with national technological and economic strength (State Council of the People's Republic of China, 2017).

Chinese companies such as Baidu, Alibaba, Tencent, Huawei, ByteDance and DeepSeek have developed capabilities across foundation models, cloud computing, digital platforms, semiconductors and AI applications. China's principal advantage lies in the combination of extensive research activity, large-scale manufacturing, industrial data, government support and rapid technological diffusion.

China leads the United States in several important research indicators. Stanford HAI reports that China leads in AI publication volume, citations and patent grants, while the United States maintains an advantage in the production of notable frontier models and higher-impact patents (Stanford HAI, 2026). This distinction is important because it demonstrates that technological leadership is distributed across different stages of the AI ecosystem.

China's patenting activity is particularly significant in generative AI. The World Intellectual Property Organization reports that China has become the leading source of generative-AI patent activity, reflecting substantial growth in domestic innovation and commercialization (World Intellectual Property Organization [WIPO], 2026). China's industrial base also provides opportunities to integrate AI into manufacturing, robotics, logistics and transportation at a scale difficult for many countries to replicate.

However, access to advanced semiconductors remains China's most important structural constraint. U.S. export controls have restricted access to advanced AI chips and semiconductor-manufacturing equipment, increasing the strategic importance of China's efforts to develop domestic alternatives.

Huawei, SMIC and other Chinese companies have therefore become central to Beijing's technological self-reliance strategy.

China's challenge is not simply producing AI chips but developing an entire advanced semiconductor ecosystem, including manufacturing equipment, lithography, materials, electronic-design automation and high-yield fabrication. Consequently, China's AI progress demonstrates both the strength of its domestic technological ecosystem and the continuing importance of international technological interdependence.

Semiconductors and the Geopolitics of Compute

Semiconductors constitute the physical foundation of advanced AI. The development of frontier models requires enormous computational resources, making access to high-performance processors a strategic capability. The global semiconductor value chain can therefore be represented as:

Chip Design → EDA Software → Semiconductor Equipment → Fabrication → Advanced Packaging → Memory → AI Accelerators → Data Centres → AI Models

No single country dominates every stage of this chain. The United States has major strengths in chip design and semiconductor intellectual property; Taiwan is central to advanced fabrication; South Korea is a major producer of memory; Japan is important in materials and manufacturing equipment; and the Netherlands plays a critical role in advanced lithography.

NVIDIA illustrates the geopolitical importance of AI accelerators. Its GPUs became essential to frontier AI development, making access to advanced accelerators a major component of technological power. TSMC, meanwhile, represents one of the world's most important manufacturing chokepoints. OECD research indicates that TSMC accounted for more than 60% of global foundry contracts in 2024 and approximately 90% of contracts for the most advanced chips (Organization for Economic Co-operation and Development [OECD], 2025).

ASML is similarly significant because advanced lithography equipment is essential for producing cutting-edge semiconductors. This concentration of capabilities creates a network of technological dependencies in which several countries possess strategically important positions.

The United States has responded through domestic semiconductor investment and export controls, while China has intensified its technological self-reliance efforts. The resulting competition demonstrates that AI geopolitics cannot be understood without semiconductor geopolitics.

Taiwan is particularly important because advanced chip manufacturing is highly concentrated there. Consequently, the security of the Taiwan Strait has implications extending beyond regional politics to global technological and economic stability. A major disruption to Taiwan's semiconductor production would affect AI development, telecommunications, automobiles, defense technologies and numerous other industries.

Data, Talent, Capital and Energy

Semiconductors alone cannot generate AI power. Data, human capital, financial resources and energy are equally important. Data supports training and improving AI systems, although the growing importance of high-quality data, synthetic data and post-training means that quantity alone does not determine AI leadership.

Human capital is particularly strategic. Frontier AI development requires specialized researchers, engineers and computational scientists. The United States remains a major global center for AI talent, but increasing international competition for researchers is creating new challenges. China has expanded

its domestic research base, while countries such as Canada, the United Kingdom, France, India, Japan and Gulf states are attempting to attract highly skilled researchers.

Capital provides another major source of advantage. The enormous scale of U.S. private investment gives American companies the ability to finance expensive model development and infrastructure. China relies more heavily on a combination of private capital, state-supported funds and industrial policy. Stanford HAI estimates that U.S. private AI investment in 2025 was more than 23 times China's private AI investment, although the report cautions that private-investment statistics underestimate China's broader state-directed AI spending (Stanford HAI, 2026).

Energy is becoming increasingly important because advanced AI depends on large data centers. According to the International Energy Agency, data centers consumed approximately 415 TWh of electricity in 2024, equivalent to around 1.5% of global electricity consumption. Under its base-case projection, data-centre electricity consumption could reach approximately 945 TWh by 2030 (International Energy Agency [IEA], 2025). The geographical concentration of data centers means that energy availability is becoming an important component of computational power and therefore technological power.

AI and Military Geopolitics

AI is increasingly integrated into military and national-security systems. Its applications include autonomous systems, intelligence analysis, surveillance, logistics, targeting, cyber operations and decision support. AI can process enormous quantities of information and identify patterns at speeds that exceed conventional human analysis.

The military significance of AI is closely connected to its dual-use nature. Technologies developed for commercial purposes including advanced processors, computer vision, language models and autonomous system can potentially be adapted for military applications. This dual-use characteristic helps explain why governments increasingly treat AI infrastructure as a national-security resource.

AI may also influence strategic stability. The integration of AI into intelligence, early-warning and command-and-control systems could increase decision-making speed but may simultaneously create risks of miscalculation and escalation. If states fear that their adversaries possess faster and more capable AI systems, they may have incentives to accelerate military decision-making and deployment.

The U.S.–China military AI competition therefore cannot be separated from their broader technological competition. Semiconductor restrictions, research investment, computing infrastructure and AI talent all have potential military implications. This creates an AI-related security dilemma in which efforts by one state to strengthen its security may encourage the other to accelerate its own technological development.

AI and Economic Geopolitics

AI is increasingly becoming a source of economic competitiveness. Countries capable of effectively integrating AI into production can potentially increase productivity, accelerate innovation, reduce costs and strengthen their industrial sectors. At the same time, AI may transform labor markets by automating particular tasks while increasing demand for specialized technological skills.

The scale of investment demonstrates the economic importance of AI. Stanford HAI reports that global corporate AI investment more than doubled in 2025, while generative AI investment increased by more than 200% (Stanford HAI, 2026). The concentration of investment in the United States gives American firms considerable advantages in developing and commercializing frontier technologies.

China's economic advantage is different. Its large manufacturing sector provides opportunities for integrating AI into industrial production, robotics, logistics and supply chains. This creates a distinction between frontier AI leadership and industrial AI leadership. The United States is particularly strong in frontier-model development and capital mobilization, while China possesses significant advantages in industrial-scale deployment.

AI competition is consequently becoming linked to industrial policy, subsidies, trade restrictions and national innovation strategies. Governments increasingly seek to protect critical technologies, strengthen domestic production and reduce dependence on foreign suppliers.

Emerging AI Powers and Technological Networks

The emerging AI order extends beyond the United States and China. The European Union possesses substantial research capabilities, regulatory influence and strategic positions in semiconductor equipment and advanced industrial technologies. The EU's AI Act represents one of the world's most significant attempts to establish a comprehensive regulatory framework for AI and demonstrates that regulatory power can itself become a form of geopolitical influence (European Commission, 2024).

India possesses significant AI talent, a large digital economy and ambitions for technological sovereignty. Its digital public infrastructure provides an important foundation for AI adoption, although it remains dependent on foreign advanced computing and semiconductor technologies.

