The Missing Strategy in Europe's Reindustrialization: Lessons from Japan, Korea, and Taiwan

Edited by

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List of Abbreviations

ACI	Anti-Coercion Instrument
AI	Artificial Intelligence
ASML	Advanced Semiconductor Materials Lithography
CIRO	Cabinet Intelligence and Research Office, Japan
CRM	Critical Raw Materials
ESPA	Economic Security Promotion Act, Japan
EU	European Union
EUV	Extreme ultraviolet lithography
HBM	High-Bandwidth Memory
ICT	Information and Communications Technology
JIC	Japan Investment Corporation
JOGMEC	Japan Organization for Metals and Energy Security
KORUS	Korea-US Free Trade Agreement
M&A	Mergers and Acquisitions
MITI	Ministry of International Trade and Industry
NIA	National Intelligence Agency
PRC	People's Republic of China
SME	Small and Medium Enterprises
TDI	Trade Defence Instruments
THAAD	Terminal High Altitude Area Defense
TSMC	Taiwan Semiconductor Manufacturing Company
U.S.	United States
WTO	World Trade Organization

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State of Play

Zsuzsa Anna Ferenczy

Amid geopolitical upheaval and growing supply chain fragmentation, the European Union (EU) is rethinking its global role through a renewed focus on industrial policy. The rules-based trading system that underpinned Europe's prosperity is increasingly giving way to economic coercion, industrial subsidies, and the weaponization of trade and technology. In this new environment, EU member states have recognized the need for fundamental change to make Europe competitive again. At the same time, a deteriorating security environment and a rupture in transatlantic ties have made these efforts more challenging. The EU's overriding objective is therefore to strengthen its strategic autonomy by enhancing its ability to remain both prosperous and secure through greater competitiveness, the protection of critical industries, and the diversification of trusted partnerships, while remaining committed to an open global economy.

China's pursuit of technological self-sufficiency through state-led industrial policy has challenged the EU's ambition to maintain technological leadership and its efforts to scale up in strategically important industries. At the same time, the deterioration of EU-China relations following Beijing's support for Russia's full-scale invasion of Ukraine in 2022 has amplified the EU's urgency to step up and invest in its strategic autonomy. Meanwhile, uncertainty surrounding transatlantic relations, combined with Europe's technological dependence on both the U.S. and China, has exposed the EU to growing geopolitical risks. Its digital transition depends on materials it does not control, namely critical raw materials (CRM), which are indispensable for semiconductors—and the equipment used to manufacture them. China's near-monopoly over the extraction, processing, and refining of many of these materials leaves European industries highly exposed to supply disruptions. China, for example, produces about 95 percent of the world's rare earths and has a central position in refining them.

CRM are indispensable for the production of semiconductors, which underpin every modern technology and strategic defense system, hence their strategic value. Increased demand for semiconductors will require greater quantities and new varieties of minerals. In other words, the race will only get tougher. At the same time, semiconductor supply chains remain highly complex: a single chip typically passes through three to six production facilities across multiple locations before completion, making supply chains difficult to monitor and vulnerable to disruption. In recent years, with the U.S.-China rivalry widening from tariffs to semiconductors, CRM, and industrial technology, Beijing has leveraged export controls as a central geopolitical instrument of national security. In response to U.S. export controls on advanced technology exports, China has restricted exports of gallium, germanium, and graphite, which are vital to high-performance chips. China therefore plays a pivotal role in global supply chains, also supplying 70 percent of Europe's rare earth imports.[1]

Its critical dependence on external suppliers has challenged Europe's economic security and industrial resilience, limiting its ability to act autonomously in strategic sectors. Ensuring a secure supply of CRMs for the semiconductor industry is therefore essential not only for maintaining Europe's industrial competitiveness, but also for strengthening its defense capabilities and national security. At present, Europe accounts for just under 10 percent of global semiconductor production and remains highly dependent on chip imports from the Indo-Pacific and America. European production and demand focus on legacy semiconductors (above 28 nm nodes), particularly analog, discrete, and micro-component devices serving its industrial sectors. Advanced logic and memory chips are primarily produced in Asia for electronics assembly. To reduce these strategic dependencies, the EU is determined to revitalize its chip industry and close the gap with world leaders.

In this regard, Europe benefits from significant innovation capabilities. Through the Dutch company ASML, it has a near-monopoly in mastering the manufacturing of extreme ultraviolet (EUV) advanced lithography equipment, which is essential for semiconductor production. In 2022, the EU launched the Chips Act to stimulate production and has also provided

subsidies under the Important Projects of Common European Interest (IPCEI) scheme. The question should, however, not be whether it has the funds to build new factories, but whether it can build a resilient, interconnected industry designed to withstand pressure and disruptions. In a fragmented geopolitical environment dominated by global actors who are far ahead in the competition, catching up is no small task for Europe. Yet, Europe is not alone in confronting these vulnerabilities. Its Indo-Pacific partners—Japan, Korea, and Taiwan—are deeply integrated into regional and global supply chains, particularly through their economic ties with China and their interdependence with one another, with varying levels of market complementarity and competition. They each play significant roles in the semiconductor value chain and hold substantial shares in the global market, while China is the world's largest chip market.

Japan, Korea, and Taiwan have each developed their own responses to geopolitical disruption, combining industrial policy measures with efforts to strengthen economic and national security. Although their concerns increasingly overlap with those facing Europe, their approaches to managing risks have diverged according to their respective industrial strengths and positions within global value chains. Japan and Korea hold leading positions in the design stage, while Taiwan has emerged as the global leader in semiconductor manufacturing. Notwithstanding challenges surrounding its international status, Taiwan remains a structurally embedded and indispensable node in the global supply chain. It accounts for over 60 percent of global foundry capacity and produces more than 90 percent of advanced chips. Japan maintains a dominant position in semiconductor materials and manufacturing equipment, while Korea leads especially in the design and manufacturing of memory. Meanwhile, China has developed significant capabilities in semiconductor back-end manufacturing, particularly assembly and testing, where it accounted for around 38 percent of the global market in 2019, making it the world's largest producer in this segment.[2]

On the European side, the response to growing geoeconomic rivalry has focused on adopting a set of trade defense instruments (TDI), advancing

industrial upgrading, and deepening cooperation with trusted partners. Given its strategic dependencies, particularly for CRM and critical technologies, the EU does not view acting on its own as a viable solution. Instead, it has increasingly sought to enhance its competitiveness and resilience through partnerships with like-minded partners, particularly in the Indo-Pacific. This is reflected in its strategy for cooperation in the Indo-Pacific and has inspired a growing number of bilateral initiatives with regional economies. As such, the third meeting of the EU-Japan Digital Partnership Council held in May 2025 committed to working closely in areas such as AI, 5G/6G, submarine cables, Arctic connectivity, and cybersecurity.[3] At their third Digital Partnership Council, the EU and Korea committed to boosting competitiveness and technological leadership while building stronger economic security through greater resilience in critical technologies.[4] The EU and Taiwan held their fourth trade and investment dialogue in December 2025, with renewed focus on economic security and critical value chains.[5]

The EU has significant interests of its own to protect in the Indo-Pacific region. Despite deep levels of trade and economic interdependence, Beijing's assertive posture has compelled regional states to balance their economic ties with both the U.S. and China. America, their key regional security provider, remains engaged in a strategic competition with China, the number one trading partner for the majority of economies in the region. Although their bilateral relations with Beijing and Washington differ, Japan, Korea, and Taiwan are all facing growing pressure to align themselves with the two big powers, which is affecting their ties with each other, as well as with the two competing powers. In the security domain, Tokyo, Seoul, and Taipei have each experienced growing misalignment in their ties with China, while they maintain security and defense cooperation with America.

Diplomatic ties between Japan and China have recently spiraled. In her first parliamentary address in November 2025, since taking office in October, Japanese Prime Minister Sanae Takaichi suggested that Tokyo could consider military action if Beijing attacked Taiwan. "If there are battleships and the use of force, no matter how you think about it, it could constitute a survival-

threatening situation," Takaichi said. The term "survival-threatening situation" is a legal term under Japan's 2015 security law, referring to a situation in which an armed attack on its allies poses an existential threat to Japan.[6]

Diplomatic space to navigate the U.S.-China competition may also be shrinking for Korea, considering that it wants to avoid abandoning its alliance with the U.S. as much as it wants to prevent upsetting China. As a result, the priority of Korean President Lee Jae Myung might be to protect its ties with both and prevent any drastic shift away from the current status quo. With President Donald Trump's return to the White House, the three regional powers are concerned about their ability to balance economic and security ties with both China and the U.S. Trump's transactional and "America First" policies are a major source of anxiety, forcing them to rethink their regional role and ambitions, a common concern shared with European states.[7]

Against this backdrop, Europe must deepen cooperation with reliable partners as it seeks to rethink its economic growth model and revitalize its industrial capabilities. Political discussions on how to ensure Europe's prosperity and security have begun, but results have so far been mixed. Adjusting to a new order, while no one knows what the next one might look like and what threats it might carry, is naturally difficult. Recent global developments are a good reminder that political risks can quickly upset economic strategies, as well as established beliefs and assumptions about concepts such as partnership, trust, and like-mindedness. It is clear that Europe's economic, political, and military weight in the world has decreased, while the relevance of Indo-Pacific economies has increased. In the short- to medium-run, preparation for the next global order must be thorough and solid, and in the long-run, flexible and sustainable.

