

South Asian Studies

Vol. 40, No. 1, January – June, 2025, pp. 23 – 41

## Artificial Intelligence and the New World Order: A Comparative Study of US-China Technological Rivalry

**Adnan Nawaz**

Assistant Professor, Department of International Relation, Government College University Faisalabad, Faisalabad, Pakistan.

Email: [adnannawaz@gcuf.edu.pk](mailto:adnannawaz@gcuf.edu.pk)

Received:  
Apr 15, 2025

Published:  
Jun 30, 2025

**Syed Raghav Ali**

Executive Director, Lahore Institute for Research and Analysis, Lahore, Pakistan.

**Naudir Bakht**

Professor, School of Political Science, Minhaj University Lahore, Lahore, Pakistan.

**Zosha Noor**

M.Phil, Department of International Relation, Government College University Faisalabad, Faisalabad, Pakistan.

### ABSTRACT

The power rivalry between the United States and China in the twenty-first century has been significantly influenced by advancements in artificial intelligence. This technology not only transforms economic markets but also enhances military capabilities and shapes political governance. This research explores the historical progression of AI development across these countries by showing how their unique political frameworks, alongside economic tables and strategic visions, created separate paths toward AI domination. During the Cold War years, the United States paced ahead through governmental investments combined with university innovation and its flexible private sector activity yet China obtained its growth through state-mandated direction and national planning alongside substantial financial allocations in line with initiatives like the Next Generation Artificial Intelligence Development Plan. China's Belt and Road initiative employs AI surveillance tools to construct new infrastructure as the United States depends on autonomous private enterprise operations without state control and freedom to conduct independent research. The competition between China and the United States targets multiple areas including semiconductor manufacturing technology together with quantum computing research and ethical standards creation which exposes weaknesses for each side. This study qualitatively evaluates the competition between US and China and analytically elucidates the key challenges which are posing threats to the global power hierarchy. AI operates as an accelerating force that shapes future power dynamics while determining digital sovereignty principles and deepening global ideological conflicts.

**Keywords:** Power Rivalry, Artificial Intelligence, Political Governance, Belt and Road Initiative, Digital Sovereignty, US, China.

## **Introduction**

Artificial intelligence (AI) is a foundational transformative power in the twenty-first-century global order that reshapes economic systems and national security plans while altering global geopolitical forces. Artificial intelligence development's rapid pace surpasses scientific discovery's boundaries while transforming governance, diplomatic relations, and military dominion. The field of Artificial Intelligence started as an academic project. However, it developed into a crucial instrument for worldwide diplomatic pursuits (Brynjolfsson & McAfee, 2014) as countries attempt to gain dominance over this innovative technology. The advancing capabilities of artificial intelligence have created clear points of view on how it modifies power relationships between countries. The rise of technological development historically emerges together with changes in global hegemony. In the 19th century, Britain emerged as a global leader during the Industrial Revolution. In the 20th century, the development of atomic weapons established the United States and the Soviet Union as superpowers (Kennedy, 2010). AI functions today as a determining element that shapes the power competition between America and China during the twenty-first century. Effective control of AI technology determines global economic dominance, military strength, and institutional power (Lee, 2018). AI impacts the future of automation, cybersecurity, financial market decisions, and governmental corporate decision-making. Countries that lead in AI innovation development guide worldwide trade policies and digital systems together with military systems. Because of its technological dominance throughout time, the United States has confronted rising competition from China, which has declared artificial intelligence to be a critical component of its national development objectives (Kania, 2020). The worldwide power transformation that results from AI progress reshapes international diplomatic ties to establish future commercial and strategic competitions. The United States and China's battle for AI supremacy brings significant consequences to national defense alongside economic and ideological control and technological exploitation. Countries on both sides acknowledge Artificial Intelligence as a fundamental instrument that can determine future warfare patterns intelligence collection capabilities and economic market dominance. Modern warfare receives its transformation from AI-driven military operations, including autonomous weapons systems and cyber warfare capabilities and intelligence analysis, which positions AI as a fundamental component of national defense (Sayler, 2020). China established its path to AI domination through the "Next Generation Artificial Intelligence Development Plan" released by the State Council of China in 2017 which aims to achieve leadership status by 2030 (Khanal, 2025). This initiative has resulted in major investments supporting AI research while attracting competent personnel and advancing technology infrastructure. The Chinese government supports AI advancement through coordinated policy decisions with corporate innovation practices which allows Alibaba and Tencent and Baidu to pioneer advanced AI solutions across multiple industries (Ding, 2018). The United

## *Artificial Intelligence and the New World Order: A Comparative Study of US-China Technological Rivalry*

States adopts a decentralized approach to AI, relying on private companies like Google, Microsoft, and OpenAI, with indirect support from government agencies such as DARPA and the National Science Foundation (Allen, 2019). Economic factors created a contentious space between the United States and China for the control of AI technologies. Industry analysts predict that AI-driven automation coupled with digital infrastructure changes will add greater than \$15 trillion to worldwide economic value by 2030 and China will gain more than 26% of this potential growth (Kuzior, 2023). Global trade alongside innovation will experience a major shift because of this economic transition thus challenging United States' contemporary international prominence. China develops its global political influence through the Belt and Road Initiative (BRI) that features AI-powered surveillance and smart city and digital infrastructure projects distributed across partner nations according to Rolland (2020). In addition to economic and military interests AI functions as a key component of the ideological competition which exists between China and the United States. The United States adopts a governance approach to AI governance through transparent processes and ethical safeguards and democratic administrative oversight yet China implements a nationalistic AI plan that combines data surveillance systems with state-centered authority and collective decision-making (Creemers, 2018). The distinction between AI governance models creates risks of digital authoritarianism because it gives Chinese AI surveillance systems potential worldwide uptake through developing countries that accept Chinese technological assistance (Feldstein, 2019). The rapid advancement of AI technology has made the United States and China compete more fiercely to achieve technological supremacy. These nations' competitive relationship will determine how their diplomatic ties evolve while simultaneously affecting the worldwide standards of artificial intelligence regulation and economy and security systems. The country that excels in AI technology will reshape both digital governance and worldwide privacy standards along with global technological moral guidelines.