Japan possesses strengths in robotics, advanced manufacturing, semiconductor technologies and research. South Korea is particularly important because of its semiconductor and memory industries. Taiwan occupies an exceptional position because of its advanced semiconductor-manufacturing capabilities.

Gulf states are emerging as important AI investors because of their sovereign wealth, energy resources and ambitions to develop data centres and technological infrastructure. Saudi Arabia and the United Arab Emirates, in particular, have increasingly sought to position themselves as AI hubs.

For developing countries, the situation is more complex. Many lack advanced computing infrastructure, semiconductor manufacturing, research funding and specialised AI talent. Consequently, they may become dependent on foreign cloud platforms, foundation models and technological infrastructure. This creates the possibility of a new form of technological dependency in which AI capabilities are concentrated in a small number of technologically advanced countries.

Competing Technological Ecosystems

The emerging AI order can be understood as a set of overlapping technological ecosystems rather than completely isolated blocs.

Ecosystem	Principal strengths	Strategic orientation
U.S.-centered	Frontier models, capital, cloud, chip design, research	Technological leadership and strategic alliances
China-centered	Research, patents, manufacturing, industrial AI	Self-reliance and technological autonomy

European	Regulation, research, semiconductor equipment	Strategic autonomy and regulatory influence
East Asian	Semiconductors, memory, robotics, manufacturing	Supply-chain centrality
Gulf	Capital, energy and data-center investment	Technological diversification
Global South	Growing markets and digital adoption	Technology adoption and capacity building

These ecosystems remain highly interdependent. The United States depends on Taiwanese semiconductor manufacturing; Chinese firms require access to global technologies; European companies participate in global semiconductor supply chains; and developing countries rely on technologies produced elsewhere. Consequently, AI geopolitics combines competition with continued technological interdependence.

AI Governance and Rule-Making

Competition increasingly extends beyond technology to the rules governing AI. The United Nations, OECD, G7, G20 and other international institutions have developed principles and frameworks addressing AI safety, ethics, transparency and responsible development. The European Union has adopted a risk-based regulatory framework through the AI Act, while the United States has relied more heavily on a combination of innovation policy, technical standards, executive action and targeted regulation. China has developed a state-centered regulatory model combining technological development with government oversight.

These different approaches demonstrate that AI governance is itself becoming an arena of geopolitical competition. States seek not only to develop AI but also to influence the standards under which AI is developed internationally. Countries capable of establishing widely adopted technical, regulatory and safety standards can exercise influence even without possessing complete technological leadership.

The governance competition therefore adds another dimension to the broader struggle for AI technological dominance. The central question is increasingly not simply who develops the most powerful AI, but also who shapes the rules, infrastructure and standards governing the global AI ecosystem.

The evidence presented in this chapter demonstrates that AI technological dominance is multidimensional and ecosystem-based. The United States maintains major advantages in frontier-model development, private investment, cloud infrastructure, data centers and semiconductor design. China possesses substantial advantages in research volume, citations, patents, manufacturing and industrial AI deployment. Meanwhile, Taiwan, South Korea, Japan and the Netherlands occupy critical positions within the semiconductor ecosystem.

Table . Major Dimensions of Contemporary AI Geopolitical Power

Dimension	Principal advantage	Geopolitical significance
Frontier AI models	United States	Technological leadership
Publications and citations	China	Research capacity
AI patent output	China	Innovation scale
Private AI investment	United States	Capital mobilization
Data-center infrastructure	United States	Computing capacity
Advanced semiconductor fabrication	Taiwan	Critical technological chokepoint
Semiconductor equipment	Netherlands/Japan	Manufacturing leverage
Memory technologies	South Korea	AI hardware supply
Industrial AI	China/East Asia	Large-scale deployment
AI regulation	European Union	Regulatory influence
Energy and data-center capacity	U.S./China	Infrastructure advantage

The central empirical finding is that AI geopolitical dominance cannot be measured solely by the performance of AI models. Sustainable technological power depends on control over the complete ecosystem connecting research, talent, capital, semiconductors, computing, energy, industrial capacity and governance.

The evidence therefore provides a nuanced answer to the central question of this research. AI does not completely replace traditional forms of geopolitical power; rather, it amplifies existing economic, military and technological capabilities while creating new strategic chokepoints and dependencies. The contemporary AI order is consequently neither purely unipolar nor simply bipolar. It is better understood as a U.S.–China-centered but technologically multipolar and deeply interdependent system, in which control over critical technological ecosystems increasingly determines the capacity of states to exercise economic and geopolitical influence.

Research Findings

This section presents the principal findings derived from the comparative and thematic analysis conducted in the preceding sections. Rather than repeating the empirical evidence on individual countries, companies or technologies, it synthesizes the evidence to identify the broader patterns that explain AI geopolitics and the contemporary competition for technological dominance. The findings demonstrate that AI has become an important component of national power, but that technological dominance cannot be reduced to the performance of individual AI models. Instead, it depends on a complex ecosystem encompassing research, talent, capital, data, semiconductors, computing infrastructure, energy, industrial capacity and governance. The findings further demonstrate that the emerging AI order is characterized by U.S.–China strategic competition within a wider multipolar and highly interdependent technological system.

AI Has Become a Strategic Source of National Power

The first major finding is that AI has moved beyond the status of a commercial or scientific technology and has become a strategic source of national power. Its significance derives from its ability to affect several dimensions of state capability simultaneously. AI can improve productivity and industrial competitiveness, strengthen intelligence and surveillance, support military decision-making, enhance cybersecurity and influence information environments. Consequently, states increasingly treat AI capacity as an element of national security and technological sovereignty rather than merely as an instrument of economic modernization.

The rapid expansion of AI investment reinforces this conclusion. Global corporate AI investment more than doubled in 2025, while generative-AI investment increased by more than 200% (Stanford Institute for Human-Centered Artificial Intelligence [Stanford HAI], 2026). This scale of investment indicates that governments and corporations increasingly perceive AI as a strategic general-purpose technology capable of affecting long-term economic and political power.

The finding is therefore consistent with the theoretical argument that technological capabilities can become sources of geopolitical influence. AI does not replace traditional forms of power; rather, it strengthens them by increasing the efficiency of economic, military, informational and administrative capabilities.

U.S. Leadership Remains Significant but Is Increasingly Contested

The second finding is that the United States continues to possess the strongest overall AI ecosystem, but its technological advantage should not be interpreted as permanent or uncontested. The United States retains major advantages in frontier-model development, private investment, venture capital, cloud computing, data-center infrastructure, semiconductor design and the concentration of leading technology companies.

In 2025, U.S.-based organizations produced 59 notable AI models, compared with 35 from China. U.S. private AI investment reached \$285.9 billion, more than 23 times China's \$12.4 billion in private investment. The United States also had 1,953 newly funded AI companies, demonstrating the depth of its entrepreneurial ecosystem (Stanford HAI, 2026).

However, the research identifies an important qualification. U.S. leadership is increasingly contested, particularly in frontier-model performance. U.S. and Chinese models exchanged the lead several times after early 2025, and by March 2026 the leading U.S. model held only a 2.7% advantage over the leading Chinese model (Stanford HAI, 2026). This suggests that the previous assumption of an overwhelming and permanent U.S. technological lead is becoming increasingly difficult to sustain.

China Has Developed Significant Countervailing Capabilities

The third finding is that China has developed substantial countervailing capabilities that prevent the international AI system from becoming a straightforward U.S.-dominated technological order.

China leads the United States in several indicators of research scale, including AI publication volume, citations and patent grants. Stanford HAI reports that China's share of the world's top 100 most-cited AI papers increased from 33 in 2021 to 41 in 2024 (Stanford HAI, 2026). China's strengths are reinforced by manufacturing capacity, industrial AI deployment, robotics, large-scale digital infrastructure and state-supported technological investment.