Europe's focus on reindustrialization and economic security has climbed up its agenda, but the bloc's capacity to manage internal fragmentation remains a challenge. Internal differences remain and limit coherence in action. Nonetheless, member states converge on the need to diversify, de-risk, and

invest in resilience. To achieve this, cooperation with partners will be vital. Therefore, this edited volume asks two key questions: What lessons can Europe learn from its Indo-Pacific partners, namely Japan, Korea, and Taiwan, from their response to geopolitical disruptions and efforts to protect their industry and competitiveness? How can Europe absorb these lessons and ensure that its own response to a new reality is adequate and helps bring prosperity and security to the continent? The individual chapters explore these key questions as seen from Japan, Korea, and Taiwan.

The chapter on **Japan** examines how Tokyo has transformed economic security into a core operating system for industrial policy and what this implies for the EU. Drawing on the 2026 rare-earths episode with China, the chapter shows how Tokyo's investments in economic intelligence, institutional reform, and state–business coordination have turned supply-chain shocks into manageable stress tests rather than crises. The chapter traces the evolution from MITI-style "politicized technocracy" to the 2022 Economic Security Promotion Act and an intelligence-driven ecosystem approach in two key domains: semiconductors and critical raw materials. The chapter argues that Japan is securitizing its economic toolkit faster than the EU is politicizing its own instruments, and that this asymmetry creates both risks and opportunities for EU–Japan cooperation. For Europe, the lesson is not to copy Japanese institutions, but to internalize three principles: put economic intelligence at the center of economic-security policy, pursue sector- and ecosystem-specific strategies in a few critical niches, and cultivate strategic indispensability jointly with partners such as Japan.

The chapter on **Korea** argues that the country occupies a uniquely vulnerable position in the emerging geopolitical landscape. Korea relies on the U.S. alliance to deter North Korea while maintaining deep economic ties with China, its largest trading partner. At the same time, it hosts some of the world's leading firms in semiconductors, batteries, automobiles, shipbuilding, and advanced manufacturing, placing it at the center of contemporary technological competition. The chapter argues that Korea has responded to growing pressures not through full decoupling from China or complete

alignment with the U.S., but through a strategy combining diversification and technological leadership with deeper partnerships with like-minded actors. Korean firms have not simply adapted to geopolitical pressures but have actively reorganized production, investment, and supply chains to cope with them. Korea's experience illustrates how a regional power can navigate intensifying great power competition while reducing vulnerabilities and preserving both economic openness and industrial competitiveness.

The chapter on **Taiwan** examines how Taiwan's ICT ecosystem has evolved under persistent structural risk. It argues that its contemporary strength stems not from full-spectrum technological autonomy or sustained state-led targeting, but from market-driven specialization, firm-level adaptation, dense supplier networks, and diversified interdependence within global value chains. Taiwan does not offer Europe a template to replicate. The scale of its economy, its governance structure, and its security environment differ fundamentally from those of EU member states. Nor does Taiwan provide a ready-made industrial doctrine that can be transplanted across institutional contexts. Yet Taiwan's ICT evolution offers several structural lessons that are directly relevant to Europe's reindustrialization debate. Taiwan illustrates how industrial resilience can emerge when firms remain globally embedded while domestic institutions provide the conditions for specialization, coordination, and long-term capability accumulation. For Europe, the central question is therefore not whether to disengage from global value chains. It is how to shape Europe's role within them.

Endnotes

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1. Japan's Economic Security Playbook: Lessons for Europe

Elli Pohlkamp

Economic Security as a New Operating System

When China tightened export controls in January 2026 on several dual-use materials bound for Japan after Prime Minister Sanae Takaichi's comments on a possible Taiwan contingency, the move echoed the 2010 rare earths crisis. The episode reproduced familiar patterns of economic coercion and strategic signaling in a new geopolitical context.[1] This time, however, Tokyo responded differently. Instead of the panic and hasty diversification seen in 2010, Tokyo handled the episode as a deliberate stress test of its economic security architecture. Within weeks, Chinese authorities approved several Japan-bound rare earth shipments under the new licensing regime, signaling political coercion rather than a permanent cutoff of supplies.[2] The disruption was therefore manageable and limited, precisely because Japan had been investing since 2010 in redesigning the way how the state identifies, mitigates, and manages strategic economic vulnerabilities.

Central to this shift was a leap in economic intelligence. In May 2026, the Takaichi government passed legislation upgrading the Cabinet Intelligence and Research Office (CIRO) into a National Intelligence Agency (NIA/NIS) and establishing a National Intelligence Council chaired by the Prime Minister. The government has also committed to developing Japan's first National Intelligence Strategy, though this document has not yet been formally adopted.[3] These measures are designed to help the state treat economic vulnerabilities not merely as static facts, but as moving targets that must be monitored and reevaluated in near real time. As part of this process, economic intelligence units conduct "door-knocking" outreach to semiconductor, AI, and biotech firms, inquiring about suspicious M&A approaches and technology requests. Approximately 50 to 60 large companies

have already created internal economic security divisions, as documented in the Institute of Geoeconomics' survey of 100 Japanese firms.[4] Moreover, a network of think tanks meets periodically with officials to discuss classified assessments, and private firms send personnel to work in government. This helps create two-way information flows that would have been politically unthinkable a decade earlier.[5]

This chapter argues that Japan is turning economic security into a new operating system for industrial policy under conditions of great power rivalry. It also explores ways in which Europe can realistically learn from Japan's experience. Tokyo is securitizing its economic policy toolkit significantly faster than the European Union (EU) is politicizing its own economic instruments. The chapter traces this development from Japan's post-war MITI (Ministry of International Trade and Industry)-style industrial guidance to the 2022 Economic Security Promotion Act (ESPA) and illustrates how a well-known toolkit of state-business coordination is being repurposed through an intelligence lens.

The chapter examines two cases, namely semiconductors and critical raw materials, before turning to Japan's position in the U.S.–China competition. The core claim of the chapter is that if the EU adopts Japanese-style instruments (Chips Act, Critical Raw Materials Act, Anti-Coercion Instrument) without building comparable economic-intelligence and ecosystem capabilities, it will stay on the back foot in a game that rewards early action. In other words, the EU should not copy Japan's toolkit mechanically but develop its own version of an economic security state. Japan's experience offers a strategic template for how to link instruments, intelligence, and industrial ecosystems rather than rely on isolated regulations.

From MITI to ESPA

Japan's current economic security framework did not emerge overnight. Post-war industrial policy was centered on the Ministry of International Trade and Industry. MITI officials used administrative guidance, tax incentives, policy loans, import licensing, and sector plans to steer capital and technology into priority industries such as steel, shipbuilding, automobiles,

and electronics.[6] This was a system of "politicized technocracy", whereby bureaucrats formally separate from business yet maintaining close informal ties, could swiftly adjust policy to changing market conditions.[7] This model faded in the 1980s and 1990s.[8]

The 2010 rare earth crisis, followed by a series of further shocks, turned industrial strategy into a security issue. As such, China's willingness to weaponize supply dependencies, COVID-19 disruptions, the 2020-21 semiconductor shortage, and Russia's full-scale invasion of Ukraine in 2022 all pointed in the same direction: leaving critical supply chains exposed to market forces had become a liability.[9] As Mireya Solis has documented, Japan's response was guided by two fundamental objectives: "strategic autonomy" (correcting excessive dependencies so that core societal functions can be preserved despite external shocks or foreign coercion) and "strategic indispensability" (leading in key technologies and industries that are widely wanted globally).[10] The 2022 Economic Security Promotion Act (ESPA) put a new industrial policy toolkit under a security label. Its four pillars, namely 1) supply-chain resilience, 2) critical-infrastructure protection, 3) critical-technology development, and 4) patent non-disclosure, are incorporated into the 2022 National Security Strategy. As part of "comprehensive national power", for the first time, the Strategy treated economic security together with military and diplomatic instruments.[11]

What marks a break with the MITI era is the fusion with intelligence, rather than the use of industrial tools. MITI's information advantage came from close, informal contact with *keiretsu* (closely linked corporate groups) and sector associations. ESPA has helped drive the transition into a broader economic-intelligence function: mapping which firms depend on which inputs from which jurisdictions; tracking adversaries' capabilities and chokepoints; and building structures to share sensitive information with businesses without leaking commercial secrets.[12]

Kazuto Suzuki has argued that this represents a shift from defensive economic security to a geoeconomic posture that combines offensive and

defensive tools, integrating trade, technology and investment policy into a coherent strategic framework.[13] ESPA is therefore best understood as Japan's traditional industrial policy run through a national security and intelligence-gathering filter.

