NOVEMBER 2026

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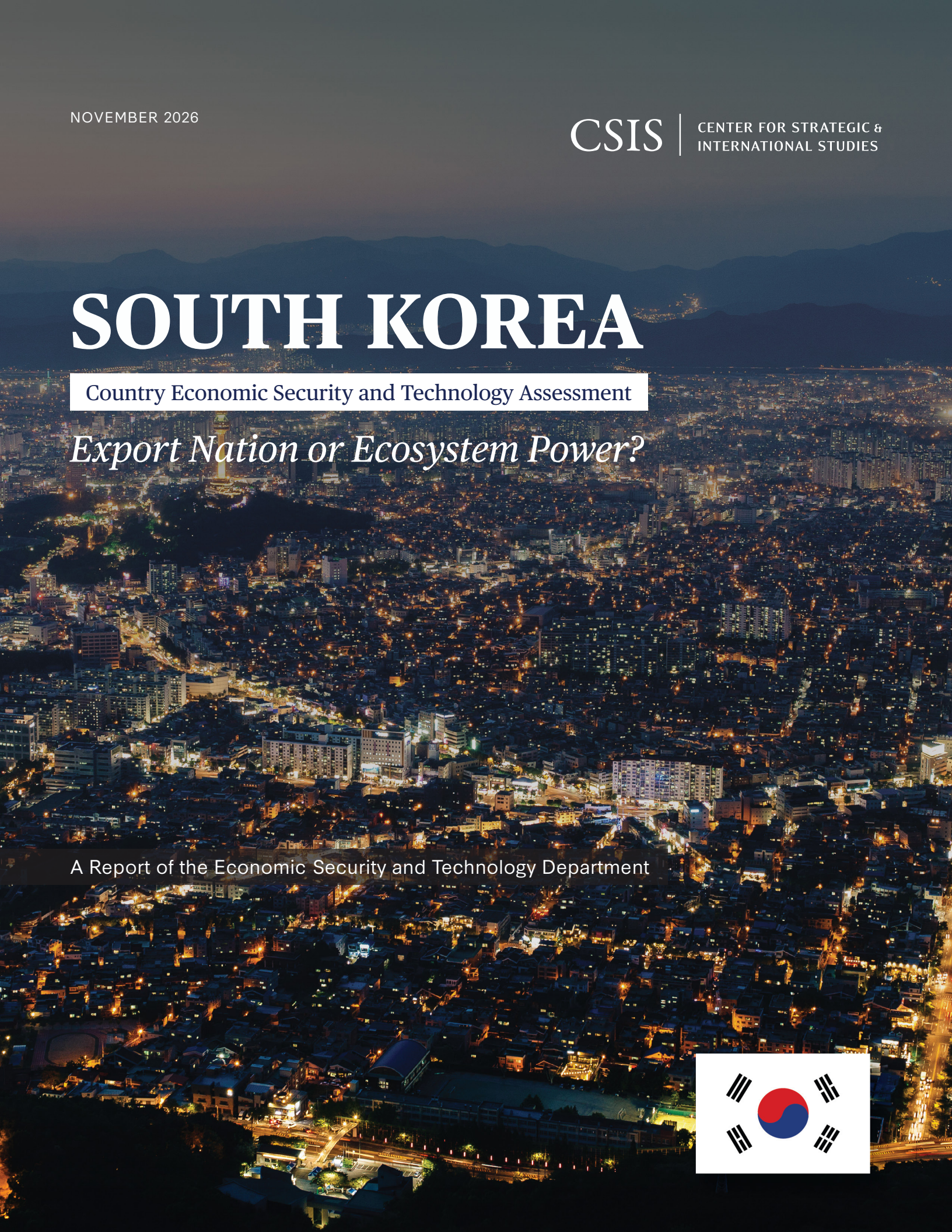
SOUTH KOREA

Country Economic Security and Technology Assessment

Export Nation or Ecosystem Power?



A Report of the Economic Security and Technology Department

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This inaugural Country Economic Security and Technology Assessment (CESTA) represents a new strategic research initiative by the CSIS Economic Security and Technology (EST) Department to develop and apply a country-level framework for understanding the most pressing economic security issues facing U.S. allies and partners. This report was prepared under the overall guidance of Navin Girishankar, president of the EST Department.

Navin Girishankar authored Chapter 1 on South Korea's economic security challenge. Philip Luck and Richard Gray authored Chapter 2 on growth drivers. Kate Koren, Joseph Lim, Andrea Palazzi, and Karl Smith authored Chapter 3 on resilience. Navin Girishankar, Joseph Lim, Andrea Palazzi, and Karl Smith authored Chapter 4 on economic alliances and alignment. Navin Girishankar, Andrea Palazzi, Joseph Lim, and Karl Smith authored Chapter 5.

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Foreword

National security rests on a foundation of economic strength. A nation's abilities to innovate, scale and sustain industrial production, secure essential supplies, and mobilize capital are the key attributes of a competitive economy and enable the development of military capability. Amid extraordinary geopolitical and technological change, the United States and its allies must adapt how they build and defend these sources of national power.

The economic security challenges that countries face are practical. How do they develop and deploy technologies such as AI, advanced semiconductors, and biotechnology? How do they protect supply chains and critical infrastructure? How do they remain resilient to economic coercion and other malign and mercantile threats?

America's network of allies and partners is an abiding source of strategic strength. Beyond the traditional military dimension of the network, developing and maintaining effective alliances requires investment in the economic and technological dimensions of the United States' relationships. It also requires an understanding of the pressures U.S. allies face and a game plan to advance shared interests.

That is the purpose of the Country Economic Security and Technology Assessment (CESTA) series, launched by the CSIS Economic Security and Technology Department under Navin Girishankar's leadership. Each assessment examines three capabilities that underpin economic security: (1) growth, the ability to sustain enhancements in productivity and innovation; (2) resilience, the ability to deter, absorb, and recover from coercion and other malign actions; and (3) alignment, the ability to shape rules, standards, and production networks. Each assessment concludes with recommendations for partners and the United States.

The first CESTA examines South Korea, a treaty ally with shared economic security interests. South Korea's rapid transformation into a leading export nation is remarkable. But its export-oriented growth model faces mounting pressures: a shrinking workforce, concentrated export and import markets, and exposure to economic coercion and cyberattacks.

The report argues that Seoul needs a long-term, comprehensive economic security strategy rather than an approach simply focused on hedging against the U.S.-China competition. South Korea should embrace its potential as an "ecosystem power"—combining strengths in critical technologies, international supply chains, technical standards, and substantial capital resources.

Few economies of South Korea's size have the technological prowess to do this. Turning its strengths into enduring national advantages will require deep reforms and closer integration with the United States. Washington has an interest in helping Seoul meet these goals.

General Joseph Dunford

Chief Executive Officer

Center for Strategic and International Studies

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Executive Summary

South Korea's export success will not secure its economic future on its own. In roughly two generations, starting in the 1960s, the country's export-driven growth model transformed a low-income country into a global technology leader. Yet the conditions that enabled the "Miracle on the Han River"—a growing workforce, sustained manufacturing investment, expanded access to global markets, and stable trade rules—are now changing.

At home, South Korea's workforce is shrinking, capital deepening is losing momentum, and productivity gaps persist between leading manufacturers and much of the rest of the economy. Abroad, China's continued drive for self-sufficiency is threatening the markets that South Korean firms once supplied, and Beijing has repeatedly used trade restrictions and other measures as instruments of coercion. Within the alliance, Washington's demands for trade rebalancing are now conditioning access to its market. Beyond the United States and China, governments around the world are weaponizing trade, investment, and control over inputs to advance national interests.

South Korean policymakers seeking to chart a path forward in an increasingly uncertain geopolitical environment are encountering three competing currents in the debate on economic security. One is to pursue technological self-reliance through industrial policy and domestic demand. A second is to hedge between China, a major market and a supplier increasingly competing with South Korean industries, and the United States, a treaty ally and technology partner whose current trade demands have created uncertainty for South Korean firms. A third is for Seoul to resolve this strategic ambiguity by following one of these geopolitical competitors and accepting the costs of doing so.

None of these approaches adds up to a durable strategy. Self-reliance will be limited by demographic headwinds, energy and resource dependence, and the global nature of technology value chains. Hedging between Beijing and Washington, while appealing in some quarters, is tactical and short term when the moment calls for a long-term economic security strategy. Choosing a side, depending on its motivations, can relegate South Korea to followership, leaving its own potential global influence unexploited.

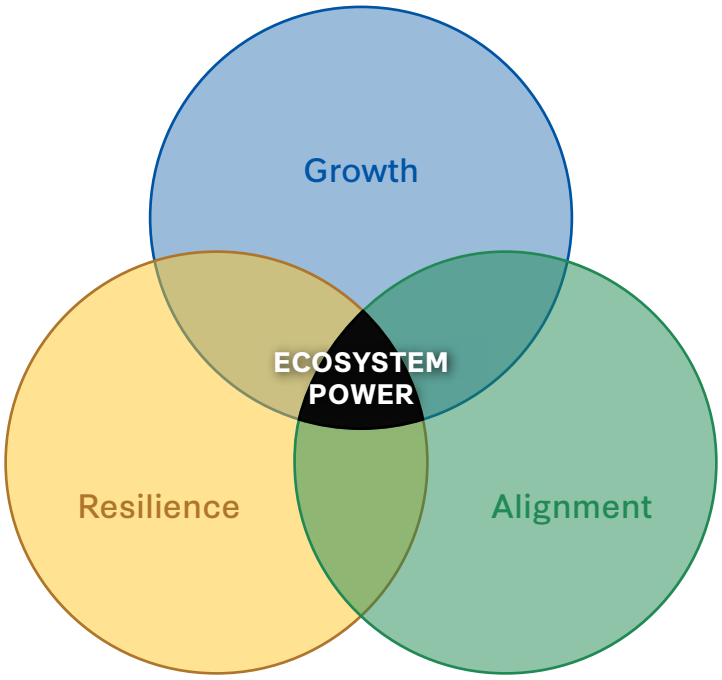
South Korea should build on its success as an export nation to become an ecosystem power—a country that shapes the technologies, standards, supplier relationships, and investment decisions on which production and innovation depend.

While the proverb "고래싸움에 새우 등 터진다" ("when whales fight, the shrimp's back is broken") captures reasonable South Korean fears about U.S.-China competition, it also understates South Korea's capacity to shape outcomes. This report argues that South Korea should build on its success as an export nation to become an ecosystem power—a country that shapes the technologies, standards, supplier relationships, and investment decisions on which production and innovation depend. Without this shift, South Korea risks becoming increasingly peripheral in setting the rules of trade and investment it has to live by and increasingly exposed to external influence. That is a path toward narrowing growth prospects and diminished economic security as South Korea moves into the next generation.

South Korea has unique capabilities across the technology stack, including hard-to-replace positions in advanced memory chips and high-value shipbuilding, as well as competitive strengths in batteries, displays, and telecommunications. It also has substantial institutional capital, experienced policy banks and export-credit agencies, and established relationships in standards and development cooperation. The question is whether South Korea can convert these strengths into greater influence over the conditions and external relationships governing its economic security.

This Country Economic Security and Technology Assessment examines three capabilities essential to economic security: (1) *growth*, to renew South Korea's productive strengths; (2) *resilience*, to protect those strengths against coercion and disruption; and (3) *alignment*, to translate those strengths into international influence. As this report examines in detail, and the accompanying "Country Economic Security at a Glance" illustrates in brief, South Korea has substantial assets in all three areas. The challenge is to connect domestic economic reform, credible economic defense, and revitalized trade and investment ties with developed and developing country partners through a comprehensive economic security strategy that can chart South Korea's pathway to ecosystem power.

Figure 1: Capabilities Underpinning South Korean Ecosystem Power



Source: CSIS Economic Security and Technology Department.

Growth: Building the Domestic Foundations of Ecosystem Power

Sustained growth is a prerequisite for South Korea's long-term security. Growth finances defense, innovation, and infrastructure, and can help meet the needs of an aging society. Yet the country's economy faces four structural constraints: a shrinking workforce and fiscal base; weaknesses in capital markets that limit financing for productive investment; diminishing returns to capital and persistent productivity gaps across firms, sectors, and regions; and heavy reliance on a few export markets as multilateral trade rules weaken. South Korea's ability to sustain technological leadership—an engine of growth—therefore depends on whether its domestic economy can develop skilled workers, innovative firms, competitive services, and new sources of investment.

- **Recommendations:** In response to these challenges, South Korea's growth agenda must focus on promoting productive firms and investing in the people those firms need to grow. In particular, government and businesses should help women sustain careers, work to retain experienced workers, improve pathways into regular employment, and expand skilled immigration to industrial regions. Support for smaller firms should reward technology adoption, workforce skills, and expansion, as well as complement stronger supplier relationships and regional research and training. Stronger corporate governance and protections for minority shareholders would improve productivity and access to capital. Blended financing instruments and public-private partnerships should be employed to attract long-term domestic and foreign private investment into high-potential businesses

and regional industrial clusters. Seoul's accession to the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and deeper trade and investment ties with the European Union and large emerging markets will help diversify South Korea's exports.

Resilience: Ensuring the Effectiveness of Defensive Tools

Seoul has expanded its defensive economic tool kit across supply chain monitoring, stockpiling, investment screening, export controls, technology protection, and cyber defense. Yet that tool kit's effectiveness remains uneven. Dependence on major export markets and concentrated supplies of energy and critical materials expose South Korean firms to external pressure and disruption. Technology theft, diversion through third countries, and cyberattacks create further vulnerabilities. Gaps in supply chain mapping, enforcement, and coordination further limit the protections that existing authorities are intended to provide.

- **Recommendations:** To ensure its economic resilience, Seoul should assess its defensive tool kit in terms of outcomes—for instance, its effectiveness in keeping production operating, preventing technological leakage, and enabling firms to recover after crises. Better economic intelligence and firm-level continuity plans should guide stockpiling, trade and supplier diversification, and cooperation with partners, alongside clear protocols for using retaliatory measures in response to coercion. Continuing the modernization of investment screening must also be a priority, including by adapting sectoral coverage, screening thresholds, and institutional processes to align with best practices among allies. Closer coordination of export licensing and customs, stronger end-user scrutiny, and consistent verification of high-risk shipments would also strengthen technology protection and prevent diversion. Cyber defense should include standing arrangements for government and industry information sharing and joint response coordination. Furthermore, it should extend protection to critical computing infrastructure and deepen financial sector cooperation at home and with the United States. Government institutions and universities should establish research security partnerships in allied countries, starting with the United States.

Alignment: Turning Industrial Strength into International Influence

Given its industrial strengths, technical expertise, and sovereign pools of capital, Seoul can expand its global influence in ways that augment allied technological and economic advantages. The report argues for deepening two-way trade and investment between South Korea and the United States in strategic sectors. Its shipbuilding scenarios illustrate how the United States can realize its commercial shipbuilding goals by facilitating long-term South Korean investment and knowledge transfer. Similarly, it argues that South Korea's AI ambitions can be achieved by pursuing a full-stack partnership with the United States, including through strengthening the investment climate for the digital services sector. Beyond the United States, Seoul's growing role in overseas development assistance can be deployed to build allied critical minerals extraction and processing capacity.

South Korea's role on standards bodies, while growing, has yet to realize its full potential for driving standards adoption within and influence over technology ecosystems.

- **Recommendations:** Internationally, South Korea should coordinate industrial partnerships, standards efforts, and financing to deepen its integration into large, market-oriented economies such as the United States, the European Union, and emerging markets in the Global South. South Korea should seek to pair investment announcements in the United States with U.S. commitments on sustained demand, technology cooperation, and opportunities for South Korean suppliers and workers. Likewise, South Korea should lower regulatory burdens for both domestic and foreign digital services firms and reduce non-tariff barriers for foreign firms from allied market economies to ease trade tensions with the United States, incentivize innovation in South Korea's domestic digital services sector, and enable AI adoption. In developing economies, South Korean and allied firms should help select and finance critical minerals projects, combining product qualification and purchase commitments with infrastructure and skills support. In addition, government and industry should focus standards expertise and financing on technologies South Korean firms can commercialize. Specifically, each partnership should identify reciprocal commitments, benefits to South Korea's domestic economy, and responsibility for delivery while preserving commercial discipline and investors' fiduciary obligations.

Revitalizing the U.S.-ROK Economic Alliance

South Korea and the United States are treaty allies. They also share long-term economic security interests essential to the prosperity of their peoples. U.S. markets, technology, and capital remain central to South Korea's growth, while South Korean investment and capabilities across ships, chips, batteries, and other industries are critical to U.S. technology and reindustrialization goals. In addition, both countries face common challenges posed by China's overcapacity. Because of their intertwined relationship, the effectiveness of U.S. and South Korean economic defense tools, such as export controls, depends on close alignment and coordination. Importantly, this report argues that the United States has a stake in South Korea's evolution as a technology partner and an ecosystem power.

- **Recommendations:** To that end, both Seoul and Washington should build on the existing bilateral trade deal and South Korean investment commitments with *reciprocal confidence-building measures* in the near term and institution building in the medium term to support deeper economic integration.

  In the near term, Seoul should strengthen measures to foster digital services trade integration as part of South Korea's AI road map, including through clear and consistent regulatory requirements for domestic and foreign providers alike. With demonstrable action from Seoul on services trade, Washington should signal a clear path to tariff reduction. In parallel, the United States should remove bottlenecks to South Korean investment, including through streamlined investment facilitation and security reviews, and enable visas for South Korean managers and tradespeople, including retirees, to support U.S. apprenticeships

in key sectors such as shipbuilding, semiconductors, and batteries. South Korea should support those U.S. apprenticeships by deploying retirees, or other appropriately identified personnel, as master instructors. As shipbuilding cooperation expands, the Make American Shipbuilding Great Again (MASGA) initiative should include both supply-side measures such as blended financing and demand-side measures such as advance purchase commitments for U.S. commercial shipbuilders. Importantly, the early phase of these efforts should include provisions for co-production by American and South Korean shipyards.

Over the medium term, both countries should continue to deepen scientific cooperation, such as that between the Genesis Mission and South Korean research programs.[1] Washington should also support joint investment in critical minerals projects in developing countries, explore South Korean participation in the United States' Project Vault, and use guarantees and other risk-sharing instruments to attract private capital. South Korean investment commitments should flow through a jointly capitalized U.S. Technology Dexterity Fund to support early-stage firms and the scaling of acceleration technologies and supporting industries.

The 73-year U.S.-ROK treaty alliance and economic relationship were instrumental in enabling the Miracle on the Han River that established South Korea as an export nation and industrial power. The country's next chapter will depend on whether it converts its technological capabilities, capital, and partnerships into greater influence over how the world's most consequential technologies are developed, financed, and brought to market. Successfully navigating this transition, in alignment with the United States, will require that the South Korean government and the country's businesses exercise economic statecraft commensurate with South Korea's potential. Becoming an ecosystem power offers South Korea a path to interdependence on more favorable terms, and with sustained growth and greater security for its people.

