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AI in the US-China Trade Diplomacy: Negotiations and Tensions

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Abstract

This paper attempts at exploring the impact of artificial intelligence (AI) and its related Critical Technologies on US-China trade diplomacy. As both nations accelerate their AI development, competition over technological supremacy in these AI technologies, particularly concerning advanced computing hardware (semiconductor chips and critical rare earth minerals) and technology transfers, has become a central feature and a major cause of their trade tensions. The intense rivalry for AI leadership is intensifying trade disputes, raising concerns over intellectual property (IP), and leading to negotiations over technology transfer, cybersecurity, and regulatory frameworks.

The main objective of this paper is to analyze how AI technologies are reshaping US-China trade diplomacy, specifically by looking into the development of AI-related negotiations and tensions. The impact of AI-related discussions on trade diplomacy is further analyzed by focusing on key issues such as regulatory frameworks, cybersecurity concerns, and the strategic importance of AI in economic and military contexts.

The methodological stance is to use case studies, specifically investigating how AI technologies have influenced the US-China trade war (2018-2023) and other significant developments to reveal how AI-related issues are redefining global trade dynamics and diplomatic interactions. The paper also examines the ethical and legal challenges AI technologies presents in the diplomatic arena, from data privacy to algorithmic accountability. By focusing on AI technologies' role as a strategic asset in the ongoing geopolitical rivalry, this paper provides insights into the future of US-China trade diplomacy and the broader implications for global governance.

Keywords: Artificial Intelligence Technologies, US-China Relations, Trade Diplomacy, Technological Rivalry, Geopolitical Strategy

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Introduction

Artificial Intelligence (AI) has emerged as a critical technology in reshaping global power dynamics, with the United States of America (USA) and China at the forefront of this technological revolution. As two of the world's leading economies and AI innovators, the USA and China are engaged in an intense rivalry to achieve technological supremacy in this domain. This competition extends far beyond technological advancements; it is reshaping economic strategies, trade relations, and even diplomatic interactions between the two nations. AI and its related Critical Technologies are no longer just a tool for automation or data processing; they have become central to geopolitical strategies, altering the nature of trade diplomacy between these two nations. In this context, the competition to lead in AI technologies has become a critical battleground for nations seeking to enhance their influence in the global order (Lee, 2018; Kissinger et.al, 2021).

Before moving forward, it is important to define what the term Artificial Intelligence (AI) entails. The term AI was first coined by John McCarthy in 1956 as, "the science and engineering of making intelligent machines." But for the contemporary era, we need to modify this definition, and for the same purpose, the definition given by Bhaskar Mondal is used for this paper. He defines AI as, "the study of science and engineering to build artifacts which can develop knowledge by learning from experience, reading and processing text written in natural languages, reason with the acquired knowledge (able to perform tasks such as explaining, planning, diagnosing, etc.) and acting rationally (Mondal, 2019)."

What calls for this unprecedented interest by many nations in AI technologies is its nature to be used as a general-purpose enabling technology. It is not a separate technology in the same way as cars, robots, or other machines are, but similar to electricity, computers, or the internal combustion engine. Historical precedents show that earlier general purpose technologies brought about significant social, economic, and political changes in the world. Similarly, the potential impact of AI technologies is mind-boggling (Scharre, 2023), and could result in the automation of almost 50% of all tasks currently being done in the world economy. (*Harnessing Automation for a Future That Works*, 2017).

Further, the intersection of geoeconomics and global power dynamics within the world of AI technologies offers a complex dimension that changes national strategic calculation and redefines the terms of engagements and trade relations among nations. According to Kissinger

et al. (2021), whichever nation leads in AI development will be setting the terms of geoeconomic engagement in the 21st century. Given this backdrop, the USA already sees China as a country of concern (The White House, 2023) and is trying to aggressively beat China in this AI race and maintain its position as a superpower.

Since China's entry into the World Trade Organization (WTO) in 2001, its rapid economic rise and increasing integration into global markets have intensified its trade interactions with the United States. Over the years, the relationship has grown more intertwined but with disagreements over issues like intellectual property, market access, and trade imbalances. The 21st century has seen these disputes escalate into full-blown trade tensions, culminating in the US-China trade war of 2018-2023 (Qin, 2019). These developments clearly reflect deeper strategic concerns, particularly over technological dominance and economic power.

Understanding AI technologies' role in shaping US-China trade diplomacy is critical for the future of global trade relations. As both nations aggressively pursue AI leadership, their trade policies and diplomatic strategies are much more influenced by technological competition. AI technologies are raising new issues in trade negotiations, from intellectual property protection to the transfer of sensitive technologies. Furthermore, AI's integration into critical sectors such as defence, infrastructure, and cybersecurity is transforming how the US and China engage with each other on the international stage (Kanaan, 2020). The race for AI dominance is no longer limited to economic competition; it has become a key point of contention in trade talks, influencing both bilateral relations and broader geopolitical strategies.

The primary objective of this paper is to explore how AI technologies are reshaping US-China trade diplomacy, with a specific focus on the ways in which AI-related negotiations and tensions are developing in their trade relations. The paper will analyse the impact of AI technologies particularly concerning advanced computing hardware (semiconductor chips), Critical Rare Earth minerals, and technology transfers on trade diplomacy by examining key issues such as the regulatory frameworks governing AI technologies, cybersecurity concerns, and the strategic importance of AI technologies in economic and military contexts. By investigating how AI technologies have influenced the US-China trade war (2018-2023) and other significant developments, this research provides insights into the broader implications of AI for global trade dynamics. The paper will also consider how the US-China rivalry over AI technologies may set the stage for new forms of trade alliances, regulations, and disputes, fundamentally altering the landscape of global trade in the 21st century.