Industrial Policy in an Intelligence-Driven Ecosystem

Japan's current industrial strategy operates by shaping industrial ecosystems where Japanese firms occupy indispensable niches, rather than picking individual "national champions". Ulrike Schaede has described this development as "Japan inside": Japanese companies specialize in upstream materials, components, and equipment that are critical to global production networks even when final goods brands are American, European, or Korean.[14] In semiconductors, for example, Japanese suppliers account for around half of global materials and a third of manufacturing equipment, and control over 90 percent of the EUV photoresist market essential for leading-edge chips.[15] In critical minerals, the Japan Organization for Metals and Energy Security (JOGMEC) invests across the mining-refining-recycling chain to ensure access to rare earths and battery metals.[16]

Institutions such as JOGMEC, the Japan Investment Corporation (JIC) and the Development Bank of Japan act as quasi-state investors, taking equity stakes, offering guarantees, and co-financing projects that align commercial and strategic objectives.[17] Integrating economic intelligence into the process is what constitutes the novelty. As Akira Igata from the University of Tokyo has emphasized, Japan is building what he calls a "deterrence-by-denial architecture" to counter economic coercion, comprising supply-chain resilience, critical-infrastructure protection, stockpiling, and, crucially, economic intelligence.[18] Several mechanisms have been put in place to map vulnerabilities in critical technologies and infrastructure, such as sending private-sector representatives into government, building trusted networks of think tanks and universities that meet regularly with officials, and conducting systematic outreach to large firms and SMEs.[19] Economic intelligence units provide companies with briefings on espionage cases and geopolitical risk, in exchange for data on their supply chains and exposure. Universities and

research institutions, which at first were skeptical, now increasingly cooperate on research security.[20]

Yet, the implementation of these mechanisms remains a work in progress and faces obstacles. Japan still lacks fully developed systems for security clearances in the private sector and experiences problems with ministries working in silos when they share sensitive economic intelligence.[21] As Solís and Suzuki have documented in their joint analysis of ESPA's implementation, Japan has in reality reduced its dependence on China for key products less than expected, and big firms and SMEs still widely diverge in how far they have adopted economic security measures.[22] In practice, this is a kind of modernized "administrative guidance 2.0." The state no longer tells firms which sectors to enter, but it does try to guide where they place their riskiest, most important investments. Similarly, the state also tries to prevent firms from deepening dependence on China. This coordinated and intelligence-based approach enables targeted action in specific sectors, moving far beyond simply engaging in broad discussions about the need to reduce risks.

Semiconductors: Promoting Strategic Indispensability

Japan's semiconductor industry is often portrayed as a story of decline: from global dominance in the late 1980s to less than 10 percent market share by 2022, when it was outperformed by U.S., Korean, and Taiwanese companies.[23] At present, Japanese companies supply roughly 52 percent of global semiconductor materials and 31 percent of fabrication equipment. Their hold on EUV photoresists makes them indispensable to any foundry producing chips at 7 nm and below.[24] This is the result of a deliberate policy choice to double down on areas where Japan enjoys deep advantages. As Suzuki has argued, Japan's semiconductor revival involves a tension between two approaches: leveraging existing upstream strengths and attempting to re-enter leading-edge fabrication through projects like Rapidus.[25]

Since 2021, Tokyo's semiconductor strategy has followed three tracks. The first track entailed attracting foreign advanced manufacturing to rebuild domestic capacity: the Kumamoto fab complex by Taiwan Semiconductor

Manufacturing Company (TSMC), backed by over ¥1.2 trillion (about $8 billion) in subsidies, was designed not only to supply Japanese industry but also to serve as a hub for materials and equipment suppliers.[26] Intelligence assessments concerning a potential Taiwan Strait crisis and the resulting potential loss of access to cutting-edge chips underscored the urgency of these subsidies.

The second track has focused on strengthening Tokyo's control over key inputs: the Japan Investment Corporation's ¥903 billion (about $6 billion) acquisition of JSR Corporation in 2023 took the leading photoresist maker private, thus protecting it from short-term market pressures and hostile acquisitions.[27] Finally, the third track has entailed funding next-generation capabilities: Rapidus, founded in 2022, aims to mass-produce 2 nm chips by 2027 in partnership with IBM. In February 2026 it secured a further ¥267.6 billion (about $1.8 billion) in government-backed funding.[28]

These steps are part of a much larger public spending effort. In late 2025, the Japanese government announced a ¥10 trillion (about $65 billion) technology-sovereignty package, projected to mobilize ¥50 trillion (about $330 billion) over a decade. Tokyo thus signaled that semiconductors have become a national priority comparable to defense spending.[29] ESPA's first pillar allows the government to certify key semiconductor and battery supply chains and provide subsidies or regulatory support to companies that submit credible resilience plans.[30] At the same time, Japan has coordinated with the U.S. and the Netherlands on export controls for advanced chip-making equipment to China, expanding its restrictions in January 2025.[31] Beijing's January 2026 response, targeting rare earths and other inputs, however, illustrates the inherent tension that this approach carries between the focus on semiconductor controls on one hand and the emphasis on critical materials controls on the other.[32]

From the perspective of great power rivalry, this strategy seeks to make Japan indispensable to allies, while raising the costs for China of its continued efforts at technological catch-up. By controlling key supply

points for materials and equipment, Japan can strengthen its position when negotiating with allies. Washington and Brussels therefore need Tokyo at the table when designing export controls, so that unilateral measures do not just push businesses to other suppliers who stay outside the controls. Similarly, ASML's near monopoly on EUV lithography is Europe's own asset, which entails strategic indispensability. Japan is trying to create comparable positions in semiconductor materials.[33] The question remains whether these niches can be sustained as other actors refine their response, and whether Japan's Rapidus can realistically close the gap with Taiwan's TSMC and South Korea's Samsung at an acceptable fiscal cost.[34]

Critical Raw Materials: From Crisis learning to Resilience

Critical raw materials are the strategic domain where Japan first learned to treat economic security as a long game. China's 2010 rare earth embargo against Japan, imposed after a maritime incident near the Senkaku/Diaoyu Islands, cut off over 90 percent of Japan's imported rare earth supply and exposed its dependence on Chinese refining.[35] In response, Tokyo combined emergency stockpiling with a more strategic push to diversify supply, invest in recycling, and support overseas projects. Over the past 15 years, this has helped reduce Japan's reliance on Chinese rare earth imports to around 70 percent by the mid-2020s, despite the fact that global demand has continued to grow.[36]

JOGMEC has been an important player in the pursuit of this strategy, responsible for the entire value chain, namely exploration, mining, processing, recycling, and stockpiling. In addition, JOGMEC co-invests in overseas mining projects, offers debt guarantees, secures long-term offtake agreements, and finances technological upgrades in partner countries.[37] In October 2024, JOGMEC and Iwatani invested up to €110 million in Caremag, a French rare earth refiner.[38] By early 2026, JOGMEC held a 40 percent stake in Namibia's Lofdal project, targeting heavy rare earths critical for high-performance magnets and moving towards completion of the feasibility study.[39] At the same time, Japan's seabed-mining program around

Minamitorishima began trial extraction in January 2026, aiming for pilot operations by 2027.[40]

Recent policy changes are pushing this shift further from reacting to crises toward building a more resilient system. In February 2026, Tokyo announced subsidies for rare earth recycling infrastructure, covering transportation, storage, and testing facilities, with the explicit goal of building a domestic closed system.[41] In March 2026, the government signaled that it would draft an action plan to secure recycled materials across strategic industries, and in April it adopted a Circular Economy Action Plan that commits around ¥1 trillion (roughly $6–7 billion) in public- and private-sector investment by 2030 to strengthen domestic supplies of recycled metals and critical minerals.[42] However, the reality remains that, even after diversification and recycling, China still accounts for approximately 90 percent of global rare earth refining capacity. The January-February 2026 export episode demonstrated Beijing's ability and willingness to disrupt supply on short notice.[43]

The most relevant element of this discussion is that Japan no longer treats critical raw materials as a stand-alone issue. Officials are increasingly looking at economic security across entire industrial systems, namely batteries, advanced materials, EVs, wind-turbine magnets, and the critical components such as chemical precursors, machine tools, and industrial software where China has moved fastest.[44] The September 2025 EU-Japan battery supply chain MOU, which is the first concrete measure under the Competitiveness Alliance, illustrates this trend. It covers recycling, data-sharing, and human resource development across the entire value chain, not just raw material access.[45] Coordination is improving between JOGMEC, METI's industrial policy, procurement plans of the Ministry of Defense, and intelligence assessments by CIRO, though inter-ministerial disputes still slow decision-making in some areas.[46] This bilateral logic has since been embedded in a wider trilateral framework, as the EU, U.S., and Japan pledged in February 2026 to coordinate critical-minerals policies and monitoring systems. Yet, by contrast, the EU's Critical Raw Materials Act

starts from a different place: it defines a list of 34 critical raw materials and a subset of 17 "strategic" raw materials, based on an EU-wide methodology that weighs economic importance and supply risk, and then sets quantitative 2030 benchmarks for extraction, processing, recycling, and diversification of these substances.[47]

In practical terms, this means that EU policy is organized around monitoring and de-risking individual inputs (for example, rare earths for magnets, battery grade lithium, or nickel), rather than around the industrial ecosystems in which those inputs are combined.[48] This list-driven approach[49] is necessary for setting priorities and mobilizing investment, but it risks overlooking the ecosystem perspective that underpins Japan's strategy: focusing on individual materials can miss vulnerabilities that only become visible at the level of complete value chains, and it makes it harder for Europe to adapt Japan's shift from crisis response to long-term resilience in specific industrial architectures.[50]