### **US and China: From Industrial Revolution to AI Dominance**

In the 20th century, the US and China experienced significant advancements in the Industrial Revolution, which paved the way for the progress of AI and computing technologies. This transformation process was associated with unique political, economic, and cultural factors in these two nations. America grew to a level of technological development after World War II. At the same time, China faced political and economic hurdles that slowly changed from the middle of the twentieth century. The advancements that transformed the US into a technological powerhouse can be traced to the Cold War, which was marked by competition with the Soviet Union in military and technology. After World War II, the US was well-positioned to dominate international trends in technology, specifically in

computing, defense, and later, artificial intelligence. This development arose from wartime advancements and the need to counter the Soviet threat, leading the US government to spur invention and enable AI and other modern technologies. During World War II, the technological landscape in the US was primarily influenced by the demand for innovative military technologies. This war instigated a range of inventions, from radar and atomic bombs to fundamental ideas on computing machinery. Notably, machines like the ENIAC (Electronic Numerical Integrator and Computer) emerged in the early 1940s alongside other computing machines such as the UNIVAC (Universal Automatic Computer), which were instrumental in shaping the future of information and communication technology (ICT). These initial processes, driven by military demands, laid the groundwork for the emergence of AI and other technologies in subsequent decades (Ceruzzi, 2003). This transformation coincided with the end of the war and the Cold War, prompting America to maintain a technological edge over the Soviet Union.

The launch of Sputnik in 1957 shifted this rivalry, igniting concerns about American space technology and innovation. This event sowed the seeds for scientific and technological supremacy in global affairs, prompting the US government to emphasize this factor dramatically. In response to Sputnik, the federal government acted quickly and decisively, allocating substantial funds to research organizations and agencies. This included the establishment of the National Aeronautics and Space Administration (NASA) in 1958, aimed at advancing science and technology development (Johnson, 2008). DARPA (Defense Advanced Research Projects Agency) was established in 1958 as the primary technological response by the US government to the Cold War competition. Its establishment guaranteed the US would be equipped against advancements in Soviet missile defense and space programs. Initially focused on information research, DARPA soon expanded its scope to include computer science, artificial intelligence, and more (Fouse, 2020). The agency's role in financing and leading AI research cannot be overstated. Its support has facilitated the development of AI technologies tailored to military needs, including autonomous systems, decision-making algorithms, and intelligence platforms. During the early Cold War, DARPA was at the forefront of sponsoring AI research. The agency provided grants for state-of-the-art expert systems and initial machine-learning models to replicate human decision-making (Vardi, 2012). These systems were primarily targeted for military applications, including managing defense systems, processing intelligence data, and improving strategy execution. One of DARPA's first-funded projects focused on developing machine learning algorithms to create systems capable of learning from data, laying the foundation for modern AI technologies (Crevier, 1993). Besides funding AI, DARPA encouraged collaboration across disciplines, connecting AI research with developing areas like neuroscience, psychology, and cognitive science. This focus on interdisciplinary research was instrumental in establishing AI as a formal area of study, providing a comprehensive view of intelligent systems as both technological and human constructs.

## *Artificial Intelligence and the New World Order: A Comparative Study of US-China Technological Rivalry*

From the mid-1970s to the 1980s, AI research in the US expanded beyond military applications into academic and commercial arenas. The US government remained a significant financier of AI research through DARPA, the National Science Foundation (NSF), and other federal programs. As the field matured, technological institutes such as the Massachusetts Institute of Technology (MIT), Stanford, and Carnegie Mellon University became focal points for AI research, attracting some of the brightest minds in the world. These institutions established the foundations for the crucial tools that AI depends on today and supported the growth of future AI scientists. Early researchers made significant contributions to shaping AI as a formal field. Key figures like John McCarthy, Marvin Minsky, Allen Newell, and Herbert Simon significantly shaped the foundations of AI. McCarthy, often called the founder of AI (Russell, 2016). At MIT's AI lab, Minsky concentrated on machine learning, neural networks, and cognitive science theories. His vision of using AI to replicate human thinking through computer models significantly influenced the field's development.

Newell and Simon's work on problem-solving algorithms and cognitive modeling also helped establish AI as a distinct branch of cognitive sciences. Their collaboration led to the development of the General Problem Solver (GPS) an AI program designed to solve problems like human beings (Newell & Simon, 1972). These contributions spanned theoretical discourse and catalyzed practical applications in robotics, natural language processing, and expert systems. During the 1980s, a novel type of AI system called expert systems appeared in the US. These systems aimed to replicate the decision-making processes of professionals in specific industries and find applications in fields such as medical diagnosis, law, and engineering. The success of expert systems during this period underscored the potential of AI applications, solidifying AI's position as a key area of study and development in the US.