1

South Korea's Economic Security Challenge

The export model that delivered impressive and sustained economic growth for South Korea is increasingly vulnerable to heightened geopolitical competition. Total exports surpassed $700 billion in 2025, while surging demand for AI memory reinforced South Korea's position within one of the world's most consequential technology supply chains.[2] Yet current export success masks a shifting reality. The conditions that produced South Korea's rapid growth between the 1960s and 1990s—the "Miracle on the Han River"—are no longer guaranteed: Open markets have become arenas of coercion; the workforce has begun to contract; and a development model built to mobilize capital and expand production must now generate productivity, innovation, and strategic advantage.

Geopolitical and geoeconomic factors are rewriting the rules that enabled South Korea's earlier rapid growth. Global supply chains and technology networks, once organized principally around efficiency, are increasingly arenas for geopolitical competition and conflict. Examples include Chinese economic coercion following South Korea's Terminal High Altitude Area Defense (THAAD) deployment in 2017; Japan's 2019 export restrictions on semiconductor inputs, which cited inadequate South Korean safeguards against diversion to third countries; and the impact of the Iran war on the energy sources on which South Korea depends.[3] Populism and security-alignment concerns are increasingly conditioning access to the U.S. market, as evidenced by Washington's use of tariffs to secure South Korean investment and commitments and assert increased burden sharing of defense costs.[4] Moreover, the global rise of industrial policies primarily in response to Chinese mercantilism leaves South Korean firms caught between subsidized Chinese competitors and foreign partners seeking to localize production within their own domestic markets.[5]

These external pressures compound the existing domestic constraints on South Korean growth. The growing workforce that once fueled growth is now shrinking, while capital deepening (i.e., increasing capital investment per worker) is producing diminishing returns in terms of economic output. The need for policies that slow the demographic drag and boost productivity is widely recognized and has led to various initiatives aimed at capitalizing on the AI revolution and other technology disruptions. For example, the Federation of Korean Industries (FKI) announced a New K-Industry Forum, "a platform designed to present a new industrial growth strategy built around AI, energy and services innovation."[6]

Policymakers and industry leaders must address how the government and industry can exploit South Korea's unique stack and export capabilities to effectively respond to the exponentially growing demand for compute and AI-enabled goods and services.

How South Korea can drive productivity-led growth while confronting intensifying malign and mercantilist pressures lies at the heart of the country's economic security challenge. More specifically, policymakers and industry leaders must address how the government and industry can exploit South Korea's unique stack and export capabilities to effectively respond to the exponentially growing demand for compute and AI-enabled goods and services. Relatedly, how can the state and its export engine navigate the ongoing upheaval in global trade, the rise of mercantilist industrial policies worldwide, and the increasing frequency of economic coercion (e.g., the weaponization of supply chain chokepoints, in particular, from adversarial non-market actors)?[7] And, importantly, can South Korea adapt its domestic political economy—which remains organized around large, vertically integrated companies, protected small and medium-sized enterprises, a dual labor market, and government institutions designed to support established export sectors—in such a way that the shift outlined in this report is possible?

South Korean strategists seeking to chart the way forward in an increasingly uncertain geopolitical environment encounter competing currents in the public debate on the country's economic security:

- One argument is that Seoul should pursue technological self-reliance through industrial policy efforts, boosting domestic demand and reducing exposure to other countries' supply chains.[8] While South Korea has pursued similar strategies before, it will be constrained by demographic headwinds, energy and resource dependence, and the interconnected nature of technology value chains.
- A second proposes that South Korea hedge on both sides amid the rising U.S.-China geopolitical competition. For decades, South Korea sought to maintain its security relationship with the United States while deepening commercial ties with China. Yet its margin for maneuver has narrowed amid increased instances of Chinese economic coercion

and current U.S. demands for trade rebalancing. Hedging is ultimately tactical and short term when the moment calls for a long-term strategy.[9]

- A third argument is for Seoul to choose between the United States and China. It is not always clear whether South Korean strategists are willing to recognize the fundamentally different drivers of Chinese economic coercion and recent U.S. demands for trade rebalancing. China's efforts represent a long-term strategic commitment to self-sufficiency designed to undercut demand for South Korean industry and increase Seoul's dependencies on Chinese suppliers, while U.S. efforts represent a bipartisan American desire to reindustrialize through deeper integration with South Korea. Yet, even if South Korea chooses to align with the United States, the question is whether alignment relegates South Korea to followership or creates a partnership that more fully leverages what Seoul has to offer.[10]

None of these approaches adds up to a durable economic security strategy.[11] As this report argues, South Korea's only viable path is to translate the strengths of its export-driven growth model—its hard-earned industrial and technological prowess—into geopolitical influence. Failing to make this transition—or taking comfort in the current surge in memory chip exports—would mean less influence over the rules of trade and investment under which South Korea must operate, greater exposure to external pressure, and an increasingly narrow growth path forward.

Understanding Country Economic Security

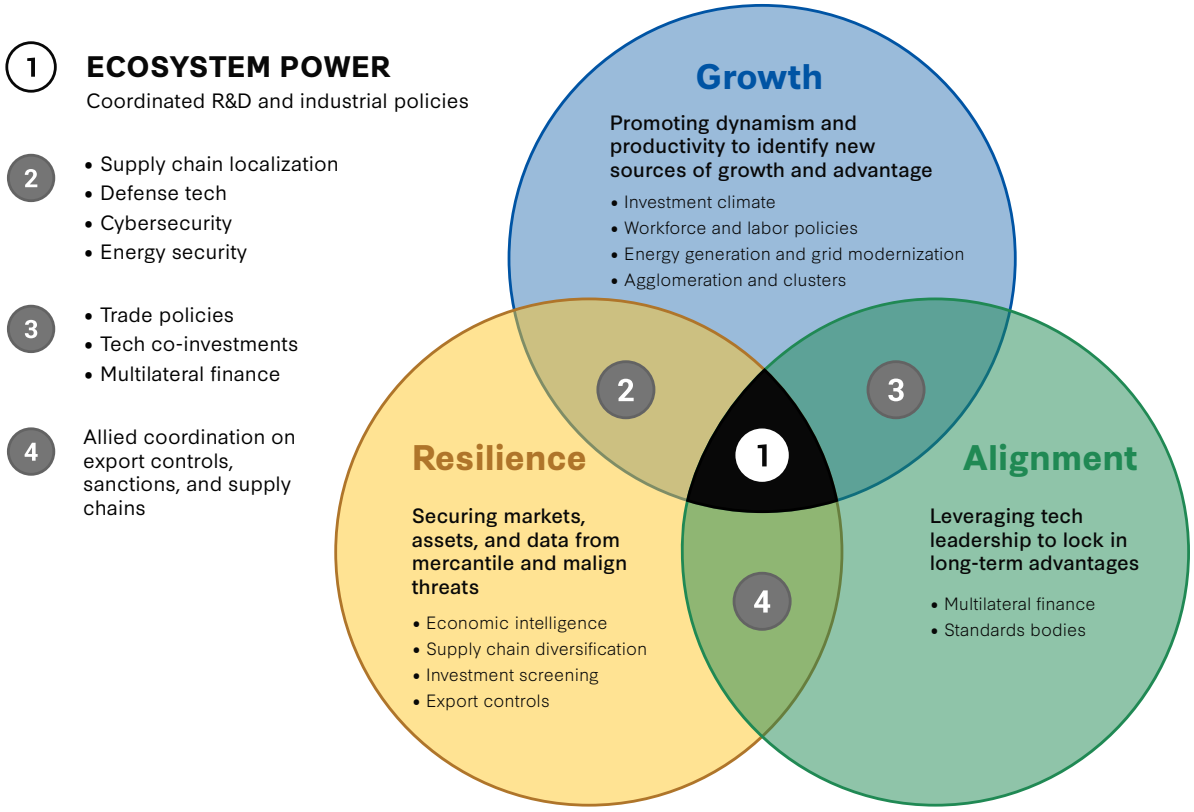
Three capabilities undergird a country's economic security—(1) *growth*, the ability to sustain productivity-led growth and innovation over time; (2) *resilience*, the ability to anticipate, deter, absorb, and recover from economic coercion and disruption while protecting critical markets, assets, data, and networks; and (3) *alignment*, the ability to shape the rules, standards, institutions, and production networks of the global economy in ways that advance national prosperity and security.

- **Growth:** The foundation of economic security lies in realizing an economy's potential to raise productivity, enhance productive capacity, and improve living standards over time. Sustained growth generates the resources needed for national defense and investment in public goods such as infrastructure and social protection. It also allows economies to adjust to new technologies, replace vulnerable sources of supply, and adapt production as comparative advantage shifts. As labor-force growth and capital accumulation slow in South Korea, for instance, sustaining growth potential will require innovation, wider technology adoption, stronger workforce capabilities, and the movement of labor and capital toward more productive firms and sectors. Economic security therefore depends on promoting the dynamism through which new capabilities and sources of advantage emerge.
- **Resilience:** Geoeconomic resilience is the capacity to anticipate, deter, absorb, and recover from economic coercion and disruption while securing markets, assets, data, and networks from mercantilist and malign threats. In addition to the economic intelligence required to identify threats such as supply chain dependencies or adversarial capital, geoeconomic resilience entails a menu of instruments such as supply chain diversification, commodity stockpiling, cybersecurity strengthening, investment screening, and export control

development. These measures, however, come with both economic costs and the risk of retaliation; as a result, their use should be targeted and proportionate to the risk.

- **Alignment:** Economic security also requires projecting economic power beyond one's borders and includes cultivating and employing influence strategically. Power projection derives in part from holding and leveraging crucial positions in production networks, supplying technology and capital that others value, setting global standards, and building relationships grounded in shared economic interests. In other words, shaping the rules of the game for trade, technology, and finance provides a country with influence, which is crucial to power projection. Countries can exercise economic influence, for example, through deeper economic integration—via bilateral trade, investment, and commercial ties between countries—and alignment with plurilateral or multilateral arrangements around common goals. These mechanisms enable a country to determine how markets are organized, where capital flows, and the trajectory of technology innovation and diffusion.

Figure 2: Country Capabilities Underpinning Economic Security



Source: CSIS Economic Security and Technology Department.

Measures to promote growth, resilience, and alignment are mutually reinforcing. For instance, strong and consistent demand signals from government can motivate investments in innovative defense technology and the defense industrial base—a foundational component of national resilience.

Similarly, strong alignment among partners on export controls enhances the effectiveness of these tools by limiting gaps that adversaries can exploit. For example, investments, stockpile buildup, and price-floor creation for critical minerals are more likely to succeed in mitigating vulnerability to Chinese chokepoints when coordinated among allies. Moreover, investing in the cyber resilience of hard infrastructure and financial systems can further attract long-term capital.

Building these capabilities comes with trade-offs, however. For instance, growth through trade integration can create market dependencies, while security measures such as export controls embed inefficiencies which can weaken competitiveness. Although alignment measures (e.g., multilateral finance) can achieve scale, they also require a willingness to accommodate the economic interests of others. An effective economic security strategy, therefore, requires deploying these capabilities in ways that compound their benefits rather than work at cross-purposes.

South Korea's Path to Economic Security

South Korea's economic security strategy must focus on leveraging its position within global technology value chains. Its strategy must be more than defensive; responding to economic coercion is necessary but not sufficient to ensure a growth path free of malign or mercantile influence.

A more forward-leaning approach begins with understanding the breadth of South Korea's position within the world's most strategic technology value chains. In fact, South Korean industry already sits at potential "architectural control points" within these dense networks of firms linked by technical interfaces, standards, capital, and trust that no single producer controls.[12] Samsung and SK Hynix, for instance, depend on foreign semiconductor equipment and software platforms, and these value chains in turn depend on South Korean memory, displays, fabrication, and advanced manufacturing. Seoul's challenge is to leverage these interdependencies so South Korean firms occupy architectural control points in strategic value chains, becoming indispensable nodes around which critical technologies and industrial ecosystems develop. Only by doing this can the country foster conditions favorable to long-term growth and security. Put simply, can South Korea be more than an export nation? Can it become an ecosystem power?

Responding to economic coercion is necessary but not sufficient to ensure a growth path free of malign or mercantile influence.

Box 1: What Is Ecosystem Power?

In today's geoeconomic environment, sovereign influence over markets and technologies means companies compete not only with one another but with foreign governments. Even leading companies cannot navigate such an environment without coordinated public-private efforts. Long-term success requires coordination among networks of firms, suppliers, research institutions, and government agencies in a way that protects the dynamism that drives technological innovation and diffusion.

The most strategic positions within such networks are those crucial to their sustainability and future evolution: setting the standards by which products work together; having public and private financial institutions that influence which projects get built and where; supplying a technology or component that is hard to replace; organizing the supply chain for critical inputs; and possessing specialized human capital that other countries find difficult to replicate.

Ecosystem power entails leveraging these positions across technologies in a mutually reinforcing way to deliver growth, resilience, and economic power projection. The countries that can meet this challenge are, for the most part, among the world's largest economies. South Korea is among the rare smaller economies with the breadth and depth of expertise to "play all the keys" by using carefully coordinated partnerships to leverage strategic advantage across a range of interconnected modalities, from sectors in which it is already dominant, such as memory chips and shipbuilding, to potential new world-leading industries, such as robotics and critical minerals refining.[13]

The report is organized in four remaining chapters. Chapter 2 examines growth drivers in an increasingly uncertain global environment. Chapter 3 takes stock of South Korea's economic defense tool kit and offers an early assessment of its efficacy. Chapter 4 discusses South Korea's ability to project economic power by deepening economic integration with the United States and allies. Chapter 5 identifies near- and medium-term confidence-building measures for Seoul and Washington to advance their shared economic security goals.

2

Sustaining Growth to Build Economic Security

The relationship between economic growth and security is deepening globally, particularly in South Korea. With U.S.-China competition restructuring global supply chains, trade is increasingly weaponized as an instrument of statecraft, and technological advancements are defined as national security imperatives. As a country with limited natural resources and non-democratic, non-market adversarial neighbors, South Korea's capacity to absorb external shocks is contingent on its ability to maintain strong economic capacity, trade relations, and productivity growth. Stagnant economic growth for South Korea would result in diminished defense spending, alliance commitments, and diplomatic influence. To put it simply, the country would become less prosperous and more insecure.

The economic model South Korea built following the Korean War relied on deep capital investment, export-oriented manufacturing, and a growing, stable workforce. In 2026, these traditional engines of growth face four structural constraints:

- **Labor:** A collapsing fertility rate and shrinking working-age population are eroding South Korea's fiscal base and productive capacity.
- **Capital:** Limited foreign investment and persistent equity-valuation discounts raise the cost of capital for South Korean firms.
- **Productivity:** Gaps in productivity across sectors, small and medium-sized enterprises (SMEs), and regions suppress economy-wide efficiency.

- **Trade:** South Korea's heavy trade dependence on a limited number of bilateral relationships, combined with an eroding multilateral trading system, leaves it vulnerable to geopolitical and economic disruptions and threatens its ability to sustain export-led growth.

This chapter examines the interlocking nature of these constraints, providing a basis for identifying policy levers to address them. South Korea's demographic squeeze intensifies fiscal pressure to grow productivity, while its capital-market weaknesses limit the financing options available for industrial upgrading. At the same time, trade dependence makes the entire system vulnerable to external shocks. As a result of these interrelated constraints, South Korea requires a coordinated strategy around the key growth levers of immigration reform, capital attraction, industrial repositioning, and diversified trade relations.

Labor

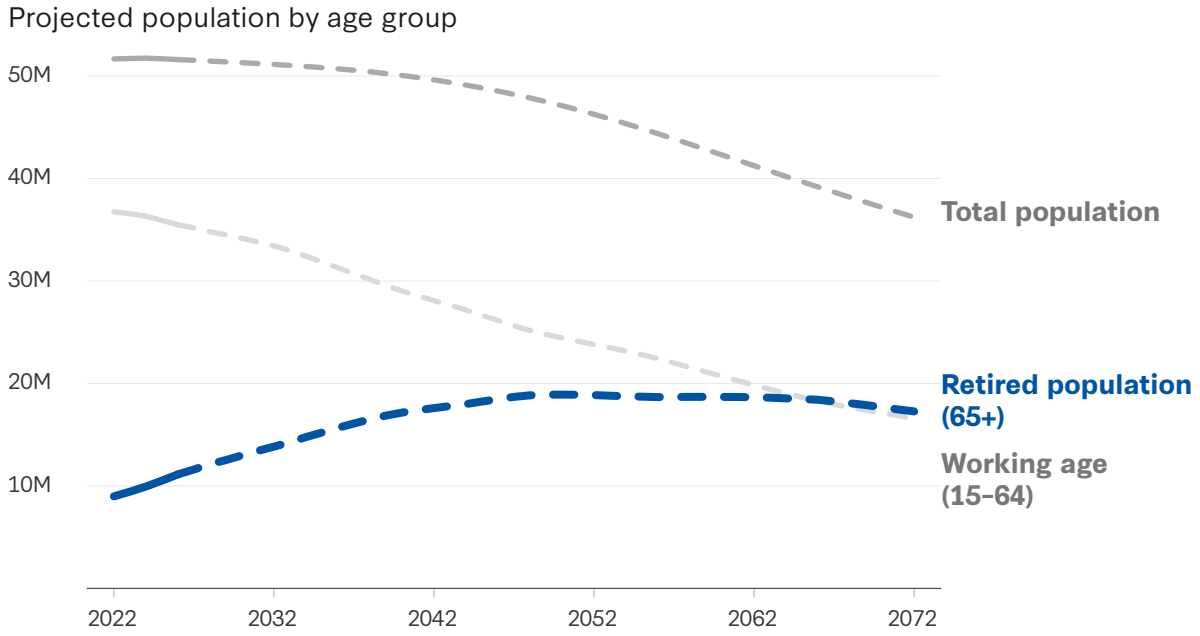
South Korea faces well-documented demographic pressures. The working-age population (aged 15 to 64) peaked at 37.5 million in 2019 and has declined since, with the drop projected to accelerate more steeply in South Korea through 2060 than in any other major advanced economy.[14] Concurrently, the proportion of the population aged 65 years or more has grown 5.1 percent a year on average since 2019; as of December 2024, over 20 percent of the population was 65 years of age or older, making the country a "super-aged" society.[15]

Fewer workers means less labor available for production unless participation or productivity rises enough to compensate.[16] A growing retired population also increases demand for expensive pensions, healthcare, and long-term care.[17] As a result of this shifting dynamic, a shrinking workforce must finance growing social commitments, leaving less fiscal room for research, infrastructure, education, and defense. An aging population further weakens investment potential by reducing the expected growth of domestic demand as well as the number of workers available for new productive capacity.[18] According to International Monetary Fund (IMF) estimates, aging could reduce annual potential growth for South Korea by an average of 0.67 percentage points between 2023 and 2050.[19]

To date, government policy has had limited effect on the country's demographic pressures. While the fertility rate rose from 0.72 in 2023 to 0.80 in 2025, it remains the lowest in the OECD and well below the replacement rate of 2.1.[20] Over the past two decades, the government has repeatedly attempted to reverse this trajectory. It launched the first five-year Basic Plan for Low Fertility and Aging Society under President Roh Moo-hyun in 2006 and has since spent more than 360 trillion won (about $280 billion) on childcare subsidies and related programs. Low fertility has persisted through each successive plan.[21]