Here too, economic intelligence plays a central role. JOGMEC and relevant ministries monitor global mining and refining projects, track Chinese licensing practices, and share early warnings with Japanese firms. When delays in Chinese export licenses began in late 2025, Japanese companies received advance notice through government channels and were able to adjust procurement before the January 2026 controls formally took effect.[51] European firms, by contrast, often only learn of such measures from press releases, WTO notifications, or ad-hoc media reports, which reach them with a delay and without sector-specific guidance. Unlike in Japan, there is no permanent mechanism that routinely fuses trade, security, and industrial data and then pushes tailored risk assessments out to firms, leaving many European companies to rely on their own commercial intelligence or industry associations rather than on a systematic public-private warning system. The French Institut Montaigne has identified this intelligence gap as a central weakness in EU economic security, arguing that Japan's systematic public-private intelligence flows are precisely what Europe needs to make its own instruments operational.[52]

Great Power Rivalry and Economic Security

The shift in Japan's economic security cannot be understood outside the broader U.S.-China rivalry and a more hesitant EU response—or lack thereof—to great power competition. Tokyo's latest National Security Strategy and Defense Strategy both frame China as "the greatest strategic challenge" to Japan's security, while reaffirming the U.S. as the indispensable ally.[53] Japanese policymakers now operate on the assumption that U.S. security guarantees are no longer automatic and must be "earned" through visible contributions such as higher defense spending, new capabilities for the SDF, and a more robust economic security posture.[54] Japan's defense build-up is not exclusively a bid for autonomy but primarily a way to align more closely with the U.S. and make its engagement more credible.[55]

By comparison, the EU has been slower to translate similar analytical warnings about systemic rivalry into binding strategies and institutional reforms. Part of this gap reflects structural differences: Japan is a unitary state with a single executive, whereas the EU is a Union of 27 governments and multiple institutions, which makes it harder to move at a similar speed. This institutional complexity explains the difficulty of strategic action; however, it does not excuse the lack of it. It is against this backdrop that this chapter argues that Japan is securitizing faster than the EU is politicizing.[56]

Economic security is the field where this balancing act is most visible. As Igata has argued, Japan has moved further and faster than Europe in building "deterrence-by-denial tools" (supply-chain resilience, stockpiles, export controls, and economic intelligence). Yet, it remains weak on "deterrence-by-punishment", lacking an anti-coercion instrument (ACI) and possessing only a limited sanctions toolkit.[57] The EU, by contrast, is developing legal instruments for punishment but has underinvested in the intelligence and industrial capacity needed to deter shocks.[58] Both face the same structural challenge, namely that China is shifting from a development-focused model to one concentrated on geopolitical resilience and overcapacity. This has put both Europe and Japan at risk of deindustrialization without resorting to direct pressure that would trigger instruments such as the ACI or WTO-compatible sanctions.[59]

Seen from Japan's perspective, the strategic goal is twofold. First, to reduce vulnerability to Chinese coercion by diversifying inputs and building domestic capacity in critical technologies. This is the logic behind ESPA, the chip strategy, and JOGMEC. Second, to strengthen strategic indispensability in areas where China remains dependent on G7 technologies and markets. Analysts have argued that the G7 should systematically map these chokepoints and coordinate controls so that restrictions are effective rather than merely rerouting business to non-participating suppliers.[60] Japan's semiconductor and CRM strategies should be read as early attempts to operationalize this logic: rather than weaponizing interdependence unilaterally, the aim is to ensure that any future collective measures carry real leverage.

EU-Japan: Turning Asymmetry into Complementarity

The convergence between Japan and Europe on threat perceptions is now clear: both see systemic rivalry with China, the erosion of the rules-based order, and economic coercion as core challenges, and both recognize the centrality of industrial ecosystems to their future prosperity. Yet Japan is translating this convergence into strategy backed by institutions with more coherence and greater speed than Europe.[61] This asymmetry between the two, however, does not only pose a problem, but also presents an opportunity for both: it creates the basis to turn different strengths into complementarity, and may empower policymakers to design EU-Japan cooperation around the interoperability of tools and shared projects, rather than allowing them to pursue disconnected efforts.

Three approaches in particular may help turn asymmetry into complementarity. The first approach entails economic intelligence cooperation. Japan offers Europe a template for systematically engaging companies, building trusted analytical networks, and integrating economic intelligence into policy, elements that are currently lacking in Europe's approach. Joint EU-Japan vulnerability analyses on issues such as semiconductor materials and rare earths, as well as on joint early-warning mechanisms for Chinese licensing and overcapacity moves, and joint mapping of China's own vulnerabilities, could improve both sides' ability to anticipate and respond to coercion

according to their own needs.[62] The February 2026 EU-U.S.-Japan trilateral commitment to build shared monitoring systems for critical raw materials supply chain risks has shown that such coordination is technically feasible; the challenge lies in embedding it in permanent institutional structures.[63] The second approach suggests that rather than narrowly focusing on CRM, the EU and Japan should identify a small number of priority ecosystems where they could align standards, coordinate investment, and jointly diversify supply chains away from excessive Chinese control.[64] These could include, but should not be limited to, batteries and EVs, advanced materials, or critical industrial software and machinery.

Third, Japan and the EU should consider aligning key procurement rules so that companies face similar security and sustainability expectations in the EU and Japan, in a way that can later also be opened to other partners. Both sides recognize that tariffs alone are insufficient and easily circumvented by Chinese greenfield investment and supply chain maneuvering.[65] Chinese firms have shifted from M&A to greenfield projects concentrated in the automotive and battery sectors, often directed towards member states with permissive screening environments, effectively circumventing EU tariffs while deepening technological dependencies.[66] By writing resilience, transparency, cybersecurity, and sustainability rules into public procurement and keeping these rules as similar as possible in the EU and Japan, the two sides can turn high standards into a tool that filters out non-transparent, heavily subsidized competitors.[67]

The EU's International Procurement Instrument already reflects this by allowing the EU to restrict access to public tenders for firms from countries that do not offer reciprocal openness. The Commission's February 2026 procurement reform roadmap extends this approach to energy-intensive sectors such as steel, but it must be broadened further to cover all strategic sectors and facilitate the harmonization of these rules with Japanese procurement practices.[68] Coordinated criteria would demonstrate in practice that the economic security toolkits of the EU and Japan are interoperable, not merely aligned on paper.

Finally, both sides should invest in a structured understanding of each other's domestic legal, political, and economic constraints, so that mutual expectations are realistic and disagreements do not erode bilateral trust. This could build on existing formats such as the EU-Japan High-Level Economic Dialogue and the annual leaders' summits, but would need more systematic, inclusive participation from parliaments, business and labor associations, and civil-society experts on both sides, so that constraint mapping is not confined to a small group of officials.

Lessons for the EU: Japan as Inspiration, not a Blueprint

Japan's journey from MITI to ESPA, and from ad-hoc crisis response to intelligence-driven economic security, offers Europe both inspiration and caution. The key lesson is how Tokyo has learned to treat economic security as a central part of statecraft: it has built the right institutions, has invested in public funds, and has linked industrial policy with intelligence, while accepting that some market disruption is necessary in order to stay resilient. Again, the caution for Europe lies in the differences: Japan is a unitary state with a long tradition of bureaucratic continuity and a political culture more tolerant of high public debt; the EU is a union of 27 sovereign member states with divergent threat perceptions, domestic policies, and fiscal constraints.[69] These structural asymmetries mean that Europe cannot simply copy Japan's playbook. Coalitions have to be built, competencies negotiated, and fiscal space agreed. But they also underline why the EU needs an explicit strategy for acting collectively despite these limits, rather than invoking them as a permanent excuse for minimal adjustments.

For the EU, the lesson is not to emulate Japan's specific institutional forms, but to internalize three principles and adapt them to its own needs and capacities. First, the EU should move economic intelligence to the center of economic security policy: without systematic, confidential information flows between the state and companies, instruments like the Chips Act, CRM Act, or ACI will always respond after the shock rather than shaping developments in advance. Second, sector-specific and ecosystem-specific strategies in niche

areas are more effective than broad de-risking narratives. In practice, this means that the EU should choose a small number of industrial ecosystems (such as batteries, advanced materials, or semiconductor equipment) and design tailored packages of trade policy, financing, standards, and research support for each, rather than issuing generic de-risking guidelines that apply to all sectors alike.

Third, by becoming essential in a few key areas and protecting those together with partners like Japan, the EU can gain influence that elevates its role far beyond its overall economic size. Japan has spent more than a decade building the capabilities it is now effectively leveraging. Europe does not have that kind of time, but it does have a partner ready to work closely with it. The real question is whether Europe can act quickly enough before deindustrialization and geopolitical fragmentation become lasting constraints to the future of EU–Japan relations.[70] Timing and speed are now decisive variables; their strategic use is not optional, but imperative. The EU will remain an attractive partner for Japan only if it can translate these principles into concrete action quickly.