Generative-AI patenting provides particularly strong evidence of Chinese technological expansion. WIPO reports that China-based inventors published more than 43,000 GenAI patent families during 2024–2025, exceeding China's cumulative output from the previous decade. China also accounted for six of the world's ten leading GenAI patent applicants (World Intellectual Property Organization [WIPO], 2026).

China's strategic advantage therefore lies less in a single area than in the combination of research + manufacturing + industrial deployment + state support + large domestic markets. Nevertheless, China's dependence on advanced semiconductor technologies remains a significant structural limitation.

AI Dominance Is Fundamentally Infrastructure-Dependent

One of the most important findings is that AI technological dominance is fundamentally dependent on physical and digital infrastructure. Advanced models require specialised chips, enormous computing capacity, data centres, high-speed networks, energy and sophisticated cooling systems. Consequently, model performance alone cannot provide a complete measure of technological sovereignty.

The global AI compute ecosystem demonstrates this relationship clearly. Stanford HAI estimates that global AI compute capacity has expanded rapidly since 2022, reaching approximately 17.1 million H100-equivalent units, with NVIDIA accounting for more than 60% of total compute capacity (Stanford HAI, 2026). The United States hosts 5,427 data centres, more than ten times the number in any other country (Stanford HAI, 2026).

Energy has become an additional infrastructure constraint. The International Energy Agency estimates that global data centres consumed approximately 415 TWh of electricity in 2024, or around 1.5% of global electricity consumption. Its base-case projection places data-centre electricity demand at approximately 945 TWh by 2030 (International Energy Agency [IEA], 2025).

The finding is therefore clear:

AI model leadership without secure access to chips, compute, energy and infrastructure does not constitute complete AI sovereignty.

This finding represents a major contribution of the research because it shifts attention from visible AI applications toward the underlying infrastructure of technological power.

Semiconductor Chokepoints Have Become Instruments of Geopolitical Power

The research further finds that semiconductor chokepoints have become central instruments of geopolitical competition. Advanced AI depends on a highly concentrated semiconductor ecosystem in which different countries control strategically important stages.

Taiwan Semiconductor Manufacturing Company (TSMC) represents the most important manufacturing chokepoint. OECD analysis indicates that TSMC held more than 60% of global foundry contracts in 2024, rising to approximately 90% for the most advanced chips (Organization for Economic Co-operation and Development [OECD], 2025). The OECD also reports that approximately 99% of AI accelerators were manufactured using TSMC technologies in 2024.

This creates a structural paradox. The United States possesses major strengths in AI model development and chip design, but a critical part of the physical infrastructure supporting those capabilities is located outside the United States. China, meanwhile, possesses strong research and industrial capabilities but remains constrained by access to advanced semiconductor technologies.

Therefore, technological power is increasingly concentrated around chokepoints, including advanced foundries, AI accelerators, lithography equipment, memory technologies and semiconductor-design capabilities.

Export Controls Are Reshaping AI Geopolitics

The sixth finding is that export controls have transformed technology policy into an instrument of geopolitical statecraft. U.S. restrictions on advanced computing chips and semiconductor-manufacturing equipment demonstrate that technological interdependence can be strategically weaponised.

The restrictions introduced by the United States since 2022 seek to limit China's access to advanced computing technologies considered relevant to military and strategic capabilities. These policies illustrate the transformation of economic policy into national-security policy.

The significance extends beyond the immediate U.S.–China relationship. Export controls encourage China to accelerate domestic semiconductor development while encouraging the United States and its partners to strengthen alternative supply chains. They therefore contribute simultaneously to technological competition, supply-chain restructuring and strategic decoupling.

However, the findings suggest that export controls are more accurately understood as instruments of selective technological containment than complete technological separation. The underlying AI ecosystem remains too geographically distributed for complete decoupling to occur easily.

AI Competition Is Producing Technological Ecosystems

The research finds evidence of emerging technological ecosystems centered around major geopolitical actors. The United States is surrounded by networks involving semiconductor companies, cloud providers, research institutions and strategic partners. China is developing an increasingly self-reliant ecosystem involving domestic technology companies, semiconductor firms and international technological partnerships.

The European Union represents another important ecosystem, particularly through regulatory influence and technological sovereignty initiatives. Middle powers—including India, Japan, South Korea and Gulf states—are increasingly pursuing policies designed to avoid excessive dependence on either major power.

The resulting structure can therefore be conceptualized as:

U.S.-centered ecosystem + China-centered ecosystem + European regulatory ecosystem + strategically hedging middle powers.

However, these ecosystems overlap substantially. The existence of competing technological networks does not mean that global technological integration has disappeared.

Complete Technological Decoupling Is Unlikely

The eighth finding is that geopolitical rivalry has not eliminated technological interdependence. Semiconductor production, AI research, capital flows, software ecosystems and technological supply chains remain geographically distributed.

The United States depends on Taiwanese semiconductor fabrication, European and Asian equipment and international research talent. China continues to depend on technologies and components originating outside its borders despite its efforts to develop self-reliance. European and Asian economies remain integrated into both U.S. and Chinese markets.

This produces a condition that can be described as competitive interdependence.

Feature	Competition	Interdependence
AI models	U.S.–China rivalry	Shared global research ecosystem
Semiconductors	Export controls	International supply chains
Cloud infrastructure	Strategic competition	Global technology markets
Talent	Recruitment competition	International mobility
Capital	Investment rivalry	Cross-border financial networks
Standards	Regulatory competition	International institutions
Manufacturing	Strategic autonomy	Globally distributed production

The finding challenges both extreme technological-globalization and complete-decoupling perspectives. The emerging system is neither fully integrated nor fully separated.

AI May Deepen the Global Technological Divide

The research identifies a substantial risk that AI will deepen existing technological inequalities. Frontier AI requires enormous amounts of capital, advanced computing infrastructure, specialized talent and access to sophisticated semiconductor technologies. These resources are concentrated disproportionately in a relatively small number of countries.

The distribution of AI infrastructure demonstrates this inequality. Stanford HAI reports that Europe and Central Asia increased state-backed AI supercomputing clusters from only three in 2018 to 44 by 2025,

while South Asia, Latin America and the Middle East and North Africa possessed only 2, 3 and 8 respectively (Stanford HAI, 2026).

This creates a potential AI dependency cycle:

Limited infrastructure → dependence on foreign platforms → limited domestic innovation → technological dependency → reduced strategic autonomy.

The implication is particularly important for the Global South. Countries without sufficient compute, talent, capital, data infrastructure and research institutions may become primarily consumers rather than producers of advanced AI technologies.

AI Governance Is Becoming a Contest for Rule-Making Power

The tenth finding is that AI governance itself has become a dimension of geopolitical competition. The United States, China and European Union have developed different approaches to AI regulation, technological development and data governance.

The European Union has emphasized rights, risk management and regulatory oversight. The United States has placed greater emphasis on innovation, private-sector leadership and national security, while China has pursued a state-centered model combining technological development with regulatory control.

The significance of governance extends beyond domestic regulation. International standards concerning AI safety, transparency, data governance and technical interoperability may influence the future structure of the global AI economy. Consequently, regulatory and standard-setting power is becoming an extension of technological power.

AI Power Is Multidimensional

The eleventh finding is perhaps the most important conceptual conclusion of the research: AI dominance cannot be measured through a single indicator.