Productivity is further constrained by the deeply segmented labor market. In 2024, 38.2 percent of South Korean workers lacked a regular contract, and temporary workers accounted for 26.9 percent of employment, 2.4 times the OECD average.[22] Mobility from non-standard to regular-status work is rare, in part because workplace training is seldom offered to non-standard workers, limiting both current productivity and prospects for better jobs.[23]

Figure 3: South Korea's Elderly Population Rising Compared to Total and Working-Age Populations

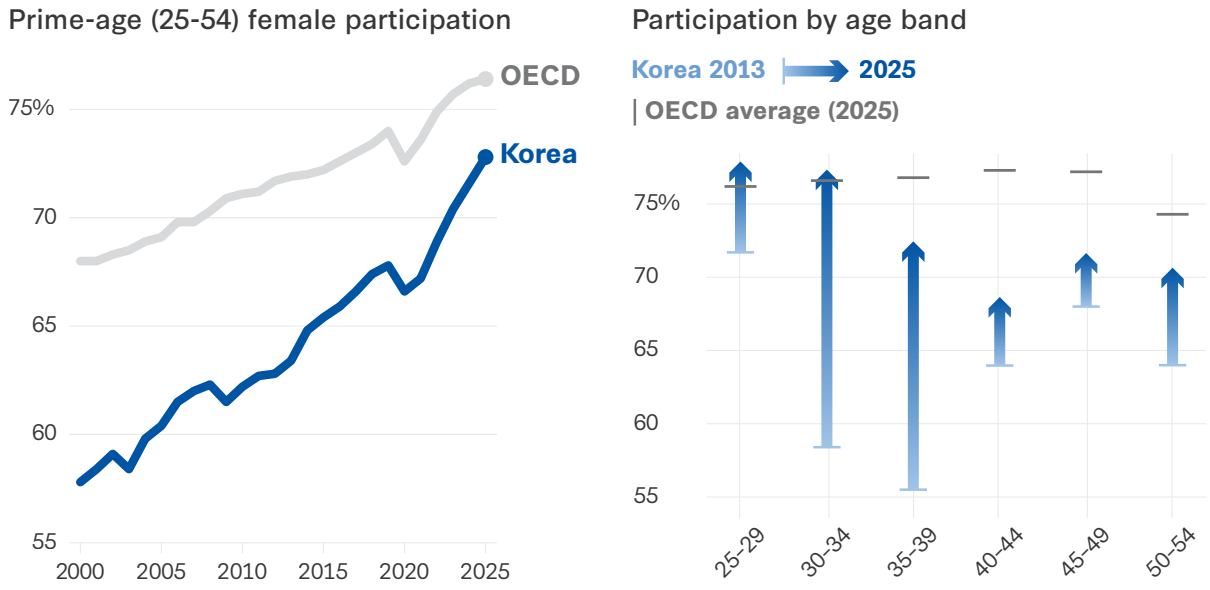


Source: "Projected Population by Age (Korea)," Korean Statistical Information Service (KOSIS), last updated on December 14, 2023, https://kosis.kr/statHtml/statHtml.do?sso=ok&returnurl=https%3A%2F%2Fkosis.kr%3A443%2FstatHtml%2FstatHtml.do%3Fconn_path%3DI2%26tblId%3DDT_1BPA001%26language%3Den%26orgId%3D101%26.

The treatment of older South Korean workers further contributes to the dual labor market. Seniority-based wages make older workers expensive relative to their productivity levels, pushing most out before the statutory retirement age of 60.[24] In 2025, the average age at which older adults left their longest-held job was 52.9, with only 30.1 percent remaining in their primary career; the rest moved into lower-productivity self-employment or subsidized positions.[25] Early separation from career employment leaves South Korea with high employment among older people and poor use of their experience. As a result, about 40 percent of people aged 65 and above live in relative income poverty.[26] Many older South Koreans continue working because they need the income, but they often do so in jobs that make little use of the skills accumulated during their careers.

Women offer the greatest potential source of additional labor, but career interruptions remain an impediment. South Korea has made strides in female labor participation, with a 26 percent increase since 2000 for women aged 25 to 54.[27] Participation among South Korean women in their late twenties and early thirties is now above the OECD average (Figure 4).[28] Despite this progress, women's primary obstacles emerge mid-career, with participation among women aged 40 to 44, for example, well below the OECD average.[29] South Korean women who leave employment to raise children continue facing difficulties returning to career positions, and those who return often enter non-regular employment with lower pay, less training, and fewer opportunities for advancement. Expectations of such losses discourage family formation, creating a self-reinforcing cycle of a deepening dual labor market and low fertility rates.

Figure 4: Female Labor Participation



Source: "Employment and unemployment by five-year age group and sex – indicators," OECD Data Explorer, https://data-explorer.oecd.org/vis?df[ds]=DisseminateFinalDMZ&df[id]=DSD_LFS%40DF_LFS_INDIC&df[ag]=OECD.ELS.SAE&dq=OECD.LF_RATE..F%2B_T.Y25T29%2BY30T34%2BY35T39%2BY40T44%2BY45T49%2BY50T54.&pd=2013,2025&to[TIME_PERIOD]=false&vw=tb.

While immigration is an additional demographic lever available to South Korea, current programs are both insufficient and disconnected from the needs of firms and industrial regions. Top-Tier Visa, introduced in April 2025 to attract specialists in semiconductors, biotechnology, and AI, has been issued to only 20 people as of March 2026, despite a target of 350 by 2030.[30] The Korea-Science and Technology Advanced Human-Resources (K-STAR) Visa program has expanded from 5 to 32 universities, yet its annual target of more than 400 participants remains modest relative to the country's needs.[31] The Metropolitan Visa pilot, launched in April 2025, allows 14 metropolitan and provincial governments—Seoul among them—to recommend foreign students and skilled workers for visas tied to local industry. Its cap reached about 6,800 visas, but for 2027-28, the Ministry of Justice (MOJ) cut it to about 3,000.[32] The economic value of immigration depends on whether immigrant workers fill critical skills gaps, transfer knowledge, and help firms preserve or expand capabilities that might otherwise move abroad. Current programs make this highly unlikely.

Regional demographics are an added drag on industries that underpin export strength. For instance, the cities of Busan and Ulsan are each projected to lose roughly one-quarter of their populations by 2052, while the Seoul Metropolitan Area continues attracting both domestic and foreign talent.[33] Some of the regions losing people contain industrial capabilities important to South Korea's economic security.[34] This is a compounding problem—as regional labor markets thin, firms face difficulty matching workers to jobs, suppliers lose scale, and schools and services see students and consumers move elsewhere. These losses can weaken an industrial cluster even when its leading companies remain competitive. A talent policy centered on Seoul will therefore do little to address workforce constraints in shipbuilding, automotive production, chemicals, and other regionally concentrated industries.

POLICY RECOMMENDATIONS

Three policy measures will relieve labor constraints on growth:

- **Expand domestic labor supply.** South Korea should aim to eliminate the career-break penalty for women by instituting flexible and part-time work rules, stronger childcare support, and second-earner tax reform. Government and businesses should promote a non-regular-to-regular employment pathway, fund portable skills and credentials, and ensure that employment protections and social insurance follow workers regardless of contract types. Measures to extend productive working lives should include reducing seniority-based wage setting and phasing out mandatory retirement at age 60.
- **Scale new visa targets.** If South Korea were to follow Malaysia's trajectory by increasing noncitizen workers from 3 percent to about 15 percent of the workforce over the next 40 years, it would offset most of the drag on growth from aging over the next 30 years.[35] Because most of that inflow would be temporary workers admitted through the Employment Permit System, South Korea should expand the system and widen the path from E-9 work permits to the skilled-worker visa (E-7-4) for workers who build experience in the country. For high-skilled entrants, South Korea should triple the student pathway visa (K-STAR) annual target from approximately 400 to 1,200 by 2030 and convert the fast-tracked permanent residency visa for STEM professionals (Top-Tier Visa) from a 20-recipient pilot to a 200-person annual program. Thereafter, the government should scale issuance and review targets in each five-year Master Plan for Immigration Policy, starting with the fifth plan (2028–2032).[36]
- **Regionalize labor flows.** Building on the Local Government Visa Pilot (Metropolitan Visa), the MOJ should engage at the metropolitan and provincial levels to ensure that visa issuance is based on current and projected workforce demands. Beginning with the sixth Master Plan for Immigration Policy (2033–2037), the MOJ should consider delegating visa issuance responsibilities to local governments based on an assessment of their capabilities. This delegation should cover (1) basing visa issuance speed on local need; (2) sharing data with the central government on the economic stressors of demographic decline; and (3) directing high-skill visa holders toward identified industrial clusters beyond Seoul.

Productivity

South Korea's traditional capital-deepening model is losing momentum. From 1970 to 2022, capital inputs drove about 53 percent of the country's GDP growth. More recently, from 2015 to 2024, gross fixed capital formation averaged 30.7 percent of GDP.[37] The current rising capital-output ratio suggests falling investment productivity. With labor and capital constrained, future growth will depend on enhancing total factor productivity (TFP), which currently lags behind that of the United States, France, and Germany.[38] Conventional boosters of TFP, such as digital transformation and automation, will likely offer diminishing returns for the South Korean economy, as leading firms are already operating at the frontier.

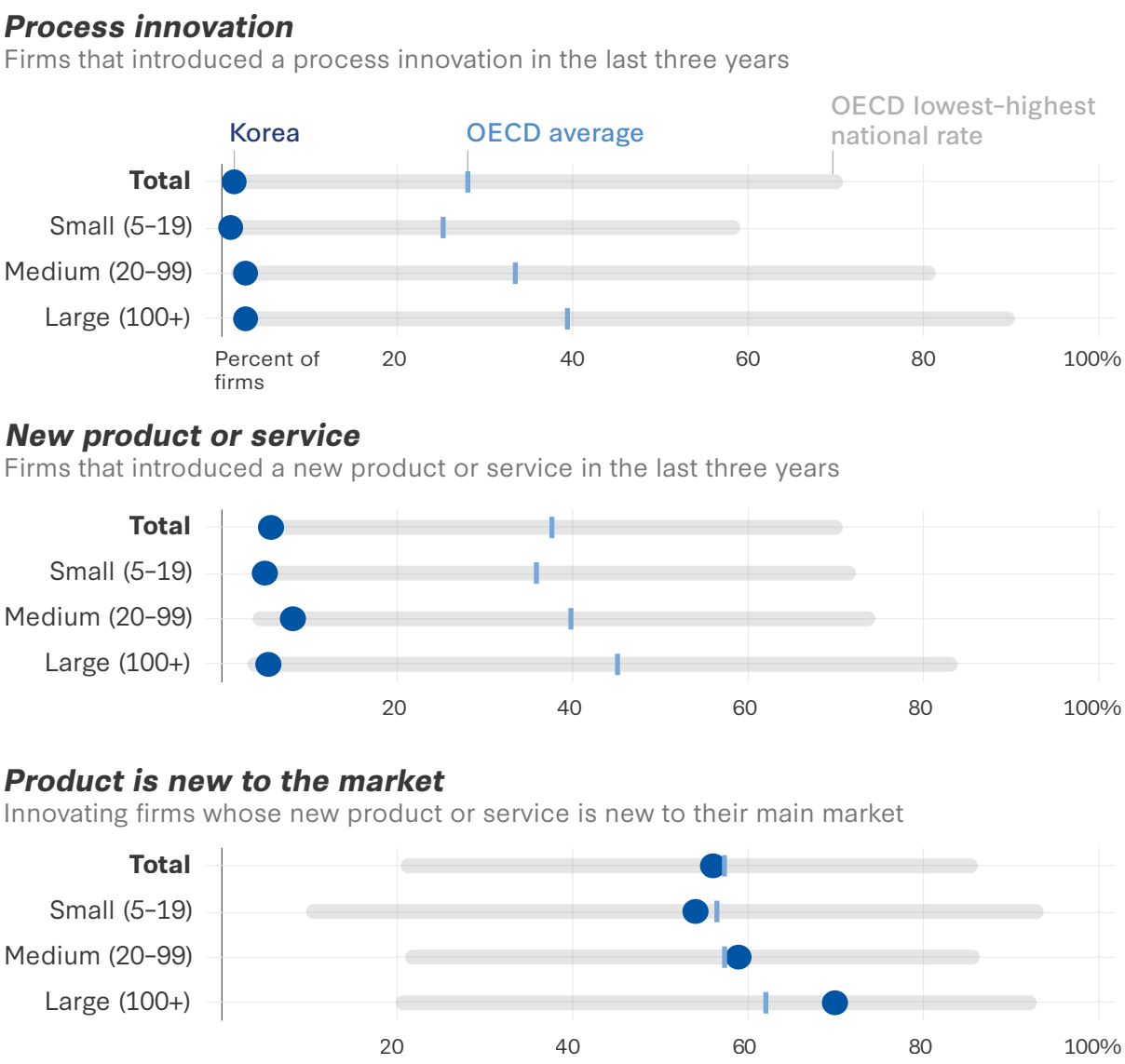
South Korea has a persistent productivity gap between its services and manufacturing sectors. Labor productivity across the services sector has stagnated, remaining at roughly half that of

manufacturing for over two decades, and the gap is widest for large employers such as wholesale and retail trade, transportation, and hospitality.[39] Entry restrictions in professional and digital services, logistics, healthcare, and finance limit the emergence of competitive firms capable of supporting South Korea's advanced manufacturers and expanding the country's exports beyond manufacturing. Given that these services operate as critical inputs to industries such as chipmaking, shipbuilding, and batteries, low productivity in the services sector generates downstream inefficiencies that further constrain productivity growth across the economy. Capital is also allocated less efficiently in the services sector than in manufacturing, leaving more productive firms underfinanced while allowing less productive ones to survive.[40]

Productivity among South Korean SMEs also lags behind that of leading domestic conglomerates and global peers. South Korean SMEs account for 99 percent of domestic businesses, generating an OECD high of 80 percent of all employment.[41] However, across industries, these same enterprises consistently produce only a quarter of the value added per worker compared to large firms. Gaps in finance, innovation, technology adoption, management, and training reinforce the disparity. In 2023, for example, SME spending on research and development (R&D) was only 13 percent of large-enterprise spending, while SME adoption of AI ran at roughly half the large-firm rate.[42]

Figure 5: South Korean Firms' Innovation Activity

The chart compares the share of South Korean firms that introduced a new process, a new product or service, or a product or service that was new to the firm's main market during the last three years with the OECD average.



Note: The OECD average is based on the most recent year of available data for each OECD member country in the World Bank's Formal Sector Enterprise Surveys at the time of data extraction. Each bar spans the lowest and highest national rates among covered OECD economies; the tick marks the unweighted OECD average. The South Korea reference year is 2024: https://www.enterprisesurveys.org/en/data/exploreeconomies/2024/korea?view=table&subGroup=-1&topic=9&countries=All+Economies%2F%2FAll+Economies%2F%2F2024%2F%2F104%2F%2Fnull&subtopic=79&regions=East+Asia+%26+Pacific&IndicatorIds=185%2C336%2C186.

Source: CSIS Economic Security and Technology Department calculations based on "Innovation Activity," World Bank Enterprise Surveys, Korea, Rep. (2024), year last updated by OECD, data extracted on August 27, 2026.

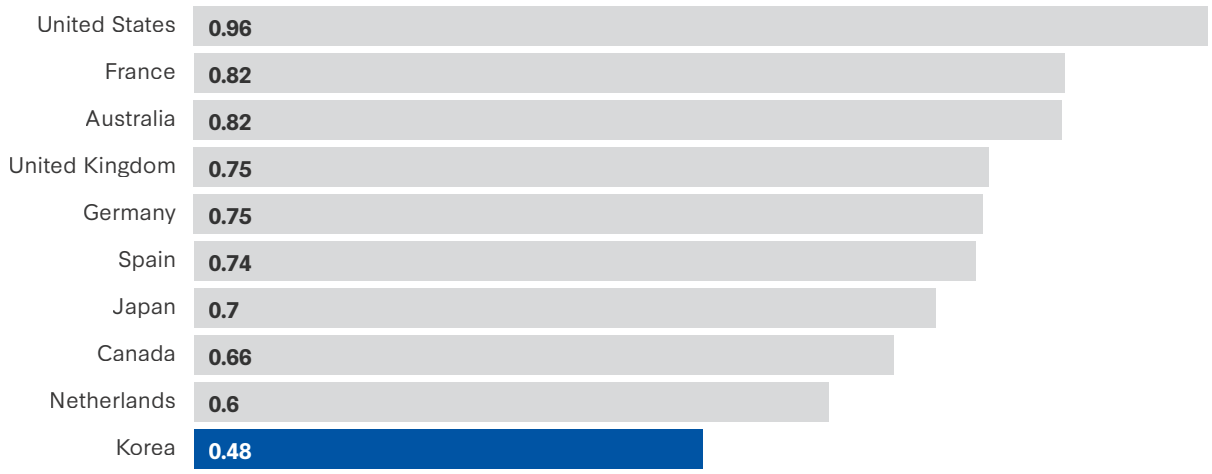
Despite extensive SME subsidies and protections, South Korea has been unable to close the productivity gap between SMEs and larger firms. The policy environment both protects less productive firms from having to adapt to external pressures and discourages more productive ones from expanding. Analyses by the Korea Development Institute (KDI) and the Bank of Korea find that government support for SMEs—including preferential credit, subsidies, and "SME-suitable industry" designations—has allowed weak firms to remain in protected markets.[43] The Ministry of SMEs and Startups (MSS) and the Industrial Bank of Korea's overlapping—and uncoordinated—policies, combined with a fragmented governance structure economy-wide, further compound this problem by disincentivizing growth and expansion beyond statutory size thresholds.

Broader regulatory constraints compound these effects on SMEs. Regulatory obligations such as compliance requirements and lengthy licensing and permitting processes impose passive costs and delays, producing barriers to market growth. In a March 2025 survey of 913 firms by the Korea Chamber of Commerce and Industry, the regulatory component of its Business Burden Index rose from 88.3 to 102.9 over the past decade. At the same time, the tax component fell, while labor regulation scored as the heaviest burden.[44] Some regulations impose more direct disincentives on companies, so-called "growth penalties," such as additional obligations or reduced policy benefits once firms exceed specified size thresholds; 149 of the 1,021 business-related bills introduced in the 22nd National Assembly through the end of 2025 fall into this category.[45] The combined effects of these pressures mean that significant amounts of labor and capital remain tied to less productive firms, making it even harder for more productive firms to innovate and expand. A recent IMF staff report concludes that lowering regulatory burdens, along with other investment-climate measures such as simplifying licensing and permitting, would improve resource allocation, strengthen productivity in the services sector and SMEs, and enhance long-term growth.[46] It estimates that narrowing the productivity gap between the best- and worst-performing firms, through easier entry and exit, better access to finance, and fewer subsidies to weak firms, could raise potential growth by 0.22 percentage points a year, about one-third of the drag from aging.[47]

The geographic concentration of South Korea's productivity gap further constrains economic performance, yet it also offers an opportunity for growth. More than half of South Korea's population and GDP derive from the Seoul Metropolitan Area, which accounts for 58.5 percent of the services industry, over 70 percent of digital-related companies, and 85.8 percent of software professionals.[48] Research on South Korea's regions shows that growth is tied to a region's position in supply networks: A study of the automotive industry's inter-firm transactions across 15 provinces from 2008 to 2021 finds that provinces more central to that network grew faster, while specialization or diversity on its own weakened the effect.[49] Among manufacturing SMEs, firms located near related industries and digital-technology suppliers digitized more, and digitization raised their productivity.[50] Regional policy should therefore strengthen the supply links that tie firms outside Seoul to national production networks, a task that grows more pressing as the labor force contracts.

