

Chapter 4

“Technological Innovation and Security”: Japan’s Innovation Strategy Based on Technological Patriotism

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- I. Techno-geopolitics and the new Cold War structure created by the United States and China: An economic security and innovation system
- II. The system for developing advanced technology behind American and Chinese progress
- III. The role of Japan and its “technological patriotism” in a new defense environment: Building an economic security innovation platform by securing “technological advantages”

Key Points

- China’s rise in the domain of advanced science and technology and its race with the United States for global hegemony have sparked debates on economic security.
- China has both a system of implementing new ideas in society and the capability to expand into global markets by mass production—adequate qualities for becoming a technological hegemon.
- It is necessary for Japan to improve its technological innovation capabilities and create an economic system suited for the new security environment through cooperation between the public and private sectors via the economic security promotion bill.

“Economic security” has attracted attention both in Japan and abroad in recent years, and a concept similar to this in academic research is “economic statecraft,” which was presented in the 1980s. However, the concept of economic security envisioned by Japan is even broader than that of economic statecraft. A bill for promoting economic security currently under Diet (Japanese parliament) deliberation has also been discussed within the “Advisory Panel on Economic Security Legislation” chaired by Professor Aoki Setsuko of Keio University, of which I am a member. Our discussion covered a broad range of issues, with particular emphasis on the four pillars of “building robust supply

chains,” “securing core infrastructure,” “developing advanced technologies through cooperation between the public and private sectors,” and a “system of non-disclosure of patent applications.”

Approaches to Economic Security

Debates on economic security are informed by various studies. Among these are studies focused on international politics, where issues in “arms control” such as arms export control and nuclear non-proliferation in particular are examined through the lenses of international relations. Also relevant are political science studies on new domains such as space and cyberspace.

Next, there are studies on major companies and small and medium-sized enterprises involved in basic defense-related industries as subjects of industrial analysis in Japan mainly from the viewpoint of economics, although not many of such studies exist. With the establishment of the Acquisition, Technology & Logistics Agency (ATLA) in 2015, there is an emerging need for company-specific investigations into what technology exists in particular areas of Japan.

The current economic security policy started from a proposal made by the Liberal Democratic Party’s “Strategic Headquarters on the Creation of a New International Order” (later renamed the Headquarters for Economic Security Measures, Policy Research Council) in December 2020. The proposal presented the perspectives of “strategic autonomy” and “strategic indispensability,” whose establishment requires Japan to take the initiative in shaping international rules. In addition, the proposal also pointed to the importance of security clearance (SC), through which the eligibility of personnel who handle confidential information is assessed. Currently, there are quite a few voices calling for a cautious approach to the introduction of SC, but the debate is expected to continue.

A basic idea behind technological innovation is that openness and diversity are the cornerstones of science, and that it is important to secure an environment where original ideas can be disseminated and researchers around the world can compete and collaborate in their research. At the same time, the coexistence of economic security with the freedom of economic activity is also an important issue in the course of promoting the former. It is necessary for policies to be implemented based on the balance between security and economic activity—concepts that may conflict with each other in some cases. The Keidanren (Japan Business Federation) has also made recommendations while

taking a strong interest in the issue, and it is essential to have close discussions with private companies in this regard.

China’s Rise through its Advanced Technology

The handling of “dual-use” technologies for both civilian and military purposes is also a difficult issue. Since the Sputnik crisis in 1957, the United States has promoted security innovation while utilizing dual-use technologies. In the midst of this, China’s rise is undoubtedly one of the significant factors that have triggered the debate on economic security, and how Japan balances its relations with China, which continues to pursue economic development, with its own security considerations has become an equally important issue.

Recently, it has been said that a “new Cold War structure created by the United States and China” has emerged in geopolitics, but the current US–China relations are totally different from the past Cold War era between the United States and the Soviet Union because the United States and China have close economic ties that are mutually complementary. Having said that, many Americans feel a strong sense of crisis when confronted with China’s aspirations to become a hegemonic power in the world.

The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000 by Paul Kennedy was a bestseller back in the 1980s, which led to a sensational debate over the plausible hypothesis that the era of the United States had ended and the question of whether Japan could become the next hegemonic power. The wariness of Japan among American researchers subsequently faded away, however. Currently, *Destined for War: Can America and China Escape Thucydides’s Trap?* by Professor Graham Allison of Harvard University has been selling well, which makes me feel that the times have changed dramatically over the past forty years.

