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# China's Quest for Technology Dominance and Potential for Japan–South Korea Cooperation

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## I. China’s Quest for Technology Dominance

President Xi Jinping has emphasized the enhancement of China’s scientific technological (S&T) capabilities, the attainment of a high level of technological independence and self-reliance, the convergence with the leading innovation nations, and the aspiration to become a technology superpower by 2035 (State Council of the People’s Republic of China 2022). As the U.S.-China strategic competition intensifies, China’s progress toward becoming a technology superpower may bear implication for international security. This paper examines the background of the China’s path to technology dominance and the risks it poses to Japan and South Korea, as well as the potential for Japan-South Korea cooperation in the era of U.S.-China strategic competition.

The Chinese Communist Party (CCP) leadership’s goal of becoming a technology superpower is driven by a sense of crisis. The first background is the increasing technological clampdown on China by Western countries, which has partly been achieved through illegal theft of foreign technology. Western nations have come to recognize that China’s technological advancement is concomitant with the fortification of its military capabilities. Consequently, following the first administration under Donald Trump, the United States significantly tightened its trade and investment restrictions on China, initiating a process of decoupling. The subsequent administration under Joe Biden maintained this policy, augmenting coordination with allies and partners to confront China. Following the inauguration of the second Trump administration in January 2025, the United States will proceed to impose further restrictions on trade and S&T exchanges with China.

Second, the Xi Jinping administration recognizes that the application of advanced technologies to the military is accelerating, creating a “new military revolution” that is significantly transforming the military’s equipment, weapons, and organizational culture (State Council of the People’s Republic of China 2019). China’s National Defense White Paper (2019) states that there is a prevailing trend to develop long-range precision, intelligent, stealthy or unmanned weaponry and equipment. War is evolving in form towards informationized warfare, and intelligitized warfare is on the horizon. According to researchers at China’s National Defense University, “intelligitized

warfare” is defined as “integrated warfare deployed in the land, sea, air, space, electromagnetic, cyber, and cognitive domains using intelligent weapons equipment and corresponding operational methods based on IoT systems (Pan 2018). In recent years, the People’s Liberation Army (PLA) has been engaged in efforts to enhance its military capabilities, with the objective of adapting to intelligentized warfare. Additionally, the prospect of China’s military intervention in Taiwan has been a subject of extensive discourse since the onset of Russia’s invasion of Ukraine in 2022. This has led to heightened military vigilance from the United States and other developed nations. The Chinese leadership acknowledges that the war in Ukraine has contributed to the exacerbation of international relations, leading to the emergence of “campification” and destabilization.

Thirdly, the national leadership has expressed mounting concerns regarding the prevalence of “choke point technologies” within the realm of core technologies. These chokepoint technologies refer to a group of technologies for which China lacks domestic production capacity, leaving it reliant on the capabilities of foreign entities, particularly those based in advanced technology countries. Xi Jinping articulated this sense of urgency during a meeting with scientific organizations in May 2018, stating, “We must accelerate technology research by targeting key core technologies, especially choke point issues” (Xueershexi Gongzuoshi 2022).

*Science and Technology Daily*, which is the official newspaper of the Chinese Ministry of Science and Technology, published a series of articles in 2018 listing 35 “chokepoint” technologies.<sup>1</sup> The chokepoint technologies are the exclusive property of one or a handful of companies based in North America, Europe, or Japan. These technologies, deemed “chokepoint” due to their exclusive possession by a limited number of companies based in North America, Europe, or Japan, include semi-industrial software, aviation technology, and precision manufacturing technology. The Chinese government has expressed a strong desire to domesticate these “chokepoint” technologies. However, this endeavor is not without challenges, primarily due to the critical nature of these technologies and the extensive research, data, experiments, and experience required for reliability (Murphy 2022). Despite China’s recent advancements in scientific research capabilities, the replacement of developed countries’ core technologies, which have been the result of prolonged research and development, remains challenging.

In light of these challenges, Xi Jinping has repeatedly emphasized the importance of “self-reliance and self-strengthening” in China’s pursuit of becoming a technology superpower (State Council of the People’s Republic of China 2021). This indicates that China aims to internalize the core technologies that are integral to the global value chain. In essence, the overarching objective of China’s technological ambition is twofold: first, to swiftly internalize crucial technologies within the immediate term, and second, to utilize emerging technologies to achieve long-term technological superiority.