Figure 6: South Korea's Services Labor Productivity Is Half that of Its Manufacturing Sector

Services-manufacturing productivity ratio (gross value added per person employed), 2022



Source: "OECD Data Explorer: Productivity database," OECD Data Explorer, last updated September 26, 2026, https://data-explorer.oecd.org/vis?fs[0]=Topic,1%7CEconomy%23ECO%23%7CProductivity%23ECO_PRO%23&pg=0&fc=Topic&bp=true&snb=7&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_PDB%40DF_PDB&df[ag]=OECD.SDD.TPS&df[vs]=&dq=NLD%2BAUS%2BCAN%2BESP%2BUSA%2BGBR%2BKOR%2BJPN%2BDEU%2BFRA.A.GVAHRS%2BGVAEMP.GTNXL%2BC..V.N..&lom=LASTNPERIODS&lo=10&to[TIME_PERIOD]=false&vw=tb.

AI diffusion across South Korea's domestic sectors and firms offers the potential for increased productivity but also risks widening the existing regional productivity divides. IMF analysis estimates that wider AI adoption could add as much as 0.44 percentage points to the country's annual potential growth, while improved allocation of labor and capital could add another 0.22 percentage points.[51] However, without corresponding efforts to expand access to computing, usable data, technical skills, finance, and management expertise, AI adoption could also widen regional productivity gaps.

POLICY RECOMMENDATIONS

A forward-looking productivity policy agenda for South Korea should focus on two lines of effort:

- **Reduce barriers to entry and promote competition.** South Korea should review existing employment requirements, paperwork, and tax regulation, which cumulatively add significant regulatory burdens on private companies, especially for startups and enterprises looking to expand.
- **Reinforce regional clusters to generate distributed growth.** The MSS should target investment toward strengthening regional supply chain nodes, fostering distributed growth rather than further concentrating production. Given the economic advantages of cross-sector spillovers, municipalities demonstrating high levels of growth across adjacent industries should receive priority allocation. A portion of tax revenues from the recent memory chip boom could be allocated toward creating a Regional Innovation Fund. In addition, the Korea Trade-Investment Promotion Agency should refocus Investment Korea around a SelectUSA-style model that empowers subnational authorities across South Korea to attract allied

foreign direct investment (FDI). The goals of these initiatives should be to fund research, workforce development, and human capital capabilities beyond Seoul, driving nationwide economic transformation.

Capital

Remarkable capital deepening over the last half century has been critical to South Korea's economic growth. The country's strong savings and investment foundations can now be leveraged to drive productivity growth by deepening capital markets, driving regulatory reform, and expanding skilled services. In combination, these reforms can facilitate capital allocation toward firms and sectors where it can drive further economic growth.

South Korea's ability to attract and productively employ investment depends on the quality of its broader commercial enabling environment. Domestic and foreign firms must contend with labor regulation, taxation, immigration, data policy, foreign-exchange access, international schooling, and the movement of staff and capital as a single operating environment, not as discrete policy issues. This constraint is most acute outside Seoul, where regional industrial hubs often lack the housing, schools, and services needed to attract and retain skilled foreign workers and investment. The country's limited international professional community and multinational presence compound these constraints on attracting global talent.[52] Improving this environment would support both capital formation and the workforce strategy outlined above.

Seoul has already created public investment instruments designed to mobilize capital toward innovative, high-growth firms and in support of technology breakthroughs. The National Growth Fund, totaling 150 trillion won (roughly $110 billion), provides loans and direct investment to high-growth and export-oriented firms, addressing financing constraints and mitigating risks that can inhibit private investment. The K-Moonshot initiative acts as a complement to National Growth Fund investments, directing government institutes toward mission-focused technological breakthroughs.[53] The South Korean government has also committed to build 18.4 gigawatts (GW) of data center capacity by 2035 as part of a larger 1.43 quadrillion won ($919 billion) initiative.[54] Together, these and similar instruments could facilitate foreign co-investment, thereby mobilizing capital to commercialize early-stage R&D and support industrial upgrading.[55]

Depressed valuations in South Korea's financial markets limit its firms' ability to raise equity at a scale comparable to firms in peer markets. Various reforms associated with the Corporate Value-Up Program Index could attract increased foreign portfolio investment, though durable gains will require both stronger governance and predictable investor treatment.[56] Recent volatility in the KOSPI serves as a reminder that reforms should be judged by sustained investment flows and improved access to productive capital rather than short-term market performance.

POLICY RECOMMENDATIONS

South Korea should therefore pursue a financial deepening agenda on two fronts:

- **Reform capital markets.** Efforts should focus on addressing structural weaknesses that have long constrained investor confidence and capital formation. To increase the valuations

of South Korean firms and attract foreign capital, the government should implement the 2025 Commercial Act amendments that require fiduciary responsibility for minority shareholders.[57] As recent volatility in the KOSPI illustrates, reform success should be judged by sustained investment flows and financial deepening, not short-term market performance.[58]

- **Deploy public capital to attract foreign investment in high-growth firms and projects.** Public investment instruments such as the National Growth Fund can offer blended finance and co-investment vehicles to leverage FDI toward high-potential firms and early-stage projects, as well as to sustain FDI in large AI infrastructure projects.

Trade

Trade has amplified every major source of South Korea's growth for decades. Moreover, stable foreign demand has enabled South Korean firms to produce at a scale the domestic market could not support. As South Korea's contracting population increasingly inhibits domestic consumption growth, trade will become progressively more important in driving demand, improving productivity, and securing long-term growth. Similarly, South Korean imports of technologies, equipment, and intermediate goods have facilitated the country's entry into more sophisticated industries. Subsequent exposure to international markets has imposed market discipline, while integration into global value chains has encouraged specialization, technological learning, and capability development in products such as semiconductors, batteries, ships, automobiles, and displays.

South Korea's position within global value chains is rapidly becoming as important as the volume it moves through those chains. Modern production value chains link specialized firms through standards, technical interfaces, financing, data sharing, and long-term supplier relationships. Not all positions are equal—some nodes hold more value, and thus confer more leverage, as they may be difficult to replace or may exert disproportionate influence over the wider network. South Korea's growth prospects therefore depend not only on whether its firms can remain competitive component suppliers within global production systems, but also on whether those firms can continue to occupy higher-value positions within global value chains by setting standards, integrating suppliers, and directing investment.

Figure 7: South Korea's Net Exports by Sector, 2014 and 2024

USD, billions, current prices; net exports = exports minus imports



Note: Total exports and imports are BACI's reconciled values and will not match South Korea's national customs totals exactly.

Source: CEPII, BACI: International Trade Database at the Product-Level, HS 2012 nomenclature, version 202601 January 2026, https://www.cepii.fr/DATA_DOWNLOAD/baci/data/BACI_HS12_V202601.zip; and Guillaume Gaulier and Soledad Zignago, "BACI: International Trade Database at the Product-Level. The 1994-2007 Version," CEPII, Working Paper no. 2010-23, October 2010, https://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37.

South Korea's trade with China illustrates how quickly a country's position can shift within global value chains.[59] South Korean firms once supplied many of the components and capital goods used by Chinese manufacturers, providing the country with a $99.7 billion trade surplus with China (including Hong Kong) in 2018.[60] By 2025, however, that number had shrunk to $19.6 billion, a decrease of over 80 percent, the result of Chinese companies developing capabilities in the same sectors South Korean firms had long occupied, including batteries, displays, chemicals, and machinery. South Korean firms not only lost significant market share in China but also faced stronger Chinese competition in third markets.

POLICY RECOMMENDATIONS

South Korea should pursue an economic and trade diversification strategy focused on increasing export markets, enhancing firm capabilities to sell abroad, identifying alternative sources of critical inputs, and deepening links to partners with complementary capabilities.[61] It should concentrate on strengthening tradable services such as engineering, finance, logistics, digital services, healthcare, and business services, which will help South Korean manufacturers organize production overseas.

Specifically, South Korea should pursue two lines of effort:

- **File for accession to the CPTPP on a fixed timeline to embed South Korea more deeply into a rules-based Pacific production network.** CPTPP accession would complement South Korean domestic supply chain measures by diversifying market access and, according to KIEP, would raise real GDP by an estimated 0.33–0.35 percent; other estimates put growth even higher.[62] Moreover, CPTPP membership would establish a free trade agreement with Mexico and deepen rules-of-origin integration with Japan and Pacific powers.
- **Deepen trade and investment ties with the European Union and major emerging markets** to diversify market access and strengthen rules-based supply chain integration. These efforts should include building on the Korea-EU Digital Trade Agreement, concluding the Mercosur trade negotiation, and completing the renegotiation of the India-Korea Comprehensive Economic Partnership Agreement.

3

Resilience

Economic security depends not only on growth, but also on resilience—the capacity to withstand external threats to markets, assets, and innovation systems. South Korea's growth prospects depend in part on its ability to innovate and enhance productivity unimpeded. This ability, in turn, depends on the country's capability to deter and defend against mercantile and malign threats to its markets, supply chains, technology ecosystems, critical infrastructure, and assets. Since the mid-2010s, South Korea has increasingly found itself the target of economic coercion, primarily from China. Examples include boycotts and other informal measures in retaliation for the Terminal High Altitude Area Defense (THAAD) deployment in 2017; Chinese export controls on urea in 2021; and similar restrictions on Chinese graphite exports in 2023.[63] Yet, South Korea has also faced trade frictions from allied partners, which differ in kind from coercion from non-market actors. For instance, in 2019, Japan imposed export controls on semiconductor materials, which Seoul read as retaliation in a bilateral dispute. Within the alliance, the United States levied significant tariffs in 2025 and additional duties in 2026, negotiating purchase and investment agreements in exchange for relief.[64]

South Korea's growth prospects depend in part on its ability to innovate and enhance productivity unimpeded.

Recognizing emerging mercantile and malign threats, South Korea was an early leader in developing economic security tools. Sophisticated by international standards, the current tool kit comprises a

range of legal authorities, policies, and instruments that cover issues such as supply chain policy, investment screening, export controls, and cyber defense (see Table 1). Resilience ultimately depends on the efficacy of these policies and instruments in mitigating five principal risks to South Korean growth and security: (1) concentration of import and export markets, (2) vulnerability to critical supply chain chokepoints, (3) exposure of critical and industrial infrastructure to cyber threats, (4) exposure to adversarial capital, and (5) vulnerability of critical and emerging technology to leakage. The sections below explore the legal frameworks, institutional capacities, and early experiences using these tools to mitigate South Korea's exposure.

Concentration of Import and Export Markets

South Korea's economy faces a structural vulnerability from the concentration of export demand in China and the United States, its two largest individual export markets. As discussed in Chapter 2, Beijing retains leverage over South Korea through Chinese demand, intermediate inputs, and competitive positioning and has used these as instruments of economic coercion. For its part, Washington has demonstrated a willingness to limit access to the U.S. market in pursuit of its trade rebalancing goals. South Korea's exposure to both countries—each of which has fundamentally different motivations—is distinctive in that export competitiveness and import vulnerability often coexist within the same industries.[65]

South Korea addresses coercive foreign trade practices via the trade remedy system in Article 63 of the Customs Act, which authorizes retaliatory duties against unfair or discriminatory measures.[66] The Ministry of Finance and Economy (MOFE) and the Korea Customs Service (KCS) administer tariffs, origin rules, and preferential rates. The Korea Trade Commission (KTC) has the authority to investigate unfair trade practices such as dumping, subsidization, and intellectual property infringement. An April 2026 amendment to the Foreign Trade Act assigns the Ministry of Trade, Industry and Resources (MOTIR) the power to restrict trade to protect South Korea's interests.[67]

Rather than retaliate, Seoul has historically opted to absorb, negotiate, and diversify, whether pressure came from a non-market actor or from an ally. In 2017, for example, Beijing punished South Korean firms through regulatory harassment, tourism curbs, and boycotts after the country's THAAD deployment, costing South Korea an estimated $7.5 billion.[68] Rather than pursue retaliatory measures against China, however, the Moon administration's New Southern Policy sought to expand exports to Vietnam, Taiwan, India, Malaysia, and the Philippines and, in turn, to grow imports from Vietnam, Malaysia, and India.[69] Similarly, in 2018, Seoul responded to Washington's Section 232 steel tariffs with a negotiated export quota capped at roughly 70 percent of its 2015–2017 average.[70]

In 2025, the United States imposed International Emergency Economic Powers Act (IEEPA) tariffs, followed by a further 25 percent in levies on automobiles, pharmaceuticals, and lumber in early 2026. The Lee administration responded by agreeing to a 15 percent tariff and, subsequently, committing to $350 billion in South Korean investments in U.S.-based projects. The commitment included $150 billion for U.S.-ROK shipbuilding cooperation and an additional $200 billion for U.S.-based projects in other sectors.[71]

Table 1: South Korea's Economic Security Tool Kit

Legislation	Risk Category				
	Market Concentration	**Supply Chokepoints**	**Adversarial Capital**	**Dual-Use Leakage**	**Cybersecurity**
The Framework Act on Supply Chain Stabilization Support for Economic Security ("Framework Act on Supply Chain")	✓	✓		✓	
Special Act on National Resource Security	✓	✓		✓	✓
Act on Special Measures for Strengthening the Competitiveness of Materials, Components, and Equipment Industries	✓	✓		✓	
Customs Act	✓	✓		✓	
Act on Special Cases of the Customs Act for the Implementation of Free Trade Agreements ("FTA Special Act")	✓	✓			
Act on the Investigation of Unfair International Trade Practices and Remedy Against Injury to Industry	✓			✓	
Foreign Trade Act	✓	✓		✓	
Foreign Investment Promotion Act			✓	✓	✓
Act on Prevention of Divulgence and Protection of Industrial Technology			✓	✓	✓
Special Measures Act on Strengthening and Protecting Competitiveness of National High-Tech Strategic Industry	✓	✓	✓	✓	✓
Foreign Exchange Transactions Act	✓		✓		
Act on Prohibition Against the Financing of Terrorism and Proliferation of Weapons of Mass Destruction			✓	✓	
Act on the Protection of Information and Communications Infrastructure					✓
Network Act					✓
Personal Information Protection Act					✓

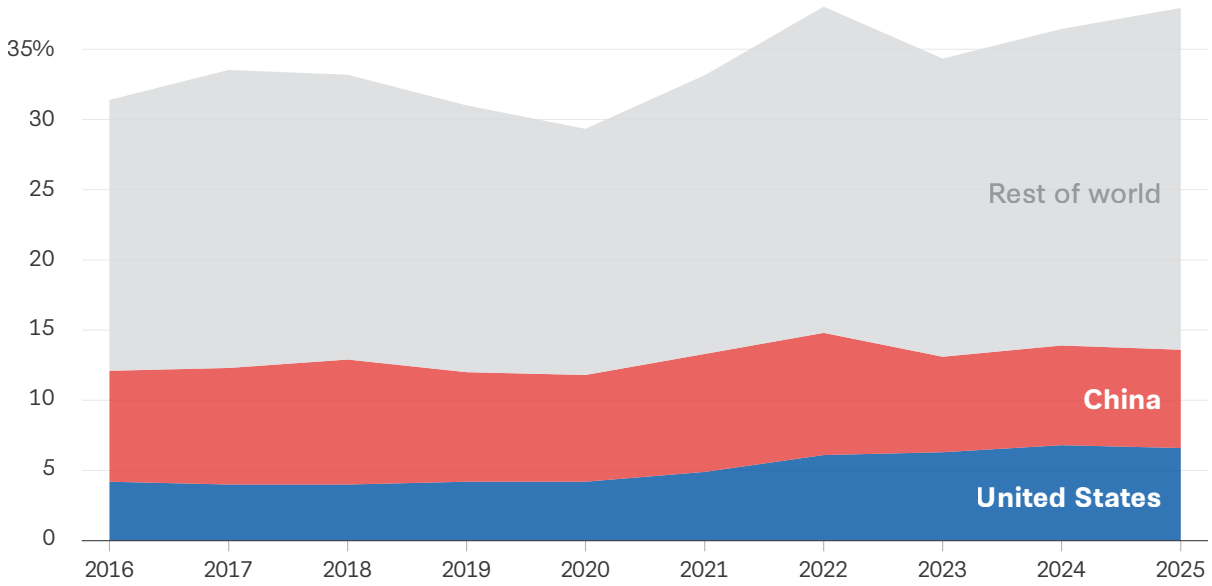
Basic Act on the Development of Artificial Intelligence and the Creation of a Foundation for Trust ("AI Basic Act")	✓
NIS Regulations on Cybersecurity Services	✓

Source: CSIS Economic Security and Technology Department; and Ministry of Government Legislation, Republic of Korea.

South Korea's experience with retaliatory measures following Japan's 2019 imposition of export controls shaped its subsequent approach to economic coercion. In July of that year, Tokyo tightened export licensing for three chemicals critical to South Korea's semiconductor and display industries, officially citing inadequate safeguards against their diversion to third countries.[72] A month later, Japan removed South Korea from its trusted partner whitelist, subjecting more than 1,100 categories of dual-use goods to individual screening as a result.[73] Seoul responded by imposing retaliatory export controls of its own, pursuing World Trade Organization (WTO) litigation, and threatening to withdraw from the General Security of Military Information Agreement (GSOMIA) between the two countries. Viewing GSOMIA as essential to trilateral security cooperation, Washington pressured Seoul to reverse course. After four years, Seoul withdrew its WTO complaint and normalized GSOMIA relations; Japan reciprocated by restoring South Korea to its whitelist.[74] The episode highlighted the limits of retaliation, especially against a partner.