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2. Navigating Between Giants: South Korea's Industrial Adaptation in an Era of Economic Coercion

Tereza Novotna

Introduction: South Korea in an Age of Economic Coercion

Economic coercion, technological competition, and the weaponization of interdependence have become defining features of contemporary international politics. Trade, investment, supply chains, and critical raw materials increasingly serve both strategic and economic purposes, while economic security has moved to the center of national policy debates. At the same time, many countries continue to depend on the United States (U.S.) for their security despite growing concerns about American economic nationalism, transactional diplomacy and the reliability of U.S. commitments. Regional powers in both Europe and the Indo-Pacific therefore face a similar challenge: how to reduce economic vulnerabilities while maintaining security ties with the U.S. and managing extensive economic relations with China.

South Korea occupies a particularly difficult position within this environment. The country relies on the U.S. alliance to deter North Korea while maintaining deep economic ties with China, its largest trading partner. At the same time, South Korea hosts some of the world's leading firms in semiconductors, batteries, automobiles, shipbuilding and advanced manufacturing, placing it at the center of contemporary technological competition. Yet, Seoul faces constraints that differ from those of larger powers: it must reduce economic vulnerabilities without undermining relations with China, while maintaining its security alliance with the U.S.

Long before Europe began debating economic security and de-risking, South Korea experienced these dynamics firsthand. Chinese retaliation following the deployment of the Terminal High Altitude Area Defense (THAAD) system in 2016–2017 exposed the vulnerabilities created by asymmetric economic dependence and demonstrated how tourism, cultural exchanges, and consumer behavior could be used for political purposes. As the EU (European Union) seeks to strengthen its own economic security agenda, South Korea provides a valuable example of how industrial competitiveness and closer cooperation with trusted partners can be combined with de-risking without resorting to protectionism or full decoupling.

The return of Donald Trump to the White House has created additional pressures. Tariffs, industrial subsidies, local production requirements, and demands for greater investment in the U.S. have confronted South Korean companies and policymakers with new challenges. Alongside concerns about Chinese economic coercion, Seoul at present also faces pressures stemming from American industrial policies and technological competition. South Korea has therefore sought to diversify its economic relations, strengthen industrial competitiveness, and expand cooperation with trusted partners, including the EU.

This chapter argues that South Korea has responded to growing geopolitical and geoeconomic pressures not through full decoupling from China or complete alignment with the U.S., but through a strategy combining diversification and technological leadership with deeper partnerships with like-minded actors. South Korea's experience illustrates how a regional power can navigate intensifying great power competition while reducing vulnerabilities and preserving both economic openness and industrial competitiveness.

The chapter first examines the THAAD dispute as an early case of economic coercion. It then analyses the challenges associated with renewed U.S. economic nationalism under the second Trump administration, South Korea's industrial adaptation in strategic sectors, and Seoul's efforts to diversify its partnerships through closer cooperation with the EU. The conclusion

considers what lessons the Korean experience may offer Europe in an age of weaponized interdependence.

Learning from the THAAD Crisis: South Korea as an Early Victim of Chinese Economic Coercion

South Korea was among the first advanced economies to experience large-scale economic coercion by China.[1] In 2016, following Seoul's decision to deploy the U.S. Terminal High Altitude Area Defense (THAAD) system **in response to North Korea's advancing missile capabilities,** Beijing launched a broad campaign of informal economic retaliation. China argued that the THAAD radar could undermine its strategic deterrent and monitor Chinese military activities.[2]

Although the Chinese authorities denied imposing official sanctions, various measures targeted tourism, retail, entertainment, and consumer sectors. The Korean conglomerate Lotte, which had provided land for the THAAD deployment, became one of the primary targets.[3] Numerous Lotte stores in China faced inspections and administrative measures, eventually leading the company to withdraw from the Chinese market. Chinese group tourism to South Korea sharply declined, while Korean cultural products and consumer brands encountered restrictions and unofficial boycotts.

The THAAD dispute illustrated how economic interdependence could be transformed into political leverage. Rather than imposing formal sanctions, China relied on administrative measures, informal restrictions, and nationalist consumer campaigns, making legal challenges, including before the WTO, extremely difficult.

Subsequent controversies, including the backlash against the K-Pop group BTS in 2020[4] that led to another wave of Chinese consumer boycotts[5] illustrated that the same pressures could re-emerge.[6] Similar forms of Chinese economic coercion later affected Australia[7] and Lithuania,[8] suggesting that the Korean case represented an early example of a broader pattern in Beijing's international policies.

For South Korean policymakers, THAAD became a turning point.[9] The experience encouraged successive governments, both progressive and conservative, to diversify export markets, strengthen ties with Southeast Asia,[10] expand partnerships with like-minded countries and deepen cooperation with the EU. It also contributed to growing interest in supply chain resilience, technological competitiveness, and economic security.

The lessons of THAAD remain highly relevant for Europe.[11] European debates on de-risking and economic coercion intensified only after the Lithuanian dispute and the deterioration of EU-China relations, whereas South Korea had confronted similar challenges several years earlier. The Korean experience therefore offers an important example of how a regional power can adapt to economic exposure while avoiding both outright confrontation and complete accommodation.

South Korea under Trump 2.0: Navigating Pressures from Washington

While the THAAD crisis exposed South Korea's vulnerability to economic coercion from China, recent developments have demonstrated that Seoul also faces growing pressures from its principal ally, the U.S. The return of Donald Trump to the White House has reinforced economic nationalism and renewed emphasis on tariffs, industrial policy, and the reshoring of critical industries. As a result, South Korea increasingly finds itself navigating not only geopolitical competition between Washington and Beijing but also economic demands from the U.S.

Under the second Trump administration, economic considerations have moved to the center of alliance relations. Tariffs, trade imbalances, and demands for increased investment in the U.S. have re-emerged as important issues in bilateral discussions.[12] South Korean companies have been affected not only by broader U.S.-China competition but also by American efforts to promote domestic manufacturing and secure critical supply chains.[13]

South Korean firms have responded by substantially expanding their investments in the U.S. For instance, Samsung has increased semiconductor investments in Texas,[14] while Hyundai and LG have announced major projects in electric vehicles and batteries in Georgia.[15] SK Group has also expanded investments in semiconductors and artificial intelligence (AI).[16] In 2025–2026, South Korea approved additional investments amounting to approximately US$350 billion,[17] in sectors such as semiconductors, batteries, energy, shipbuilding, and manufacturing. These investments helped ease trade tensions and secure agreements on tariffs and market access, but they have also highlighted the increasingly transactional character of economic relations between allies. Investment decisions have thus become instruments of economic diplomacy.[18]

Despite the cordial atmosphere surrounding the meetings between Presidents Trump and Lee Jae-myung in the White House[19] and at the G7 summit in Evian,[20] economic frictions have persisted. Notwithstanding the Korea-U.S. (KORUS) Free Trade Agreement,[21] South Korean firms remain exposed to U.S. tariffs and other protectionist measures. The Trump administration's use of tariffs to advance industrial objectives has generated uncertainty for Korean exporters and encouraged Seoul to pursue diversification while maintaining close cooperation with Washington.

Recent controversies surrounding Korean operations in the U.S. have further illustrated these challenges. The ICE immigration raid at a Hyundai plant in Georgia, **during which around 300 Korean workers were detained,** generated considerable public concern in South Korea.[22] The incident raised questions about the treatment of Korean investors and workers by a close ally of Korea, making Korean firms more hesitant to invest in the U.S.[23]

At the same time, American restrictions on technology exports to China place Korean semiconductor producers in a particularly difficult position given their extensive operations in the Chinese market.[24] The growing emphasis on economic security in Washington therefore presents Seoul with a new set of challenges. While previous concerns centered on Chinese economic

coercion, South Korea must now also adapt to the consequences of American industrial policy and technological competition.

This does not imply an equivalence between the two relationships. The U.S. remains South Korea's treaty ally and principal security guarantor, while China continues to be both an important economic partner and an increasingly significant strategic competitor. Nevertheless, South Korea's experience demonstrates that economic vulnerabilities may arise from both adversaries and allies. For Seoul, the challenge is therefore less one of balancing between two powers than of reducing excessive dependencies on either side and preserving room for maneuver in an increasingly uncertain international environment.

Industrial Adaptation: Semiconductors, Batteries, and the Korean Model

South Korea's response to growing geopolitical and economic pressures has relied not only on diplomatic diversification but also on industrial adaptation. Unlike some other economies, South Korea possesses globally competitive firms in several strategic sectors, including semiconductors, batteries, automobiles, shipbuilding and advanced manufacturing. These industries have increasingly become central to both economic competitiveness and national security.

The Korean developmental model, characterized by close cooperation between the state and large business conglomerates (*chaebols*), has provided important advantages in adapting to a changing international environment. The chaebol system, despite longstanding criticism concerning market concentration and corporate governance, has enabled firms such as Samsung, Hyundai, LG and SK to mobilize large-scale investments, spread out production sites, and respond rapidly to changing geopolitical conditions. This form of "state-led capitalism,"[25] characterized by large diversified conglomerates playing a central role in (re)industrialization, technological innovation, and internationalization, has proven particularly adaptable to the current geopolitical environment.