### **The US Technological Evolution Before AI**

AI developed in universities and through government-funded research, expanding into various societal sectors in the late 20th century. Companies such as IBM, Microsoft, and Xerox invested heavily in AI technologies, utilizing them in both military and civilian applications, including speech recognition, data analysis, and automation. The commercialization of AI technologies in the 1980s and 1990s enabled the US to secure a leading position in technology and innovation. Silicon Valley, with its strong infrastructure in the tech world, became a haven for AI researchers and implementations from around the globe. Due to state and federal funding, a focus on technological innovation in universities, and support for commercial AI applications, the AI industry developed rapidly in the US. By the 1990s, AI transitioned from a specialized military endeavor into a well-established

field with applications spanning finance, healthcare, manufacturing, telecommunications, and beyond (Brynjolfsson & McAfee, 2014).

Before 2000, US AI research was primarily tied to military and defense projects, especially during the Cold War. The government saw AI's potential to improve military capabilities in strategic defense, autonomous systems, and efficiency. As a result, military agencies, particularly DARPA, were the primary funding source for AI research. AI represented a tactical resource for the military that could improve decision-making, implement autonomous methods, and enhance military capabilities to surpass potential adversaries (Qureshi, 2024; Tanska, 2024). Another landmark development period in the US was the creation of so-called expert systems in the 1970s and 1980s. Expert systems aimed to create instances of human-like decision-making within specific application domains, such as medicine, engineering, or military operations. These systems operated based on rules and facts, significantly advancing over previous computing methods. Although an expert system reflected little of the contemporary concept of AI, its inception laid the groundwork for subsequent advancements in AI fields such as machine learning and natural language processing (Jackson, 1999). Furthermore, the American government made a strong statement during the early 1980s when it established the Strategic Defense Initiative (SDI) to develop a space-based anti-missile shield using artificial intelligence and computing technologies. The SDI sought to utilize AI to identify and counter incoming nuclear missile threats known as Star Wars. Despite not achieving its goals due to various technical and political constraints, the SDI demonstrated that the US government was committed to pioneering advanced technologies to maintain superior weapon systems (Mahnken, 2008). The initiative highlighted the US military's ongoing interest in integrating AI to strengthen defense systems shortly.

In the 1990s, the field of AI began to diversify in the US, transitioning from focusing primarily on the defense industry to various commercial and academic sectors. The growth of Silicon Valley as a hub of technological advancement meant that more capital was allocated to AI in sectors such as speech recognition, natural language processing, and machine learning. Companies like IBM, Microsoft, and later Google started implementing AI solutions in practical applications, ranging from customer service to accounting and finance. This shift was complemented by a burgeoning interest from the private sector and advancements in computing machinery (Lee, 2018; Breiman, 2003). Although military applications of AI remained a focus into the 1990s, where they were used in surveillance and other areas, the discovery of commercial applications began to flourish from the 1990s onward, marking the modern use of AI. The US Department of Defense (DoD) also began developing preprogrammed AI technologies for specific operations, such as drones, data analysis, and cybersecurity. Investigative projects sponsored by the DoD in the 1990s and early 21st century explored the implications of AI in warfare strategies. The Tactical Technology Office began in the 1980s and focused on autonomous vehicles and related programs (Sayler, 2020). These technologies became indispensable for

*Artificial Intelligence and the New World Order: A Comparative Study of US-China Technological Rivalry*

sustaining US military technological dominance, with AI emerging as a critical tool for real-time big data analysis.

## **The Chinese Technological Evolution Before AI**

The evolution of information in twentieth-century China was shaped by various internal and external factors, rather than being linear or purely theological. Throughout much of the century, the nation was primarily focused on post-war reconstruction, the repercussions of the Second Sino-Japanese War (1937–1945), and the civil conflict that culminated in establishing the People's Republic of China (PRC) in 1949. The period of 1949–1978, the so-called early stage of the PRC, was mainly characterized by political and social instabilities and the attempt to reconstruct both the economy and the technological level after the war. In this regard, China faced many challenges during technological development, such as limited industrial capacity, restricted access to advanced technologies, and political barriers. The PRC found itself in a scenario where it could not bargain or challenge the technology developed by Western countries, especially the US, which was fast becoming a technological power in scientific research, particularly in military and computing technology. On the other hand, technology in China was underdeveloped, and its technological plans or policies were not favorable for rapid growth in industries or science during the initial stages, mainly due to socialistic policies and political culture.

Since the beginning of the 1950s, a systematic upgrade in technological research was initiated in China, especially for military and industrial requirements. The Soviet Union's assistance and Chinese imitation marked this period. The Sino-Soviet alliance is considered a golden period for China, as it was able to gain know-how and technology from the Soviet Union, which had already developed on many fronts, converting into a superpower, especially in nuclear technology, heavy industries, and space research (Wang, 2024). Soviet-trained engineers and scientists promoted China's early technological development due to its concentration on military technologies and industrial machines. The reforms of the post-Cultural Revolution decade of the 1960s saw China take small steps, mainly in industrial equipment, metallurgy, and other infrastructure. The Mao-led Chinese government actively sought to affect a fast industrialization process in China, mainly through the First and Second Five-Year Plans (Dong, 2022; Pollack, 2019). It was dominated by a focus on mass industries and a form of perfectionism that relied more on self-sufficiency. It had little impact on the technological breakthroughs that would define subsequent decades. The Soviet Union also helped China to start developing nuclear technology at the beginning of this period, culminating in China's first atomic bomb test in 1964, exemplifying its rising capability in science and engineering, although strictly in state-planned and state-led sectors.

