



EURASIA CENTER

BRIEF ANALYSIS

**China and the US in the artificial
intelligence arena: The new face
of global competition**

Semanur Öncü

EC/2023/5.



Eurasia Center

Brief Analysis

Publisher:
Eurasia Center

Editor:
Dr. Levente Horváth

Editorial Office:
1117 Budapest, Infopark sétány 1. I. épület
eurasiacenter@nje.hu
<https://eurasiacenter.hu/>
Person responsible for publishing: Dr. Levente Horváth, director

The present analysis and its conclusions reflect the author's opinion and are not to be considered as the official position of the Eurasia Center.

EURASIA CENTER

Budapest, 2024.



© Eurasia Center, John von Neumann University



ISSN 2939-5550



CHINA AND THE USA IN THE ARTIFICIAL INTELLIGENCE ARENA: THE NEW FACE OF GLOBAL COMPETITION

By Semanur Öncü

Abstract

Technology has been of paramount importance in the history of mankind. It is undeniable that technology has played a central role at crucial points in history. Technology is a powerful tool that not only influences one's own development, but also shapes the environment. States tend to use technology as a strategic advantage in their international relations. The artificial intelligence created by technology and the progress made in this field are increasingly becoming the focus of the global superpowers, particularly the USA and China. The main objective of this study is to analyze the changes that China's and the USA's investments in artificial intelligence (AI) technologies will bring about. In addition, the AI technology competition between the US and China will be analyzed in detail based on the AI technology strategies of the two countries.

Keywords: China, USA, Artificial intelligence

Introduce

The United States of America and China are competing with each other in all areas as part of China's rise. China's economic development, which began after overcoming political stagnation and problems, has led to development and rise in all fields. The competition between the two countries, which started in the fields of economy, trade, etc., continues unabated in the field of artificial intelligence.

The rise of China by completing its own development and beginning to participate in the system has raised the question of whether it poses a challenge to the existing hegemonic power of the US. The US positions China as an actor that must be countered. China, on the other hand, wants to integrate into the system by serving its national development, not by displacing actors in the system. Furthermore, in the Next Generation Artificial Intelligence Development Plan published in 2017, China has set itself the goal of becoming a global leader in artificial [intelligence technology by 2030](#), focusing in particular on the goal of improving its technological capabilities in the field of artificial intelligence.

The US and China want to strengthen their defense systems and increase their national security through the use of artificial intelligence. However, there are also



various ethical and security policy concerns regarding the use of artificial intelligence. AI-powered weapon systems can speed up decision-making processes on the battlefield, but they can also have a negative impact on human factors and civilian life. Against this backdrop, the competition for artificial intelligence between the US and China is expected to intensify in the future and technological developments in this area will shape global security dynamics.

The aim of the study is to analyze detailed examination of the competition between the two nations in the field of AI technology will be conducted, examining the different AI strategies of the two countries.

What is Artificial Intelligence

Artificial intelligence refers to the theory and development of computer systems capable of performing operations that require human intelligence, such as visual perception, speech recognition, interlingual translation and decision [making](#). Artificial intelligence is considered a general-purpose technology that, like electricity, is widespread and not limited to a specific area such as nuclear [weapons](#).

Artificial intelligence began to take shape after Alan Turing's research in 1950, when he asked the question: ['Can machines think?'](#) Turing was a prominent British mathematician who was involved in fighting the Nazis' complex encryption system. In 1956, John McCarthy coined the term 'artificial intelligence' at the 'Dartmouth College Artificial Intelligence' [conference](#). This period marked the establishment of a field defined by thinking machines and the concept of artificial intelligence.

The concept of the 'thinking machine', first proposed by Alan Turing some 50 years ago and later referred to as artificial intelligence, it's today represents a significant achievement. Despite the challenges that development has faced, it holds great potential for both nations and the private sector.

Today, AI technology has advanced to the point where it can follow a clear roadmap to transform multiple industries. it is difficult to imagine an industry that AI will not transform in the next few years.

USA's Artificial Intelligence Technology Strategy

Prior to September 11, 2001, the United States did not have a specific strategy for artificial intelligence. However, it is clear that the U.S. military used a degree of autonomy in its operations during this time and invested significantly in this area. The primary goal of these investments was to achieve superiority over adversaries and improve operational efficiency.