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To achieve the above-mentioned objectives, I first trace the US-China trade relations historically, covering the early expansion of trade following normalization in 1979, and the dramatic growth and accompanying challenges after China's entry into the World Trade Organization (WTO) in 2001. The next section, deals with the understanding of the reshaping of US-China trade relations in the 21st century, focusing on the paradox of economic interdependence alongside strategic competition, and identifying key disputes over intellectual property (IP) and unequal market access that set the stage for conflict. Section 4 presents a case study on the US-China Trade War (2018-2023**)**, demonstrating AI technologies' specific role in the conflict, particularly through the use of export controls on advanced computing hardware (semiconductor chips) and how the competition for AI supremacy exacerbated the dispute. The analysis then transitions to understand the influence of AI technologies on trade negotiations, exploring how AI technologies have introduced new focal points for diplomacy, such as technology transfer rules and regulatory frameworks, while simultaneously driving tensions on the cybersecurity, data privacy, and ethical standards front. Finally, the paper concludes by synthesizing these findings, implying that AI has become an important central factor in reshaping trade diplomacy and outlining the implications for future global trade dynamics and geopolitical strategies.

Historical Overview of US-China Trade Relations

From calculated economic engagement and cooperation to intensive geoeconomic rivalry and confrontation, the US-China trade relations have undergone a huge historical transformation. In the early phase of their relationship, the US engaged with China very cautiously, but with the hope of ultimately bringing the then largely agrarian China under the ambit of its rules-based liberal world order (Graff & Apeldoorn, 2018). The American hegemony and its role as the guarantor of this world order, however, finds a serious challenge in Chinese technonationalist policies. (Scharre, 2023; Kissinger et al., 2021; Miller, 2022) From "Made in China 2025" (Made in China 2025, 2018) to the "New Generation AI Development Plan," Chinese ambitions of becoming a world leader and its revisionist stance is clearly communicated to the world. To understand the current intense competition between the two states, it is important to look at how cooperation changed into confrontation.

Early Trade Relations

The trade relationship between the United States and China began to take shape in the 1970s, following President Richard Nixon's historic visit to China in 1972. This diplomatic

breakthrough led to the normalization of relations between the two nations, resulting in the establishment of formal diplomatic ties in 1979 (Cfr.org, 2017). At that time, China was a largely agrarian, developing country, while the United States was one of the most industrialized economies in the world. The United States viewed China as both a market for its goods and a strategic partner against Soviet influence during the Cold War. In the years that followed, trade between the two nations began to grow, but at a relatively modest pace due to China's restricted economic policies.

The 1980s saw the gradual expansion of US-China trade, largely driven by China's internal economic reforms under Deng Xiaoping, who initiated the "Reform and Opening-Up" policy (Jianguo, 2012). This policy shifted China from a centrally planned economy toward a more market-oriented model. As China opened its doors to foreign trade and investment, US businesses began to take advantage of China's low labour costs and growing market potential. This expanded the bilateral trade from approximately USD 2.4 billion in 1979 to over USD 17 billion by 1992 according to Chinese statistics (Jianguo, 2012). This symbiotic relationship was benefitting both the nations as China received state-of-the-art technology, managerial expertise, and global market access. Whereas US, benefitted from low-cost imports, which helped in curbing US consumer price inflation.

Further, the devaluation of renminbi (RMB) in 1994 and the extension of most-favoured-nation status by the US congress, resulted in substantial expansion of trade volumes. FDI flows from the US to China grew from USD 511 million (1992) to around USD 2 billion (2001), strengthening the US-China economic relations even more. For China, much of this economic growth took the form of processing trade with limited domestic value addition. This pattern of vertical specialization based on broader supply-chain analyses shows that incorporation into producer networks might deliver rapid export growth but without immediate commensurate gains in domestic value added (Chen et. al, 2012). Further, during the same period, tensions began to emerge, particularly around issues like intellectual property theft, human rights, and trade imbalances. These tensions ultimately assumed a huge strategic dimension in US policy towards China (Allison, 2017). Despite these early tensions, both nations recognized the mutual benefits of expanding economic ties, and trade continued to grow (Cfr.org, 2017; Jianguo, 2012).

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WTO and the 21st Century

A major turning point in US-China trade relations occurred in 2001 when China was admitted to the World Trade Organization (WTO). China's entry into the WTO marked its full integration into the global trading system, opening the door to an unprecedented level of foreign investment and international trade. For the United States, China's membership in the WTO was seen as a significant opportunity to deepen economic ties and gain access to China's vast market. This period was marked the U.S. strategy of "liberal engagement," rooted in the expectation that incorporating China into the US-led liberal world order would foster stability and encourage Beijing to become a "responsible stakeholder," thereby ensuring the continuation of open markets and liberal institutions favoured by the U.S. corporate elite. US policymakers believed that China's WTO membership would lead to greater adherence to international trade rules, including protections for intellectual property, market access, and fair competition.

In the years following WTO accession, China became a central node in East Asian and global value chains, and exports rose steeply across both low- and higher-technology manufactured goods. By the mid-2000s, China had become the United States' largest trading partner in goods, and the US-China trade relationship became one of the most important bilateral trade relationships in the world. However, with this rapid growth came new challenges. The trade deficit between the United States and China widened significantly, and accusations of unfair trade practices, such as currency manipulation and state subsidies to Chinese industries, became recurring points of contention (cfr.org, 2017). The structural inflection point, in line with the scholars of international networks' analysis, that dense economic interdependence creates both mutual gains and new instruments of state leverage, like export controls, financial restrictions, and standard setting, that can transform economic ties into geopolitical tools (Farrell & Newman, 2019), came in the form of US accusations on China's manipulative currency policy, restrictive trade measures, IPR-protection regime, and state interference in market (Jianguo, 2012). At the same time, China's rise as a global manufacturing powerhouse raised concerns in the United States about the loss of American jobs and the offshoring of production to China.