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<sup>1</sup> A list of chokepoint technologies can be found at “Summary of Chokepoints: China’s Self-Identified Strategic Technology Import Dependencies,” Center for Security and Emerging Technology, <https://cset.georgetown.edu/wp-content/uploads/Report-on-a-Page-Chokepoints.pdf> (accessed January 31, 2025).

## II. China's Military-Civil Fusion Strategy and Its Challenges

A pivotal strategy for fostering the growth of core technologies is the “Military-Civil Fusion Development Strategy” (MCF strategy). The MCF strategy, as outlined by Xi Jinping, emphasizes the establishment of a “civilian participation military” system, signifying the integration of civilian-led technological innovations into military operations with agility and expediency (Yatsuzuka and Iwamoto 2020).

In pursuit of this objective, the PRC government has implemented a comprehensive array of measures, including the establishment of special economic zones, the relaxation of restrictions on private companies' involvement in military industries, and the provision of subsidies and authorization to utilize state-owned research facilities by military companies. The “14th Five-Year Plan and 2035 Long-Term Goals Outline,” published in March 2021, identifies seven key areas for enhancing military-civilian collaborative innovation: (1) Maritime, (2) Aerospace, (3) Cyberspace, (4) Biotechnology, (5) New Energy, (6) Artificial Intelligence (AI), and (7) Quantum Science and Technology (People's Government of Fujian Province 2021). In January 2017, Xi Jinping established the Central Military-Civil Fusion and Development Commission, a powerful party organization headed by Xi Jinping. This commission has a top-down system for decision-making and policy implementation related to the MCF strategy across party, government, military, and civilian sectors. However, concerns remain regarding unresolved issues, such as the coordination between the military and local governments in implementing the plan and the development of laws on profit compensation for private companies (Yatsuzuka 2021).

As a developing technology country, China must continue to exchange academic and human resources with advanced countries to develop its economy and S&C capabilities in the long term. However, the Xi Jinping administration has adopted a proactive stance on promoting the MCF strategy, with the aim of swiftly internalizing critical technologies for national security reasons. Consequently, this strategic approach has led to a diminution in opportunities for technological and human resource exchange, as Chinese companies and researchers with suspected connections to the Chinese military have been denied access to advanced countries. This predicament, often termed the “Military-Civil Fusion dilemma,” signifies a quandary wherein hastily pursuing domestication to mitigate security vulnerabilities might inadvertently impede the long-term economic and technological advancement of the nation (Yatsuzuka 2022). In the face of this dilemma, Xi Jinping's approach has been characterized by an absence of equilibrium, prioritizing national security over the potential benefits of exchanges with Western nations. The National Security Strategy (NSS) for 2021-2025, as outlined by the Politburo of the Central Committee of CCP in November 2021, underscores the imperative of “science and technology security” and aims to attain science and technology self-reliance and self-strengthening as a strategic pillar for national security and development (Xinhua 2021).

### **III. Challenges Posed by China's Technology Dominance**

With the inauguration of the second Trump administration in 2025, it is anticipated that Xi Jinping will accelerate the development of China as a technology superpower, a development that could potentially overshadow the economies and security of Japan and South Korea.

The ongoing decoupling of the U.S. and China may result in trade disadvantages for Japan and South Korea. The intensification of this decoupling may result in Japan and South Korea adopting a more pronounced Western orientation, both in terms of values and political systems. This shift could potentially hinder their access to the Chinese market. According to a simulation conducted by the Institute for Developing Economy of Japan (IDE), significant losses in key sectors such as agriculture, food processing, automobiles, and services could be incurred by Japan and South Korea due to the development of decoupling (Kumagai 2023).

Moreover, as the U.S.-China confrontation intensifies, Japan and South Korea may face mounting economic coercion from China. Xi Jinping has instructed to “tighten international production chains’ dependence on China, forming powerful countermeasures and deterrent capabilities based on artificially cutting off supply to foreigners” (Xi 2020). Notably, in 2020, the PRC government passed several pieces of legislation, including the Trade Control Law and the “Unreliable Entity List” (Ministry of Commerce of People’s Republic of China 2020). These regulations are intended to serve as countermeasures against not only the U.S. but also third countries (or companies) that adhere to U.S. trade restrictions against China. Historically, China has employed economic coercion against Japan and South Korea through import and export restrictions on critical minerals, leading to dual-use technologies, as the conflict over maritime interests and security issues has escalated.