Throughout the Cold War era, the U.S. government advanced the development of various defense-related technologies, including nuclear technology, GPS, and the



Internet. Similarly, in the 1970s, the United States was the birthplace of fundamental concepts such as semiconductors, databases, graphical user interfaces, and the synergy of software and hardware that marked the beginning of AI [development](#).

Between 1983 and 1993, the United States provided more than \$ 1 billion to the Strategic Information Technology Initiative, which was led by the Defense Advanced Research Projects Agency (DARPA) and aimed to advance AI technology for military applications. Although the initiative progressed more slowly than expected, it was eventually discontinued¹. Nevertheless, the positive results of these investments were evident in the 1st Gulf War, Afghanistan and the 2nd Gulf War, where the US was able to demonstrate the effectiveness of the autonomous systems it had developed.

Upon taking office on January 20, 2009, President Obama noted that while technological advances in autonomy were progressing organically, the United States had not formulated a specific AI strategy. Unlike China, the U.S. had not developed a comprehensive national strategy outlining its approach to AI for an extended period of time. The lack of a clear strategy created challenges and uncertainties in coordinating the civil-military structure, particularly with regard to the evolving landscape of AI applications in the United [States](#).

The beginning of the US government's plans for national AI technologies coincided with the end of the Obama administration. Between October and December 2016, the White House published the reports "[Preparing for the Future of Artificial Intelligence](#)", "[National Artificial Intelligence Research and Development Strategic Plan](#)" and "[Artificial Intelligence, Automation and Economy](#)". Due to the high tension surrounding the 2016 elections, technological developments, artificial intelligence and similar topics were generally overshadowed during this period and received little attention from large sections of society.

Artificial intelligence technology has come to the fore in the process that began when the Trump administration took office in 2017. A series of documents were published and a new council¹ was established to strengthen the leadership role of the United States with the aim of accelerating the development of artificial intelligence [technology](#).

[The US National Security Strategy](#) (NSS) for 2017 focuses on "global economic competition", with particular attention paid to China. It is noteworthy that for the first time in US history, the NSS includes "economic security" as a component of "national security" The document prioritizes cyber warfare and technological threats, but does not explicitly mention AI technology.

However, in recognition of the strategic importance of AI, an independent organization called the [US Artificial Intelligence National Security Commission](#)

¹ National Science and Technology Council



(NSCAI) was established in [2018](#). The NSCAI advocates for the advancement of AI technology in the United States. Its recommendations include calling on the US government to enter into partnerships with private companies and allied states. The NSCAI also aims to identify the necessary methods for developing AI technologies, identify technologies essential to meeting U.S. national security needs, assess the impact of AI on U.S. competitiveness and technological advantage, recruit leading AI experts, and address advances in AI seen in foreign militaries. The Commission conducts its work with the overarching goal of assessing and mitigating the risks associated with AI.

The United States' first official national AI strategy, entitled the "American Artificial Intelligence Initiative," was presented in 2019 as part of the Trump administration's [focus on AI](#).

In 2021, the Biden administration initiated the "[National Artificial Intelligence Research Resource Task Force](#)" This task force was established with the goal of creating a roadmap to promote AI innovation across the country and facilitate access to research tools that will increase [economic prosperity](#).

[The United States National Security Strategy \(NSS\) 2022](#) underscores the nation's determination to effectively address the challenges of a formidable Russia while actively competing with China. The NSS emphasizes China as the only competitor with both the intent and the growing economic, diplomatic, military, and technological capabilities to potentially reshape the international order.

According to the US NSS, China is strategically using its technological capabilities and growing influence within international institutions to shape global technology use and establish norms that favor its interests and values. This approach by China is seen as an attempt to create more favorable conditions for the promotion of its authoritarian model on the [global stage](#).

The National Science and Technology Council's Select Committee on Artificial Intelligence recently unveiled the [updated version of the U.S. government's strategic plan for artificial intelligence research and development](#). This initiative represents a critical step by the U.S. government to strengthen the country's global leadership in regulatory frameworks and technological advancements. The updated plan is tailored to address significant technological advances and outlines comprehensive and actionable [strategies](#).

In essence, the strategic plan is a clear commitment to the nation's commitment to pioneering AI technology while recognizing its far-reaching implications. The plan emphasizes the importance of a shared vision and collaborative efforts to unlock the full potential of AI [technology](#).