A country may lead in AI models but remain dependent on foreign chip manufacturing. Another may lead in patents but lack advanced computing infrastructure. A third may possess capital but lack research talent. Therefore, the research proposes an ecosystem-based understanding of AI power:

AI Power = Research + Talent + Capital + Data + Chips + Compute + Energy + Models + Applications + Industrial Capacity + Standards

This framework explains why neither the United States nor China can be considered completely dominant across all dimensions.

Table. Multidimensional Structure of AI Technological Power

Dimension	Principal indicator	Strategic significance
Research	Publications, citations	Knowledge production
Innovation	Patents, models	Technological advancement

Talent	Researchers, engineers	Human capability
Capital	Investment, venture capital	Ability to finance innovation
Data	Quality and availability	AI training and deployment
Semiconductors	Chips, fabrication	Physical computing foundation
Compute	GPUs, data centres	Model development
Energy	Electricity availability	Infrastructure sustainability
Industry	Manufacturing, robotics	Large-scale deployment
Military	Defence AI	Strategic capability
Governance	Standards and regulation	Rule-making influence

The multidimensional framework also explains why technological dominance can be temporary. Leadership in one layer may be undermined by dependency in another. Sustainable dominance therefore requires ecosystem resilience, not merely technological excellence.

AI Geopolitics Is Neither Purely Bipolar nor Fully Multipolar

The final and overarching finding is that contemporary AI geopolitics is best described as strategic bipolarity within a multipolar technological ecosystem.

The United States and China are clearly the principal strategic competitors. They possess the greatest combination of technological, economic, industrial and military capabilities and increasingly organise national policies around technological competition. However, other actors control critical components of the global AI system. Taiwan is indispensable to advanced semiconductor fabrication; the Netherlands is central to advanced lithography; South Korea plays a major role in memory technologies; Japan is important in semiconductor materials, robotics and AI innovation; the European Union possesses significant regulatory influence; India provides a large pool of technological talent; and Gulf states are becoming important sources of AI capital and infrastructure investment.

The resulting structure can therefore be represented as:

U.S.–China	Strategic	Bipolarity
↓		
Multipolar	Technological	Ecosystem
↓		
Taiwan + South Korea + Japan + EU + India + Gulf States + Global South		



Competitive Interdependence

This finding is central to the overall argument of the research. Describing the AI order simply as a new Cold War would overlook the continued interdependence of technological production. Conversely, describing it as a fully multipolar technological system would underestimate the exceptional strategic weight of U.S.–China competition.

The more accurate interpretation is therefore a hybrid geopolitical structure in which two major powers dominate strategic competition while multiple other states retain important technological chokepoints, markets, resources and regulatory capabilities.

Synthesis of Major Findings

The findings collectively demonstrate that AI is transforming the structure of geopolitical power without completely replacing traditional forms of international competition. The United States remains the strongest overall AI ecosystem because of its combination of capital, frontier models, cloud infrastructure, semiconductor design and research institutions. China, however, has developed substantial countervailing capabilities in research, patents, manufacturing, industrial AI and state-supported technological development.

At the same time, the research demonstrates that neither country's position can be understood independently of the global technological ecosystem. Advanced AI depends on semiconductor manufacturing in Taiwan, equipment from Europe and Asia, energy infrastructure, international talent and global supply chains. This makes technological interdependence a source of both cooperation and geopolitical vulnerability.

The evidence also confirms that the struggle for AI dominance is increasingly becoming a struggle over infrastructure and chokepoints. Control over advanced chips, computing capacity, data centres, energy and technological standards can generate geopolitical leverage comparable to control over AI models themselves.

Finally, the findings indicate that the benefits of AI are likely to be distributed unevenly. Countries possessing advanced infrastructure, capital, talent and technological ecosystems are positioned to capture disproportionate economic and strategic benefits, while countries lacking these capabilities may become increasingly dependent on external AI ecosystems.

Thus, the central conclusion emerging from the findings is:

AI is not creating a completely new geopolitical order; rather, it is reorganising and intensifying existing power relations by making technological ecosystems, infrastructure and strategic chokepoints increasingly central to national power.

The contemporary AI order should therefore be understood as U.S.–China strategic competition embedded within a multipolar, interconnected and increasingly contested technological system. This finding provides the foundation for the subsequent discussion of the theoretical implications, policy consequences and future trajectory of AI geopolitics.

DISCUSSION

The findings of this study demonstrate that artificial intelligence has become an increasingly important component of contemporary geopolitical power, but they also show that AI does not constitute an entirely separate form of power detached from established economic, technological, and security structures. Rather, AI is transforming the way existing forms of power are accumulated, exercised, and

contested. The central argument emerging from the analysis is that AI geopolitics is characterised by strategic competition between the United States and China, embedded within a broader network of technological interdependence involving multiple states and private actors. The findings therefore support neither the interpretation of AI as a completely revolutionary break from previous geopolitics nor the view that AI is merely another commercial technology. Instead, AI represents a new layer of strategic power that increasingly connects economic competitiveness, technological sovereignty, military capability, infrastructure, and international rule-making.

The discussion also confirms that technological dominance cannot be assessed through a single measure such as the number of AI models or patents. The United States continues to possess substantial advantages in frontier models, private investment, cloud infrastructure, and data centres, while China has developed considerable strengths in publications, citations, patents, industrial AI, and manufacturing. The Stanford AI Index reports that U.S. and Chinese models repeatedly exchanged the lead in frontier performance during 2025, while China continued to lead in AI publication volume, citations, and patent grants (Stanford Institute for Human-Centered Artificial Intelligence [Stanford HAI], 2026). These findings provide the basis for interpreting AI competition through the theoretical perspectives established in this research.

Interpretation of the Main Findings

The findings provide a coherent answer to the central research problem: how is AI transforming geopolitical competition for technological dominance? First, AI has become a strategic resource because it can simultaneously affect economic productivity, military capabilities, intelligence, information systems, and technological sovereignty. Second, the United States retains the strongest overall AI ecosystem but faces rapidly increasing Chinese competition. Third, technological power is dependent upon infrastructure, particularly advanced semiconductors, computing capacity, data centers, energy, and talent. Fourth, governments increasingly employ export controls, subsidies, investment restrictions, and industrial policies as instruments of technological statecraft. Finally, the international AI order is becoming neither completely bipolar nor fully multipolar; it is more accurately characterized as strategically bipolar but technologically networked and increasingly multipolar.

This interpretation is consistent with earlier scholarship on technology and international power. Horowitz (2018) argues that AI can affect the distribution of power because states capable of integrating AI into economic and military systems can acquire strategic advantages. Farrell and Newman (2019), meanwhile, demonstrate that states can use positions within global networks as sources of geopolitical leverage. The present research extends these arguments by showing that AI creates a particularly important combination of technological capability and network dependence.

AI and Neorealist Power Competition

From a neorealist perspective, the growing competition over AI can be explained through the principles of self-help, relative gains, uncertainty, and security competition. In an anarchic international system, states cannot assume that other states will use technological capabilities benignly. Consequently, technological dependence may become a security vulnerability.

The U.S.–China AI competition reflects this logic. Both states seek to improve their technological capabilities partly because they are concerned about the relative capabilities of the other. The issue is therefore not simply whether AI generates economic benefits but who gains those benefits and whether those gains alter the balance of power. A technological capability that provides benefits to both countries may be less strategically significant than a capability that gives one state a substantial military or intelligence advantage.

The semiconductor competition illustrates this security dilemma particularly clearly. U.S. restrictions on advanced computing chips and semiconductor-manufacturing technologies have been justified partly

through national-security considerations (U.S. Department of Commerce, Bureau of Industry and Security [BIS], 2023). From a neorealist perspective, such policies represent attempts to constrain a rival's access to strategically significant capabilities. China's subsequent emphasis on technological self-reliance can similarly be interpreted as an attempt to reduce vulnerability to external coercion.