Furthermore, China is undertaking ambitious efforts to develop advanced technologies with military applications that could significantly impact the security of neighboring countries, including Japan and South Korea. PLA researchers have underscored the significance of unmanned vehicles as a pivotal component of intelligentized warfare. It is plausible that the PLA is attempting to compensate for its limited combat experience by conducting high-level UAV exercises in these regions. Indeed, there has been a notable increase in the number of Chinese UAVs operating in the East China Sea in recent years. Japan’s Air Self-Defense Force has been engaged in countering China’s UAVs that violate Japan’s ADIZ. The unilateral nature of China’s UAV operations in the East China Sea has given rise to a scenario in which unmanned and manned aircraft routinely encounter each other without communication, a situation that could potentially lead to unintended collisions.

### **IV. Potential for Japan-ROK Cooperation in the Era of U.S.-China Strategic Competition**

It is imperative for Japan and South Korea to acknowledge that the U.S. pursuit of unilateralism may result in adverse consequences for Japan and South Korea, contributing to regional instability. Consequently, the promotion of consensus-building on economic and trade cooperation is paramount.

In order to engage the U.S. in multilateral coordination, Japan and South Korea can collaborate to utilize multi-/mini-lateral frameworks with like-minded countries, such as the U.S.-Japan-ROK, QUAD-plus, AUKUS-plus.

Furthermore, it is imperative for Japan and South Korea to fortify their economic security intelligence capabilities to encourage the Trump administration to engage in multilateral coordination. Information exchange regarding China's MCF, trends in chokepoint technologies, technology theft, and cyber operations is imperative for policy coordination among aligned nations. Such information exchange can be facilitated not only through Track 1 meetings but also through Track 1.5/2 joint research projects.

Policy coordination must encompass not only derisking but also the formulation of industrial strategies that will enhance long-term competitiveness. The absence of an industrial strategy in the process of derisking will result in elevated costs within the supply chain and a diminution of international competitiveness. Given China's preeminent position in the global market, it is imperative for Japan and Korea to contend with China's elevated industry standards over the long term. Consequently, these nations must prioritize cost and performance metrics in the restructuring of their supply chains.

The cultivation of free and open societies that attract talented human resources and foster innovation is imperative for long-term competitiveness with China. Presently, China is the largest source of highly skilled human resources for emerging technologies, such as AI, at the undergraduate level (Macro Polo n.d.). The international competitiveness of U.S. science and technology has been driven by highly skilled human resources that have immigrated from other countries, including China. Confronted with a declining population of young people, Japan and South Korea must prioritize the development of a society that can attract such highly skilled individuals and companies.

Additionally, Japan, South Korea, and other countries with similar interests could assume a leadership role in establishing a crisis management mechanism in the region. In June 2024, the Japan Maritime Self-Defense Force and the ROK Navy issued a memorandum of understanding to ensure the smooth and safe operation of naval vessels and aircraft, including drones, and announced that they would make improvements at regular consultative bodies (Dominguez 2024). Through the regular consultative bodies, both countries should develop crisis management mechanisms, including specific means of communication with military UAVs. The enhancement of crisis management mechanisms between the two countries is expected to contribute to the strengthening of crisis management mechanisms involving China, including trilateral cooperation and bilateral relationships. Furthermore, it is imperative to foster cooperation in technology and equipment development in new domains, in collaboration with allies and partners. Additionally, leadership in discussions concerning the development of international norms in emerging security domains, such as AI, cyber security, and biotechnology, is crucial to prevent China from establishing a unilateral precedent for unreliable operations. ■