China's Artificial Intelligence Technology Strategy

In 2017, China unveiled an ambitious initiative to promote AI technology at home, with the aim of establishing itself as the 'most important AI innovation center' in



the world by 2030. Within this timeframe, China intends to integrate AI into various sectors, including manufacturing, administration and defense. The country currently ranks second in the world in AI, although it faces significant hurdles, particularly in attracting talent and producing advanced semiconductors. China is keen to acquire cutting-edge technology, including advances in military AI. Given the technological competition from China, the United States is closely monitoring the progress of [AI in China](#).

From the late 1970s to the early 2000s, China's economy was mainly characterized by a model based on the assembly of products by foreign companies, which were then exported to other countries. However, no significant technological progress was made during this period. It can be seen that China has made important steps in technological progress since the early 2000s.

In 2006, China declared its goal of achieving superiority in 402 basic technology fields with its plan called the '[National Medium and Long-Term Program for Science and Technology Development](#) (2006-2020)'. This marked a turning point in China's pursuit of independent innovation in science and technology. China's Medium- and Long-Term National Science and Technology Development Plan has made the pursuit of domestic innovation a priority. The country has adopted a 'China Inc' development model that supports Chinese companies, particularly those in innovation-based [industries](#).

Since taking office as president in 2013, Xi Jinping has regarded technology as a crucial factor in making China a more effective player on the international stage. He has emphasized the importance of artificial intelligence technology to himself and his government. Developments in AI technology in China have accelerated significantly since 2013, when Xi Jinping assumed the presidency.

The Chinese government launched the Mass Entrepreneurship and Innovation Initiative in 2014 to encourage private venture capitalists. This program led to a significant inflow of investment into the Chinese technology sector. The Chinese government's AI strategy is based on two key documents: the '[Made in China 2025' plan](#) (2015) and [the New Generation Artificial Intelligence Development Plan](#) (AIDP) (2017). These documents emphasize China's goal of achieving a leading position in AI technology worldwide, which is seen as essential for securing independence in key technologies.

With the published strategies for artificial intelligence, China aims to take a leading role in global trade and the military sector by 2030 by investing in artificial intelligence. The Chinese government plans to invest over [150 billion dollars](#) in artificial intelligence by 2050 and is currently the leader in investment in artificial intelligence.

It is stated that China-based companies account for 48 percent of global investment in artificial intelligence. It states that Chinese private companies' investment in artificial intelligence amounted to more than 7 billion dollars in 2018 and the number of patents in this field has [increased](#). It is noted that the Chinese



government's investment in artificial intelligence in 2017 reached 27 billion dollars, surpassing the 25 billion dollars of Chinese private companies' investment in artificial intelligence in the [same year](#). China had a share of around 28 billion dollars, at a time when global investment in artificial intelligence was around 40 billion dollars.

China's breakthroughs in artificial intelligence have not only expanded financially, but also in terms of research and publications. In 2019, China published as much on artificial intelligence as Europe, and its activities in this field have increased faster compared to the US. When looking at the methods of developing and implementing artificial intelligence, it can be seen that China is taking a more centralized approach [globally](#).

In 2017, China announced AI technology with a plan called "[AIDP](#)". This plan was published by the Provincial Council of the People's Republic of China. Designed as a three-step program, this plan laid out the steps needed to achieve certain benchmarks to boost China's productive forces, national economy and competitiveness. The main goal of the plan is to create an innovative nation led by science and technology, in line with President Xi's ideal of the "great rejuvenation of the Chinese nation".

The plan sets the goal of maximizing China's AI technology and application capabilities on a global scale by 2020. In addition, China aims to become a global leader in the development and production of key AI technologies by 2025 and make these technologies the structural force of China's ongoing industrial and economic transformation. Finally, China aims to be a global leader in all areas of AI technology by [2030](#).

The main features of China's artificial intelligence strategy can be summarized in four core [principles](#):

1. Technology-driven approach: Strive to lead revolutionary advances in AI methods, tools and systems through sustainable, long-term support.
2. Comprehensive system development: Implement a systematic strategy that takes advantage of the socialist system to focus resources on large-scale AI projects.
3. Market leadership: Accelerate the commercialization of AI technologies to gain a competitive advantage. Leverage government support for planning, policy formulation, safety, market regulation and ethical oversight.
4. Openness and collaboration: Encourage open source collaboration between industry and academia. Encourage partnerships between military and civilian entities to drive technological innovation.