The early 21st century saw a series of key trade agreements and disputes that would set the stage for more significant tensions later on (Qin, 2019). As China's economy grew and its global ambitions expanded, the United States increasingly viewed China not just as a trading

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partner, but as a strategic competitor. This shift in perspective laid the groundwork for the trade war and heightened tensions in the following decades, as both nations vied for economic and technological supremacy.

Reshaping of US-China Trade Relations in the 21st Century

Economic Interdependence and Strategic Competition

In the 21st century, the trade relationship between the United States and China deepened, becoming more complex as both nations grew increasingly economically interdependent. This eventually moved their bilateral relations toward strategic reassessment. China's rapid industrialization, driven by its expanding manufacturing sector, transformed it into the "world's factory," supplying a vast range of goods to global markets, including the United States. The U.S., in turn, benefited from access to China's low-cost labor and growing consumer market. As China's economy grew, it became the largest foreign holder of U.S. debt, creating a financial interdependence between the two nations. This economic intertwining created a paradox: *while both countries relied on each other for economic growth, they also began to view each other as strategic competitors.*

The complexity of this relationship was further multiplied by the global shift toward technological and digital economies. For China, economic growth was no longer solely about manufacturing; it was increasingly about technological innovation. China's "**Made in China 2025**" initiative, launched in 2015, aimed to transition the country from a manufacturing-based economy to a global leader in high-tech industries such as robotics, AI, and telecommunications (Made in China 2025, 2018). This strategic push alarmed the United States, which had long been the dominant global power in technological innovation. The rise of China as a technological rival led to a shift in U.S. geopolitical strategy, with both nations increasingly focused on securing economic and technological dominance. This shift converted previously transactional trade frictions into broader disputes over technological sovereignty, supply-chain resilience, and national security (Jianguo, 2012)

As China's technological ambitions grew, the U.S. began to see the relationship through a more competitive lens. Washington's strategy shifted from fostering economic engagement with China to countering China's rise as a geopolitical and economic rival. This competition played out in trade relations, where both nations sought to protect their strategic industries, including technology and defence, from foreign influence and control. The growing integration of AI, data analytics, and digital trade into global economies only intensified this competition, as both

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nations recognized that technological leadership would be key to securing future economic and geopolitical power. The Stuxnet episode and subsequent scholarship demonstrate how cyber tools and dual-use software blur the boundary between commercial technology and national security instruments; the political consequences include tighter export controls and increased scrutiny of cross-border technology transfers (Lindsay, 2013). Similarly, the security implications of emerging technologies (especially AI) reshaped their relationship into a strategic game of balance of power and created incentives for them to restrict flows, build resilience, and pursue techno-strategic decoupling in selected sectors (Horowitz, 2018; Brundage et al., 2018).

From Hyper-Globalization to Weaponized Interdependence

For nearly four decades following normalization of ties in 1979, the bilateral relationship between the US and China was defined by a massive expansion in trade and investment. By 2012, total trade in goods had increased nearly 200-fold from its 1979 base (Jianguo, 2012, p.4). US foreign direct investment (FDI) was instrumental in China's development, bringing not only financing but also "management know-how and global market access". Conversely, the US benefited through access to value-for-money consumer goods that helped "keep consumer price inflation low" and supported the profitability of US multinational corporations, which used China as a critical "profit-center". This vertical specialization is captured by the Apple iPhone case study: in 2010, while the final assembly occurred in China, the value-added contributed by the Chinese economy was a mere 3.6% of the export value, while Apple captured approximately 58.5% of the total profit (Kraemer et al., 2011).

The fundamental paradox usually associated with a superpower and a rising power, i.e., viewing each other as "national security threats" along with unprecedented levels of interdependence (Dallas, 2024), led to the shift of US policy from that of "liberal engagement" to "containment." By mid-2010s, it became clear to the US that China was not converging toward Western political-economic norms. (Tung et.al, 2023)) The heart of this competition became technology, leading to a "Tech Cold War" (Segal, 2020) characterized by new technonationalist thinking which directly links technological capabilities to national security. (Dallas, 2024)

In this Tech Cold War, the US strategy has been that of "weaponized interdependence," a concept developed Farrell and Newman (2019) to describe a hegemon exploiting its jurisdictional control over central network hubs to gather intelligence (the panopticon effect)

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or sever an adversary's access to the global economy (the chokepoint effect). US dominance in specialized areas creates high-strength chokepoints; for example, US-origin technology accounts for over 90% of the global market share in Electronic Design Automation (EDA) software, which is essential for chip design (Dallas, 2024, p.92). Since 2018, the Bureau of Industry and Security (BIS) has utilized the Export Control Reform Act (ECRA) to tighten restrictions on "emerging and foundational technologies" to degrade Chinese military modernization and military-civil fusion (MCF) initiatives (Rasador & Cunha, 2025, p.3). However, these Cold War like chokepoint strategies are not as effective as they used to be as today's dual-use technologies are highly commercial in nature. This leads to frustration and a growing anxiety in the US in its bid to contain a rising Beijing.