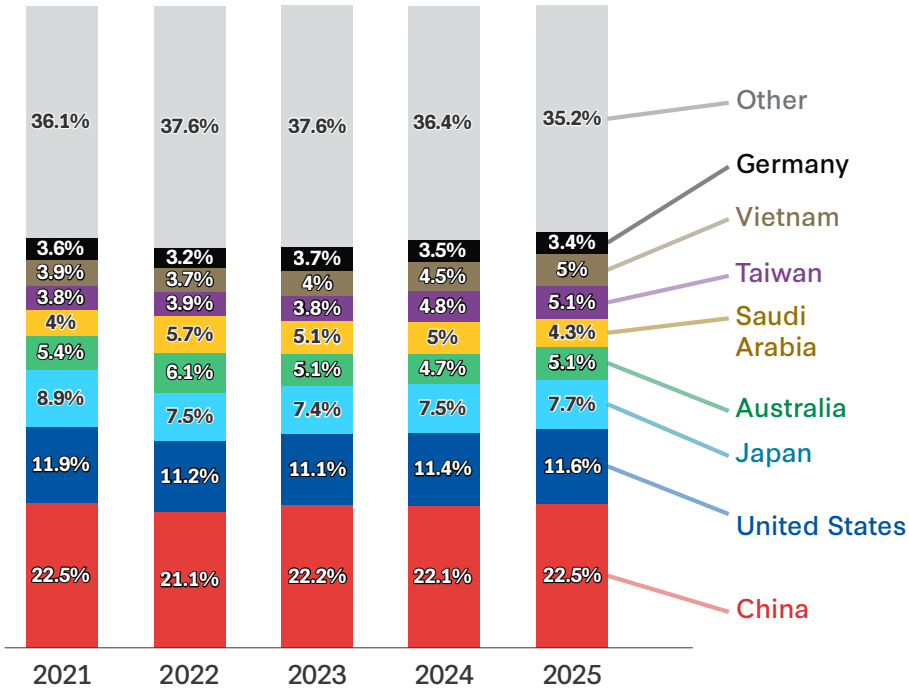
Figure 8: South Korean Exports as a Share of GDP, by Destination

2016–2025, current-price GDP and exports, both in USD



Source: "Real GDP growth," IMF, https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD; and "Exports by Country," Korean Statistical Information Service (KOSIS), https://kosis.kr/statHtml/statHtml.do?sso=ok&returnurl=https%3A%2F%2Fkosis.kr%3A443%2FstatHtml%2FstatHtml.do%3FtblId%3DDT_1R11006_FRM101%26orgId%3D360%26.

Figure 9: South Korean Imports by Partner Country (Top Eight by Value)



Source: "Imports by Country," Korean Statistical Information Service (KOSIS), https://kosis.kr/statHtml/statHtml.do?sso=ok&returnurl=https%3A%2F%2Fkosis.kr%3A443%2FstatHtml%2FstatHtml.do%3FtblId%3DDT_1R11006_FRM101%26orgId%3D360%26.

POLICY RECOMMENDATIONS

Trade diversification will reduce exposure to economic coercion over time while strengthening the effectiveness of South Korea's retaliatory authorities. As Figures 8 and 9 illustrate, South Korea's trade partners are already diverse, but the combined concentration of exports to and imports from the United States and China leaves it vulnerable. The 2019 dispute with Japan revealed the limits of retaliation when South Korea remains dependent on the country it seeks to pressure and when its response risks broader strategic relationships. To that end, Seoul should pursue a three-pronged approach centered on reducing such dependencies:

- **Pursue market access to diversify exports.** As discussed in Chapter 2, CPTPP accession on a fixed timeline will expand access to export markets in the Indo-Pacific. Seoul should also pursue closer links with the European Union and large emerging markets while simultaneously diversifying its services exports.[75] Finally, MOTIR should publish an annual services-export tracker, with data visible by subsectors, such as engineering, finance, and digital services.
- **Resolve disagreements with allies early, including through revitalized alliances.** Coming out of the recent trade agreement, Seoul and Washington should reestablish mechanisms for consulting on trade and investment measures that affect their respective

industries. These mechanisms could include partners such as Japan, where interests converge relative to those of non-market economies.

- **Scope Article 63 as a deterrent against adversarial coercion, and coordinate with allies.** South Korea should establish a protocol for use of Article 63, defining the circumstances that would trigger tariff retaliation, the principles governing its scale, and the conditions for lifting duties, consistent with its international trade obligations.

Supply Chain Chokepoints

South Korean industry remains vulnerable to supply chain chokepoints—geographically concentrated transportation routes that carry critical inputs and energy sources that are difficult to substitute. A delayed or forgone shipment of a specialized material—such as high-purity hydrogen fluoride for semiconductors or a rare earth oxide needed for electric vehicle (EV) motors—can halt production chains whose economic value far exceeds that of the input.

Supply chain vulnerability becomes especially acute when key chokepoints are concentrated in countries, most notably China, with a demonstrated willingness to use economic dependencies as instruments of coercion.

South Korea's dependence on imports for close to 94 percent of its energy supply poses a broader economic and security risk. With 70 percent of its crude oil coming through the Strait of Hormuz, the ongoing Iran war has severely impacted those supplies and, moreover, illustrated that a single hostile actor can sever their flow by force.[76]

Supply chain vulnerability becomes especially acute when key chokepoints are concentrated in countries, most notably China, with a demonstrated willingness to use economic dependencies as instruments of coercion. For example, in 2021, China supplied at least 80 percent of South Korea's imports across 1,850 materials, including rare earths. South Korea's magnesium supply is even more vulnerable; as of 2026, Seoul remains entirely dependent on Beijing for the magnesium imports needed to manufacture cars, smartphones, and batteries.[77]

Vulnerabilities also exist vis-à-vis allied partners. In response to Japan's imposition of export controls in 2019, companies such as Samsung Electronics and SK Hynix sought to qualify alternative suppliers in Belgium, the United States, and Taiwan.[78] Yet these private efforts produced limited results. The government-led drive to localize "materials, components, and equipment" within South Korea through a combination of public funding, tax incentives, and coordinated R&D into domestic production of the targeted chemicals proved more effective.[79]

South Korea passed two acts based on lessons learned during its response to that episode of coercion. In 2019, it passed the Act on Special Measures for Strengthening the Competitiveness of

Materials, Components, and Equipment Industries. Then, in 2023, it passed the Framework Act on Supply Chain Stabilization Support for Economic Security, though it was not implemented until 2024. Both acts were aimed at hardening critical South Korean supply chains and strengthening the country's wider economic security.[80]

South Korea has also applied the lessons from past economic coercion more broadly, including increasing strategic stockpiling, strengthening early warning systems, enhancing crisis planning, expanding financial support, and supporting targeted resource diversification. Through several pieces of legislation, South Korea has expanded its domestic stockpiles, including an expansion of the public stockpiling program from 25 types and 34 items to 26 types and 41 items and an increase in the rare-metal reserves target from 54 days to 100 days.[81] In addition, the government raised its recycling target for 10 strategic minerals—lithium, magnesium, cobalt, nickel, graphite, and five rare earth elements—to 20 percent by 2030.[82]

In 2024, under the Framework Act on Supply Chain Stabilization for Economic Security, MOFE designated 300 supplies as "economic security items." This designation both identifies critical items for early warning monitoring and determines which supplies are eligible for public support to maintain availability and production. The 2024 act also established a centralized Supply Chain Stabilization Committee—comprising government ministries and private experts—to coordinate policy across agencies and to develop a national supply chain stabilization plan that is updated every three years.[83] The act also stood up a Supply Chain Resilience Fund managed by the Export-Import Bank of Korea to support private sector procurement of commodities and investment in supply chain stabilization facilities and technology.[84]

Overseas resource development financing, exemplified by South Korean steelmaker POSCO's push into upstream mining and processing across countries such as the United States, Mongolia, Tanzania, and Brazil, has been aimed at securing supply.[85] Following China's announcement of export controls in 2023—in response to U.S. technology restrictions—the South Korean government moved quickly to secure gallium supplies by including the metal in a list of 43 minerals for which manufacturers can receive public support for procurement.[86] The government rapidly deployed a multipronged approach involving diplomacy, direct investment in mining projects, and coordinated supply chain strategies to ensure critical minerals supplies, reduce reliance on Chinese imports, and, more broadly, build resilience for critical supply chains.[87]

South Korea's efforts to achieve supply chain resilience have garnered mixed results. For example, China announced export controls on gallium in 2023. The immediate response of South Korean firms was to stockpile the metal before the controls were implemented. China's share of South Korea's gallium imports spiked from a little over 43 percent in 2023 to 74 percent in 2024.[88] In the year that followed, however, South Korean firms rapidly diversified their gallium supply chains, reversing the short-term increase and then further reducing China's share of gallium imports to 26 percent. The same type of intentional supply chain diversification is not evident in other base and strategic technologies. For example, in 2025, China remained the leading supplier of 11 of the 37 critical minerals tracked by the Korea Institute of Geoscience and Mineral Resources and supplied 50 percent or more of South Korea's imports of 8 of those 11 critical minerals.[89]

In addition, despite the expansion of South Korea's network of memoranda of understanding (MOUs) and cooperative arrangements, many of these agreements are not legally binding, nor have they yet resulted in sufficiently enforceable protections against export restrictions, investment risk, or project delays. Stockpiling offers a useful bridge but cannot indefinitely replace diversified commercial supply, especially where refining and processing remain concentrated in China. Diversification will also take time, even with government support, as alternative suppliers must meet exacting purity or performance specifications and undergo lengthy qualification before their materials can enter production.

Achieving supply chain resilience before the next crisis will require upstream ownership, increased processing capacity, additional resource recycling, and a sufficiently large domestic backstop, where economically feasible.

Since South Korea lacks sufficient domestic supplies of critical resources, its long-term resilience strategy requires building commercially viable supply chains. Achieving supply chain resilience before the next crisis will require upstream ownership, increased processing capacity, additional resource recycling, and a sufficiently large domestic backstop, where economically feasible. This will take time. Establishing competitive mining, refining, and recycling capacities takes years of investment, technical qualification, and sustained public support. Those, in turn, require complementary and coordinated investment incentives, trade measures, and trade facilitation instruments, all oriented toward South Korea's economic security goals.

Participation in allied initiatives such as Pax Silica offers one instrument for achieving resilience. Yet, South Korea's current integration remains below that of other initiative partners. To date, South Korea's participation in Pax Silica's metallurgical processing work remains limited to the purely corporate initiatives of Korea Zinc (see Box 2 below).[90] By contrast, the governments of Australia and Japan concluded bilateral frameworks with Washington in October 2025, which included discussions on price-floor mechanisms intended to shield their producers from Chinese underpricing.[91]

A government-backed South Korean reserve could complement existing stockpiles and establish a formal mechanism to work with the United States' Project Vault. Such coordination could facilitate compatible material specifications, coordinated procurement, and negotiated emergency supply access with the United States, including setting clear allocation and delivery rules, should both countries simultaneously face shortages. Given that China is both South Korea's largest technology sector trading partner and its most frequent source of coercion, resilience ultimately depends on anchoring South Korean supply chains in the allied system.

Box 2: South Korea and Pax Silica

South Korea has become one of the United States' most important partners under the emerging Pax Silica framework, which seeks to build secure AI, semiconductor, and critical minerals supply chains among trusted allies in response to intensifying technological competition with China. At the December 2025 Pax Silica Summit, South Korea joined the United States and several partner countries in signing the Pax Silica Declaration, reaffirming its commitment to supply chain resilience and advanced technological cooperation.[92] Seoul emphasized its comparative strengths in semiconductors, batteries, and energy technologies while advocating for a stable business environment and a collaborative ecosystem that enables AI innovation.[93] The two governments also agreed to continue discussions through the 11th Korea-U.S. Senior Economic Dialogue in the latter half of 2026.

South Korea's role in Pax Silica extends across several strategically important sectors. In the critical minerals sector, Korea Zinc has emerged as a key partner by processing materials critical to defense security, such as antimony, germanium, and gallium.[94] In AI infrastructure, Samsung Electronics and SK Hynix collectively dominate the global high-bandwidth memory market, providing essential components for next-generation AI computing systems.[95] This cooperation also extends beyond sectors into education and workforce development. Through participation in the U.S. Foundry School initiative, for example, South Korean industry leaders will help train engineers and manufacturing professionals, supporting efforts to strengthen semiconductor production capacity and technological competitiveness across the broader allied ecosystem.[96]

POLICY RECOMMENDATIONS

The South Korean government should pursue the following actions to strengthen supply chain resilience:

- **Upgrade MOTIR's and MOFE's economic intelligence on supply chain constraints at home and abroad**, including through real-time assessment of stockpiles, localization, and chokepoints.
- **Secure South Korea's position within initiatives such as Pax Silica** by negotiating a U.S.-ROK price floor, establishing a South Korean critical minerals reserve that is interoperable with U.S. Project Vault, and ensuring South Korean support for an independently governed private company to pool industry demand and stockpile priority minerals, backed by stable public financing and industry commitments.

Cybersecurity

South Korea's economic infrastructure and technology ecosystems face increasingly frequent cyber threats. Initially, the country's cybersecurity capabilities focused on defending against North Korean espionage and disruption targeting embassies, ministries, and individual government officials. Since

2022, however, state-sponsored hackers as well as other malign actors pursuing private interests have broadened their objectives, shifting increasingly toward commercial targets with economic and industrial value, for instance, chemical firms, shipbuilders, crypto exchanges, and e-commerce platforms.[97] (See Table 2 for a timeline of these cyber incidents, drawn from the CSIS "Significant Cyber Incidents" tracker.) High-profile events, including the 2025 SK Telecom and AliExpress Korea breaches, have revealed significant vulnerabilities in private sector infrastructure and demonstrated the potential for cyberattacks to disrupt economically important services and business operations.[98] By implication, a successful attack against a semiconductor fabrication plant, leading to production disruption and lost capacity, would negatively impact downstream industries such as AI inference.[99]

State-sponsored hackers as well as other malign actors pursuing private interests have broadened their objectives, shifting increasingly toward commercial targets with economic and industrial value, for instance, chemical firms, shipbuilders, crypto exchanges, and e-commerce platforms.

Table 2: Recent Documented Incidents Pertaining to South Korean Networks from CSIS Significant Cyber Incidents List (2020–2026)

Year	Month	Event
2020	November	A North Korean hacking group compromised legitimate South Korean security software in a supply chain attack on South Korean internet users.
2021	May	A North Korean cyber espionage campaign, using phishing, targeted senior South Korean government officials, the Korea Internet and Security Agency (KISA), the South Korean Ministry of Foreign Affairs, Seoul National University, Daishin Securities, and others.
	May	North Korean hackers breached the South Korean state-run Korea Atomic Energy Research Institute (KAERI) through a vendor VPN vulnerability.
2022	April	North Korea–linked phishing, disguised as job recruiters, targeted South Korean chemical companies.
2023	April	Chinese nationalist hacktivists exfiltrated data from South Korean research and academic institutions.
	July	A phishing attack cost a government-affiliated institution 175 million won, reportedly the first such incident against a South Korean government public organization.
	August	Suspected North Korean hackers targeted a joint U.S.-ROK military exercise's war simulation center.
	October	North Korean hackers sent malware to South Korea's shipbuilding sector. The National Intelligence Service assessed the goal was to gather naval intelligence to inform North Korean ship construction.
	November	Suspected China-linked hackers ran an espionage campaign against South Korean and Uzbek targets via phishing.
2024	July	For the first time, South Korea joined Australia, the United States, Canada, the United Kingdom, Germany, Japan, and New Zealand in a joint advisory attributing malicious cyber activity on Australian networks to a Chinese state-sponsored group.
	November	Pro-Russian hackers attacked South Korean civilian and government sites, following South Korea's decision to monitor North Korean troops in Ukraine.

Year	Month	Event
2025	February	North Korean hackers potentially exfiltrated reconnaissance data from thousands of South Korean machines using PowerShell and Dropbox for command and control.
	April	Hackers infiltrated South Korea's largest mobile carrier, SK Telecom, using malware, exfiltrating approximately 27 million subscriber identity (USIM) records. Investigators identified BPFDoor malware, which has been associated with the China-linked cyberespionage group Red Menshen.
	October	Hackers exploited a one-time password recovery vulnerability to breach 83 business accounts on AliExpress Korea, siphoning off approximately 8.6 billion won ($6 million) in seller payments.
	November	North Korea's Lazarus Group stole $30.4 million in cryptocurrency from South Korea's Upbit exchange, timed around a major corporate acquisition.
	December	Coupang, the largest e-commerce platform, disclosed a data breach compromising 33.7 million customer accounts; a former employee, a PRC national, is the primary suspect.
2026	October	A series of suspected AI-assisted cyberattacks targeting 16 South Korean financial institutions exposed approximately 100,000 customer records.
	October	A secondary wave of cyberattacks targeting South Korea's financial sector affected Daishin Securities, Mirae Asset Global Investments, and cryptocurrency exchange Bithumb.

Methodology: Incidents are included if they meet one or more of the following criteria: (1) involve state-sponsored or privately motivated actions from a country of concern; (2) demonstrate a strategic objective or significant impact, including intelligence collection, sowing discontent, or disruption of essential services; or (3) involve incidents resulting in financial losses exceeding $1 million. Inclusion is assessed based on the nature, objectives, outcomes, and impact of each incident.

Source: "Significant Cyber Incidents," CSIS, Strategic Technologies Program, https://www.csis.org/programs/strategic-technologies-program/significant-cyber-incidents.

AI-enabled episodes present an emerging threat vector. In June 2026, the South Korean Financial Services Commission (FSC) convened CEOs of five major financial holding companies to address growing risks of AI-enabled fraud and cyberattacks. The FSC also eased network separation requirements to enable financial institutions to use AI-driven cyber defense tools and called for a coordinated government-industry response to AI-enabled "vishing," including fraud using cloned or synthesized voices.[100] Independent threat assessments identify deepfake-enabled corporate fraud as a growing concern for South Korea's financial services sector.[101] AI-enabled and vishing attacks reveal a further weakness in South Korean cybersecurity—private companies typically report these incidents to the government but lack the capability to rapidly share threat information across the private sector.

South Korea has built a sophisticated, multilayered cyber governance architecture while shifting from a primarily reactive, defensive focus toward identifying and countering threats before they cause damage. The country's first National Cybersecurity Strategy, unveiled in 2019, identified "enhancement of cyberattack response capability" as its second strategic task, supporting analysts' characterization of the approach as "reactive rather than proactive."[102] The 2024 National Cybersecurity Strategy marked a shift toward a more proactive posture, explicitly emphasizing the importance of "offensive cyber defense," international cooperation, cyber resilience for key infrastructure, emerging technologies, and integrated response capabilities.[103] The current strategy is a whole-of-government effort: The National Security Office sets national cyber strategy; the National Intelligence Service (NIS) and its National Cybersecurity Center lead the national security and public sector response; and the National Cyber Crisis Management Center, established in 2023,

brings together government agencies, the military, police, and public and private sector experts during major cyber incidents.[104]

Regulatory requirements operationalize this cyber governance architecture through standards aimed at prevention, detection, reporting, and response. For example, information and communications technology (ICT) providers must obtain information security management certification, conduct regular vulnerability assessments, and implement protective measures. In addition, businesses must report certain types of personal-data breaches to authorities and affected individuals within 72 hours.[105] Similar regulations around data privacy and security are also emerging in other domains such as cloud computing and the Internet of Things (IoT).[106] Recent amendments to the Personal Information Protection Act further strengthen deterrence by allowing punitive surcharges of up to 10 percent of annual turnover for serious or repeated violations.[107] More recently, the 2026 AI Basic Act established affirmative safety, risk management, transparency, and human oversight obligations for certain high-impact advanced AI systems.[108]

Although individual South Korean cybersecurity capabilities have become more proactive, cyber defense architecture remains siloed, with new capabilities emerging in response to threats that have already manifested. As a result, cybersecurity governance still rests on a patchwork of presidential decrees and sector-specific statutes. Attempts to pass a comprehensive cybersecurity bill have stalled amid concerns that expanding NIS authority would reduce democratic oversight and weaken privacy protections.[109] Further limits on effective cybersecurity comprise insufficient interagency cooperation, constraining real-time government-industry information sharing and joint response. Instead of an active partner contributing to the country's defense capability, South Korea's cyber governance architecture envisages the private sector primarily as the subject of incident reporting, a largely passive participant at best. The Harvard Belfer Center highlighted several gaps in South Korea's 2024 strategy relative to global peers, citing, in particular, the existence of a coherent vision on North Korean cyber threats but insufficient policy detail, limited accountability mechanisms, and incomplete inclusion of civil society, local governments, and businesses.[110] As AI-enabled threats grow, South Korea needs to reenvision the country's cybersecurity strategy, including its detection and response capabilities, to better integrate government and private sector resources, expertise, and efforts.