## References

- Dominguez, Gabriel. 2024. “Japan and South Korea Agree to Prevent Repeat of 2018 Naval Row.” *The Japan Times*. June 1.  
<https://www.japantimes.co.jp/news/2024/06/01/japan/politics/south-korea-japan-defense-cooperation/> (Accessed January 31, 2025)
- Kumagai, Satoru. 2023. “Calculating the Impact of Global Decoupling on the Global Economy.” *IDE Research Columns*. April 2023.  
[https://www.ide.go.jp/English/ResearchColumns/Columns/2023/kumagai\\_satoru.html](https://www.ide.go.jp/English/ResearchColumns/Columns/2023/kumagai_satoru.html) (Accessed January 31, 2025)
- Macro Polo. n.d. “The Global AI Talent Tracker 2.0.” <https://macropolo.org/digital-projects/the-global-ai-talent-tracker/> (Accessed January 31, 2025)
- Ministry of Commerce of the People’s Republic of China. 2020. “MOFCOM Order No. 4 of 2020 on Provisions on the Unreliable Entity List.” September 19.  
[https://english.mofcom.gov.cn/Policies/AnnouncementsOrders/art/2020/art\\_26e3c471536d443c944d60c91bacaf9a.html](https://english.mofcom.gov.cn/Policies/AnnouncementsOrders/art/2020/art_26e3c471536d443c944d60c91bacaf9a.html) (Accessed January 31, 2025)
- Murphy, Ben. 2022. “Chokepoints: China’s Self-Identified Strategic Technology Import Dependencies.” Center for Security and Emerging Technology. 11–18.  
<https://cset.georgetown.edu/publication/chokepoints/> (Accessed January 31, 2025)
- Pan, Hongliang. 2018. *Ershiyi shiji zhanzheng yanbian yu gouxiang: zhinenghua zhanzheng* [Evolution and Conception of 21st Century Warfare: Intelligentized Warfare]. Shanghai: Shanghai Shehui Kexue Yuan Chubenshe.
- People’s Government of Fujian Province. 2021. “Outline of the 14th Five-Year Plan (2021–2025) for National Economic and Social Development and Vision 2035 of the People’s Republic of China.” August 9.  
[https://www.fujian.gov.cn/english/news/202108/t20210809\\_5665713.htm](https://www.fujian.gov.cn/english/news/202108/t20210809_5665713.htm) (Accessed January 31, 2025)
- State Council of the People’s Republic of China. 2019. “Full Text: China’s National Defense in the New Era.” July 24.  
[https://english.www.gov.cn/archive/whitepaper/201907/24/content\\_WS5d3941ddc6d08408f502283d.html](https://english.www.gov.cn/archive/whitepaper/201907/24/content_WS5d3941ddc6d08408f502283d.html) (Accessed January 31, 2025)
- . 2021. “Xi Stresses Sci-Tech Self-Strengthening at Higher Levels.” May 28.  
[https://english.www.gov.cn/news/topnews/202105/28/content\\_WS60b0f926c6d0df57f98da5e9.html](https://english.www.gov.cn/news/topnews/202105/28/content_WS60b0f926c6d0df57f98da5e9.html) (Accessed January 31, 2025)
- . 2022. “Full Text of the Report to the 20th National Congress of the Communist Party of China.” October 25.  
[https://english.www.gov.cn/news/topnews/202210/25/content\\_WS6357df20c6d0a757729e1bfc.html](https://english.www.gov.cn/news/topnews/202210/25/content_WS6357df20c6d0a757729e1bfc.html) (Accessed January 31, 2025)

- Xinhua. 2021. “CPC Leadership Reviews National Security Strategy for 2021–25.” *China Daily*. November 18. <https://www.chinadailyhk.com/hk/article/248141> (Accessed January 31, 2025)
- Xi, Jinping. 2020. “Major Issues Concerning China’s Strategies for Mid-to-Long-Term Economic and Social Development.” *CSIS Interpret: China*. October 31. <https://interpret.csis.org/translations/major-issues-concerning-chinas-strategies-for-mid-to-long-term-economic-and-social-development/> (Accessed January 31, 2025)
- Xueershexi Gongzuoshi. 2022. “Pohuai ‘chabozi’ nanti, zongshuji nianzizaizi de guanqie” [Solving the Problem of “Stuck in the Neck,” the General Secretary’s Constant Concern]. *Qiushi-net*. May 9. [http://www.qstheory.cn/zhuanqu/2022-05/09/c\\_1128633235.htm](http://www.qstheory.cn/zhuanqu/2022-05/09/c_1128633235.htm) (Accessed January 31, 2025)
- Yatsuzuka, Masaaki. 2021. “China’s Way for an Innovation-Driven PLA.” *NIDS Commentary*, no. 166, May 20. <https://www.nids.mod.go.jp/english/publication/commentary/pdf/commentary166e.pdf> (Accessed January 31, 2025)
- . 2022. “China Faces Major Challenges in Achieving Goal of Global Technological Pre-Eminence.” *The Strategist*. October 13. <https://www.aspistrategist.org.au/china-faces-major-challenges-in-achieving-goal-of-global-technological-pre-eminence/> (Accessed January 31, 2025)
- Yatsuzuka, Masaaki, and Hiroshi Iwamoto. 2020. “China’s Military-Civil Fusion Development Strategy.” *China Security Report 2021: China’s Military Strategy in the New Era*, 62–83. Tokyo: National Institute for Defense Studies.

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