In the early 1960s, China severed its ties with the Soviet Union, previously its close ally. With the divisions between China and the Soviet Union, China was compelled to rely on itself for technological advancement. Moreover, the division was a political issue that affected relations with China, mainly importing Western experts and technologies. Therefore, the Chinese government was forced to

## *Artificial Intelligence and the New World Order: A Comparative Study of US-China Technological Rivalry*

increase its research, although in a fundamentally Maoist environment (Kania, 2020). During the Cultural Revolution (1966-1976), political instability and turmoil reduced the possibility of technological enhancement in China. The policies introduced at this stage, such as mass mobilization and purging intellectuals and expatriate experts, destabilized the education system, research activities, and innovation. Nevertheless, it can be said that during the Cultural Revolution, some scientific breakthroughs were made in specific fields of study in China. One of the most outstanding was in nuclear technology. China successfully tested its first atomic bomb in 1964 and its hydrogen bomb in 1967. These achievements followed prolonged scientific innovations and development, positioning China as a nuclear power state. Similarly, China initiated its space program in the late 1960s and early 1970s, producing satellites and manned space missions. However, these successes were mainly in military and defense areas. China's technology level lagged the West in other fields like computing, communications, and manufacturing.

The 1980s are seen as a watershed in China's technical development due to the execution of Deng Xiaoping's reform and opening program. Since Mao died in 1976, China began shifting from totalitarian ideological politics to pragmatic economic policies. Deng Xiaoping's Open-Door policy to liberalize China's economy was fundamental to this change. The policy marked the gradual liberalization of the country's political system, allowing foreign technology, investment, and skills to enter, which helped China initiate gradual integration into the global technology frontier. This transition was primarily attributed to China's policy change in opening its doors to overseas investors, especially multinational ventures in the technology sectors. During this period, the first Special Economic Zones (SEZs) were established in cities like Shenzhen, allowing foreign companies to invest in exchange for certain economic privileges. Consequently, China began to obtain new technologies from other countries across electronics, telecommunications, and manufacturing industries. Foreign firms also provided much-needed professional skills in managerial, technological, and innovation domains vital for China's rapid industrialization (CICC Research, 2024). Throughout the 1980s, China's technological objectives mainly comprised increasing industrial production, developing the agricultural sector, and raising primary facilities. While the country made strides in electronics and telecommunications, its technological infrastructure remained comparatively weak compared to the US and Japan.

China's main concern was moving up the industrial chain to match the West in industrial development without necessarily focusing on advanced knowledge areas such as computing, artificial intelligence, or space. Before the 21st century, the US and China developed artificial intelligence and early computing technologies to fit their social systems. While AI technology advancement was on the rise in the US, especially in its defense systems, China was comparatively slower in its

technologically driven growth process but saw major electrical revolutions in science and technology after the mid-20th century. China has taken a more measured approach to developing AI and early computing technology before 2000. This strategic development aimed to propel the nation's technological infrastructure. The 1980s and 1990s presented China with a crucial stage for transforming from an agricultural country to an industrial one. During this time, China's drive for economic liberalization under Deng Xiaoping, alongside efforts to enhance the nation's computing and AI capabilities. Unlike the US, which focused on AI and computing for defense and scientific purposes, China aimed at industrialization that addressed economic and social needs, seeking to bridge the technology divide with the developed world (Chow, 2015).

During the 1980s, China distinguished itself through the Reform and Opening Up policy, a period of transition that laid the foundation for future technological advancements. The Chinese government recognized that technology development was crucial for national modernization and economic growth. Although China did not invest as heavily in AI research and development as the US, it began to focus on constructing a scientific and technological base. Education of a highly skilled workforce became a government priority, as the country relied on human capital in science, engineering, and technology to drive industrialization. Since the 1980s, China has established research institutions to support its technological boom. The government also enhanced foreign relationships, particularly with English-speaking countries and Japan, to gain expertise and technological information. These partnerships enabled China to acquire new technologies, especially in sectors like semiconductors and telecommunications (Lei & Zhang, 2019). While these investments initially aimed to update China's industrial structure, it became clear that technological supremacy, including AI, would play a vital role in the future.

China's early engagement with AI can be traced back to the 1980s, when national research centers for AI were established. These centers, which served as postgraduate research institutions, specialized in applied research areas such as natural language processing, pattern recognition, and expert systems. Much of this initial work was inspired by Western developments, with many centers collaborating with American and European counterparts. However, during this period, China's AI research was limited by inadequate access to advanced computing facilities and ongoing economic challenges (Wu, 2020). As a result, most AI research conducted at the time was primarily theoretical or involved applications that remain underutilized today. By the end of the 1990s, China had gradually developed indigenous computing facilities and reduced its reliance on imported technologies, part of a broader agenda to establish self-reliant technological capacity. Concurrently, the Chinese authorities increased funding for scientific research and introduced new policy measures to support innovation. The government launched several national technology development programs, such as the 863 Program, to advance priority sectors, including computing and AI (Fu,

## *Artificial Intelligence and the New World Order: A Comparative Study of US-China Technological Rivalry*

2016). These efforts sought to synchronize with the achievements of selected industrialized countries and surpass them.