Thus, AI competition reinforces the neorealist proposition that states seek technological capabilities not merely for absolute economic benefits but also because of concerns about relative power and strategic dependence (Waltz, 1979).

AI and Complex Interdependence

However, neorealism alone cannot explain the contemporary AI system. The research demonstrates substantial continuing interdependence among states, corporations, research institutions, and supply chains. This is consistent with the concept of complex interdependence developed by Keohane and Nye (2012).

The United States may lead in AI models and investment, but its AI ecosystem depends heavily on international semiconductor manufacturing. China has substantial domestic technological capabilities but remains connected to global manufacturing, equipment, and research networks. Taiwan remains central to advanced chip fabrication, while European and Asian companies control critical technologies and inputs.

The semiconductor industry illustrates this interdependence particularly well. OECD research indicates that TSMC controls more than 60% of global foundry contracts and approximately 90% of contracts for the most advanced chips (Organisation for Economic Co-operation and Development [OECD], 2025). Thus, even technologically powerful states cannot easily control the entire AI production chain.

This produces an important theoretical synthesis: strategic rivalry and economic interdependence can coexist. Competition does not necessarily lead to complete separation. Instead, states increasingly attempt to reduce dependence in strategically sensitive areas while preserving beneficial connections elsewhere.

AI as a New Form of Technological Statecraft

The findings further demonstrate that technology has become an increasingly important instrument of foreign policy. States now employ export controls, subsidies, investment restrictions, sanctions, industrial policies, and strategic technology partnerships to influence the development of AI ecosystems.

The U.S. semiconductor restrictions represent a particularly important example. The controls introduced from 2022 onward targeted advanced computing chips, supercomputing applications, and semiconductor-manufacturing equipment, linking technology trade directly with national-security objectives (BIS, 2022, 2023).

At the same time, the United States has pursued domestic semiconductor capacity and technological investment, while China has promoted technological self-reliance. This suggests a shift from traditional trade policy toward technological statecraft, where governments attempt to shape the international distribution of technological capabilities.

The implication is significant for international relations: future geopolitical influence may increasingly depend on a state's ability to control or access critical technological networks rather than simply on conventional military or economic resources (Farrell & Newman, 2019).

Is AI Creating a New Cold War?

The evidence provides arguments both for and against describing contemporary AI competition as a new Cold War.

The Cold War interpretation is supported by several developments: intensifying U.S.–China rivalry, restrictions on strategic technologies, military AI competition, competing technological ecosystems, and growing alignment among technology partners. The securitization of semiconductors and AI reinforces the perception that technological capabilities have become part of strategic rivalry.

However, the Cold War analogy has important limitations. The contemporary AI economy remains deeply commercial and globally integrated. Multinational corporations operate across international markets, researchers continue to participate in global networks, supply chains remain geographically distributed, and open-source AI allows technological capabilities to circulate beyond the major powers (Stanford HAI, 2026).

Therefore, this research rejects the simple characterization of the contemporary situation as an "AI Cold War." A more accurate concept is competitive technological interdependence: a condition in which states pursue strategic rivalry and selective decoupling while remaining connected through global markets, supply chains, research networks, and technological ecosystems.

Bipolarity Versus Multipolarity

The findings also require reconsideration of whether the emerging AI order is bipolar or multipolar. A purely bipolar interpretation focuses on the United States and China because they possess the largest combination of frontier AI, capital, infrastructure, research, and geopolitical influence.

Yet this interpretation overlooks the strategic importance of other actors. Taiwan is central to advanced semiconductor manufacturing; South Korea possesses major memory capabilities; Japan is important in robotics, materials, and semiconductor technologies; the European Union exercises significant regulatory influence; India possesses substantial technological talent and a large digital market; and Gulf states are becoming increasingly important investors in AI infrastructure.

The research therefore supports a networked model.

Model	Main interpretation	Principal limitation
Bipolar	U.S. versus China	Underestimates other technological actors
Multipolar	Multiple AI powers	Underestimates exceptional U.S.–China competition
Networked	Different actors dominate different technological layers	Best captures technological interdependence

The emerging AI order can therefore be described as strategically bipolar but technologically networked and increasingly multipolar. This represents one of the central theoretical conclusions of the research.

AI and Technological Dependency

Dependency theory provides another important interpretation of the findings. Historically, developing countries have often depended on technologically advanced states for capital, industrial technologies, and knowledge. AI may reproduce these patterns in a new digital form.

Countries that cannot develop advanced computing infrastructure may depend on foreign cloud providers. Countries lacking semiconductor industries may depend on imported AI hardware. Countries without large research communities may depend on foreign foundation models. Countries with limited domestic digital infrastructure may become dependent on foreign platforms for public and private-sector AI applications.

The problem is therefore not simply unequal access to AI applications but unequal control over the means of AI production.

This distinction is crucial. A developing country may have widespread access to advanced AI applications while possessing almost no domestic capacity to train frontier models, manufacture AI accelerators, or operate large-scale computing infrastructure. Access therefore does not necessarily equal technological sovereignty.

This finding supports concerns about a potential new form of technological core-periphery structure. However, the evidence also suggests that open-source models, declining inference costs, expanding digital infrastructure, and greater access to digital services could create opportunities for technological leapfrogging. The relationship between AI and dependency is therefore not predetermined; it depends heavily on domestic policy and capacity-building (World Bank, 2025).

AI Sovereignty and Strategic Autonomy

The research suggests that AI sovereignty should be understood as a graduated rather than absolute condition. A state does not need to manufacture every technological component domestically to possess meaningful AI capability. Instead, different levels of technological autonomy can be identified.

Level	Description	Strategic position
Level 1: AI Adoption	Using foreign AI systems	Consumer
Level 2: AI Capability	Developing domestic applications and models	Adaptive producer
Level 3: AI Sovereignty	Controlling critical infrastructure and strategic capabilities	Autonomous actor
Level 4: AI Dominance	Influencing global AI ecosystems, standards, and markets	System-shaping power

This framework provides a useful way of interpreting national AI strategies. It also answers an important question raised by the research: Can a country be fully AI sovereign if it cannot produce advanced chips?

The answer is generally no, at least not in the strongest sense of sovereignty. A country may possess excellent AI researchers and applications while remaining strategically dependent on foreign semiconductors, cloud infrastructure, or energy-intensive computing. AI sovereignty therefore requires meaningful control over critical layers of the AI ecosystem rather than complete domestic ownership of every component.

AI and Military Security

The military implications of AI reinforce the neorealist security dilemma. AI can improve intelligence processing, autonomous systems, cyber operations, surveillance, targeting, and military decision-support systems. These capabilities may increase military effectiveness but can also generate instability if states fear that their adversaries possess superior AI-enabled capabilities.

The central problem is that AI may accelerate the pace of strategic decision-making. If states believe that delaying action could create a significant disadvantage, they may face pressure to delegate greater authority to automated systems or act on incomplete information. This could increase the possibility of accidental escalation.

The issue becomes especially sensitive in nuclear security. AI-enabled surveillance and decision-support systems could improve early warning, but they could also create uncertainty regarding whether an adversary has developed capabilities that could undermine strategic deterrence. The result could be a new form of AI-related arms competition.

The research therefore suggests that AI security should not be understood solely in terms of autonomous weapons. It should also encompass command and control, intelligence, cyber capabilities, early warning, targeting, and strategic stability (Horowitz, 2018).

AI and Economic Power

The economic findings demonstrate that AI may significantly influence the distribution of global wealth and industrial competitiveness. The United States' enormous private investment advantage is particularly important. Stanford HAI reports that U.S. private AI investment reached approximately \$285.9 billion in 2025, compared with approximately \$12.4 billion in China (Stanford HAI, 2026).