POLICY RECOMMENDATIONS

Given the current threat landscape, South Korea should strengthen its cyber capabilities in four ways:

- **Create a standing joint response process to cyber incidents**, led by the National Security Office (NSO) and comprising the National Intelligence Service (NIS), Ministry of National Defense (MND), National Police Agency (NPA), Ministry of Foreign Affairs (MOFA), and Ministry of Finance and Economy (MOFE), replacing current case-by-case coordination. Formalize NSO oversight and authorization over active cyber defense operations.[111]
- **Extend critical infrastructure protections to AI infrastructure**, including mandatory protection plans, regular vulnerability assessments, and required incident reporting.[112]

- **Establish a U.S.-ROK Working Group on AI-Enabled Financial Fraud** to enable real-time exchange of deepfake detection tools, biometric authentication, and lessons learned from both semi- and fully autonomous agentic AI incidents.
- **Charter a South Korean financial services body** to facilitate peer-to-peer information sharing among private sector actors, similar to the U.S. Information Sharing and Analysis Center (ISAC) structure.[113]

Adversarial Capital

Foreign capital invests in South Korean markets in pursuit of both financial and strategic objectives, including, in some cases, adversarial investment to gain influence over firms or to access intellectual property (IP) related to dual-use technology. Given China's industrial policy objectives of achieving technological self-reliance, strengthening the country's position in strategic industries, and securing critical supply chains—as well as its broader integration of economic and technological capabilities into national security—the recent sharp rise in Chinese direct investment pledges in strategic sectors warrants scrutiny. In 2024, Chinese FDI pledges to South Korea reached a record of approximately $6.79 billion, making China the largest source of pledges, ahead of Japan and the United States.[114] China's pledges are concentrated heavily in batteries, displays, and related materials, sectors that directly support its increasingly explicit goal of "lead[ing] global governance" and technological development worldwide.[115]

South Korean policy analysts have raised concerns that Chinese firms may use South Korean locations or partnerships to circumvent U.S. restrictions, including Foreign Entity of Concern rules, while accessing advanced industrial infrastructure and technology.

South Korean policy analysts have raised concerns that Chinese firms may use South Korean locations or partnerships to circumvent U.S. restrictions, including Foreign Entity of Concern rules, while accessing advanced industrial infrastructure and technology, particularly in light of China's open strategy of military-civil fusion.[116] There is also growing concern about North Korea leveraging Chinese and other third-country networks to circumvent Western sanctions.[117] To counter sanctions evasion and proliferation financing networks, South Korea's Act on Prohibition Against the Financing of Terrorism and Proliferation of Weapons of Mass Destruction empowers the Financial Services Commission to restrict transactions linked to proliferation. Seoul generally aligns with United Nations Security Council (UNSC), U.S., and EU sanctions, including tightening measures in 2024-2025 against entities tied to North Korea's military.[118]

Reflecting growing concern about adversarial FDI, South Korea has strengthened its existing layered investment-screening framework. The Foreign Investment Promotion Act (FIPA) provides

a general framework for FDI, establishing sector restrictions and notification requirements based on quantitative thresholds.[119] When investments are considered within strategically important technologies, two laws—the Act on Prevention of Divulgence and Protection of Industrial Technology (ITPA) and the Act on Special Measures for Strengthening and Protecting the Competitiveness of National High-Tech Strategic Industries (NHTSIA)—provide additional oversight and scrutiny. Specifically, ITPA focuses on preventing leakage of high-value technologies—legally designated as National Core Technologies—whose loss could threaten South Korean economic and national security.[120] The NHTSIA, on the other hand, covers investments into technologies impacting supply chains, exports, employment, and related industries (i.e., "National High-Tech Strategic Technologies").[121] Reforms adopted in 2024 and 2025 strengthened the overall framework, including by granting MOTIR ex officio review powers, streamlining overlapping authorities, and tightening mergers and acquisitions scrutiny on national core technologies.[122]

Gaps remain relative to global inbound investment screening trends. South Korea's framework relies on relatively high quantitative stake-acquisition thresholds and specific sector designations that do not necessarily correspond to actual risk.[123] This orientation means that South Korea's tools against adversarial investment are not well suited to address indirect acquisitions, minority stakes that confer practical influence, greenfield projects, or investments involving industrial ecosystem-wide risks.[124] South Korean stakeholders have pointed toward elements of other investment-screening regimes to consider when reforming the current system, including the cross-sectoral reach of the Committee on Foreign Investment in the United States (CFIUS), Japan's lower notification threshold, and the European Union's growing attention to greenfield investments.[125]

South Korea's tools against adversarial investment are not well suited to address indirect acquisitions, minority stakes that confer practical influence, greenfield projects, or investments involving industrial ecosystem-wide risks.

POLICY RECOMMENDATIONS

South Korea should continue to modernize its investment-screening regime through two measures:

- **Adapt stake-acquisition thresholds and industry coverage consistent with a stronger risk-based and cross-sectoral approach**, similar to CFIUS. These measures would strengthen South Korea's traditional sector-based approach and recent reforms by providing both an ecosystem-level view and granularity where needed.[126]
- **Build on emerging best practice among allies to gain efficiency without sacrificing security.** South Korea should draw on the recent efforts in the European Union, Japan, and the United States to strengthen, align, and streamline investment screening.[127] Each jurisdiction offers innovations that South Korea can adapt to its system to sharpen screening without forgoing investment openness. Examples include CFIUS's Known Investor Pilot Program for fast-tracking allied investment, Japan's 1 percent notification threshold for

designated sectors, and Japan's recent addition of CFIUS-style features to its traditional "box-checking" approach.[128] These efforts should include formalizing timelines for more complex national security probes and accelerating regulatory efforts toward closing loopholes, such as the recent proposal to codify the screening of indirect transactions.[129]

Protection of Technology Advantages

South Korea's technology advantages risk erosion due to rising insider theft, foreign acquisition, cyber intrusion, and state-directed espionage. In 2025, South Korean police recorded 179 technology-theft cases, the highest annual total on record, with current and former employees implicated in 148 cases (83 percent). Semiconductors, batteries, and shipbuilding were the primary targets.[130] SMEs, many of them family-run firms with valuable proprietary knowledge but lacking the security infrastructure of large conglomerates, accounted for 155 cases (87 percent).[131] The economic consequences were severe: Roughly one in six firms shut down after technology theft, according to technology dispute resolution records covering 2015 to 2025, often receiving damage awards that covered only a fraction (17.5 percent, on average) of their losses.[132] Foreign acquisitions can enable offshoring of strategic technologies and capabilities, while cyberattacks can impose significant costs and delays, even without transferring technology. North Korea adds an additional, persistent threat, strategically directing attacks to support state priorities such as naval expansion.

Within the layered defensive architecture, multilateral regimes—including the Wassenaar Arrangement, the Nuclear Suppliers Group, the Missile Technology Control Regime, and the Australia Group—regulate strategic items with potential military or proliferation applications, while MOTIR licenses dual-use goods and applies catch-all provisions on suspected diversions related to weapons of mass destruction.[133] In response to Russia's 2022 invasion of Ukraine, MOTIR expanded its export control list to include 1,159 dual-use items; recent amendments created an explicit legal basis for targeted restrictions outside traditional multilateral frameworks.[134] These South Korean control authorities are designed to operate within a broader allied system. CSIS research has identified South Korea, along with the Netherlands, Japan, and Germany, as controlling key chokepoints in the AI and semiconductor value chains, in particular high-bandwidth memory, and argues that Seoul could earn a specific U.S. exemption by implementing controls equivalent to those of its closest allies.[135] One potential model for South Korea is Japan's end-user list, which covers any entity involved in the development, production, manufacturing, or storage of controlled items.[136]

Despite close alignment between export controls and multilateral regimes, gaps in South Korea's domestic legal and enforcement architecture limit its ability to detect and prevent the diversion of controlled technologies.

Despite close alignment between export controls and multilateral regimes, gaps in South Korea's domestic legal and enforcement architecture limit its ability to detect and prevent the diversion of

controlled technologies. South Korea's legal framework for export controls remains fragmented across trade, defense, and nuclear-related legislation. Its integration with customs procedures has improved, with interagency export collaboration centers at customs offices.[137] But enforcement capacity needs strengthening to handle third-country diversion and transshipment across the region.[138] Notably, in August 2026, Taiwan authorities announced indictments related to the successful routing of at least $510 million in banned AI chips to China through falsified documents and dummy shipments.[139]

The Act on Prohibition Against the Financing of Terrorism and Proliferation of Weapons of Mass Destruction authorizes South Korea's Financial Services Commission to designate restricted persons and freeze assets. However, in practice, South Korea's sanctions regime is primarily reactive, anchored in UNSC, U.S., and EU lists, with limited ability to independently—and proactively—identify and target emerging proliferation financing networks. This constrains the framework's effectiveness against increasingly sophisticated adversarial strategies, including ownership obfuscation and virtual-asset financing.[140] Collectively, while its existing tools can constrain leakage and even buy some time for businesses or government to react, Seoul has not yet been able to operationalize them to proactively detect and contain the states and networks most capable of targeting its technology base; similarly, it has been unable to leverage its critical position within supply chains for high-bandwidth memory chips to influence the development of allied economic security.

South Korea is also strengthening research security amid rising concerns over the leakage of advanced technologies through universities and research institutions.[141] In 2026, Seoul introduced a new "sensitive project" classification and expanded security obligations for major universities.[142] The government has also established research security support centers at KAIST and Chung-Ang University, launched a program to develop dedicated security organizations at eight universities, and initiated interagency coordination among science, education, and law enforcement authorities, with unified national guidelines planned for late 2026.[143] Nevertheless, research security practices remain uneven across institutions, with shortages of specialized personnel, fragmented oversight, and insufficient integration with cybersecurity measures.[144] The initial university pilot program also has limited reach, with gaps remaining in institutional support across the broader public-private research ecosystem.[145]

POLICY RECOMMENDATIONS

South Korea should take four actions to translate its legal and institutional authorities into capacities that identify diversion and technology leakages early, receive the preferential access already granted to its allies, and facilitate influencing the allied export control and research security system:

- **Require mandatory post-shipment verification for exports routed through known transshipment hubs**, for example, confirming semiconductor equipment reached its declared end user.
- **Strengthen the resourcing and capacity of the Korean Security Agency of Trade and Industry (KOSTI) and KCS** to screen transactions of concern.

- **Adopt a high end-user list standard** covering any entity involved in developing, producing, or storing controlled items.
- **Establish research security partnerships with U.S. and allied government institutions** such as the NIST Research Security Office and universities to exchange best practices and support training of research security professionals.

Conclusion

While South Korea's economic security tool kit is fairly comprehensive across the five identified risk areas—import and export market concentration, critical supply chain dependencies, cyber threats to critical and industrial infrastructure, adversarial capital, and critical technology leakage—its actual capacity to mitigate these risks remains short of its stated ambitions. The security framework largely possesses sufficient authorities—the challenge is translating them into effective action through, for example, economic intelligence that keeps pace with a shifting threat picture, coordination across agencies and with the private sector, and instruments calibrated to actual risk rather than to sector or stake size. As discussed in the next chapter, closing that gap is the difference between a tool kit that helps manage Seoul's exposure and one that gives South Korea long-lasting geoeconomic leverage and influence.

4

Economic Alliances and Global Alignment

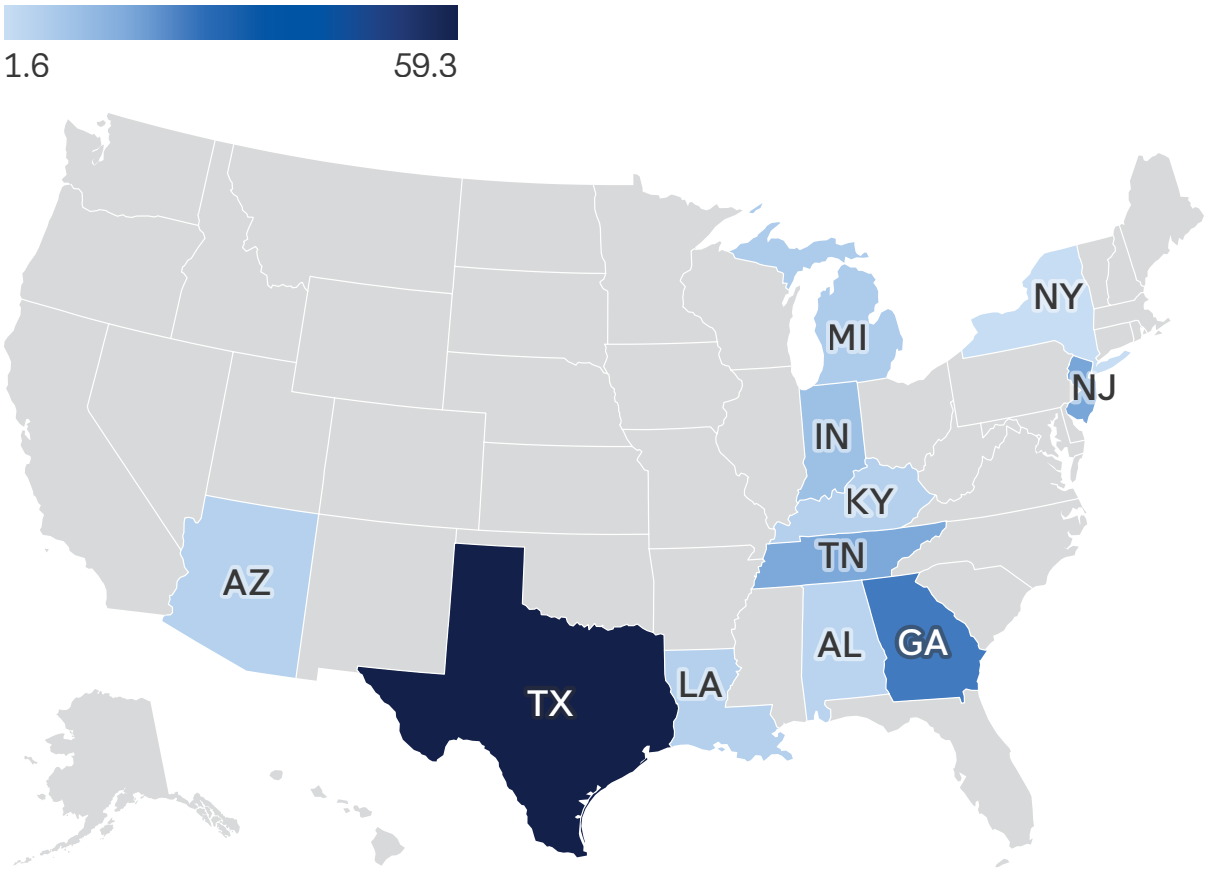
South Korea's economic security ultimately depends not only on reducing its vulnerabilities through a strengthened, well-defended domestic economy, but also on converting the country's economic strengths into influence to shape the external economic environment in which it operates. Building on the productivity policies and economic defense measures discussed in previous chapters, Chapter 4 examines how Seoul can pursue a more proactive external economic security policy by: (1) deepening two-way trade and investment with the United States in strategic areas of mutual benefit such as shipbuilding and the AI stack; (2) using development, trade, and investment relationships to build alternative supply chains and markets in the Global South; and (3) translating South Korean technological and industrial strengths into standards leadership that shapes the development of critical technology ecosystems.

Deepen Two-Way Trade and Investment with the United States

Washington's demands for "trade rebalancing" have driven the U.S.-ROK economic dialogue for most of the last decade. Calls for reducing the U.S. bilateral trade deficit with South Korea and for reshoring of key industries have gained prominence across the U.S. political spectrum. The Trump administration's 2025 Liberation Day tariffs were seen by South Korean government officials as an "unprecedented wave of trade challenges."[146] The resulting U.S.-ROK negotiations produced purchase and investment agreements, including pledges to invest $350 billion in South Korean public and private funds in the United States.[147] This pattern holds across recent administrations: Biden-era subsidies and tax cuts, as well as Trump 2.0 trade agreements, have effectively driven increases in South Korean investments within domestic U.S. markets. Figure 10 reveals the

geographic distribution of South Korean investments exceeding $1 billion across the United States, spanning sectors including chipmaking, batteries, critical minerals, and shipbuilding.

Figure 10: South Korean FDI by U.S. State, 2019–2025



Note: Figures reflect headline investment commitments announced at a specific point in time. Investments may span multiple years and include U.S. government subsidies or other support. Where investments are made through joint ventures and individual company contributions cannot be distinguished, the total announced joint venture investment is used. Where regional commitments were subsequently revised upward, the most recent announced amount is used. Nationwide and unspecified multi-state announcements are excluded. The AL-GA joint $9 billion announcement is split evenly between Alabama and Georgia.

Source: CSIS Economic Security and Technology Department calculations based on data from publicly available company press releases, public statistics, and news coverage. Please contact the authors for supporting source documentation.

U.S.-ROK shipbuilding cooperation offers a critical test of whether South Korean investment and industrial expertise can go further to help revive U.S. production capacity. South Korea's shipbuilding industry is second only to China's, with its economic edge increasingly comprising value added, a shift from earlier advantages in cost and volume. Although South Korean shipyards accounted for just 21 percent of global new orders by compensated gross tonnage (CGT) in 2025, compared to 61 percent for Chinese shipyards, their position is considerably stronger in high-value shipbuilding segments.[148] In liquefied natural gas (LNG) carriers, for example, South Korea's three

largest companies—HD Korea Shipbuilding & Offshore Engineering, Hanwha Ocean, and Samsung Heavy Industries—collectively account for 70 percent of orders worldwide.[149]

South Korean shipbuilding advantage derives from an industrial ecosystem built over decades that combines specialized workforce skills, tacit production knowledge, precision manufacturing, and integrated digital systems. For instance, South Korean shipyards integrate critical components such as pipes, cables, and machinery into ship-block modules on land before final assembly, a process requiring millimeter-level precision across complex production sequences. Achieving this level of precision at scale requires not only skilled labor, but also digital sequencing systems that coordinate material, labor, and equipment in real time. The United States lacks both comparable industrial depth and production capacity: U.S. Navy shipyards face persistent backlogs, while domestic commercial shipbuilding capability is virtually nonexistent. The resulting weakness extends beyond ship production—without a substantial U.S.-built and U.S.-crewed commercial fleet, the U.S. Merchant Marine cannot augment U.S. military sealift during a conflict.