It is worth noting that during the 1990s, activities promoting AI research in China were significantly less elaborate than those in Western countries. While AI studies were developing globally, the Chinese discourse primarily focused on immediate technological demands, such as updating telephone communications and enhancing industrial productivity. During this period, some of the first practical applications of AI in China emerged, including medical diagnosis expert systems and industrial automation. Although these systems were rudimentary by today's standards, they represented important steps forward given the technological and resource constraints of the time (Xu, 2021). Nonetheless, the 1990s laid the groundwork for further advancements that began to accelerate in the early 21st century, driven by increased investment in AI and related disciplines. The expansion of investments in AI and computing accelerated at the beginning of the 21st century in China. The government recognized AI's potential role in the future economy, leading to improved funding from both public and private sectors. As the Chinese economy grew, the need to adopt innovative technologies, such as AI in finance, healthcare, and national security, became more pronounced. Such early investments positioned China to become a leader in global AI development by the 21st century.

China's approach to AI and technology during its Reform and Opening-Up period was characterized by gradual investments and strategic decisions aimed at modernizing its economy and technological infrastructure. During the 1980s and 1990s, China focused on building a scientific and technological workforce, establishing research institutions, and attracting foreign partnerships. Although its investments in AI research were modest compared to those of the US, China's efforts laid the groundwork for the rapid technological advancements that would follow in the 21st century. By the late 1990s, China had begun developing its own computing infrastructure and increasing its investments in AI, signaling the start of a new phase of technological development that would propel the country to the forefront of global AI innovation in the years to come.

### **The Rise of Artificial Intelligence in the 21st Century**

Artificial Intelligence has rapidly transformed global economies, military strategies, and technology in the 21st century. Artificial intelligence expanded out of academic laboratories to become an impressive transformative force that now influences every industry sector and government system, and societal structure worldwide. Recent advances in AI technology since 2001 have led to automated systems for data processing, together with the exploration of new defense applications and security technologies. The United States and China view artificial intelligence as a critical strategic resource because they embed it into their military

frameworks and economic structures to secure better positions in world affairs (Brynjolfsson & McAfee, 2014). The AI revolution serves to enhance US-China competition while transforming how nations use their power in the international order.

AI shifted from theoretical research to practical applications in the twentieth century, impacting all areas of human life. These critical advancements have driven the swift advancements leading to significant changes in both the U.S. and China. Deep learning, as a machine learning subfield, achieved its revival through artificial neural networks, which handle extensive data processing. Researchers developed AlexNet in 2012, which brought a revolutionary deep convolutional neural network into computer vision for achieving outstanding results in image recognition tasks (Krizhevsky & Hinton, 2012). The breakthrough led to new artificial intelligence applications, which include facial recognition technology as well as automated driving systems and automated medical diagnostic solutions. Deep learning advancements triggered China to implement surveillance materials for security needs, while the United States focused its deep learning applications on both security technology development and medical enhancements (Lee, 2018). The development of natural language processing (NLP) experienced a major shift with releases from both OpenAI's GPT models and Google's BERT. Open-source AI models have reshaped how people communicate online by creating systems for instant translation and automated conversation bots that generate content (Brown et al., 2020). Chinese technology leaders Baidu and Tencent use NLP to strengthen search tools and digital assistants for their platforms and digital economy operations (Ding, 2018). The United States-based companies Google and Microsoft have dedicated their resources to developing cloud services through AI and delivering personalized user interfaces.

Industrial automation has gained significant momentum due to advancements in robotics powered by AI technology. Boston Dynamics in the US has developed sophisticated robots that perform military reconnaissance and help with disaster response operations. Robotics maintains a key position in Chinese mass production, especially inside smart factories, because this system improves business efficiency while minimizing manual workforce requirements. The manufacturing revolution powered by AI has led to speedy Chinese economic expansion despite American investments in AI, automated protection, and specialty technologies. The health industry has experienced a complete transformation through AI's incorporation. By implementing AI-driven medical diagnostics like IBM Watson to analyze complex medical data, the disease detection and development of personalized treatment plans became much more effective (Topol, 2019). Ping An Good Doctor operates as a major force in China's healthcare sector by deploying AI solutions for remote medical consultations through its extensive network, which shows how AI can improve access to healthcare services (He, Baxter, Xu, & Xu, 2019). National policies and global trade dynamics now depend on AI, which acts as a fundamental variable for economic competitiveness. The creation and deployment of artificial intelligence-

## *Artificial Intelligence and the New World Order: A Comparative Study of US-China Technological Rivalry*

powered systems represent the fundamental requirement that determines economic supremacy between nations, as both China and the United States heavily fund their AI research activities. A PwC report forecasts AI will generate \$15.7 trillion for the worldwide economy by 2030, yet China will claim 26% of this value while North American regions are predicted to acquire 14.5% (Belkacemi, 2022). The Chinese economic advantage from AI shows how China acquires global power superiority, which threatens the previous United States' position as the sole technology leader.

The Chinese government designed the "New Generation Artificial Intelligence Development Plan" in 2017 to achieve AI global leadership by 2030 (Wu, 2020). A nationwide initiative conducted by China's government constitutes the main force behind major state-funded investments in AI startups and manufacturing chips, and AI-based businesses. The New Generation Artificial Intelligence Development Plan, launched by China in 2017, transformed the country into a world-leading power through smart city frameworks built with AI-enabled surveillance capabilities and urban management systems (Rolland, 2020). The United States reaches its AI leadership position through simultaneous private sector technological development supported by venture capital investment. Silicon Valley continues to be a worldwide center for artificial intelligence research because Google, Microsoft, and OpenAI lead the field in AI ethics, along with explainability and quantum computing solutions (Allen, 2019). The US Department of Defense, under the direction of the government, makes AI a national security priority by investing in AI-driven autonomous systems along with next-generation warfare technologies and cybersecurity measures (Sayler, 2020).