However, economic power cannot be reduced to investment levels. China possesses significant advantages in manufacturing and industrial deployment, while other countries control critical components of the AI supply chain.

AI may therefore reinforce existing economic hierarchies if productivity gains are concentrated in countries and firms that already possess capital, infrastructure, and technological expertise. It may also increase market concentration because frontier AI development requires increasingly large amounts of capital and computing resources.

At the same time, falling AI inference costs can broaden access. The Stanford AI Index documents substantial reductions in the cost of using increasingly capable AI systems, suggesting that some barriers to AI adoption are declining even as frontier development becomes more capital-intensive (Stanford HAI, 2025). The likely outcome is therefore a combination of concentration at the frontier and diffusion at the application layer.

AI and the Global South

For the Global South, AI presents both opportunities and structural risks. AI can support healthcare, education, agriculture, public administration, financial inclusion, translation, digital services, and

productivity. Countries with strong human capital may potentially use AI to bypass some stages of traditional technological development.

However, infrastructure gaps remain substantial. Unequal access to advanced computing, data centres, investment, research institutions, and specialized talent means that many developing countries remain primarily technology consumers rather than frontier technology producers.

This imbalance creates several risks: technological dependency, brain drain, foreign-platform dominance, data extraction, limited domestic innovation, and reduced strategic autonomy. The Global South could therefore become an important market for AI without becoming an important producer of AI.

The policy challenge is consequently not simply increasing AI adoption. Developing countries require investment in digital infrastructure, computing capacity, education, research institutions, data governance, local-language models, and domestic AI ecosystems. Without these foundations, AI could deepen rather than reduce existing global inequalities (World Bank, 2025).

At the same time, AI may offer opportunities for leapfrogging. Developing countries can potentially exploit cloud services, open-source models, digital public infrastructure, and lower-cost AI applications without reproducing the enormous costs of frontier-model development. The key distinction is therefore between AI access and AI capability.

AI Governance as Geopolitical Competition

Finally, the research demonstrates that AI governance itself is becoming a form of geopolitical competition. Different actors promote different approaches to the relationship between innovation, regulation, state authority, security, and individual rights.

The United States has historically emphasized private-sector innovation and technological leadership, although national-security regulation has become increasingly prominent. China combines state direction, industrial policy, technological self-reliance, and regulatory oversight. The European Union has emphasised a rights-based and risk-based regulatory model through the AI Act. The United Nations seeks a more inclusive multilateral framework (European Union, 2024; United Nations General Assembly, 2024).

These differences do not necessarily make international cooperation impossible. International AI governance requires some degree of convergence around safety, interoperability, transparency, accountability, and responsible development. However, governance competition may also reflect deeper differences over technological sovereignty and political priorities.

The European Union's experience is particularly important because governance can generate regulatory power even without frontier technological dominance. An actor capable of establishing standards adopted internationally can influence corporate behavior and technological development beyond its borders.

The future of AI governance is therefore likely to involve both cooperation and competition. The central question will be whether major powers can establish common rules without surrendering their perceived strategic advantages.

Overall Discussion and Theoretical Implications

Taken together, the findings support a theoretical synthesis rather than a single-theory explanation. **Neorealism** explains why states compete for AI capabilities, seek technological autonomy, and attempt to prevent rivals from gaining strategic advantages. Complex interdependence explains why this

competition has not resulted in complete technological separation. Dependency theory explains why unequal access to computing, infrastructure, talent, capital, and technological knowledge may reproduce core-periphery relations in the AI era. Finally, the technological-power perspective explains why control over infrastructure and strategic chokepoints can generate geopolitical leverage.

The relationship among these perspectives can be summarized as:

Strategic rivalry → technological statecraft → selective decoupling → continued interdependence → unequal technological capabilities → emerging AI hierarchies.

The principal theoretical conclusion is therefore that AI is transforming rather than replacing the existing international system. It intensifies the relative-gains concerns identified by neorealism while simultaneously deepening the networked interdependence emphasized by Keohane and Nye. At the same time, it creates new forms of technological dependency that are consistent with dependency theory.

Most importantly, the research challenges the assumption that the winner of the AI competition will simply be the country producing the most powerful model. AI power is increasingly determined by the ability to coordinate an entire ecosystem of research, talent, capital, data, chips, compute, energy, industrial capacity, military applications, and standards.

The resulting geopolitical structure is therefore best conceptualised as competitive technological interdependence: a system in which the United States and China constitute the principal strategic competitors, but where technological power is distributed across a wider network of states and corporations. This explains why the contemporary AI order cannot accurately be described either as a traditional bipolar Cold War or as a completely multipolar system.

The central conclusion of the discussion is thus that AI is becoming a strategic infrastructure of global power. States that control critical AI capabilities will possess greater economic, military, and diplomatic influence, while states that remain dependent on foreign AI ecosystems may experience reduced technological autonomy. Yet because the AI ecosystem remains globally interconnected, technological dominance is unlikely to mean complete control. The future geopolitical order will instead depend on the ability of states to balance innovation with sovereignty, competition with interdependence, and technological advancement with international governance.

CONCLUSION

Artificial intelligence has emerged as one of the most consequential technological developments of the twenty-first century, increasingly influencing the distribution and exercise of global power. This study, “AI Geopolitics: Competition for Technological Dominance,” examined how the rapid development and diffusion of AI are reshaping geopolitical competition, particularly through the strategic rivalry between the United States and China. The central argument of the research is that AI should no longer be understood merely as a technological or economic innovation. Rather, it has become a strategic capability that intersects with national security, economic competitiveness, military power, technological sovereignty, international influence, and global governance. The study consequently finds that competition for AI technological dominance is becoming an important dimension of contemporary international relations.

The research demonstrates that AI has acquired geopolitical significance because its applications extend across virtually every major domain of national power. AI can increase economic productivity, transform industrial production, improve intelligence and surveillance, strengthen cyber capabilities, support military decision-making, and influence information environments. Its general-purpose character means that advantages in AI can potentially generate cumulative benefits across multiple sectors. Consequently, states increasingly view AI capabilities as strategic assets and technological

dependence as a potential national-security vulnerability. The transition from AI as an emerging commercial technology to AI as an instrument of geopolitical power represents one of the most important transformations identified by this study.

The analysis further demonstrates that the United States remains the most comprehensive AI power, but its position is increasingly contested. The United States possesses substantial advantages in frontier AI models, private investment, venture capital, cloud computing, data-centre infrastructure, semiconductor design, research universities, and leading technology companies. The scale of American private investment and the concentration of leading AI firms provide the United States with considerable structural advantages. However, these advantages do not constitute permanent technological supremacy. China has rapidly expanded its capabilities in AI research, patents, industrial applications, robotics, manufacturing, digital infrastructure, and domestic technological development. The narrowing performance gap between leading U.S. and Chinese models demonstrates that the competition is increasingly dynamic rather than characterised by an uncontested American lead (Stanford Institute for Human-Centered Artificial Intelligence [Stanford HAI], 2026).

One of the most significant conclusions of this research is that AI technological dominance cannot be measured through frontier models alone. The study demonstrates that AI power is multidimensional and depends on an interconnected ecosystem consisting of research, talent, capital, data, semiconductors, computing capacity, cloud infrastructure, energy, industrial capabilities, applications, and governance. This finding changes the way technological dominance should be conceptualised. A country may produce highly competitive AI models while remaining dependent on foreign semiconductor manufacturing. Similarly, a state may possess extensive data and research capacity but lack the computing infrastructure necessary to develop frontier systems. Sustainable AI power therefore requires control over, or reliable access to, multiple layers of the AI ecosystem.