What we should keep in mind when thinking about China is the concept of techno-hegemony. It has been pointed out in the United States that techno-hegemony consists of two factors: (1) universities with technological development capabilities and a system of industry-academia collaboration to introduce them to society; and (2) mass production capabilities. A country with these two elements can become the technological hegemon of its era. The United Kingdom after the Industrial Revolution, Germany when it challenged the United Kingdom, the United States during the postwar era, and Japan when it challenged the United States in the late 20th century can be considered to have been in this category.

In my view, China meets these two requirements. China's Peking University and Tsinghua University have world-class technological prowess, and China has had very active industry-academia collaboration for a long time. In addition, China has a mass production system because its collaboration with developed countries, including Japan, has enabled the factory construction projects in China to be accelerated. Ironically, Elon Musk, CEO of Tesla, Inc., had chosen China as the company's mass production base for its electric vehicles. China announced its vision of "Made in China 2025" in 2015, which should be taken seriously as China's pursuit of technological hegemony.

Russia, which is attracting renewed attention for its invasion of Ukraine, is unlikely to become a technological hegemon like China. It is true that Russia has great technological capabilities in cutting-edge fields such as space, medicine, and nuclear power. However, Russia lacks mass production capabilities. This is likely because Russia enjoys abundant natural resources, including oil and natural gas, and it has not invested much in that area.

The concept of "techno-geopolitics" is also attracting attention against the backdrop of the techno-hegemony that China is seeking to achieve. This means that countries are dynamically expanding into areas where no hegemony has been established, such as space, cyberspace, and even the Arctic Circle.

The Effects of Economic Sanctions on Russia

One concept that has been gaining attention in the context of economic security is that of "economic statecraft." This concept means that a country exerts its influence over other countries via economic means rather than military means to achieve its geopolitical national interests. This concept was first coined in academia by the international political scientist David Baldwin, who had taught in the 1980s at Columbia University, where I studied. He argued that it has become very effective and important for the state to use not only military means but also economic means to achieve its strategic goals. After the publication of his book, I also attended one of Professor Baldwin's lectures, in which he said, "This is a concept that is difficult to demonstrate empirically. There have been no successful cases." It is indeed difficult to point to actual cases in which a country has succeeded in altering the actions of other countries and achieved its strategic national goals via economic means alone. It is not surprising that such a concept exists, however.

The current economic sanctions imposed on Russia in response to its invasion of Ukraine is a form of economic statecraft. Imposing sanctions in a coordinated manner can send the message that the international community collectively disapproves of

Russia’s actions. This signaling is effective to some extent. However, if some countries oppose the sanctions, it will instead expose the fact that international public opinion is divided, which could backfire.

Furthermore, because there is usually a powerful backlash from countries targeted by sanctions, it is necessary to consider in advance the second and third rounds of economic sanctions following the first. However, such prolonged sanctions may not ultimately lead to a settlement. This possibility is a cause for concern in the case of Russia as well.

“Principles” That Are More Important Than the Four Pillars

The economic security bill that the government is currently working on consists of four pillars: (1) securing supply chains for important supplies; (2) a preliminary review of core infrastructure facilities; (3) promoting the development of advanced technologies; and (4) the non-disclosure of patents.

These four pillars are important because they serve as the starting point of economic security. I believe the first part of the bill describes the significance of these pillars by outlining the basic ideas that undergird them. In other words, the legislation suggests that under the current state of international affairs, every economic activity is not solely governed by economic logic but instead approached with security or national survival as the primary goal, which makes economic activities also subject to intervention by state power. While there were some cautious voices within both the ruling and opposition parties, this idea was eventually incorporated into the bill.

The key issues to be addressed in this context are the establishment of penalties and the introduction of SC as mentioned above. These are essential rules if Japan were to participate in the Five Eyes alliance, where English-speaking countries, including the United Kingdom and the United States, share classified intelligence.

It is also critical for Japan to secure “technological advantages” based on these foundations. The rest of the world will take no notice of Japan in the first place if it does not have technologies that other countries crave, such as “made-in-Japan semiconductors,” “made-in-Japan space technology,” and “made-in-Japan vaccines.” How we can strengthen innovation, which is the key to all this, is also inextricable from security. It is necessary for us to take urgent and effective action suited to Japan’s circumstances to build a “dual-use innovation ecosystem.” We are now in an era when policy interventions are essential for every economic activity, including research and development. I sincerely hope that the Japanese public will gain a deeper understanding of this issue through the current debate

on the economic security bill.

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