Key Events Leading to Trade Disputes

One of the most contentious issues that reshaped US-China trade relations in the 21st century was the concern over intellectual property (IP). American companies repeatedly accused China of widespread IP theft, including forced technology transfers and counterfeiting (Qin, 2019). These allegations became a focal point in trade disputes, with U.S. businesses arguing that China's lax enforcement of intellectual property rights gave Chinese firms an unfair advantage. Despite China's entry into the World Trade Organization (WTO) and promises to adhere to international IP standards, the U.S. believed that China continued to exploit gaps in the system to boost its own industries, particularly in the high-tech sector.

The "Made in China 2025" (MIC 2025) Initiative was launched by Beijing to modernize its industrial capability and achieve global dominance in ten strategic sectors, including robotics, aerospace, and advanced IT (Made in China 2025, 2018). Washington perceived this as a direct challenge to its technological primacy and a blueprint for "unfair competition" through state subsidies and IP theft.

Market access became another flashpoint in the trade relationship. While China benefited from relatively open access to U.S. markets, American companies faced significant barriers to entering China's markets. The Chinese government maintained strict controls on foreign investments and imposed protectionist policies that favoured domestic companies. In response, the United States began to push back, demanding greater reciprocity and fairness in trade practices. These grievances led to increased scrutiny of Chinese investments in sensitive sectors, particularly technology, and a tightening of U.S. policies on Chinese acquisitions and partnerships with American firms (Bateman, 2021).

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Trade imbalances between the two nations also exacerbated tensions. By the mid-2010s, China had amassed a substantial trade surplus with the United States, exporting far more goods to the U.S. than it imported. This imbalance, combined with accusations of currency manipulation by China to make its exports cheaper, became a major point of contention in U.S. domestic politics. American policymakers and businesses grew increasingly frustrated with what they saw as an unfair playing field, fuelling calls for protectionist measures and trade tariffs to address these imbalances.

Technology and digital trade emerged as central factors in reshaping US-China trade relations. The rise of Chinese tech giants like Huawei and Alibaba, coupled with China's ambitious AI and 5G development programs, posed a direct challenge to U.S. technological leadership. Concerns over data security, cybersecurity, and the potential military applications of Chinese technologies further complicated trade relations. As China sought to expand its influence in the digital space, the U.S. responded with restrictions on Chinese technology companies, citing national security concerns. This technological competition contributed to a broader shift in trade relations, where issues of security, intellectual property, and market access increasingly dominated negotiations and disputes (US-China trade war,2022).

These factors, combined with strategic competition for global influence, set the stage for a series of escalating trade disputes, ultimately culminating in the US-China trade war of 2018-2023. I have taken 2023 strictly for the purpose of this research and does not mark an end to the trade war as it continues till today. What began as an economic rivalry over trade imbalances and intellectual property soon evolved into a broader geoeconomic struggle, with technology and innovation at the heart of the conflict.

Case Study: US-China Trade War (2018-2023)

Overview of the Trade War

The US-China trade war, which began in 2018 and continued into 2023, marked one of the most significant disruptions in global trade in recent history. The trade war was triggered by several factors, including longstanding concerns over intellectual property theft, trade imbalances, and China’s growing economic and technological ambitions which we have discussed in the previous sections (US-China trade war, 2022). A primary catalyst was the U.S. administration’s frustration with the widening trade deficit between the two nations, as well as China’s exponential rise across a broad range of industries ranging from biotechnology to

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artificial intelligence (AI) and their industrial policies that were perceived to unfairly disadvantage foreign companies.

- **2017–2018**: **USTR Section 301 Investigation:** The US officially triggered the trade war on March 22, 2018 by launching an investigation into China's acts regarding technology transfer and intellectual property. The resulting "Section 301 Report" alleged that China used "forced technology transfer" and mandatory joint venture requirements to coerce US firms into sharing proprietary information in exchange for market access (Tung et.al, 2023; Qin, 2019). In 2018, the United States, under the Trump administration, announced tariffs on Chinese imports worth $200 billion, citing unfair trade practices, especially around forced technology transfers and intellectual property violations (USTR finalizes tariffs on $200 billion of Chinese imports in response to China's unfair trade practices, 2018).

  In retaliation, China responded by imposing its own tariffs on U.S. goods, particularly targeting industries crucial to American exports, such as agriculture and automobiles. The conflict quickly escalated, with both nations engaging in a tit-for-tat tariff battle that extended across multiple sectors, affecting everything from consumer goods to industrial components. Key policies during this period included the U.S. Section 301 investigation into China's trade practices, the implementation of tariffs on hundreds of billions of dollars' worth of goods, and China's strategic counter-tariffs targeting politically sensitive U.S. industries. Negotiations were held intermittently, but tensions remained high as both nations sought to gain leverage in trade talks.

- **2018: Enactment of ECRA and FIRRMA:** The institutional backbone of the escalation by US was the passage of the Export Control Reform Act (ECRA) and the Foreign Investment Risk Review Modernization Act (FIRRMA) acts by the Congress. These laws redefined the relationship between national security and international competitiveness, providing the executive branch with broad authority to scrutinize foreign investments and restrict the export of dual-use technologies (Rasador & Cunha, 2025; Bateman, 2021). This period saw the "securitization of economic policy," where the Bureau of Industry and Security (BIS) emerged as a primary instrument of statecraft. By early 2023, the BIS had added over 1,000 Chinese entities and individuals to its Entity List, effectively mandating a presumption of denial for licenses to access U.S.-origin technologies. (Rasador & Cunha, 2025; Khan, 2020; Tung et.al, 2023)

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- **2019–2020: The Blacklisting of Huawei and the Expansion of the FDPR**: In 2019, the BIS placed Huawei and 150 of its affiliates on the Entity List (Khan, 2020). In 2020, the US expanded the Foreign Direct Product Rule (FDPR), asserting extraterritorial jurisdiction to prevent Huawei from acquiring semiconductors manufactured by foreign foundries (like TSMC) if they used any US-origin software or equipment (Rasador & Cunha, 2025; Bateman, 2021; Khan, 2020). As a result of US sanctions, Huawei's smartphone sales declined to a mere 28 million units in 2022 from around 240 million units in 2019 globally.

