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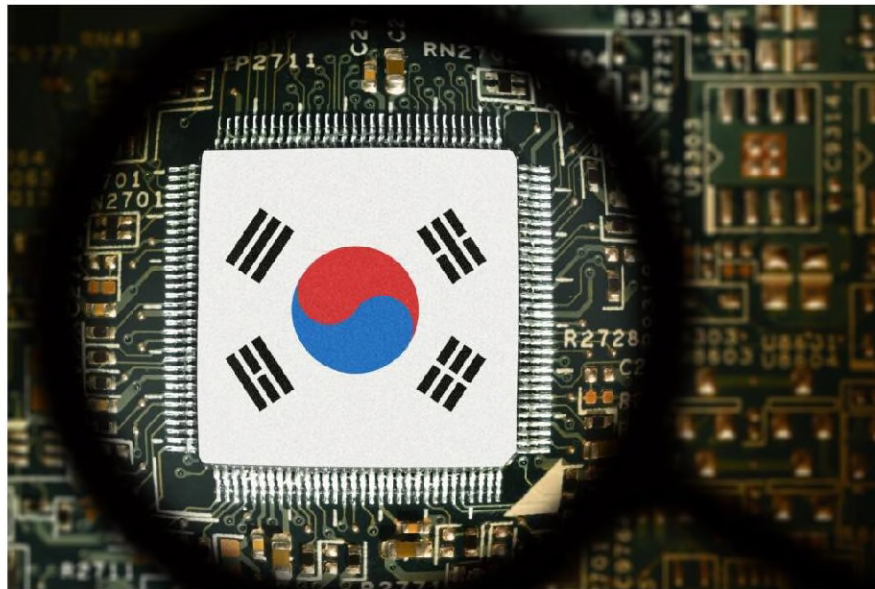
THE PENINSULA

[Policy Brief] Cooperation on Semiconductor Supply Chains and Technology

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This policy brief offers a concise summary and set of recommendations from a longer paper, featured in the Fall/Winter issue of KEI's flagship journal Korea Policy. The full paper can be found [here](#) and the entire Korea Policy issue [here](#).

Executive Summary

The security alliance between the United States and South Korea, once focused primarily on military defense, is evolving to include economic security and technological cooperation. The evolving partnership between the two countries, particularly in the areas of semiconductor supply chains and advanced technologies, features the deepening and broadening of the alliance in the form of a Global Comprehensive Strategic Alliance. This change is driven by intensifying competition between the United States and China, which has led to the securitization of key technologies like semiconductors. This brief examines the opportunities and challenges in deepening and broadening US-South Korea cooperation on semiconductor supply chains. While such developments support the shared objectives of advancing technological innovation, bolstering supply chain resilience, and addressing potential threats from China, challenges remain in diverging threat perceptions and concerns about collective deterrence. The brief concludes that

aligning strategic objectives in economic security and technological cooperation is essential to ensure the sustainability of the alliance and its ability to navigate the complex global techno-geopolitical landscape.

Background

Semiconductors, once a symbol of global interdependence, have become a focal point in the US-China competition and an important component of national security. The United States and China are employing various offensive and defense strategies to ensure semiconductor supply chain resilience and maintain technological and military superiority over peer competitors. The United States has pursued leadership in reshaping the semiconductor supply chain through the promotion of high-tech and strategic industries and strengthening alliances and partnership networks. The United States aims to reduce dependence on China by reshoring manufacturing with subsidies and incentives. It also employs export controls on advanced semiconductors, outbound and inbound investment screening, and licensing restrictions to curtail China's technological growth. While aligned with the United States in strategic initiatives, South Korea is concerned with economic stability and market access as China remains its largest trading partner.