Semiconductors occupy a particularly important position. Unlike Taiwan, whose strength lies primarily in foundry production and high-end manufacturing, South Korea dominates memory semiconductors. Samsung Electronics and SK Hynix are among the world's leading producers of DRAM and NAND memory chips and increasingly important actors in emerging technologies associated with AI.[26] SK Hynix has emerged as a leading producer of high-bandwidth memory (HBM) chips used in AI applications. The company expanded investments in semiconductor manufacturing in Indiana worth tens of billions of US dollars,[27] while Samsung continues to expand semiconductor investments in Texas and elsewhere, such as assembly and packaging facilities across India,[28] Vietnam[29] and the Philippines,[30] and a newly established domestic mega-cluster in Gwangju.[31]. The future development of AI and advanced computing is therefore likely to depend not only on competition between the U.S. and China but also on technological innovations originating in South Korea and other emerging technology hubs.

The battery sector provides another example of industrial adaptation. Companies such as LG Energy Solution, Samsung SDI and SK On have become major suppliers for the rapidly expanding electric vehicle market.[32] Their investments in North America and Europe, including battery facilities in Poland, Hungary, and the U.S., have supported both market diversification and closer cooperation with trusted partners.[33] The Hyundai Metaplant in Georgia illustrates how Korean firms increasingly localize production in order to secure market access and reduce exposure to protectionist measures. Moreover, Hyundai has emerged as a major investor in robotics, autonomous mobility, and hydrogen technologies.

These examples demonstrate that South Korean firms have not simply adapted to geopolitical pressures but have actively reorganized production, investment, and supply chains to cope with them. South Korea's industrial resilience therefore derives not only from leadership in individual technologies but also from the flexibility of its industrial model. The combination of globally competitive firms, state support, technological capabilities, and diversified international partnerships has allowed South Korea to adapt to

an increasingly uncertain geopolitical environment. As economic security becomes an increasingly important policy objective, the Korean experience demonstrates how industrial competitiveness and resilience can mutually reinforce one another.

South Korea's Diversification and the European Option

South Korea's response to growing geopolitical uncertainty has not been limited to domestic industrial adaptation. Diversification of external partnerships has become an increasingly important component of Seoul's economic strategy. While China remains an important trading partner and the U.S. continues to be the principal destination for recent production expansions, South Korea has increasingly sought to deepen cooperation with other trusted partners, particularly the EU.

Europe has become an attractive partner in areas such as advanced technologies, digital governance, the green transition, and supply chain resilience. The EU and South Korea also share growing concerns regarding economic coercion, critical technologies, and supply chain vulnerabilities. As a result, cooperation in digital trade, industrial competitiveness, and economic security has expanded significantly in recent years.

The EU–Republic of Korea Digital Partnership,[34] launched in 2022, established a framework for cooperation in semiconductors, AI, quantum technologies, next-generation mobile networks, cybersecurity, and digital skills. These areas closely overlap with both sides' emphasis on economic security and technological competitiveness.

The June 2026 EU–South Korea summit further reinforced these trends.[35] The European leaders and President Lee emphasized[36] open markets, resilient supply chains, and cooperation among trusted partners at a time of uncertainty surrounding both U.S. trade policies and China's economic practices. The summit resulted in the signing of the EU–Republic of Korea Digital Trade Agreement,[37] which complements the existing Free Trade Agreement by facilitating cross-border data flows and strengthening digital commerce. The summit also

launched a new EU–Republic of Korea Competitiveness Partnership[38] covering semiconductors, AI, energy security, industrial competitiveness, and resilient supply chains. Together with South Korea's association with Horizon Europe launched in 2025,[39] these initiatives demonstrate that EU–Korea relations extend beyond traditional trade cooperation toward broader cooperation in economic security and critical technologies.

For South Korea, Europe cannot replace either the U.S. alliance or economic relations with China. Nevertheless, cooperation with the EU contributes to Seoul's broader efforts to diversify partnerships, reduce vulnerabilities, and strengthen resilience. For the EU, South Korea offers an experienced partner that confronted economic coercion, technological competition, and supply chain disruptions earlier than many European countries. The Korean experience highlights the importance of combining tools such as industrial competitiveness, strategic investment, and diversified partnerships rather than relying only on defensive economic security instruments. As both sides seek to reduce strategic vulnerabilities while preserving close security ties with the U.S., policy debates on de-risking, reindustrialization, and economic security have increasingly converged.

Conclusion: Lessons from South Korea – Managing Weaponized Interdependencies

South Korea's experience demonstrates how a regional power can respond to growing economic coercion without pursuing either full decoupling from China or complete alignment with the U.S. Faced first with Chinese retaliation following the THAAD deployment and later with renewed economic pressures associated with the second Trump administration, Seoul has sought to reduce vulnerabilities while preserving both economic openness and strategic flexibility. For Europe, this experience offers three important lessons: firstly, reducing dependencies requires not only defensive measures but also proactive industrial adaptation. Secondly, economic security depends on cooperation with trusted partners and, thirdly, resilience can be strengthened without abandoning openness. As the EU develops its own approach to de-risking, South Korea demonstrates the importance of

combining economic security instruments with technological competitiveness and external diversification.

The THAAD crisis represented an early example of the weaponization of interdependence and encouraged successive governments to pursue diversification, strengthen industrial resilience, and expand partnerships with like-minded actors. Most recently, the second Trump administration's emphasis on wide-ranging tariffs, investment demands, and local production requirements has demonstrated that economic pressures may also emerge within alliances. South Korean firms have responded by expanding investments abroad, adapting supply chains, and strengthening their technological competitiveness.

South Korea's industrial strengths in semiconductors, batteries, and advanced manufacturing have provided important advantages in this increasingly competitive environment. At the same time, closer cooperation with the EU in areas such as digital trade, critical technologies, and economic security has created additional opportunities for diversification and resilience. Although Europe cannot replace either the U.S. alliance or economic relations with China, it serves as an additional partner for Seoul in managing economic risks and reducing strategic vulnerabilities.

Ultimately, South Korea's experience suggests that the challenge facing regional powers is not simply one of choosing between the U.S. and China. Rather, it is one of managing multiple dependencies while preserving economic competitiveness, technological leadership, and strategic autonomy. Diversification, industrial resilience, and trusted partnerships have become essential instruments of economic security.

As economic security increasingly shapes international politics, South Korea offers an important example of how regional powers can navigate an era of weaponized interdependence. Its experience demonstrates that resilience does not necessarily require decoupling and that strategic flexibility may prove more valuable than exclusive alignment in an increasingly fragmented global economy.

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3. Open and Unbreakable: Taiwan's Quiet Strategy for Thriving Under Pressure

Yingfen Lin

Introduction

Europe's renewed focus on industrial policy and economic security reflects a broader shift in the global economic landscape toward strategic competition and risk management. Intensifying technological competition, supply chain fragmentation, and growing concerns over strategic dependencies have pushed policymakers and industries to reconsider the balance between openness, resilience, and strategic autonomy. Against this backdrop, Taiwan offers a useful case for examining how industrial competitiveness can be sustained under persistent structural risk.

Taiwan's trajectory is distinct but often misunderstood. Operating under long-term geopolitical pressure, Taiwan faces enduring cross-strait tensions, depends on the United States for security, and remains economically interdependent with the People's Republic of China (PRC). Yet these constraints have not prompted Taiwan to retreat from global integration. Instead, Taiwan has developed an ICT ecosystem that remains deeply embedded in global value chains while retaining a high degree of industrial resilience.

This chapter contends that Taiwan's experience resists easy categorization as a model of sustained state-led industrial targeting or as a template for full-spectrum technological autonomy. Its contemporary ICT strength has been shaped primarily by market-driven specialization, firm-level adaptation, and ecosystem density that accumulated through decades of deep integration in global production networks. For Europe, the relevance of Taiwan's experience

lies not in replication but in the structural lesson it offers: openness and resilience can coexist when domestic capabilities are strategically embedded within diversified global value chains.

From Structural Insecurity to a Market-Driven ICT Ecosystem

Taiwan's industrial trajectory has unfolded under persistent geopolitical insecurity. Unlike Europe, which is now recalibrating its economic model after decades of integration and relative stability, Taiwan has long operated in a structurally uncertain environment. Cross-strait tensions, the PRC's sovereignty claims over Taiwan, and Taiwan's reliance on external security guarantees have created a constant backdrop of political pressure and strategic uncertainty.[1]

Yet this structural insecurity did not push Taiwan toward industrial isolation. Instead, it shaped an ICT ecosystem capable of remaining open while adapting to risk. Taiwanese firms learned to operate globally while treating political uncertainty as a permanent condition rather than an exceptional disruption. Openness was not abandoned; it was managed through specialization, customer alignment, and deep participation in global value chains.

Today Taiwan plays a central role in the global ICT and semiconductor ecosystem. It accounts for over 60 percent of global foundry capacity and produces more than 90 percent of advanced chips,[2] while also serving as a key supplier of servers, networking equipment, and electronic components. These capabilities position Taiwan as an indispensable node in the global supply of AI and high-performance computing infrastructure.