  Responding sharply, China in May 2019, announced the making of "a list of unreliable entities" which encompasses foreign entities and individuals that fail to comply or act in bad faith to legitimate rights and interests of Chinese companies (Xinhua, 2019).

- **2022: The "Silicon Blockade" and the CHIPS Act:** The US enacted the CHIPS and Science Act to reshore semiconductor manufacturing (Park, 2023). Simultaneously, on October 7, 2022, the BIS implemented unprecedented "China-wide" controls on advanced computing and semiconductor manufacturing items, effectively declaring a "silicon blockade" to inhibit China's ability to train advanced AI models for military applications. (Dallas, 2024; Tung et. al, 2023; Rasador & Cunha, 2025; Mearsheimer, 2014) To further augment these domestic measures, the U.S. spearheaded the formation of the "Chip 4 Alliance" with Japan, South Korea, and Taiwan to coordinate supply chain diversification and enforce technological "chokepoints" (Park, 2023).

  Despite these restrictions, the trade war induced complex counter-strategies, such as China's accelerated pursuit of indigenous self-sufficiency and the use of older-generation SME to achieve surprising breakthroughs, exemplified by SMIC's production of a 7nm processor for Huawei's Mate 60 Pro in 2023 (Dallas, 2024; Tung et.al., 2023).

AI technologies' Role During the Trade War

The Fourth Industrial Revolution (Schwab, 2017), specifically centred on Artificial Intelligence (AI) and the critical mineral supply chains that undergird it, has been the focal point of this trade war. (Ding, 2024; Park, 2023; Tung et.al, 2023) AI technologies have emerged as pivotal "force-multipliers," offering immense operational benefits in military precision, autonomous surveillance, and cybersecurity while simultaneously heightening geopolitical tensions. In a

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similar vein, AI technologies present huge ethical and legal challenges that complicate international diplomatic negotiations. A primary concern is the "black box" nature of many AI systems, which raises significant questions regarding algorithmic accountability and the potential for embedded bias to perpetuate systemic discrimination against marginalized groups (Kolade, 2024). In the diplomatic arena, these concerns have manifested in targeted sanctions against Chinese firms like Hikvision, SenseTime, and Megvii, which are alleged to have provided technological support for mass surveillance and human rights violations in Xinjiang (Bateman, 2021). Additionally, the tension between maintaining robust cross-border data flows for e-commerce and protecting individual data privacy has become a "major trade irritant," leading to calls for new WTO rules to address forced technology transfers and the protection of undisclosed proprietary information (Mitchell & Mishra, 2019).

During the trade war, the U.S. government shifted from a strategy of deep interdependence to one of containment, specifically leveraging its structural power to degrade China's AI and military modernization efforts (Dallas, 2024; Rasador & Cunha, 2025; Tung et. al, 2023) A critical empirical manifestation of this strategy was the implementation of the "Silicon Blockade" on October 7, 2022, when the Bureau of Industry and Security (BIS) imposed sweeping export controls on advanced computing hardware and high-performance computing (HPC) capabilities necessary for training large-scale AI models as discussed earlier.

This restrictive approach targets the "chokepoint" of advanced semiconductors, which are the essential hardware backbone for AI applications in everything from facial recognition to hypersonic weapons modelling (Chu, 2023; Khan, 2020). In response, China has doubled down on its "Made in China 2025" and "Next-Generation AI Development Plan," seeking to achieve technological self-sufficiency and replace foreign imports with indigenous innovations. While China has demonstrated a significant lead in AI research publications, accounting for 39.8% of global output by 2023, the U.S. maintains a qualitative advantage in "diffusion capacity," or the ability to effectively spread and embed these AI breakthroughs across the broader productive economy (Ding, 2023, 2024). Furthermore, the U.S. has weaponized the digital supply chain by adding prominent Chinese firms like telecommunications (Huawei), AI (SenseTime, Megvii, iFLYTEK), semiconductors (SMIC, HiSilicon, Phytium), digital cameras (Hikvision, Dahua), drones (DJI), cybersecurity (Qihoo 360), and supercomputers (China’s National Supercomputing Centers) to the Entity List (released by The Commerce Department barring import of almost any US-origin product for the designated entities), citing their involvement in state-led surveillance and human rights violations (Bateman, 2021).

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As the U.S. implemented hardware restrictions, the role of critical rare minerals transitioned from mere industrial inputs to potent geoeconomic bargaining chips (Rasador & Cunha, 2025). China currently occupies a monopolistic position in the global rare earth ecosystem, producing 60% of these metals and, more significantly, processing approximately 90% of them. This processing advantage creates a huge vulnerability for the United States, as China separates 99.9% of heavy rare earths essential for defense systems, clean energy, and high-tech electronics (Tourangbam & Singh, 2024).