The scope of the US-ROK alliance has expanded from traditional military cooperation to a broader partnership focused on technology and semiconductor supply chains. At the leader level, key milestones include the 2022 and 2023 US-South Korea summits, where both countries pledged to enhance cooperation on critical and emerging technologies (CETs), artificial intelligence (AI), and clean energy. The summits reaffirmed commitments to supply chain resilience and established platforms for working-level collaboration and channels of dialogue. This has led to three key achievements. First, progress has been marked by collaborative efforts between governments, industries, and academic institutions. The US-ROK Next Generation CET Dialogue was officially launched to promote cooperation on semiconductors, leading to initiatives such as the STEM exchange program for talent in advanced technologies and joint research and development (R&D) for cutting-edge semiconductor technologies. Second, the public-private partnership has been enhanced to create a more predictable environment for business activities and Korean chipmakers' bold investments in the United States. The ministerial-level Supply Chain and Commercial Dialogue (SCCD) has led to substantive progress with relevant working groups to discuss deepening semiconductor investment cooperation as well as collaboration in the key areas of supply chains, workforce development, and R&D. Third, Korea has actively joined US-led minilateral and multilateral efforts to enhance supply chain resilience, detect potential disruptions in the global supply chains, and ensure stable access to critical technologies and materials. South Korea is currently holding chairmanship in the Minerals Security Partnership (MSP) and leading the crisis response network under the Indo-Pacific Economic Framework for Prosperity's (IPEF) supply chain agreement.

Combined efforts at both levels have deepened the US-ROK alliance, expanding cooperation beyond defense to address critical global supply chain challenges and foster technological innovation. They have also broadened the alliance by engaging in US-led minilateral and multilateral initiatives to strengthen semiconductor supply chain resilience and reduce dependence on China. The global comprehensive strategic alliance serves as a vital platform for coordinating the shared interests of both countries and fostering greater

cooperation in supply chain management and technology. However, concerns remain over diverging threat perceptions, credibility, collective deterrence, and domestic political developments in both countries.

Expanding cooperation into new areas may strain traditional alliance mechanisms that are not fully aligned with the evolving goals of technological partnerships. Incorporating economic security into alliance theories reveals gaps, as traditional alliance frameworks were not designed to fully address the complexities of economic and technological interdependence. Therefore, there is a need for flexibility and better institutionalization, which focuses on leveraging shared resources, knowledge, and capabilities to enhance the competitive advantage of each partner.

Recommendations and Implementation

The sustainability and effectiveness of the evolving alliance requires a careful balance of mutual interests, clear communication, and adaptable strategies that consider the diverse needs and perceptions of each ally. From an economic security standpoint, the US-ROK alliance serves as a crucial platform for enhancing integration, coordination, and joint initiatives among the two countries. The policy recommendations suggest steps toward strengthened cooperation on semiconductor supply chain and technology between the two allies.

– **Enhance Bilateral Strategic Dialogues:** Establish regular discussions through platforms such as the US-ROK Next Generation CET Dialogue and SCCD to address opportunities and challenges on semiconductor supply chain and to ensure policy alignment.

– **Public-Private Partnerships:** Focus on stakeholder engagement and communication to balance security and competitiveness, as well as public governance and private innovation to ensure transparency and compliance. Governments should collaborate with private companies to encourage innovation and support research initiatives for technological advancement.

– **Collective Economic Resilience:** Work toward building a framework for collective defense against economic coercion to ensure protection against market disruptions and to better align technology protection mechanisms for safeguarding the semiconductor supply chain. This should focus on building consensus and institutional frameworks based on shared interests and objectives.

Conclusion

The US-ROK alliance is critical to shaping the future of global semiconductor supply chains amid growing geopolitical competition with China. While the alliance presents opportunities for technological collaboration and supply chain resilience, it also faces challenges due to South Korea's economic dependence on China and differing threat perceptions between the United States and South Korea. To navigate these complexities, the two countries should continue to enhance bilateral dialogues, foster innovation through joint R&D, and strengthen public-private partnerships. By working together to build a resilient, secure, and innovative semiconductor supply chain, the United States and South Korea can maintain their competitive edge and contribute to a regional economic order that reduces vulnerabilities and promotes long-term economic security.

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