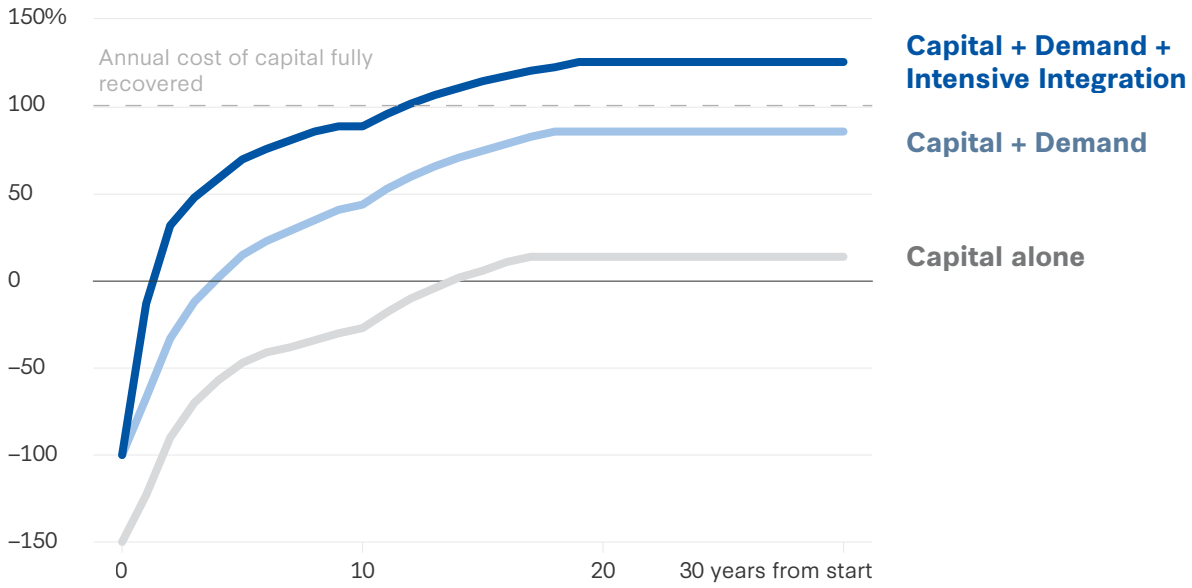
The Make American Shipbuilding Great Again (MASGA) initiative seeks to revive U.S. shipbuilding through sustained South Korean investment and capacity building. A 2025 executive order describes the industry's decline as a national security threat—an assessment echoed in the draft bipartisan SHIPS for America Act.[150] The Trump administration has set an ambitious goal of building a 250-ship commercial fleet within a decade. As illustrated in Figure 11, this study's analysis reveals that this 250-ship goal will require much more than simply additional capital (for methodology, see Appendix B).

To assess whether South Korean FDI could expand U.S. shipbuilding capacity sufficiently to meet MASGA's goal of building 250 ships within a decade, this report developed three cumulative models: (1) South Korean capital investment alone; (2) capital investment combined with demand-side measures; and (3) capital investment, demand-side measures, and deep integration of South Korean shipbuilding expertise, technology, and production practices. As illustrated in Figure 11, the 250-ship goal is not financially viable in two of the three scenarios. Only through deep South Korean integration is the U.S. objective possible, and even then, meeting this ambitious target will require coordinated efforts by the governments and private sectors of both countries.

- **Capital Alone:** Scenario 1 assumes that a $150 billion South Korean investment pledge is matched by the United States, leveraging a total investment of $300 billion. This model results in operating costs being barely recovered, and capital costs not covered at all.
- **Capital plus Demand-Pull:** Scenario 2 assumes higher revenue, increased capacity utilization through "learning-by-doing," and greater willingness to invest due to demand-side measures (e.g., federal offtake guarantees, direct government procurement, and advance purchase commitments), creating a predictable long-term orderbook. While operating expenses are recovered in this model, capital cost is not fully recovered.
- **Capital, Demand-Pull, and Deep South Korean Integration:** Scenario 3 assumes significant South Korean investment and capacity building in U.S. shipyards to reach operating profitability in the short term and cost recovery over time. This model draws from

Hanwha's modernization plan for the Philly Shipyard, which it acquired in late 2024. The South Korean company's $5 billion strategy rests on two critical pieces: integrating core South Korean technologies and upgrading the shipyard's physical and digital systems.[151] Scenario 3's deep integration thus assumes adopting South Korean digital control systems; providing visas to skilled South Korean personnel, including retirees, to train U.S. apprentices; and establishing joint building programs in which vessels built in South Korea slowly transition construction to U.S. shipyards as capacity increases. Even under this scenario, annual production would need to increase from 40 ships to at least 100 to achieve sufficient scale to spread fixed capital costs across a larger number of vessels.

Figure 11: Three Scenarios for Revitalizing U.S. Commercial Shipbuilding



Note: The colored lines represent the percentage of the annual cost of capital that U.S. shipbuilding yards can recover each year in each scenario. Recovery amounts below zero represent years in which U.S. shipbuilding yards have an operating loss even before the cost of capital is considered. Only scenario 3 (blue line) clears the breakeven line.

Source: CSIS Economic Security and Technology Department calculations and modeling based on publicly available sources (see endnote for sources and Appendix B for methodology).[152]

South Korean shipbuilding representatives consulted in the preparation of this report also identified the need for demand-side measures for U.S. shipbuilding to attract the needed South Korean FDI, including offtake agreements and advance purchase commitments modeled after the First Movers Coalition.[153] Such measures consistent with scenario 3 would enable joint U.S.-ROK shipbuilding and incentivize supply chain integration for South Korean shipbuilders that already face stiff competition from government-subsidized Chinese shipyards.[154]

On the supply side, CSIS's 2026 *Tech Edge* report has proposed structuring new capital commitments into a blended-finance facility that would combine pledged South Korean and U.S. public funding, assume the first-loss position, and attract allied institutional and return-seeking capital to invest in U.S. commercial shipbuilding.[155] Blended funds could also enable demand-side

measures such as advance market commitments for U.S. commercial shipbuilders. Other supply-side measures—for example, expanded apprenticeship programs and visas for retired South Korean tradespeople to train U.S. workers—would further incentivize South Korean and other investment in a nascent U.S. commercial shipbuilding ecosystem.

By following an approach that addresses both demand- and supply-side constraints, the MASGA initiative could serve as a model for leveraging long-term South Korean investment commitments into other parts of the U.S. industrial base. Seoul has already established the Korea-U.S. Strategic Investment Corporation to oversee its $350 billion MOU commitment and is considering an initial $2 billion bond issuance to fund U.S.-based projects.[156] Moreover, such joint U.S.-ROK ecosystem-building efforts could have broader spillovers into the commercial enabling environment for U.S. reindustrialization in relevant sectors.

Just as the United States can leverage South Korean investment and know-how to further its shipbuilding goals, Seoul can deepen trade and investment ties with the United States in ways that further its own AI stack ambitions. South Korea is already making significant AI infrastructure investments in partnership with U.S. firms.[157] Its ultimate goal of emerging as a top-three global AI leader by 2028—according to a recently approved three-year national road map from the Ministry of Science and ICT—will depend on "expanding national digital infrastructure, strengthening digital capabilities, and fostering an inclusive digital environment . . . by broadening access to digital services."[158] Access to innovative digital services for South Korean firms could be achieved in part through openness to world-leading digital services companies.[159] Such access can enable domestic firms, including those involved in South Korea's AI build-out, to leverage foreign advanced knowledge, technology, and good practices.[160]

To that end, a key challenge facing South Korean policymakers is how to reduce barriers to entry for leading digital services and e-commerce firms from allied market economies while protecting consumers and strengthening domestic capabilities. Repeated unsuccessful attempts to pass platform legislation, including the stalled Online Platform Fairness Act, prolong uncertainty for foreign as well as domestic firms such as Naver and Kakao.[161] Uncertain approval processes, overlapping agency requirements, and rules designed around established business models can also inhibit adoption of more innovative cloud computing, data services, digital payments, and platforms.[162]

It is worth noting that certain rules, however well intentioned, may be viewed as discriminatory by partners such as the United States, especially given the dominance of U.S. suppliers in the digital services sector.[163] While there is no simple way to resolve the tension between these policy priorities, minimizing trade frictions with the United States would be a necessary step toward reaffirming the long-term shared interests of Seoul and Washington in working together in achieving South Korea's AI and digital innovation goals.[164] Reforms that foster deeper digital services trade integration would also incentivize domestic firms in this sector to compete, innovate, and grow.[165]

Fortunately, recent developments indicate growing awareness among South Korean policymakers of the need for regulatory predictability. Two examples are the Lee administration's approval in February 2026, under security conditions, of Google's request to export high-precision map data,

and the AI Basic Act, designed to be a "comprehensive AI regulatory regime" applicable to domestic and international firms operating in South Korea.[166] A shared understanding of the role of digital services in South Korea's AI economy may eventually open a path toward tariff reduction, including in a revitalized U.S.–Korea Free Trade Agreement (KORUS FTA).[167]

POLICY RECOMMENDATIONS

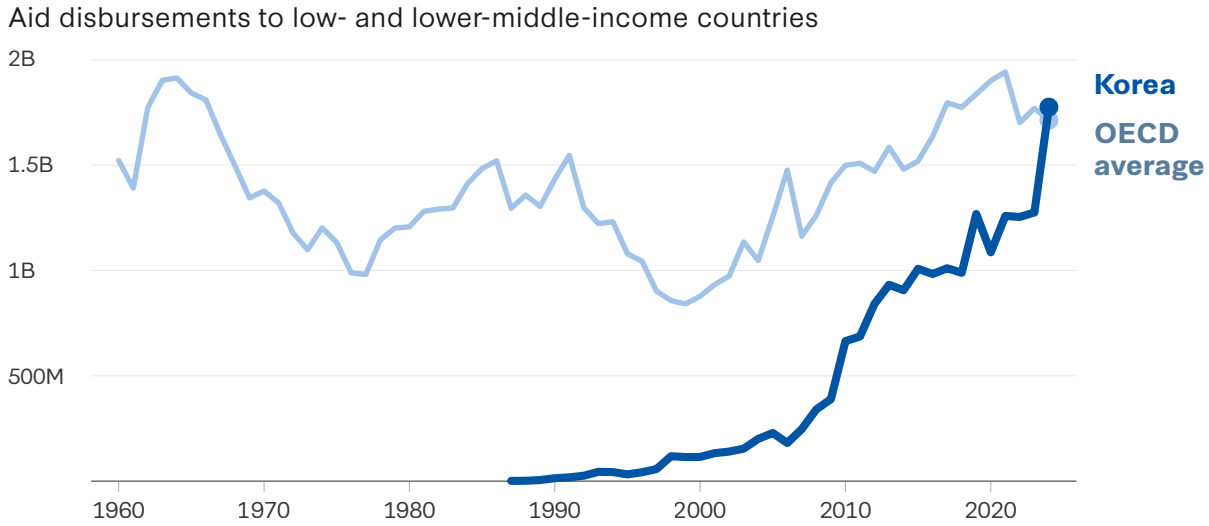
South Korea should advance three priorities to build momentum around MASGA and other U.S. reindustrialization priorities:

- **Structure South Korean investment commitments to support both supply-side *and* demand-side measures in shipbuilding.** On the supply side, the Korea-U.S. Strategic Investment Corporation (KUIC) should seek to deploy half of the $150 billion MASGA commitment, together with U.S. capital, to establish and capitalize a blended-finance facility that funds commercial shipbuilding infrastructure in the United States.[168] On the demand side, KUIC should deploy the remaining $75 billion, in partnership with the U.S. private sector (e.g., LNG exporters), to fund an advance purchase mechanism for U.S. commercial ships.
- **Work with the United States to capitalize a blended U.S. Technology Dexterity Fund as a founding investor.** As recommended in the CSIS *Tech Edge* report, a blended-finance facility could use South Korean and U.S. public capital as a first-loss mechanism to leverage return-seeking capital, including from South Korean sovereign institutions such as the Korea Investment Corporation (KIC) and National Pension Service (NPS), to incentivize investment in the U.S. industrial base more broadly.[169]
- **As part of South Korea's AI road map, facilitate digital services trade integration by reducing non-tariff barriers and ensuring regulatory predictability.** These measures can help reduce trade tensions, in particular with U.S. service providers, and at the same time incentivize innovation in South Korea's domestic digital services sector, providing benefits to downstream industries and consumers alike. Deeper integration with the U.S. on digital services also provides a pathway to revitalizing the KORUS FTA.

Gaining Optionality Through New Partners

Economic power projection also requires identifying alternative sources of inputs and new markets for South Korean exports. That optionality increasingly depends on deepening economic relationships with countries in the Global South with natural resource endowments that South Korea needs, as well as those that could serve as supply chain partners and growing markets for South Korean exports. To this end, South Korea must realign its development and trade financing more systematically around economic security goals such as supply chain resilience, industrial energy systems, AI and technology diffusion, and SME development abroad.

Figure 12: Evolution of Official Development Assistance Disbursements for South Korea and the OECD



Note: OECD average excludes Chile, Colombia, Costa Rica, and Mexico. Low- and lower-middle-income recipient totals are combined for each donor and year; the comparison series is the unweighted donor average.

Source: CSIS Economic Security and Technology Department calculations based on "DAC2A: Aid (ODA) disbursements to countries and regions," OECD Data Explorer, last modified August 31, 2026, https://data-explorer.oecd.org/vis?fs[0]=Topic,1%7C-Development%23DEV%23%7COfficial%20Development%20Assistance%20%28ODA%29%23DEV_ODA%23&fs[1]=Topic,2%7C-Development%23DEV%23%7COfficial%20Development%20Assistance%20%28ODA%29%23DEV_ODA%23%7CFlows%20by%20provider%20and%20recipient%23DEV_ODA_FPR%23&pg=0&fc=Topic&snb=8&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_DAC2%40DF_DAC2A&df[ag]=OECD.DCD.FSD&dq=.LMICWB%2BOLICWB%2BALLMR.206.USD.Q&to[TIME_PERIOD]=false&p-d=1960,2024&vw=tb.

As an important provider of bilateral and multilateral official development assistance (ODA), South Korea is well positioned to make this pivot. South Korea's ODA reached a record $4.03 billion in 2024, up from $2.25 billion in 2020, before declining modestly by 3.97 percent to $3.87 billion in 2025.[170] That decline was significantly smaller than the 23.1 percent contraction in ODA across OECD Development Assistance Committee members in 2025, which was driven largely by reductions among its five largest donors.[171] As a result, even as its own ODA contribution declined slightly, South Korea accounted for a larger share of overall development assistance, increasing its relative importance as a donor. The country's growing role is also evident in multilateral development institutions such as the World Bank Group's International Development Association (IDA), the world's largest source of concessional finance. Once an IDA recipient, South Korea is now an important IDA donor. During the 21st IDA replenishment, in late 2024, Seoul increased its contributions by 45 percent to over $600 million and hosted the final replenishment round of 59 contributing countries.[172]

South Korea also participates in multilateral initiatives aimed at strengthening supply chain resilience, including the newly established Forum on Resource Geostrategic Engagement (FORGE). South Korea served as the inaugural chair of FORGE, which replaced the U.S.-founded Minerals Security Partnership in 2026, and convened the United States, Japan, the European Union, and other major advanced economies to identify strategic supply chain gaps; evaluate high-impact

mining, processing, and recycling projects; and coordinate the relevant policy, public financing, and diplomatic support that member governments can offer.[173] This initiative is still in its early stages, with room to strengthen project selection criteria, coordination among financing institutions, and implementation monitoring. While FORGE members have not yet created a separate collective fund, members may mobilize their existing development banks, export credit agencies, public financing institutions, and private companies around select projects.[174]

Seoul is already taking steps to align its development finance capabilities and the global footprint of its private sector with its economic security goals such as supply chain resilience. Seoul has placed critical minerals at the center of the inaugural Korea-Central Asia Summit in September 2026 with the leaders of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan and is also engaging the Asian Development Bank (ADB) to deploy South Korean technology and financing in regional projects.[175] This builds on the ADB's Critical Minerals-to-Manufacturing Financing Partnership Facility launched in May 2026, under which the Export-Import Bank of Korea and the Korea Trade Insurance Corporation signed MOUs covering up to $1 billion in potential financing.[176] A similar framework is evolving in Africa, where the African Development Bank recently presented South Korean businesses and financial institutions with critical minerals projects and its guarantee and co-financing instruments ahead of the eighth Korea-Africa Economic Cooperation Ministerial Conference.[177]

Box 3: Illustrative Examples of South Korean Engagement in Critical Minerals Projects

Tanzania—Mahenge Graphite Mining: South Korea led the working group supporting the Mahenge graphite project under the Minerals Security Partnership, the direct predecessor to FORGE. In addition, South Korean steelmaker POSCO has committed to purchasing 60,000 tons of graphite per year, virtually all of the mine's initial output, for the next 25 years.[178] The feasibility study for the mine, however, assumes improved transportation infrastructure to ship the graphite between the mine and the nearest rail line.[179] Tanzania is one of South Korea's priority ODA partners, and the Mahenge infrastructure project, unfunded as of late 2026, would qualify for ODA funding. South Korean ODA could therefore provide the development support needed to help ensure the project moves forward.

Mongolia—Rare Metals Cooperation Center: Mongolia illustrates the potential for deeper cooperation between South Korea and pre-existing partners. South Korea provided the financing for the Korea-Mongolia Rare Metals Cooperation Center, opened in 2025 under a 2023 rare earth metals supply chain cooperation MOU.[180] The center operates mineral analysis and beneficiation facilities, supports joint exploration, trains Mongolian personnel, and helps South Korean companies evaluate emerging opportunities. South Korea and Mongolia have already begun to build on this framework's success, expanding into joint research and business cooperation. South Korea financed the technical and institutional capability needed to develop Mongolian resources. As a result, South Korean industry

gained economic intelligence and an early positioning in projects involving tungsten, molybdenum, lithium, copper, and rare earths. The relationship is already strengthening South Korea's access to critical minerals, with Mongolian tungsten concentrate now entering the South Korean market.[181]

Vietnam—Critical Minerals Recycling: Vietnam offers an opportunity for South Korea to deploy development financing to expand critical minerals recycling capacity. The Korea Institute of Geoscience and Mineral Resources (KIGAM) is already developing a Critical Minerals Supply Chain Technology Cooperation Center in partnership with Vietnam's Department of Geology and Minerals. Moreover, KIGAM currently trains Vietnamese officials in battery recycling and material recovery, including of lithium, graphite, and rare earths.[182] The OECD identifies recycling research, knowledge transfer, and dedicated facilities as legitimate uses of development finance. A South Korea-facilitated recycling center could therefore leverage these existing efforts to create an alternative supply source for critical minerals in general and graphite in particular.

