

Strategies for Countries and Companies to Survive in the Era of "Politics Meets Technologies" (Summary)

May 15, 2023

Mitsunobu Koshihara
Chairman, Committee on Economic Security, Science and Technology
Keizai Doyukai
(Chairman Emeritus, JSR Corporation)

1. Introduction

The world we live in is undergoing a significant transition from an age of "globalization" to one where "national security" is central. The passage of the Economic Security Promotion Act last May led to the implementation of policies on technology enhancement and supply chain resilience, all viewed through the lens of national security. In particular, government support for the development of cutting-edge technologies has emerged as a cornerstone of economic security. Looking at the historical cycle of geopolitical trends, we're in the midst of a shift in global hegemony. The evolution of next-gen computing – now deemed part of our critical social infrastructure – driven by leading-edge semiconductors, AI, and quantum computing will catalyse "disruptive shifts" in our society and propel us towards a low-carbon society. This emerging computing technology carries significant implications for the global balance of power. As we cannot rely on traditional wisdom to predict the future, it's crucial for the government and corporations to grasp the concept of economic security, where the role of cutting-edge technologies is increasingly important. The technical acumen to comprehend and, if necessary, acquire these advanced technologies will shape our future in this era of "Politics meets Technologies." We're still navigating these challenging times, but our allies and like-minded nations hold high expectations for us. Being at the helm of the democratic alliance in the strategically vital Indo-Pacific region, Japan is renowned as a true democracy as well as a tech powerhouse. Both the Japanese government and the business sector should view this as a golden opportunity.

2. Our Proposals

2.1 Acquiring and Enhancing Technological Intelligence Capabilities

(Government and Business Sector)

The government needs to secure "technological intelligence"¹, including not just the capacity to accurately comprehend sensitive technologies², but also the ability to network with global researchers to forge strategic alliances and collaborations with allies and like-minded nations to push critical technologies forward. Politics must also leverage this technological intelligence to present a future vision that will embody national security and instill a sense of peace and safety in the citizens. For instance, political leaders should set out a vision for boosting self-sufficiency levels in critical supplies like energy, using an optimal blend of advanced technologies and political measures.

2.2 Constructing Next-Gen Computing Infrastructure

(Government and Business Sector)

- The performance of semiconductors in today's mainstream digital (classic) computers has improved, and the computable domain has doubled every two years in line with Moore's Law. However, with the advent of next-gen communication networks, IoT, and sensor technologies, the volume of data to be utilized is set to grow exponentially, creating a mounting demand for improved computing power at a faster pace.
- Quantum computing truly expands the computable domain exponentially, and when integrated with digital computers leveraging state-of-the-art semiconductors (2nm logic and beyond), quantum advantage could be realized as early as in 2025, heralding an era of disruptive changes in computational power.
- This next wave of computing technology won't just be a source of national security, but also a fountain of innovation driven by academia and businesses, eventually becoming an integral component of future social infrastructure. Advancing these technologies through a coalition of like-minded nations, ahead of the global competition, and securing strategic independence and indispensability of this technology is a critical policy in the context of economic security.
- Only during such disruptive technological transitions should the government contemplate policies on providing this infrastructure as a public good for all of society.

¹ Gathering, analyzing, and evaluating data on research and development trends and applications of technology.

² Technologies likely to be used in military, including civilian, applications.

2.3 Corporate Management (Business Sector)

- In this era of economic security, it's crucial for corporate leaders to conduct calm, objective analyses and decision-making rooted in a long-term perspective, while maintaining a focus on risk diversification in the short term. In times like these, it's essential to have as many strategic options as possible to avoid being cornered into making undesirable decisions. And amidst a transitional period of the long-term cycle of global order, management needs to be both resilient and adaptable.
- As part of society's leadership, corporate executives must take on the responsibility of thoroughly elucidating the future opportunities presented by advanced technologies and their societal implications. This way, they can actively partake in the process of envisioning and illustrating our future society.

2.4 Progressing towards Practical Implementation of Economic Security

(Government)

a. Confidential Patent System

- Among the G20, only Japan, Mexico, and Argentina lack a confidential patent system. Such a system is vital to safeguard national security while protecting the rights of inventors of sensitive technologies having potential military applications. However, depending on the range of the technical field and the level of information to be safeguarded, administering the system could pose a hefty burden on the government. We propose initiating the program on a small scale, primarily focusing on single-use technologies (solely for military use), while monitoring the government's readiness as administrator and the extent of administrative burdens on the private sector as beneficiaries of the system.

b. Security Clearance³

- As advanced technologies evolve, the boundary between civilian and military technologies grows increasingly blurred. And cooperation among like-minded and allied nations is essential for the development of advanced technologies. To prevent a situation where the Japanese government and companies cannot participate in critical international joint development projects, establishing a security clearance system in

³ Authorization to limit access to classified information to qualified government officials and private individuals.

Japan is also deemed crucial by the business community. Moreover, it's important to ensure that the system is substantially equivalent to those of other countries, and the process of creating the clearance system should be closely coordinated with our allies. The government is currently engaged in vigorous discussions on this system, and we will be closely monitoring the outcomes.

c. Government Support

- As a business community, we highly appreciate the government's active efforts to establish strategic independence and indispensability through public-private partnerships for developing such advanced technologies and support for strengthening critical supply chains. The Japan Science and Technology Agency (JST) and the New Energy and Industrial Technology Development Organization (NEDO) are the funding agencies responsible for executing such government subsidies, even though neither has been involved in any projects relevant to national security. We believe a new funding agency should be created to manage a budget specially allocated to economic security, alongside the establishment of a new technological intelligence organization within the government that is dedicated to national economic security. Additionally, some requirements by JST and NEDO do not take into account international collaboration on patents, and we believe these should be revised to better align with the actual situation.

###