On December 21, 2023, Beijing announced a formal ban on the export of extraction and separation technologies for rare earth metals to preserve its dominance. Furthermore, in a direct counter-response to U.S. semiconductor export controls, China restricted the export of gallium and germanium, two rare minerals critical for the production of advanced chips and lithography equipment (Tung et.al., 2023)

The potential for this mineral-based "kicking away the ladder" scenario has forced the U.S. to seek strategic mineral partnerships with allies like Australia and Japan to diversify supply chains and mitigate the risks of geoeconomic fragmentation (Rasador & Cunha, 2025). Consequently, the synergy between AI hardware requirements and mineral processing monopolies has created a "grey zone" in international trade where security and economic justifications are inseparable, potentially leading to a permanent bifurcation of the global technological order.

Outcomes and Lessons Learned

The US-China Trade War (2018–2023) represents a transformative structural break in global economic governance, necessitating a rigorous synthesis of its geoeconomic outcomes and the profound strategic lessons derived from this period of "weaponized interdependence" (Farrell & Newman, 2019). This epoch signalled the definitive collapse of the "liberal engagement" paradigm, which had optimistically presumed that China’s integration into the World Trade Organization (WTO) would foster convergence with Western liberal-democratic norms (Bateman, 2021; Graaff & Apelrdoorn, 2018; Tung et.al., 2023). Instead, the conflict solidified a new "techno-nationalism," wherein technological capabilities are directly linked to national security and sovereign survival (Park, 2023).

The primary outcomes of this period manifest in the radical bifurcation of technological ecosystems and the reconfiguration of global value chains (GVCs). At the firm level, the targeted application of the Entity List and the Foreign Direct Product Rule (FDPR) effectively

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"hobbled" Chinese national champions; most notably, Huawei experienced a revenue decline of 29% in 2021 as its access to high-end chips was severed (Khan, 2020) Conversely, firms such as SMIC experienced a counterintuitive boon in the short term, with operating profits rising nearly ten-fold as domestic procurement surged in response to external sanctions (Dallas, 2024).

However, the most significant outcome was the acceleration of Chinese indigenous innovation and the pursuit of technological self-sufficiency (Mearsheimer, 2014). Despite comprehensive US export controls on advanced nodes, the 2023 release of the Huawei Mate 60 Pro, featuring an internally designed 7nm processor, demonstrated the capacity for "workarounds" using older-generation semiconductor manufacturing equipment (SME) through trial-and-error and inefficient production craft (Khan, 2020). This suggests that while US policies have created significant "chokepoints," they have also stimulated a "Silicon Curtain" that may lead to long-term geoeconomic fragmentation and the emergence of competing, non-interoperable standards.

The conflict offers several critical lessons for the study of international political economy and security:

• **The "Mirage" of Chokepoint Strength**: An important lesson is that market share dominance (e.g., US control of over 90% of the EDA software market) does not translate directly into absolute coercive power (Dallas, 2024). In Massive Modular Ecosystems (MMEs), targeted states possess "degrees of freedom" to achieve strategic goals through product architecture redesigns, shifting MME layers (such as moving to cloud computing to access high-performance computing), and the adoption of open-source architectures like RISC-V.

• **Weaponized Interdependence and Asymmetry**: The period empirically validated the theory of "weaponized interdependence," proving that global networks are not flat but characterize a "hub-and-spoke" topography (Farrell & Newman, 2019). States with jurisdictional control over central nodes can exploit the "Panopticon effect" for information extraction and the "chokepoint effect" to terminate an adversary’s network access.

• **The Paradox of Defensive Measures**: While defensive restrictions like export controls and investment screening (FIRRMA) are fast-acting, they are fundamentally "time-buying" mechanisms rather than long-term solutions for sustaining technological leadership (Bateman, 2021). The "Sullivan Tech Doctrine" of a "small yard, high fence" acknowledges that the US must prioritize "offensive" domestic investments, such as the CHIPS and Science Act, to

bolster its own innovation base rather than relying solely on the negative curtailment of rival advancements (Rasador & Cunha, 2025; Tung et.al., 2023).

• **Global South Realignment**: The trade war catalyzed a shift in the Global South's perception of the liberal international order. The expansion of the BRICS bloc and the search for alternative financial payment systems (e.g., the New Development Bank) reflect a growing desire to mitigate "dollar weaponization" and the "kicking away the ladder" scenario where advanced economies use technology restrictions to cement existing power asymmetries (Tung et.al., 2023). One of the most lasting impacts of the trade war was the reshaping of global supply chains. As tariffs made it more expensive to import goods from China, many multinational companies sought to reduce their dependence on Chinese manufacturing by shifting production to other countries, such as Vietnam, India, and Mexico. This shift marked the beginning of a broader trend toward supply chain diversification, as businesses and governments realized the risks of over-reliance on any single nation for critical goods (Enderwick, 2011). The trade war also accelerated China's push for technological self-sufficiency, particularly in areas like AI, semiconductors, and advanced manufacturing, as it sought to reduce its dependence on U.S. technologies.

The lessons learned from the US-China trade war underscore the complexity of decoupling the two largest economies in the world, particularly in the age of AI and digital trade (Bateman, 2021). While the trade war led to a temporary realignment of economic relationships, it also highlighted the enduring strategic competition between the United States and China, particularly in the realm of technology. The trade war demonstrated that economic interdependence does not necessarily lead to cooperation, especially when national security concerns and technological leadership are at stake. As AI continues to shape global trade dynamics, future trade disputes between the U.S. and China are likely to be centred around technological competition, cybersecurity, and data governance, setting the stage for new forms of economic and geopolitical rivalry.