In the ongoing US-China rivalry, the significance of AI stands out as a decisive force driving military innovation and transformation. The use of autonomous weapons together with AI-powered decision systems and cyber warfare capabilities transforms current military approaches. AI technology receives substantial funding from the United States as it develops UAVs and predictive analysis for military surveillance operations (Kania, 2021). The development of hypersonic missiles and AI-assisted war simulations, and smart surveillance systems by China has made the country a powerful military force. AI competition now requires cybersecurity measures to be considered vital in these contests between nations. These countries use AI technology to boost their online protection systems and, at the same time, create attack programs through cyber methods. The implementation of artificial intelligence in cyber warfare has introduced deepfake technology combined with automated hacking tools and AI-powered cyberattacks, which have reshaped modern warfare. The fast-paced competition for absolute AI command in military operations demonstrates why AI is crucial for national defense protection. The quick developments of AI technologies established it as a fundamental economic force, together with its

critical role in military operations and national global power. Both the United States and China participate in an intense contest to determine worldwide leadership in AI because they recognize its revolutionary capabilities. AI evolution will significantly influence worldwide power structures, which will define how nations interact in the approaching decades of international relationships.

### **The AI Race: Key Areas of US-China Competition**

The United States and China compete intensely to develop artificial intelligence capabilities through alliances across economic zones, along with geopolitical and technical frameworks. Artificial intelligence serves as a pivotal strategic asset that shapes how global power systems operate. AI serves as an essential tool for both nations since it provides shape and direction to forthcoming industrial advancement and security architecture, and diplomatic relations. The United States maintained technological prominence until China accelerated its artificial intelligence development, which now threatens to shift global power dynamics. Three fundamental areas show growing intensity in the AI competition between nations: economic growth, geopolitical representation, and control over modern technologies. The application of AI-driven automation across global industries leads to operational efficiency improvements through market labor realignment. The United States integrates artificial intelligence into its manufacturing sector alongside logistics systems and service businesses to cut operating expenses while improving operational activity. The companies Tesla and Amazon use AI robotics to accomplish automated production and supply chain optimization (Shamsuddoha, 2025). The financial industry uses machine learning algorithms that perform risk assessments and detect fraud.

China has surpassed its world competitors to lead the industrial automation market. China is implementing aggressive AI in manufacturing because its workforce has reduced as its population ages. The Made in China 2025 initiative, supported by the government, focuses on implementing AI-sophisticated smart factories along with robotics systems to decrease the need for human workers. Artificial intelligence systems play an essential role within China's industrial zones since Huawei and Haier operate AI-driven, optimized production lines in their facilities. The Chinese economy predicts \$7 trillion from AI automation-based technology by 2030, while North American economists forecast \$3.7 trillion (Belkacemi, 2022). The combination of AI and e-commerce has emerged as the speediest advancing commercial domain with the United States and China at the forefront. Amazon employs AI technology across three essential areas, including personalized suggestions combined with automation of warehousing operations and fraud identification systems within its domain. China's Alibaba company has developed transformative AI practices by implementing AI-powered chatbots alongside intelligent logistics solutions and facial recognition payment systems (Ding, 2018). The Asian market leader for AI-driven e-commerce now exists in

## *Artificial Intelligence and the New World Order: A Comparative Study of US-China Technological Rivalry*

China, where Alipay, along with WeChat Pay, offer users a completely seamless payment experience.

The implementation of AI has next-gen technology that reshapes cities into smart communities. The United States has directed substantial financial resources toward developing AI-based transportation management systems and energy conservation methods through public service integration in cities such as San Francisco and New York. China implements AI-based smart city programs at an extraordinary level. The municipal administrations of Hangzhou and Shenzhen employ AI systems to operate surveillance programs and predictive policing systems while managing traffic flow, which extends government monitoring capabilities (Creemers, 2018). Running smart city technologies under the Chinese Belt and Road Initiative faces backlash from developing nations because these systems could create a situation of digital authoritarianism. The trend of artificial intelligence prompts modifications to worldwide diplomatic operations through enhanced decision processes and improved intelligence retrieval, and modernized cyber warfare capabilities. Through historical precedent, the United States has become the main diplomatic force behind setting guidelines for AI governance so as to promote ethical development and transparency alongside data privacy concerns. China employs a command-and-control AI management strategy that puts national surveillance and censorship technology (Feldstein, 2019).

National governance frameworks for AI developed by the US involve two main alliances, including the OECD AI Principles and Global Partnership on AI (GPAI) (Allen, 2019). China pursues diplomatic goals by employing the analytical capabilities of AI to measure foreign trade relationships and geopolitical uncertainties. Chinese AI technology companies continue their expansion throughout Africa, Latin America, and the Middle East while building diplomatic relations by means of technological dependency (Kania, 2021). The United States collectively uses its three longtime partners, such as the European Union, alongside Japan and Australia, in countering China's Artificial Intelligence programs. The US-EU Trade and Technology Council (TTC) develops unified AI development standards together with measures to prevent Chinese involvement (Saylor, 2020). The Quad alliance, composed of the US with India, and Australia with Japan, aims to create AI collaborations as a means to resist China's technological development in the Indo-Pacific region.