However, Taiwan's contemporary industrial strength is often misunderstood as the result of continuous state-led industrial planning. This interpretation oversimplifies Taiwan's trajectory. Earlier phases of industrialization did involve stronger state coordination, particularly in export expansion, technology catch-up, research institution development, and science park development. But by the 1990s, democratization, market liberalization, and

global economic integration had significantly reduced the role of centralized industrial direction.[3]

Over the past three decades, Taiwan's ICT ecosystem—spanning semiconductors, contract manufacturing, servers, networking equipment, and system integration—has evolved primarily in response to global market demand and customer requirements rather than top-down resource direction. Government institutions shifted toward an enabling role: investing in research capacity, supporting science parks such as Hsinchu Science Park, ensuring reliable infrastructure, improving regulatory efficiency, and facilitating global connectivity. Industrial positioning was ultimately shaped less by administrative allocation than by firm-level decisions made under international competition.[4]

Semiconductors dominate international attention, but they are only one highly visible component of a broader ICT structure. Across hardware manufacturing, systems integration, and contract production, Taiwanese firms have relied on execution capability, customer alignment, engineering responsiveness, and sustained participation in global value chains. Taiwan's contemporary strength therefore reflects a layered evolution: early institutional foundations followed by market-driven deepening under conditions of structural risk.

For Europe, the relevance of this trajectory is not that Taiwan offers a model to replicate. Rather, Taiwan illustrates how industrial resilience can emerge when firms remain globally embedded while domestic institutions provide the conditions for specialization, coordination, and long-term capability accumulation.

Specialization as Structural Positioning in Global Value Chains

Taiwan's ICT ecosystem did not develop by seeking to dominate every layer of the global technology stack. Its competitive strength emerged through deep specialization in selected segments of global value chains,

where domestic capabilities aligned with international market demand. Rather than building vertically integrated national champions across design, branding, manufacturing, and end-market control, Taiwanese firms focused on areas where operational excellence could create durable value. Precision execution, cost control, engineering responsiveness, production scalability, and close customer alignment became the foundations of Taiwan's industrial positioning.

This pattern is visible across multiple ICT segments. In hardware manufacturing, firms such as Pegatron and Compal Electronics became globally recognized for their ability to scale production rapidly while meeting demanding customer specifications. In server and networking equipment, companies such as Foxconn and Quanta Computer embedded themselves in global supply chains by emphasizing reliability, engineering flexibility, and close coordination with major international clients. In system integration and contract manufacturing, firms such as Wistron and Inventec built competitiveness through adaptability rather than brand dominance.

The semiconductor industry provides the most visible illustration of this broader structural logic of specialization and embeddedness. Taiwan's foundries built their strength not by competing with customers in chip design, but by concentrating on manufacturing excellence, process innovation, and the refinement of the pure-play foundry model. By separating manufacturing from design ownership and avoiding downstream competition with IC design customers, they built long-term trust with global fabless companies.

This embeddedness is not only technical but also relational. High-profile partnerships, such as the long-standing collaboration between NVIDIA and TSMC, illustrate how accumulated trust, production reliability, and early coordination between design and manufacturing can reinforce long-term competitiveness.[5] Similar dynamics are found across Taiwan's broader ICT ecosystem, where contract manufacturers and component suppliers work closely with global clients to align product design, production processes, system integration, and scalability requirements.

Over time, specialization evolved into co-optimization between design and manufacturing. Taiwanese manufacturers increasingly participated in early-stage design and engineering discussions, helping clients refine system architectures, component integration, thermal management, production flows, and performance requirements. This iterative interaction between design and production strengthened customer relationships and embedded Taiwanese firms more deeply in global innovation cycles.

This specialization was not the product of ongoing centralized industrial targeting. It reflected accumulated firm-level strategy under international competition. Government policy helped create enabling conditions—including infrastructure, research institutions, science parks, regulatory stability, and global connectivity—but it did not centrally determine Taiwan's value-chain positioning.[6] Taiwan's competitiveness was built through repeated firm-level decisions about where to specialize, how to align with customers, and how to deepen participation in global production systems.

The implication is structural rather than sectoral. Reindustrialization does not necessarily require dominance across the entire technology stack. Durable competitiveness may instead depend on identifying where sustained positioning can be achieved within global production networks. Taiwan's trajectory suggests that indispensability can arise from focused specialization rather than comprehensive control.

For Europe, this highlights a potential tension between ambitions for broad technological autonomy and the structural realities of global value-chain integration. The question is therefore not whether Europe can replicate Taiwan's sectoral composition but whether it can identify specific nodes where its firms, institutions, and regional clusters can build durable strategic relevance.

Ecosystem Density and Distributed Industrial Depth

Taiwan's industrial flexibility does not rest solely on a handful of globally recognized firms. It is supported by the structural density of a broader

production ecosystem, in which large firms, SMEs, suppliers, engineering teams, and specialized service providers operate in close coordination.

Across semiconductors, server manufacturing, networking equipment, consumer electronics assembly, and systems integration, Taiwan's industrial landscape is characterized by a highly interconnected network of small and medium-sized enterprises. These firms specialize in precision components, advanced materials processing, tooling, thermal management, substrates, firmware development, and subsystem integration. Individually, many remain modest in scale; collectively, they form a dense and adaptive production architecture.

This distributed structure generates industrial depth and supports rapid adjustment. Because many suppliers specialize in narrowly defined technical processes or component layers, they are directly exposed to evolving performance requirements from global customers. When demand shifts—from personal computing to cloud infrastructure, from conventional servers to AI-optimized hardware, or from standardized production to customized system integration—adjustments occur across multiple supplier tiers rather than only within a few lead firms.

Geographic proximity further reinforces this adaptive capacity.[7] Taiwan's ICT firms are concentrated across tightly connected regional clusters, including semiconductor design and fabrication in Hsinchu, component manufacturing and PCB production in Taoyuan, and precision machinery and equipment support in central Taiwan. Although these clusters have distinct specializations, they are connected through dense supplier relationships, engineering mobility, and efficient transport infrastructure. High-speed rail and short travel distances allow engineers, suppliers, and customers to coordinate production adjustments within hours, effectively extending local clustering into an island-wide production network.

Redundancy also strengthens resilience. Over decades of specialization, overlapping capabilities have developed across regional clusters, particularly

in PCB production, server assembly, component manufacturing, and subsystem integration.[8] In practice, multiple suppliers are often capable of producing similar components or supporting related processes. This allows firms to reallocate production, adjust sourcing, or coordinate backup capacity when disruptions occur. Resilience therefore stems less from centralized direction than from accumulated relational infrastructure and distributed technical capability.

While semiconductors provide the most visible example of this ecosystem logic, similar dynamics underpin Taiwan's broader ICT hardware base. Contract manufacturers rely on dense supplier layers for components, thermal modules, boards, enclosures, and embedded systems. Server and networking equipment production also relies on coordinated supplier depth, enabling rapid configuration changes in response to hyperscale customer demand. In this sense, Taiwan's competitiveness is systemic rather than singular: it lies not only in flagship firms but in the coherence of the production networks that surround them.

This distinction is relevant for Europe's reindustrialization debate. Europe possesses important industrial clusters, but its capabilities are distributed across multiple spatial and institutional scales. At the macro level, key assets are spread across research hubs in Leuven, equipment leadership in Eindhoven, and manufacturing centers in Dresden and Grenoble. At the regional level, more concentrated formations can be observed, particularly in the Dresden–Chemnitz–Freiberg "triangle" within Silicon Saxony.[9]

The Dresden–Chemnitz–Freiberg cluster brings together semiconductor manufacturing in Dresden, materials production in Freiberg, and applied engineering capabilities in Chemnitz, supported by research institutions such as TU Dresden and multiple Fraunhofer institutes.[10] This configuration begins to resemble the localized integration seen in Taiwan, but it remains bounded to a single region rather than anchoring a system-wide production network. Europe's broader semiconductor landscape still depends heavily on cross-border coordination among separate clusters rather than on a system-wide

production architecture with dense supplier overlap and rapid operational coordination.

The contrast is not that Europe lacks industrial capabilities. Rather, Europe's challenge lies in converting strong but dispersed clusters into more integrated production systems. Industrial depth rarely emerges from scale alone. It develops through the gradual accumulation of specialized suppliers, redundant capabilities, engineering routines, and dense coordination mechanisms that sustain long-term participation in global production networks.

Diversified Interdependence: Openness Under Constraint

Taiwan's ICT ecosystem has never been self-contained. Its competitiveness depends on participation in global production networks that span multiple jurisdictions, technology layers, and end markets. Across the ICT sector, Taiwanese firms rely on international collaboration at critical stages of production. Software tools, cloud platforms, core components, advanced machinery, specialized materials, and end-market demand are all globally distributed.[11] Taiwan's strength therefore operates within an international technological architecture rather than apart from it.

As geopolitical risks have intensified, this embeddedness has not disappeared. Instead, firms have adjusted through diversification rather than withdrawal. Manufacturing footprints expanded beyond Taiwan in response to customer risk management strategies, market proximity requirements, regulatory shifts, and cost pressures. Southeast Asia became an important production base, while recent investments in North America and Europe have reflected both customer demand and broader reindustrialization efforts.[12]

In Europe, Taiwanese participation has become increasingly relevant to emerging semiconductor and electronics manufacturing ecosystems, including new investments in Germany and the broader Central and Eastern European region. Yet geographic expansion has complemented rather than replaced Taiwan's domestic capability concentration.[13] High-value activities—

including advanced engineering processes, system integration expertise, production know-how, and complex coordination functions—have largely remained anchored in Taiwan.

This pattern reflects accumulated business logic rather than a centralized industrial doctrine. Taiwanese firms have historically responded to global cost structures, regulatory changes, and customer requirements through incremental relocation and network diversification.[14] However, even during periods of intensive cross-border integration, core technological capabilities were rarely transferred wholesale. The ecosystem expanded externally while retaining internal coherence.