According to AIDP, China's goal of AI technology leadership stems from its desire to reduce its dependence on Western technology and to use its indigenous capabilities to achieve complete independence in military-civilian technologies. China is the US's main competitor in the international AI technology market. the



AIDP 2017 defines AI technology as the focus of international competition and highlights it as a strategic technology.

Another significant initiative is the [China Standards 2035 plan](#), which stands out as a crucial undertaking with the potential to influence the global technology industry. This plan seeks to establish worldwide standards for the Chinese government and technology companies, particularly in areas like 5G, IoT, and artificial intelligence. The plan evidently aims to mold China's position in the global technology landscape. Despite past challenges in the telecommunications sector, Huawei's dominance in 5G has proven to be economically advantageous for the country.

In 2022, the Chinese AI market exceeded a volume of 285 billion yuan, which represents significant growth compared to previous years. This expansion has been remarkable since 2016. Against the backdrop of intense global competition, the Chinese government has actively pursued a leadership role in AI technology and recognized the sector as a strategically important [industry](#).

China is making rapid progress in various technology sectors. In the production of advanced machine tools such as robotic arms and hydraulic pumps, the country is gaining strength over European and Japanese competitors. In the electronics supply chain, particularly in iPhone production, the country is well on its way to competing with Japan, South Korea and Taiwan. In addition, China is a world leader in building modern infrastructure such as ultra-high-voltage lines, high-speed trains and 5G networks. The successful landing of a rover on the far side of the moon in 2019 and the achievement of encrypted quantum communication via satellite a year later are examples of China's steady efforts in technological development. China's technological development is very dynamic and its industries are reaching [world standards](#).

At a meeting in San Francisco on November 16, 2023, Xi Jinping and Joe Biden discussed relations between China and the US and world peace. He also called on the United States not to support Taiwan independence. Xi urged the US to fulfill its commitments on Taiwan and expressed concern that technological restrictions are harming China's interests. The leaders agreed that relations should be based on mutual respect, peace and mutually beneficial cooperation. The United States and China have agreed to resume military dialog, which had been suspended following a visit to Taiwan by Pelosi, an American politician and former Speaker of the US House of [Representatives](#).²

US Attitude Against China's Global Artificial Intelligence Technology Moves

For many years, China was characterized by its cheap labor and its strategy of imitating existing products. In recent years, however, it has focused on changing this image with large-scale high-tech investments. With the implementation of



the "Made in China 2025" plan, the country not only wants to get rid of the stigma of inferior product manufacturing, but also to become one of the countries producing the highest level of technology in the world. Technology experts such as Eric Schmidt³ believe that China has the potential to surpass the United States in the field of artificial intelligence in a short [space of time](#). The current situation raises significant concerns within the U.S. administration.

There have been trade wars between the USA and China, the effects of which have been felt since 2018, and both countries imposed high customs duties on each other's goods. Former President Donald Trump had alleged that China engages in unjust trade policies and unauthorized property theft. Meanwhile, China perceives the United States as attempting to hinder its economic growth. The US has imposed sanctions against China's global activities in the field of [artificial intelligence](#).

After Trump took office, the United States began to intervene further in the Chinese technology sector via trade agreements. In doing so, they are citing growing security concerns and focusing in particular on the Made in China 2025 plan.

In response to China's global advances in AI technology, the United States imposed various sanctions by blacklisting the Chinese technology company [Huawei and 70 of its subsidiaries](#) in 2019 on national security grounds. Following this decision, US companies were banned from working with Huawei and the involvement of tech giants such as Google and Facebook increased [tensions](#). For this reason, the sanctions imposed by the US on telecommunications giant Huawei have extended the trade war with China into the technology sector. US intervention against tech giants and startups that have the potential to put China at the forefront of AI technology has further deepened the crisis.

China's 4G to 5G transition strategy is progressing in line with the One Belt, One Road Initiative (BRI). Huawei continues to work hard to provide 5G core infrastructure and terminals to countries and regions around the [world](#). However, given Huawei's ties to China's party-state government and its legal obligations to Chinese intelligence agencies, many countries – particularly the US – view Huawei as a potential security risk and believe that any country operating on the basis of Huawei's 5G technology has serious concerns about its future network.