The Belt and Road Initiative of China includes AI-powered infrastructure projects, which China provides to developing nations as part of its expansion plan. The Chinese company Huawei implements AI-powered surveillance systems and digital infrastructure for the acquisition of global political influence in regions including Africa and Southeast Asia, and Latin America. The situation creates an issue with digital dependence because countries using AI from Beijing will need to stay embedded inside China's technological framework. The split between democratic and authoritarian AI governance systems demonstrates how the USA

and China are fighting for AI supremacy through their contrasting governance principles. Semiconductor tech represents the primary front in the AI competition. Modern AI technology demands powerful chips that American and affiliated manufacturers, from NVIDIA, Intel, and TSMC, dominate the market (Bown, 2020). Because it identifies this critical market advantage, the United States has implemented strict export controls regarding semiconductors that function as AI hardware limitations for Chinese operations.

Chinese firms faced a sales ban on advanced AI chips by the US government during 2022 due to national security reasons. The export bans imposed specific restrictions against Huawei and SMIC, which resulted in serious obstruction to their development of future AI processor technology. Due to US pressure, Japan, and Netherlands, and other allies have implemented restrictions on semiconductor exports that strengthen the ongoing technical rivalry between China and the United States (Mirrlees, 2024). The US restrictions on semiconductor technology have driven China to expedite its domestic semiconductor independence program. Through extensive national funding and implementing "China Standards 2035," the Chinese government aims to decrease foreign technology dependence (Rolland, 2020). Chinese companies SMIC and YMTC are developing AI-capable chips, yet they have not yet reached the same level of advanced semiconductor fabrication as US and Taiwanese manufacturers.

China directs its efforts to break free from international dependencies in multiple technological domains beyond semiconductors. The government of Beijing supports quantum computation and AI accelerators, and neuromorphic chip development in order to work around US trade barriers. Chinese authorities have boosted support for AI startup development by providing subsidies and grants to establish domestic substitutes against US tech (Ding, 2018). The ongoing technological competition between China and the United States is determining how countries will manage global technology frameworks of the future. Artificial Intelligence exerts substantial influence on economic advancement and international power dynamics, as well as control over technological systems, which defines its critical role in contemporary global politics. The worldwide AI domain will evolve due to the outcome of these countries' research and regulatory advances, and technical supremacy battles.

## **Conclusion**

Technological advancement of the US and China before the 21st century depended on their different political, economic, and strategic interrelated factors. During the Cold War, the US aimed to establish itself as a high-tech nation, driven by government subsidies and corporate funding, with a special emphasis on using technology for military purposes. The public investment in defense and integration of contemporary technology into defense mechanisms, i.e., AI used in military systems, led the United States of America to become the world's technology hub throughout most of the twentieth century. However, China's progress during this

## *Artificial Intelligence and the New World Order: A Comparative Study of US-China Technological Rivalry*

period was relatively slower, akin to technological advancements, and was primarily hindered by constraints of the political system and internal turmoil. Due to the country's focus on industrialization and modernization through Reform and Opening-Up policies, emphasis shifted to developing technologies for industrial capacity and establishing a base for technological advancement rather than creating high-technology systems. However, China created a basis for its future evolution at the global level as the announced investment in higher education, research schools, and globalization of interaction with partners in the sphere of higher education and fundamental research predetermined the further becoming of China as a significant player in such technologies as AI. Nevertheless, both nations fully understood that technological issues lay ahead for the nations in the future. During the late twentieth century, China started reaping the benefits of its investments in education and technology. However, even then, the US was the leading technological power trading in military and defense-associated technologies and products. Against this background, one can explain the accelerated rate of AI advancement in both nations in the 21st century. The content of the next chapter focuses on the development of AI in the US and China in the context of the 21st century, pointing out the common and different strategies and decisions that contributed to the strengthening of the positions of both countries for the development of AI. Moreover, the remaining chapters analyze the expanded international context of the intensifying confrontation between these two states for AI domination, including economic struggle, security risks, and geopolitical agenda.

### **References**

- Allen, G. C. (2019). Understanding China's AI strategy: Clues to Chinese strategic thinking on artificial intelligence and national security.
- Belkacemi, S. (2022). Artificial Intelligence" AI" and its impact on global Economy. *Journal of Financial, Accounting & Managerial Studies*, 9(2).
- Bown, C. P. (2020). How the United States marched the semiconductor industry into its trade war with China. *East Asian Economic Review*, 24(4), 349-388.
- Breiman, L (2003). Statistical modeling: The two cultures. *Quality control and applied statistics*, 48(1), 81-82.
- Brown, T., Mann, B., Ryder, N., Subbiah, M., Kaplan, J. D., Dhariwal, P., ... & Amodei, D. (2020). Language models are few-shot learners. *Advances in neural information processing systems*, 33, 1877-1901.
- Brynjolfsson, E., & McAfee, A (2014). *The second Machine Age: Work, progress, and Prosperity in a time of brilliant technologies*. W. W. Norton & Company.
- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. WW Norton & Company.
- Ceruzzi, P. E (2003). *A history of modern computing*. MIT press.
- Chow, G. C (2015). *China's economic transformation*. John Wiley & Sons.