Conclusion

The transformation of U.S.-China trade relations from a paradigm of "liberal engagement" to one of "antagonistic rivalry" represents a fundamental structural break in the global political economy. This analysis concludes that the contemporary era is defined by the securitization of economic policy, where technological capabilities are no longer viewed as neutral market assets

but as primary determinants of national power and sovereign survival. (Dallas, 2024; Graaff & Apeldoorn, 2018).

The transition from hyper-globalization to geoeconomic fragmentation is rooted in the "weaponization of interdependence". As global economic networks have evolved into highly asymmetric "hub-and-spoke" topographies, the United States has leveraged its jurisdictional control over central nodes specifically in financial messaging (SWIFT) and semiconductor supply chains, to exercise coercive power through panopticon and chokepoint effects (Farrell & Newman, 2019; Park, 2023). The efficacy of these measures, however, is increasingly challenged by the "loose coupling" of massive modular ecosystems, which provide targeted actors with "degrees of freedom" to achieve technical goals through product redesigns and alternative innovation trajectories.

A critical finding of this study is the divergence between innovation capacity and diffusion capacity (Ding, 2023). While China has emerged as a leader in innovation-centric metrics such as R&D expenditure and patent filings, it faces a persistent "diffusion deficit" in its ability to effectively adopt and embed emerging technologies across its broader productive economy. Conversely, the U.S. maintains a strategic advantage in "diffusion capacity," particularly in the software engineering and computer science disciplines essential for the scaling of Artificial Intelligence (AI).

The "Silicon Blockade" and the imposition of the Foreign Direct Product Rule (FDPR) have signalled the end of the post-Cold War world order, prompting a global realignment. The emergence of "exclusive clubs" like the Chip 4 Alliance and the expansion of the BRICS bloc as a counterweight to the G7 reflect a world shifting toward multipolarization. In this "a la carte" world, middle powers are increasingly asserting their own national interests by avoiding binary alignments, thereby complicating the ability of either superpower to maintain absolute structural dominance.

Ultimately, the U.S. strategy of a "small yard with a high fence" acknowledges that while complete decoupling is commercially unfeasible, the preservation of a technological "military edge" necessitates targeted restrictions on dual-use technologies. China’s retaliatory measures, particularly regarding the control of critical rare minerals, underscore the reality that interdependence is a double-edged sword that can facilitate a "downward spiral" of compromised security for all participants.

The U.S.-China relationship has entered a "new normal" of techno-nationalism, where the global value chain has become the primary arena for geopolitical competition. Success in this era will depend less on the capacity to pioneer radical breakthroughs and more on the institutional ability to facilitate widespread technological diffusion while maintaining resilience within a fragmented and contested international order.

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References

Allison, G. T. (2017). *Destined for war: can America and China escape Thucydides's trap?* Houghton Mifflin Harcourt.

Bateman, J. (2021). *U.S.-China Technological "Decoupling": A strategy and Policy framework*. Carnegie Endowment for International Peace.

Brundage, M., Avin, S., Clark, J., Toner, H., Eckersley, P., Garfinkel, B., Dafoe, A., Scharre, P., Zeitzoff, T., Filar, B., Anderson, H., Roff, H., Allen, G. C., Steinhardt, J., Flynn, C., Ó hÉigeartaigh, S., Beard, S. J., Belfield, H., Farquhar, S., … Amodei, D. (2018). *The malicious use of artificial intelligence: Forecasting, prevention, and mitigation* (Research report). arXiv. https://doi.org/10.48550/arXiv.1802.07228

Cfr.org (2017, April 27). U.S.-China Relations. *Council on Foreign Relations*. https://www.cfr.org/timeline/us-china-relations

Chen, X., Cheng, L. K., Fung, K., Lau, L. J., Sung, Y., Zhu, K., Yang, C., Pei, J., & Duan, Y. (2012). Domestic value added and employment generated by Chinese exports: A quantitative estimation. *China Economic Review*, *23*(4), 850–864. https://doi.org/10.1016/j.chieco.2012.04.003

Chu, M. M. (2023). China's defence semiconductor industrial base in an age of globalisation: Cross-strait dynamics and regional security implication. *Journal of Strategic Studies.*

Dallas, M. P. (2024, October 24). Rethinking Export Controls: Emerging Technologies, Industrial Organization, and US-China Relations. *Wilson Center*.

Ding, J. (2023). The diffusion deficit in scientific and technological power: re-assessing China's rise. *Review of International Political Economy, 31,* 173-198.

Ding, J. (2024). The Rise and Fall of Technological Leadership: General-purpose Technology Diffusion and Economic Power Transitions. *International Studies Quarterly.*

Enderwick, P. (2011). A 'China-Plus-One' strategy: The best of both worlds? *Human Systems Management*, *30*(1–2), 85–96. https://doi.org/10.3233/hsm-2011-0735

Farrell, H., & Newman, A. L. (2019). Weaponized Interdependence: How Global Economic Networks Shape State Coercion. *International Security*, 44(1), 42-79.

Graaff, N. D. & Apeldoorn, B. V. (2018). US-China relations and the liberal world order: contending elites, colliding visions? *International Affairs, 94*, 113-131.

Harnessing automation for a future that works. (2017, January 12). McKinsey & Company. https://www.mckinsey.com/featured-insights/digital-disruption/harnessingautomation-for-a-future-that-works

Horowitz, M. C. (2018). Artificial Intelligence, International Competition, and the Balance of Power. *Texas National Security Review*, 1(3), ISSN 2576-1153.

Jianguo, H. (2012). The development of U.S.-China economic Relations, 1978 to the present. In *US-China 2022: Economic Relations in the Next 10 Years* (p. 5).

Kanaan, M. (2020). *T-Minus AI: Humanity's Countdown to Artificial Intelligence and the New Pursuit of Global Power*. BenBella Books.