The semiconductor industry illustrates this structural reality particularly clearly. Advanced AI systems depend upon sophisticated chips, while the production of those chips remains geographically concentrated. Taiwan, particularly TSMC, occupies a critical position in advanced semiconductor fabrication, while companies and technological capabilities in the United States, Netherlands, Japan, South Korea, and other economies occupy strategically important positions elsewhere in the supply chain. The result is a paradox at the centre of AI geopolitics: the most powerful AI states remain dependent upon an international technological ecosystem that they cannot completely control. Consequently, technological interdependence itself has become a source of both economic efficiency and geopolitical vulnerability (Organisation for Economic Co-operation and Development [OECD], 2025).

The research also establishes that semiconductors, computing infrastructure, and technological chokepoints have become instruments of geopolitical statecraft. U.S. export controls on advanced computing technologies and semiconductor-manufacturing equipment demonstrate how economic and technological policies are increasingly being employed to pursue strategic objectives. These policies seek to constrain China's access to technologies considered important for advanced AI and military capabilities while simultaneously encouraging greater domestic and allied technological capacity. China's response has included stronger emphasis on technological self-reliance, domestic semiconductor development, and indigenous AI ecosystems. This process demonstrates that the struggle for technological dominance increasingly occurs not only through innovation but also through trade policy, industrial policy, investment controls, supply-chain restructuring, and strategic alliances.

Nevertheless, the research rejects the argument that contemporary AI competition constitutes a straightforward “new Cold War.” There are important similarities with Cold War strategic competition, including U.S.–China rivalry, technological restrictions, military competition, strategic alliances, and competing technological ecosystems. Yet significant differences remain. AI production is deeply embedded within global commercial networks, multinational corporations, international research communities, and geographically distributed supply chains. The United States depends on international

semiconductor manufacturing; China remains connected to global production networks; European and Asian actors control important technological capabilities; and open-source technologies continue to facilitate international diffusion. Therefore, the contemporary system cannot be accurately understood through complete bipolar separation.

Instead, this research proposes the concept of “competitive technological interdependence.” This concept captures the simultaneous presence of geopolitical rivalry and continued technological integration. States seek to reduce strategic dependence in sensitive areas while maintaining international connections where interdependence remains economically beneficial or technologically necessary. Selective decoupling, rather than complete decoupling, is therefore likely to characterise the future AI system.

The study also concludes that the emerging AI order is strategically bipolar but technologically networked and increasingly multipolar. The United States and China constitute the two principal centres of strategic AI competition because of their combined economic, technological, military, and research capabilities. However, other actors possess critical technological resources that prevent the system from becoming purely bipolar. Taiwan is central to advanced semiconductor fabrication; South Korea is highly important in memory technologies; Japan has significant capabilities in robotics, materials, and semiconductor technologies; the European Union possesses considerable regulatory and industrial influence; India has major technological talent and a large digital ecosystem; and Gulf states are becoming increasingly important sources of investment in AI infrastructure.

This networked structure means that geopolitical influence in the AI era will not depend solely upon national capabilities. It will also depend upon a state's position within global technological networks. Control over a critical node can provide disproportionate geopolitical leverage even when a country is not a comprehensive AI leader. This reinforces the broader argument that the geopolitics of AI is simultaneously a struggle over capabilities, networks, infrastructure, and chokepoints.

The theoretical findings of the research further demonstrate that no single international-relations theory is sufficient to explain AI geopolitics. Neorealism effectively explains why major powers compete for AI capabilities, seek technological self-reliance, focus on relative gains, and perceive technological dependence as a security risk (Waltz, 1979). Complex interdependence explains why intense strategic rivalry can coexist with continued economic, technological, and research connections (Keohane & Nye, 2012). Dependency theory helps explain why countries lacking capital, computing infrastructure, talent, semiconductor capacity, and domestic AI ecosystems may become dependent on technologically advanced states and corporations. Finally, the technological-power perspective demonstrates how control over infrastructure, standards, platforms, and technological chokepoints can translate into geopolitical influence.

The study therefore concludes that AI is transforming rather than replacing existing structures of international power. It does not eliminate traditional military, economic, or diplomatic capabilities. Instead, it increasingly acts as a multiplier of these capabilities. States with strong AI ecosystems can potentially enhance their economic productivity, military effectiveness, intelligence capabilities, and international influence, while technologically dependent states may experience reduced strategic autonomy.

Another important conclusion concerns AI sovereignty. The research demonstrates that AI sovereignty should not be understood as complete technological autarky. Rather, it exists along a spectrum. At the first level, states adopt foreign AI systems. At the second level, they develop domestic AI applications and capabilities. At the third level, they acquire meaningful control over critical AI infrastructure. At the highest level, they possess sufficient technological capacity to influence international AI markets, standards, and governance. This hierarchy is particularly relevant for developing countries because it distinguishes simple AI adoption from genuine technological capability and strategic autonomy.

The implications for the Global South are particularly significant. AI has the potential to support economic development, healthcare, education, agriculture, public administration, digital services, and productivity. However, the absence of sufficient computing infrastructure, research capacity, investment, digital skills, data governance, and semiconductor access could reproduce existing patterns of technological dependency. The central challenge for developing countries is therefore not merely gaining access to AI applications but developing the institutional and technological foundations necessary to become active participants in the AI economy.

Without appropriate policy intervention, the international AI system could produce a new form of technological core-periphery structure, in which a relatively small group of countries and corporations control frontier models, computing infrastructure, semiconductor technologies, data platforms, and technical standards, while other countries remain primarily consumers. However, this outcome is not inevitable. Investment in education, research, digital public infrastructure, local AI ecosystems, open-source technologies, computing capacity, and international technological partnerships can enable developing countries to increase their AI capabilities and reduce dependency.

The study also concludes that AI governance is itself becoming an arena of geopolitical competition. Different political systems have developed different approaches to AI regulation, innovation, security, and technological sovereignty. The United States has generally prioritised innovation and private-sector leadership while increasingly integrating national-security considerations. China has combined state direction, technological development, and regulatory control. The European Union has developed a rights-based and risk-oriented regulatory framework, while the United Nations has sought a broader multilateral approach. These differences indicate that future competition will not concern only who develops the most powerful AI but also whose rules, standards, and regulatory principles shape the global AI environment.

Consequently, international cooperation remains essential. AI risks—including autonomous weapons, cyber operations, misinformation, surveillance, privacy violations, algorithmic discrimination, and strategic instability—cannot be adequately managed by individual states acting alone. At the same time, cooperation will be difficult because major powers increasingly perceive AI capabilities as strategically sensitive. The future of AI governance will therefore require a delicate balance between national security and international cooperation, technological innovation and regulation, and strategic competition and global responsibility.

Overall, this research concludes that the competition for AI technological dominance represents a major transformation in contemporary geopolitics. However, technological dominance should not be interpreted simply as the ability to develop the most advanced AI model. It is better understood as the capacity to build, control, secure, and influence the broader AI ecosystem. This ecosystem includes research institutions, human capital, capital markets, data, semiconductor technologies, computing infrastructure, energy, industrial applications, military capabilities, standards, and governance institutions.

The central conclusion can therefore be expressed as follows:

The geopolitics of artificial intelligence is not producing a completely new international order; rather, it is reorganising existing structures of power around technological capabilities, infrastructure, strategic chokepoints, and digital ecosystems.

The United States currently possesses the strongest comprehensive AI ecosystem, while China represents the most significant strategic challenger. Yet neither state possesses complete technological autonomy, and neither can dominate the entire AI value chain independently. Other countries retain critical positions within the global technological network, creating a system that is simultaneously competitive, interdependent, and increasingly multipolar.