- CICC Research, C. G. I (2024). Digital Innovation *The Rise of China's Innovation Economy* (pp. 67-97): Springer.
- Creemers, R. (2018). China's Social Credit System: an evolving practice of control. Available at SSRN 3175792.
- Crevier, D (1993). *AI: the tumultuous history of the search for artificial intelligence*. Basic Books, Inc.
- Ding, J. (2018). Deciphering China's AI dream. *Future of Humanity Institute Technical Report*.
- Ding, J. (2018). Deciphering China's AI dream. Future of Humanity Institute Technical Report.
- Dong, G (2022). The political background of a pattern transformation in the Chinese system of science and technology during the 20th century. *Cultures of Science*, 5(1), 16-32.
- Feldstein, S. (2019). *The global expansion of AI surveillance* (Vol. 17, No. 9). Washington, DC: Carnegie Endowment for International Peace.
- Feldstein, S. (2019). The global expansion of AI surveillance (Vol. 17, No. 9). Washington, DC: Carnegie Endowment for International Peace.
- Fouse, S., Cross, S., & Lapin, Z (2020). DARPA's impact on artificial intelligence. *Ai Magazine*, 41(2), 3-8.
- Fu, X., Woo, W. T., & Hou, J (2016). Technological innovation policy in China: the lessons, and the necessary changes ahead. *Economic Change and Restructuring*, 49, 139-157.
- He, J., Baxter, S. L., Xu, J., Xu, J., Zhou, X., & Zhang, K. (2019). The practical implementation of artificial intelligence technologies in medicine. *Nature medicine*, 25(1), 30-36.
- Jackson, P (1999). *Introduction to expert systems*. Addison Wesley Publishing Company.
- Johnson, S (2008). *The invention of air: a story of science, faith, revolution, and the birth of America*. Penguin.
- Kania, E. B. (2020). 'AI Weapons' in China's Military Innovation. *Brookings Institution*, April 3.
- Kennedy, P. (2010). *The rise and fall of the great powers: economic change and military conflict from 1500 to 2000*. Vintage.
- Khanal, S., Zhang, H., & Taeihagh, A. (2025). Development of a new generation of artificial intelligence in China: when Beijing's global ambitions meet local realities. *Journal of Contemporary China*, 34(151), 19-42.
- Krizhevsky, A., Sutskever, I., & Hinton, G. E. (2012). Imagenet classification with deep convolutional neural networks. *Advances in neural information processing systems*, 25.
- Kuzior, A., Sira, M., & Brożek, P. (2023). Effect of artificial intelligence on the economy. *Zeszyty Naukowe. Organizacja i Zarządzanie/Politechnika Śląska*.
- Lee, K. F. (2018). *AI superpowers: China, Silicon Valley, and the new world order*. Harper Business.
- Lei, J., Liu, Y., Qi, Y., & Zhang, Q. (2019). 40 Years of technological innovation in China: a review of the Four-Stage climbing track. *Journal of Industrial Integration and Management*, 4(03), 1950008.

## ***Artificial Intelligence and the New World Order: A Comparative Study of US-China Technological Rivalry***

- Mahnken, T. G (2008). *Technology and the American way of war*. Columbia University Press.
- Mirrlees, T. A. N. N. E. R. (2024). The US and China's digital tech war: A new rivalry within and beyond the US empire. *Socialist Register*, 60(A New Global Geometry), 105-140.
- Newell, A (1972). *Human problem solving*. Upper Saddle River/Prentice Hall.
- Pollack, J. D (2019). China as a nuclear power. In *Asia's Nuclear Future* (pp. 35-65). Routledge.
- Qureshi, F. K (2024). The Evolution of AI Algorithms: From Rule-Based Systems to Deep Learning. *Frontiers in Artificial Intelligence Research*, 1(02), 250-288.
- Rolland, N. (2020). *China's vision for a new world order* (Vol. 6). Washington, DC: National Bureau of Asian Research.
- Rolland, N. (2020). *China's vision for a new world order* (Vol. 6). Washington, DC: National Bureau of Asian Research.
- Russell, S. J., & Norvig, P (2016). *Artificial intelligence: a modern approach*. Pearson.
- Sayler, K. M (2020). Artificial intelligence and national security. *Congressional Research Service*, 45178.
- Sayler, K. M. (2020). Artificial Intelligence and National Security. *Congressional Research Service*.
- Sayler, K. M. (2020). Deep fakes and national security. *Congressional Research Service*.
- Shamsuddoha, M., Nasir, T., & Fawaaz, M. S. (2025). Humanoid Robots like Tesla Optimus and the Future of Supply Chains: Enhancing Efficiency, Sustainability, and Workforce Dynamics. *Automation*, 6(1), 9.
- Tanska, H., Sala, J., & Janiszewski, B (2024). Application of artificial intelligence for processing digital ultrasonic images in the shipbuilding industry. *Technical Sciences*, 27, 265-279.
- Topol, E. (2019). *Deep medicine: how artificial intelligence can make healthcare human again*. Hachette UK.
- Vardi, M. Y. (2012). Artificial intelligence: past and future. *Communications of the ACM*, 55(1), 5-5.
- Wang, E (2024). The Soviet Union is Different from Us: The Sino-Soviet Relationship and Split from the Chinese Perspective.
- Wu, F., Lu, C., Zhu, M., Chen, H., Zhu, J., Yu, K., ... & Pan, Y (2020). Towards a new generation of artificial intelligence in China. *Nature Machine Intelligence*, 2(6), 312-316.
- Xu, Y., Liu, X., Cao, X., Huang, C., Liu, E., Qian, S., ... & Zhang, J (2021). Artificial intelligence: A powerful paradigm for scientific research. *The Innovation*, 2(4).