Khan, S. F. (2020). U.S. Semiconductor Exports to China: Current Policies and Trends. *CSET Issue Brief, Center for Security and Emerging Technology.*

Kissinger, H. A., Schmidt, E., & Huttenlocher, D. (2021). *The age of AI: And Our Human Future*. Hachette UK.

Kolade, T. M. (2024). Artificial intelligence and global Security: Strengthening international cooperation and diplomatic relations. *Archives of Current Research International*, *24*(11), 23–47. https://doi.org/10.9734/acri/2024/v24i11945

Kraemer, K. L., Linden, G., & Dedrick, J. (2011). *Capturing value in global networks: Apple's iPad and iPhone.* University of California, Irvine; University of California, Berkeley; Syracuse University.

Kumar, Amit, (2021). *National AI Policy/Strategy of India and China: A Comparative Analysis*. New Delhi. Research and Information System for Developing Countries

Lee, K. (2018). *AI superpowers: China, Silicon Valley, and the New World Order*. Houghton Mifflin.

Lindsay, J. R. (2013). Stuxnet and the Limits of Cyber Warfare. *Security Studies*, *22*(3), 365–404. https://doi.org/10.1080/09636412.2013.816122

Lopez, C. T. (2024, February 1). *U.S. Can Respond Decisively to Cyber Threat Posed by China*. U.S. Department of Defense. https://www.defense.gov/News/News-Stories/Article/Article/3663799/us-can-respond-decisively-to-cyber-threat-posed-by-china/#:~:text=Nakasone%20told%20lawmakers%20that%20cyber,Chinese%20in%20crisis%20or%20conflict.

Made in China 2025. (2018). In *Institute for Security & Development Policy*.

Malhotra, R. (2021). *Artificial Intelligence and The Future of Power*. Rupa Publications India Pvt Limited.

Mearsheimer, J. J. (2014, October 25). Can China rise peacefully? The National Interest. https://nationalinterest.org/feature/can-china-rise-peacefully-10204

Miller, C. (2022). *Chip war: The Fight for the World's Most Critical Technology*. Simon and Schuster.

Mitchell, A. D., & Mishra, N. (2019). Regulating Cross-Border data flows in a Data-Driven World: How WTO Law can contribute. *Journal of International Economic Law*, *22*(3), 389–416. https://doi.org/10.1093/jiel/jgz016

Mondal, B. (2019). Artificial Intelligence: State of the Art. In V.E. Balas, R. Kumar, R. Srivastava (Eds.), *Recent Trends and Advances in Artificial Intelligence and Internet of Things*. Springer Nature.

National Security Commission on Artificial Intelligence. (2021). *Final Report*. https://www.nscai.gov/wp-content/uploads/2021/03/Full-Report-Digital-1.pdf

Park, S. (2023). Semiconductors at the Intersection of Geoeconomics, Technonationalism, and Global Value Chains. *Social Sciences, 12, 466.* https://doi.org/10.3390/socsci12080466

Qin, J. Y. (2019). Forced Technology Transfer and the US–China Trade War: Implications for International Economic Law. *Journal of International Economic Law*, *22*(4), 743–762. https://doi.org/10.1093/jiel/jgz037

Rasador, G. S. & Cunha, A. M. (2025). The new security grey zone: export controls, emerging technologies and US-China technological rivalry. *The Pacific Review.*

Scharre, P. (2023). *Four Battlegrounds: Power in the Age of Artificial Intelligence*. W. W. Norton & Company.

Schwab, K. (2017). *The Fourth Industrial Revolution*. Penguin UK.

Segal, A. (2020). The coming tech cold war with China: Beijing is already countering Washington's policy. Foreign Affairs, September 9. https://www.foreignaffairs.com/articles/north-america/2020-09-09/coming-tech-cold-war-china

Stone, P., Brooks, R., Brynjolfsson, E., Calo, R., & Kalyanakrishnan, S. (2016). *Artificial Intelligence and Life in 2030: One Hundred Year Study on Artificial Intelligence*. Stanford University. https://ai100.stanford.edu/

The White House. (2023, August 9). *Executive Order on Addressing United States Investments in Certain National Security Technologies and Products in Countries of Concern*. https://www.whitehouse.gov/briefing-room/presidentialactions/2023/08/09/executive-order-on addressing-united-states-investments-incertain-national-security-technologies-and-products-in-countries-of-concern/

Tourangbam, M., & Singh, A. (2024, July 25). Is America ready for the new Cold War? *The Diplomat*. https://thediplomat.com/2024/07/is-america-ready-for-the-new-cold-war/

Tung, R. L. et al. (2023). The Tech Cold War, the multipolarization of the world economy, an IB research. *International Business Review*. https://doi.org/10.1016/j.ibusrev.2023.102195

US-China trade war. (2022, July 19). PIIE. https://www.piie.com/research/trade-investment/us-china-trade-war

USTR finalizes tariffs on $200 billion of Chinese imports in response to China's unfair trade practices. (2018, September 18). United States Trade Representative. https://ustr.gov/about-us/policy-offices/press-office/press-releases/2018/september/ustr-finalizes-tariffs-200

Xinhua. (2019). China to establish a list of unreliable entities. *China Daily*, 31. https://www.chinadailyhk.com/articles/58/114/143/1559298719084.html

Zhang, D., Mishra, S., Etchemendy, J., Ganguly, D., Grosz, B., Sellitto, M., & Manyicka, J. (2021). *The AI Index 2021 Annual Report*. Human-Centered AI Institute, Stanford University.