The future trajectory of AI geopolitics will therefore depend on three interconnected developments: the ability of major powers to sustain technological innovation, the ability of states to secure critical AI infrastructure and supply chains, and the ability of the international community to develop mechanisms for responsible governance and cooperation. If competition becomes dominated by technological containment and militarisation, AI could intensify geopolitical fragmentation, strategic instability, and global inequality. If technological competition is accompanied by investment in international cooperation, inclusive capacity-building, responsible innovation, and resilient supply chains, AI could instead contribute to broader economic and technological development.

Ultimately, the research demonstrates that AI has become a strategic infrastructure of twenty-first-century power. The competition for AI technological dominance is therefore not simply a competition over algorithms or machines; it is a competition over the resources, infrastructure, knowledge, institutions, standards, and networks that determine who will shape the technological future. The emerging order is best characterized as U.S.–China strategic bipolarity within a technologically networked and increasingly multipolar global system, defined by competitive technological interdependence. Understanding this emerging structure is essential for explaining the future distribution of economic, military, technological, and geopolitical power in the international system.

REFERENCES

- Allen, G. C. (2024). *Understanding China's AI strategy: Clues to Chinese strategic thinking on artificial intelligence and national security*. Center for a New American Security.
- Bureau of Industry and Security. (2022). *Commerce implements new export controls on advanced computing and semiconductor manufacturing items to the People's Republic of China*. U.S. Department of Commerce.
- Bureau of Industry and Security. (2023). *Commerce strengthens restrictions on advanced computing semiconductors, semiconductor manufacturing equipment, and supercomputing items to countries of concern*. U.S. Department of Commerce.
- Bureau of Industry and Security. (2023). *FAQs for interim final rule: Implementation of additional export controls: Certain advanced computing and semiconductor manufacturing items; supercomputer and semiconductor end use; entity list modification*. U.S. Department of Commerce.
- Bureau of Industry and Security. (2024). *Commerce releases clarifications of export control rules to restrict the PRC's access to advanced computing and supercomputing items and semiconductor manufacturing equipment*. U.S. Department of Commerce.
- Calvino, F., Haerle, D., & Liu, S. (2025). Is generative AI a general-purpose technology? *OECD Artificial Intelligence Papers*, 40. OECD Publishing. DOI: 10.1787/704e2d12-en
- Couldry, N., & Mejias, U. A. (2019). Data colonialism: Rethinking big data's relation to the contemporary subject. *Television & New Media*, 20(4), 336–349. DOI: 10.1177/1527476418796632
- CSET. (2021). *China's industrial policy for artificial intelligence*. Center for Security and Emerging Technology.
- Edler, J., Blind, K., Frietsch, R., Kroll, H., Schiller, K., & Schubert, T. (2023). Technology sovereignty: From demand to concept. *Technological Forecasting and Social Change*, 192, 122586. DOI: 10.1016/j.techfore.2023.122586

- European Commission. (2024). *Artificial Intelligence Act*. European Union.
- European Parliament & Council of the European Union. (2024). *Regulation (EU) 2024/1689 of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act)*. *Official Journal of the European Union*.
- Farrell, H., & Newman, A. L. (2019). Weaponized interdependence: How global economic networks shape state coercion. *International Security*, 44(1), 42–79. DOI: 10.1162/isec_a_00351
- Frank, A. G. (1966). *The development of underdevelopment*. Monthly Review Press.
- Horowitz, M. C. (2018). Artificial intelligence, international competition, and the balance of power. *Texas National Security Review*, 1(3), 36–57. DOI: 10.15781/T2639KP49
- International Energy Agency. (2025). *Energy and AI*. IEA.
- Joshi, S. (2024). Implementing Gen AI for Increasing Robustness of US Financial and Regulatory System. *International Journal of Innovative Research in Engineering and Management*.
- Joshi, S. (2025). Agentic Generative AI and the Future U.S. Workforce: Advancing Innovation and National Competitiveness. *International Journal of Research and Review*.
- Johnson, J. (2019). Artificial intelligence & future warfare: Implications for international security. *Defense & Security Analysis*, 35(2), 147–169.
- Joshi, S. (2025). Advancing U.S. Competitiveness in Agentic Gen AI: A Strategic Framework for Interoperability and Governance. *International Journal of Innovative Science and Research Technology*.
- Joshi, S. A Comprehensive Review of DeepSeek: Performance, Architecture and Capabilities.
- Kaplan, F. (2016). *Dark territory: The secret history of cyber war*. Simon & Schuster.
- Keohane, R. O., & Nye, J. S. (2012). *Power and interdependence* (4th ed.). Longman.
- Kello, L. (2017). *The virtual weapon and international order*. Yale University Press.
- Lee, K.-F. (2018). *AI superpowers: China, Silicon Valley, and the new world order*. Houghton Mifflin Harcourt.
- Mazzucato, M. (2013). *The entrepreneurial state: Debunking public vs. private sector myths*. Anthem Press.
- Mokry, S. (2024). Competing ambitions regarding the global governance of artificial intelligence: China, the US, and the EU. *Global Policy*, 15, 955–968. DOI: 10.1111/1758-5899.13444
- National Security Commission on Artificial Intelligence. (2021). *Final report*. U.S. Government.
- Organisation for Economic Co-operation and Development. (2025). *Competition in artificial intelligence infrastructure*. OECD Publishing. DOI: 10.1787/623d1874-en
- Rizvi, S. A. A., Khan, F. U., & Rehman, F. U. (2026). Artificial Intelligence In Finance: Cross Border Payments, Remittances, And The Future Of Digital Currencies. *Advance Journal of Econometrics and Finance*, 4(1), 1814-1829.

- Rizvi, S. A. A. (2026). AI-Powered Credit Risk Assessment Framework for Small Businesses in the United States (A Comprehensive Proposed Framework for Financial Inclusion, Economic Growth, And Equitable Lending Practices in the United States).
- Organisation for Economic Co-operation and Development. (2025). *Economic security in a changing world*. OECD Publishing.
- Organisation for Economic Co-operation and Development. (2025). *Is generative AI a general-purpose technology? Implications for productivity and policy*. OECD Publishing. DOI: 10.1787/704e2d12-en
- Schmitt, M. N. (Ed.). (2017). *Tallinn manual 2.0 on the international law applicable to cyber operations*. Cambridge University Press.
- Segal, A. (2016). *The hacked world order: How nations fight, trade, maneuver, and manipulate in the digital age*. PublicAffairs.
- Stanford Institute for Human-Centered Artificial Intelligence. (2025). *AI Index report 2025*. Stanford University.
- Stanford Institute for Human-Centered Artificial Intelligence. (2026). *AI Index report 2026*. Stanford University.
- State Council of the People's Republic of China. (2017). *New generation artificial intelligence development plan*. State Council of the People's Republic of China.
- United Nations General Assembly. (2024). *Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development (A/RES/78/265)*. United Nations.
- Waltz, K. N. (1979). *Theory of international politics*. McGraw-Hill.
- Wang, D., & Li, Y. (2023). Artificial intelligence and the transformation of international power. *Global Society*, 37(4), 1–20.
- World Bank. (2025). *Digital progress and trends report 2025: Strengthening AI foundations*. World Bank.
- World Intellectual Property Organization. (2024). *Generative artificial intelligence: Patent landscape report*. WIPO.
- World Intellectual Property Organization. (2026). *SPARK: Patent trends update in GenAI*. WIPO.
- Zeng, J., Stevens, T. M., & Chen, Y. (2017). China's artificial intelligence diplomacy: A framework for analysis. *International Affairs*, 93(5), 1163–1184.