The United States has issued a ban on the sale of Huawei products on military bases. Regulations and proposed legislation from the Federal Communications Commission (FCC) aim to protect US infrastructure by prohibiting American telecommunications companies from officially adopting Huawei equipment in order to mitigate potential risks. In addition, since the end of 2018, the US has advised its allies not to use Huawei as an infrastructure or equipment provider. This recommendation underscores security concerns related to the potential sharing of intelligence [information](#).



Joe Biden tested the security of semiconductor technology in 2021 by imposing restrictions on Chinese technology companies. As it became clear that the United States is highly dependent on China, the Biden administration came under pressure over the need for sanctions against China. It was emphasized that the "[Chips and Science Act of 2022](#)", which was signed into law in 2022, will strengthen U.S. manufacturing, supply chains and national security. The Department of Commerce began implementing the [\\$52.7 billion fund](#). It was stated that companies taking advantage of these funds cannot build high-tech [facilities in China for 10 years](#), but they can expand their Chinese factories that produce old processor models. This move was seen as the most comprehensive and toughest measure reflecting the US's aim to control China's technological development.

This law and the restrictions imposed by the US on China's development of semiconductor technology could severely limit China's technological progress. It is claimed that China's domestic technology development process could be set back by a few years due to China's dependence on imports of semiconductors and the intervention of the US. The chip shortage resulting from the law serves the purpose of reducing the threat to US national [security](#).

The construction of chip manufacturing facilities, which the U.S. supports by law, reinforces the U.S. goal of producing the most advanced computer processors on its own soil, of which it consumes 25 percent. These steps are considered initial measures to promote the commercialization of research and [technology](#).

On August 10, 2023, President Joe Biden issued a presidential decree in which he presented a plan to restrict investments by American companies in China, with a particular focus on critical technology sectors such as semiconductors, microelectronics, quantum information technologies and artificial intelligence. The initiative targets national security concerns, with China categorized as a 'country of concern'. These new measures will prevent American companies from investing in Chinese companies in these technology areas. The measures will also restrict direct investment and joint venture [opportunities](#).

Finally, in his statement following his meeting with Xi at the APEC Summit on November 16, 2023, President Biden stated that they had returned to open communication with China in the military sphere and would bring experts together to discuss the risks associated with artificial intelligence. He noted that they will continue high-level diplomacy with China and keep the lines of communication [open](#).

Conclusion

Technology plays a crucial role in the development of countries. Conscious nations make significant investments in this area and strive to be pioneers in the production of technology. The advancement of technology, such as artificial



intelligence, enables wealthy nations to play a decisive role in international relations. It is a key factor in gaining superiority between countries. However, the widespread use and low cost of this technology could enable many states to participate effectively in the international arena, potentially leading to a more anarchic structure of the system.

The United States and China are among the world's leading countries in the field of artificial intelligence. While the US currently holds the lead, China is quickly catching up and making significant progress. Artificial intelligence is at the heart of the competition between all nations, as Russian President Putin declared: 'Whoever masters artificial intelligence will rule the world'. Although the US is currently in the lead, China is catching [up fast](#).

The United States did not have a written AI strategy for a long time, while China, with its AIDP document published in 2017, set the goal of becoming a global leader in AI by 2030 and stepped up its progress in this area. Both countries are making significant investments in line with their national AI strategies to support the growth of entrepreneurs and businesses. China's 2030 goal includes significant steps on a global scale, but the United States retains its global leadership role with a rich history of AI research and a leading technology industry. While the U.S. maintains its leadership in cloud computing, satellite technology and critical areas, China leads in global investment. However, the US still has a clear lead in the quality of research, talented workforce and strength of the technology industry. China is making great strides globally with its advances in semiconductor technology, AI-driven 5G commercialization and the [DSR](#) (Digital Silk Road Initiative) project. Although it is not yet a leader in AI technology, it is expected to continue its achievements and achieve greater success in the near future.

¹ Williaian H. McNeill, *The Pursuit of Power: Technology, Armed Force and Society Since A.D. 1000*. Chicago: University of Chicago Press

² On August 2, 2022, Nancy Pelosi, Speaker of the House of Representatives, visited Taiwan. The visit was condemned by the People's Republic of China, which issued a diplomatic warning to the US government. From August 4 to 7, 2022, the People's Republic of China conducted military exercises around Taiwan following Pelosi's departure.

³ The individual is an American software engineer and entrepreneur, concurrently serving as the Chairman of the Board of Alphabet Inc.