Resilience therefore emerged not from self-sufficiency but from diversified interdependence. Production, investment, sourcing, and customer relationships are distributed across multiple markets, reducing exposure to single-point concentration while preserving control over critical knowledge and coordination functions. The central issue is not dependence itself but concentration without flexibility.

The semiconductor industry provides the most visible example of this dynamic, but the logic extends across Taiwan's broader ICT hardware and system manufacturing sectors. Contract manufacturers, server producers, networking equipment suppliers, and component firms all operate within similarly distributed architectures. They balance domestic engineering depth with international production networks, allowing Taiwan to remain globally integrated while reducing vulnerability to localized disruption.

For Europe, this distinction is analytically important. Reindustrialization and de-risking do not necessarily require retreat from global integration. They require a clearer understanding of which capabilities must be domestically reinforced, which external linkages should be diversified, and where overconcentration creates strategic vulnerability. Taiwan's experience suggests that openness and resilience can coexist when interdependence is structured rather than singular.

Agility Without Doctrine: The Strength and Limits of Reactive Resilience

Taiwan's ICT ecosystem has developed under persistent uncertainty. Unlike many advanced economies that are only recently adjusting to geopolitical fragmentation, Taiwanese firms have long operated under the assumption that disruption is possible, and sometimes imminent. Over decades, this environment has cultivated a high degree of operational agility.

Across hardware manufacturing, system integration, and advanced component production, firms have learned to adjust rapidly to shifting demand, regulatory changes, and geopolitical developments. Production lines can be reconfigured, supplier networks diversified, and market exposure recalibrated when necessary. Shifts in global demand from personal computing to cloud and AI infrastructure, for example, have led firms to reallocate production capacity toward servers, data centers, and AI-optimized hardware. Geopolitical and regulatory pressures have also encouraged firms to diversify manufacturing locations across regions while maintaining core engineering and coordination functions in Taiwan.[15]

This flexibility was not codified in a formal economic security doctrine.[16] It emerged from repeated exposure to risk, customer pressure, and international competition. Resilience became embedded in firm-level routines rather than centralized planning. When customers adjusted supply chains, Taiwanese firms adjusted alongside them. When technology cycles accelerated, production and engineering capabilities recalibrated accordingly.

This reactive adaptability has become one of Taiwan's defining strengths as an ICT production hub. It allows the ecosystem to move quickly when external shocks occur and to sustain participation in global production networks despite repeated disruption. Many observers therefore interpret Taiwan's agility as a model of industrial resilience.

Yet agility is not the same as anticipation. A system optimized for responsiveness performs effectively when disruptions are episodic and

manageable. But when geopolitical fragmentation becomes structural and when technological competition increasingly involves long-term strategic positioning, the limits of reactive resilience become more visible. Firm-level adjustment may remain necessary, but it may no longer be sufficient.

For Taiwan's ICT sector, the question is whether an ecosystem built on adaptation can continue to thrive when anticipation becomes as important as reaction.[17] As global supply chains are reorganized along strategic lines, firms may require not only operational flexibility but also more sustained coordination between industrial development, technology trajectories, security concerns, and long-term risk assessment. Moving from reactive adjustment toward anticipatory alignment would therefore require institutional evolution beyond firm-level agility.

This distinction also carries analytical relevance for Europe. Current debates on reindustrialization and economic security often emphasize resilience, but resilience can take different forms. Short-term supply chain adjustment, emergency diversification, and crisis response may reduce immediate vulnerability. However, they do not automatically create the anticipatory capacity needed to shape emerging technologies, coordinate investment priorities, or build durable strategic positions in global value chains.

Taiwan's experience illustrates both the strength and the limitations of adaptive resilience. Reactive flexibility has served Taiwan's ICT ecosystem well, but responsiveness alone may not be sufficient in an era of prolonged strategic competition. For Europe, the lesson is therefore not simply to become more agile; it is to combine industrial responsiveness with anticipatory coordination.

Reindustrialization in a Fragmented World: Structural Lessons for Europe

Taiwan does not offer Europe a template to replicate. The scale of its economy, its governance structure, and its security environment differ fundamentally from those of EU member states. Nor does Taiwan provide a ready-made industrial doctrine that can be transplanted across institutional contexts.

Yet Taiwan's ICT evolution offers several structural lessons that are directly relevant to Europe's reindustrialization debate.

First, openness and resilience need not be opposing principles. Taiwan's industrial strength did not emerge from insulation or self-sufficiency. It developed through sustained participation in global value chains, combined with the gradual reinforcement of domestic capabilities. Embeddedness in international production networks did not prevent resilience; it shaped the way resilience was practiced.

Second, systemic competitiveness depends on ecosystem density rather than isolated flagship projects. Taiwan's experience suggests that industrial strength is distributed across supplier networks, engineering capabilities, specialized SMEs, and accumulated coordination routines. Large-scale investments may attract attention, but long-term industrial relevance depends on whether supporting layers of expertise, materials, components, technical services, and operational relationships evolve in parallel.

Third, specialization within global networks can generate structural positioning without requiring full-spectrum autonomy. Taiwan did not seek dominance across the entire ICT stack. Instead, it became indispensable in selected segments while remaining integrated with external partners. For Europe, this suggests that reindustrialization does not require the replication of entire supply chains. It requires clarity about which nodes can sustain durable strategic relevance.

Fourth, resilience must move beyond reactive adjustment. Taiwan's ICT ecosystem demonstrates the value of firm-level agility and rapid adaptation, but it also shows the limits of a system that responds effectively after a shock materializes. In an era of prolonged geopolitical fragmentation, industrial resilience requires not only responsiveness but also anticipatory coordination—the ability to align industrial development, technology trajectories, investment priorities, and risk assessment before disruptions become systemic.

Taken together, these lessons point to a broader conclusion about structural positioning in a fragmented global order. Reindustrialization in a fragmented global order is not a matter of retreat from globalization or of symbolic autonomy. It is a question of structural positioning: how to reinforce domestic capabilities while remaining embedded in global networks in ways that enhance resilience without sacrificing competitiveness.

For Europe, the central question is therefore not whether to disengage from global value chains. It is how to shape Europe's role within them. Taiwan's experience suggests that long-term competitiveness depends less on the aspiration to control entire value chains than on the capacity to build dense ecosystems, sustain specialized capabilities, diversify interdependence, and coordinate strategically around future risks.

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From Lessons to Action

Zsuzsa Anna Ferenczy

This edited volume set out to address two central questions: What lessons can Europe draw from its Indo-Pacific partners—Japan, Korea, and Taiwan—for responding to geopolitical disruptions while protecting industrial competitiveness? And how can Europe adapt these lessons to develop its own approach to a changing international environment, one that safeguards both prosperity and security?

The individual contributions demonstrate that, while Europe cannot simply replicate the experiences of its partners, their approaches offer valuable insights into how advanced economies can build resilience, manage strategic dependencies, and sustain competitiveness in an era of geopolitical uncertainty. The chapters point to the emergence of a new geopolitical and geoeconomic landscape in which economic security, industrial competitiveness, technological leadership, and national security are intertwined. Maintaining prosperity in this environment requires governments to combine long-term industrial policy with resilience, strategic coordination, and the capacity to adapt to rapidly changing external conditions.

These lessons are all relevant for Europe. The EU has significant economic, political, and security interests in the Indo-Pacific, a region that has become central to global trade, technological innovation, and strategic competition. While economic interdependence remains a defining feature of the regional order, China's increasingly assertive posture has compelled governments across the Indo-Pacific to reassess longstanding assumptions about the relationship between economics and security. At the same time, the U.S.—still the region's primary security provider—remains locked in strategic competition with China, the largest trading partner for most regional economies. As a result, countries throughout the region are required to

balance economic ties with Beijing against security partnerships with Washington.

Japan, Korea, and Taiwan illustrate different approaches to managing this difficult balancing act. Although their bilateral relationships with both China and the U.S. vary considerably, all three must navigate strategic competition while preserving their economic interests and regional partnerships. Their experiences underscore that geopolitical resilience is not achieved by choosing between economic openness and security, but by developing the institutional capacity, industrial capabilities, and policy instruments needed to pursue both simultaneously.

For Europe, the implications are clear. Reindustrialization cannot be understood solely as an economic project, nor can economic security be treated as a narrow trade or defense issue. Rather, Europe's future competitiveness will depend on its ability to integrate industrial policy, technological innovation, supply chain resilience, and strategic partnerships into a coherent policy framework. The experiences examined in this volume show that resilience is built over time through sustained public investment, effective state capacity, close cooperation with industry, and the willingness to adapt policy to changing geopolitical realities.

Ultimately, Europe cannot simply replicate the policies of Japan, Korea, or Taiwan. Their historical trajectories, institutional arrangements, and security environments differ significantly from those of the EU. Nevertheless, their experiences provide valuable lessons on how states can strengthen industrial capabilities while navigating a contested international order. If the EU is to secure both its prosperity and strategic autonomy, it must move beyond reacting to crises and instead develop the long-term vision and institutional capacity necessary to thrive in an era in which economics and geopolitics are inseparable.