POLICY RECOMMENDATIONS

South Korea can further bolster its optionality with partners in two ways:

- **Deploy concessional South Korean finance in support of allied economic security efforts such as FORGE.** South Korean policy banks and export credit institutions should provide financing for commercially viable facilities in emerging markets, particularly in the Global South. South Korean ODA can support relevant project preparation, public infrastructure, administrative capacity, and workforce skills in partner countries. As a complement to project investments, South Korean technical assistance and policy-based support can strengthen the underlying business environment in developing countries, reducing barriers and risks that might otherwise deter private investment and, consequently, making projects in developing countries more commercially attractive. South Korea has already demonstrated this type of institutional coordination to support critical minerals investments. In 2024, the Export-Import Bank of Korea, Korea Trade Insurance Corporation (K-SURE), Korea Mine Rehabilitation and Mineral Resources Corporation (KOMIR), and Korea Institute of Geoscience and Mineral Resources (KIGAM) joined FORGE's predecessor, the Minerals Security Partnership Finance Network.[183]
- **Co-finance project preparation and implementation support in developing countries.** Drawing on the Blue Dot Network model, South Korea could work with the United States and other partners to fund early project preparation while helping projects meet recognized standards, such as for financial viability, which would increase investor confidence.[184] An innovative approach would be for traditional development finance and South Korean companies to jointly finance project preparation and implementation support in developing countries seeking investment in critical minerals, digital networks, or energy systems.

Expanding Market Share Through Standards Leadership

South Korea's economic security will increasingly depend on its leadership on international standards—the technical rules that determine how critical technologies develop and shape markets. Modern production increasingly relies on interconnected ecosystems where international standards determine how products connect, how performance is measured, and which technologies qualify for use in global supply chains. These decisions often happen as markets mature. Once firms design products, testing systems, and supply relationships around established specifications, changing those specifications becomes costly. Engagement on standards bodies allows participating firms to anticipate the technological frontier and broaden market access for compatible products.

China's growing influence on international standards underscores the strategic importance of South Korea and other allies shaping technical rules governing critical and emerging technologies. China's approach relies on deploying substantial state resources to dominate standards-setting in key sectors, including mobile communications, robotics, and quantum computing. To this end, Beijing's international standards approach has pressured companies from South Korea and other allied countries on international standards bodies. Representatives from Chinese institutions are occupying positions in large numbers in standards bodies, straddling both working-level and top leadership positions across the International Organization for Standardization (ISO), the International Telecommunication Union (ITU), the Institute of Electrical and Electronics Engineers (IEEE), and the 3rd Generation Partnership Project (3GPP). They are also producing approved contributions at scale on technologies such as wireless broadband and 5G.[185] Although South Korea has meaningfully increased its leadership positions in these bodies, it has trailed China across multiple metrics, including participation, leadership changes, and secretariat share, over the past decade.[186]

Given its industrial and technological strengths, South Korea and its companies are well positioned to translate standards leadership into influence over technology ecosystems and value chains. South Korea sustains its dominant position in global technology supply chains in part by retaining experts across successive standards cycles, coordinating through international standards bodies, and linking standards work to product and patent strategies. High-quality technical contributions from Samsung, SK Hynix, LG, and South Korean battery producers shape product designs incorporated into international specifications.[187] South Korea's five-year National Standards Basic Plans set high-level goals for the country's engagement in international bodies.[188] At the same time, South Korea has maintained an institutional foothold for its standards diplomacy through the Korean Agency for Technology and Standards (KATS), which supports participation and secretariat responsibilities across ISO and International Electrotechnical Commission (IEC) technical committees covering industries in which South Korean firms possess deep production expertise.[189]

While seeking to expand South Korean representation in international bodies such as the ISO, IEC, and ITU signals ambition to lead on standards, it will only translate into influence if those positions are at strategic nodes. Between 2026 and 2030, the Sixth National Standards Basic Plan aims to increase South Korean chairs, secretaries, and convenors from 305 to 337 across the ISO and IEC, and from 160 to 172 in the ITU.[190] Yet the strategic value of senior leadership representation depends on how closely these senior roles align with the basic plan's 18 NEXT Strategic Technology priorities,

including AI, quantum, advanced manufacturing, and robotics. Effective participation also depends on senior appointees' technical expertise, ability to bridge government and industry, and capacity to build international consensus. Current numerical targets therefore reflect South Korea's aspirations for global standards leadership but have limited utility in assessing the underlying capacity for South Korean technical contributions to gain international acceptance or translate into widely adopted standards.

Converting technical expertise and institutional support into standards leadership will require an ecosystem capable of transforming South Korean innovations from their current place as technical contributions into internationally accepted standards. That will require South Korean firms and government agencies to pair technical contributions with the institutional support needed to parlay standards participation into commercial advantage. This is increasingly important as the ISO and IEC expand their technical committee structures into new domains such as quantum technologies, smart and sustainable cities, and digital product passports while also digitalizing standards development and delivery. Growing cooperation between standards organizations, including adoption and joint publication, is also providing new pathways for South Korean industry and its peer competitors to gain wider recognition of technical standards.[191] Hence, for the Sixth National Standards Basic Plan (2026–2030) to successfully meet its stated aims of securing standards leadership in future critical industries and building an innovative standards ecosystem, South Korea will need deliberate, coordinated implementation amid intensifying technology competition.

While South Korea's current standards strategy identifies many of the components of the necessary ecosystem, it does not yet establish how they will work together to convert domestic capabilities into international standards. The Sixth National Standards Basic Plan calls for domestic industry-led forums to develop and implement international standards strategies in 18 strategic technology fields, as well as closer cooperation with foreign governments such as the United States, United Kingdom, and Japan in areas including AI, quantum, hydrogen, and the digital transition.[192] What is less clear is how industry forums, research programs, testing facilities, and intergovernmental partnerships can be orchestrated into an effective ecosystem that produces quality commercial standards at scale. South Korea's standards ecosystem for AI networks represents one case study of how private and public efforts could connect: Its 5G-Advanced vRAN platform and O-RAN testing centers help researchers and firms identify interoperability problems, test proposed solutions, and bring evidence-backed contributions to the relevant O-RAN Alliance and 3GPP groups, receiving intelligence on global trends and technical assistance from the AI Network Alliance (AINA), a public-private platform dedicated to positioning South Korea as a global leader in AI networks.[193]

Measuring the effectiveness of this strategy will require more than tracking participation or the number of proposals offered. Success will be measured by whether South Korean proposals translate into international standards and, ultimately, become adopted within global technology markets. Moreover, South Korea's current contribution targets provide an incomplete picture of the effectiveness of its standards diplomacy efforts and the strength of its standards ecosystem. Between 2026 and 2030, the Sixth National Standards Basic Plan aims to increase South Korea's proposals to the ISO and IEC from 1,514 to 1,950 and its contributions to the ITU from 8,950

to 10,350.[194] These targets measure the scale of South Korea's participation. Still, they do not show whether its contributions are ultimately incorporated into published standards, adopted commercially, or supported by effective standards diplomacy and ecosystem strength. This requires tracing contributions from South Korean researchers and firms across the pipeline from specification proposals to their adoption and implementation. That data would clarify where South Korea's engagement is most effective and better guide policy.

POLICY RECOMMENDATIONS

South Korea should strengthen its standards leadership through three primary pathways:

- **Target standards leadership in technologies critical to South Korea's economic and national security.** Efforts should seek to secure senior roles at the ISO, IEC, and ITU that align with South Korea's strategic technology priorities. Senior appointees should bring exceptional technical expertise and a proven ability to bridge government and industry and build international consensus.
- **Measure standards influence through adoption and implementation, not just participation.** Supplement proposal and leadership targets with evidence of incorporation into published standards, commercial use, and improved interoperability. Use periodic reviews to identify barriers and direct funding and diplomatic support toward the most effective activities.
- **Build standards ecosystems capable of converting South Korean technological strengths into international influence.** Use South Korea's AI networks ecosystem—including AINA, the 5G-Advanced vRAN platform, and O-RAN testing centers—as a benchmark for connecting industry coordination, research, and testing with international standards participation. Deploy sovereign capital, for instance, from the Korea Investment Corporation, in companies and projects that align with these technical standards.

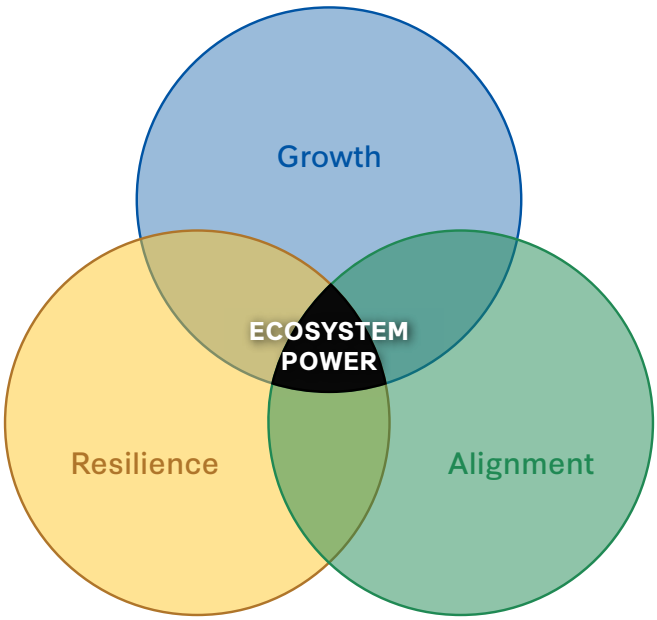
5

South Korea as an Ecosystem Power

Any viable South Korean economic security strategy must integrate a robust focus on domestic growth, economic defense, and economic alliance building. The country's current export model has been a vital source of growth and technological capability for generations. But it now faces domestic structural constraints and an increasingly volatile and coercive global trade environment. Simply trying to increase growth or respond faster to threats will be insufficient to ensure the country's economic security.

Embracing its potential to be an ecosystem power would provide Seoul with a framework to integrate and operationalize these dimensions of economic security. Ecosystem power is the ability to shape the technologies, standards, supplier relationships, and investments on which production and innovation depend. South Korea's position within advanced technology value chains, its industrial capabilities, its institutional capital, and its international partnerships are substantial assets. The challenge will be to convert these capabilities into durable national advantages.

Figure 13: Three Capabilities Underpinning South Korea's Ecosystem Power



Source: CSIS Economic Security and Technology Department.

South Korea possesses a long history of national industrial strategies on which to build. From the Economic Planning Board's export drive in the 1960s through to the Heavy and Chemical Industry push of the 1970s, the crisis-driven reforms after 1997, and the K-Semiconductor Belt and K-Chips Act of the past decade, Seoul has repeatedly used industrial policy to advance national goals (see Box 4). These successive waves of industrial policy have taught South Korea how to build institutions that can mobilize finance, develop skills, and coordinate investment between government and business. They also carry a cautionary tale about the costs of protecting incumbents and misallocating capital.

Box 4: South Korea's Industrial Policy—From Export Promotion to the New K-Industry Initiative

South Korea's industrial policy has evolved from state-directed investment and export promotion toward technological upgrading and broader innovation. Export promotion policies in the 1960s and the heavy industry and chemicals drive of the 1970s built South Korea's manufacturing capacity and supported a shift toward higher-value-added exports.[195] However, intensive targeting also contributed to overcapacity, resource misallocation, and debt accumulation. Subsequent liberalization and restructuring were accompanied by greater emphasis on R&D and technological capabilities, particularly from the 1990s onward.[196] Later approaches—including the knowledge-based economy agenda, balanced national development, green growth, and the creative economy agenda—broadened South Korea's industrial policy priorities.[197] At the same time, initiatives such as the

K-Semiconductor Belt and K-Chips Act continued to support prevailing growth engines.[198] In recent years, Seoul has sought to combine industrial policy with balanced regional development through building hubs for semiconductors, physical AI, and AI data centers, supported by the National Growth Fund and Future Response Fund.[199] These approaches helped build and sustain globally competitive firms. However, their benefits have spread unevenly: Large productivity gaps persist between leading companies and SMEs, services remain comparatively weak, and economic activity and talent remain disproportionately concentrated in the Seoul Metropolitan Area.

In response to structural challenges facing South Korea's economy, the Federation of Korean Industries (FKI) launched the "New K-Industry" initiative in July 2026 and a New K-Industry Forum to serve as an advisory body, comprising private sector leaders, former government officials, and academics, to set policy direction and develop a public-private road map.[200] The public-private initiative proposes shifting from a manufacturing-centric model to one that integrates advanced technology and services and deepens economic partnerships with the United States and Japan. The framework centers on a "3+1" transformation model comprising:

- **AI Transformation (AX):** Connect AI infrastructure, data, and talent with industrial applications, spreading successful applications across supply chains to raise productivity and narrow adoption gaps across firms and regions.
- **Green Transformation (GX):** Strengthen energy security and commercialize low-carbon technologies through private sector strategies, including for hydrogen, circular resources, sustainable aviation fuel, and carbon capture and storage.
- **Service Transformation (SX):** Strengthen AI-enabled services and platforms and integrate manufacturing with services. Proposals include a Service Industry Development Framework Act and a "K-Everything" strategy to turn South Korea's cultural appeal into broader exports.
- **Infrastructure Transformation (IX):** Align regulation, talent, finance, and social overhead capital with the needs of the other transformations through streamlined permitting, one-stop resolution of regulatory obstacles, expanded R&D tax support, and regional workforce incentives.

South Korea should embark on formulating a long-term economic security strategy with mobilizing ecosystem power as the organizing principle. Doing so will require careful consideration of the most effective use of public resources to strengthen productive capabilities, the vulnerabilities that warrant targeted intervention, and the international partnerships that will most effectively position South Korea externally.

Recommendations for Mobilizing Ecosystem Power

GROWTH

The growth agenda should proceed on four fronts:

1. **Retain and attract the people South Korean industry needs.** Government and business should reduce career penalties associated with childbirth and caregiving through childcare, flexible work, and second-earner tax reform. They should improve pathways from non-regular to regular employment with skills credentials and social insurance that follow workers across jobs. Mandatory retirement practices should be phased out and paired with changes to seniority-based compensation and greater access to training. In addition, the government should expand the K-STAR and Top-Tier Visa channels.
2. **Give productive firms room to grow.** The government must reform subsidies and regulatory thresholds that discourage smaller firms from expanding. It should direct support toward technology adoption, workforce skills, computing access, and cybersecurity, with larger firms helping suppliers build these capabilities. Regional industrial clusters should be strengthened through research and workforce investment, a Regional Innovation Fund, and a SelectUSA-style model for the Korea Trade-Investment Promotion Agency and subnational authorities to work together to attract FDI.
3. **Improve governance and attract investment into productive firms.** The government must implement stronger minority-shareholder protections and corporate governance reforms to improve investor confidence and access to capital. It can use the National Growth Fund and blended financing instruments to attract foreign and private co-investment into promising firms and projects, with public financing addressing defined risks and maintaining commercial discipline.
4. **Broaden markets and sources of demand.** Seoul should file for CPTPP accession on a defined timetable while preparing adjustment support for affected sectors. It must deepen commercial links with European and emerging markets and expand tradable services—including engineering, finance, and logistics—that help South Korean businesses reach customers and organize production abroad.

RESILIENCE

The resilience agenda should address five sources of exposure:

5. **Prepare a credible response to trade pressure.** Market diversification should be accompanied by clear procedures for considering Article 63 retaliatory duties, taking into account their costs and the risk of escalation. The protocol should specify the circumstances for action, the principles governing its scale, and the conditions for lifting measures, consistent with South Korea's international trade obligations. An annual services export tracker should help identify opportunities to broaden South Korea's sources of demand.
6. **Identify critical supply chain dependencies and prepare usable alternatives.** The government must strengthen economic intelligence on inventories, transport risks, alternative suppliers, and qualification times. It should direct stockpiling and financing

toward shortages that could halt production, including dependencies hidden in upstream processing. Firms should develop continuity and diversification plans that inform government preparations. South Korea should use FORGE and Pax Silica to coordinate alternative supply arrangements with partners. Seoul should also pursue a domestic critical minerals reserve compatible with Project Vault, negotiate emergency supply arrangements, and explore price-floor cooperation with the United States.

7. **Coordinate government and industry efforts on cyber defense.** Seoul should establish a standing joint response process coordinated by the National Security Office, with clear authority and oversight for active cyber defense. It must also extend critical infrastructure protection to advanced computing facilities. Moreover, the government should strengthen existing financial sector information-sharing arrangements and pursue a U.S.-ROK working group on AI-enabled financial fraud.
8. **Continue to modernize investment screening practices, drawing on good international practice.** Building on its recent regulatory changes, South Korea should adapt its stake-acquisition thresholds and industry coverage consistent with a stronger risk-based and cross-sectoral approach, in line with CFIUS, to better identify ecosystem-wide risks and effective influence. The government should also draw on international practice to close loopholes, streamline procedures, and give investors greater predictability.
9. **Strengthen enforcement against technology leakage and diversion.** The government should link export licensing information with customs clearance, require post-shipment verification for high-risk exports routed through known transshipment hubs, and strengthen scrutiny of end users associated with diversion or prohibited uses. Government and larger firms should help smaller suppliers protect proprietary technology and improve security. The government and South Korean universities should establish research security partnerships in allied countries, starting with the United States.

ALIGNMENT

The alignment agenda should connect industrial partnerships, standards, and capital through five specific measures:

10. **Build on existing MASGA commitments** by allocating funds to both supply-side measures such as blended financing and demand-side measures such as advance purchase commitments for U.S. commercial shipbuilders. Importantly, the early phase of these efforts should include provisions for co-production by American and South Korean yards.
11. **Lower regulatory burdens for both domestic and foreign digital services firms and reduce non-tariff barriers for foreign firms.** Doing so would facilitate improved trade relations with the United States, as well as incentivize innovation in South Korea's domestic digital services sector, providing benefits to downstream industries and consumers alike. Creating a more predictable and open environment for world-leading digital services firms from allied market economies can provide a pathway to both achieving South Korea's AI adoption goals and revitalizing the KORUS FTA to modernize its digital trade provisions.

12. **Make standards leadership a government and business priority.** Assess South Korea's participation in standards bodies to identify where its technical contributions translate into adopted standards, commercial use, interoperability, and influence over critical technology ecosystems. Concentrate technical, financial, and diplomatic resources on strategic technologies where South Korea has the capabilities to shape standards and translate that influence into economic and national security gains.
13. **Deploy strategic capital with partners and commercial discipline.** Pursue U.S.-ROK co-funding of the proposed Technology Dexterity Fund, as well as related blended finance facilities. In shipbuilding, financing should support both productive capacity and sustained demand, with allocations based on project requirements and commercial appraisal. Public commitments should absorb clearly defined risks through guarantees or limited first-loss positions, attracting return-seeking private investment. Each facility should specify its strategic purpose, limits on public exposure, expected domestic benefits, and responsibility for results.
14. **Incentivize South Korean firms to select and finance critical minerals projects** in developing economies with allied firms, combining product qualification and purchase commitments with infrastructure and skills support.

THE U.S.-ROK ALLIANCE

The United States has a direct stake in South Korea's success as an ecosystem power. South Korean direct investment, production knowledge, and skilled labor can strengthen U.S. shipbuilding, semiconductor, and battery capacities in ways few other allies can match, while U.S. markets, technology, and capital remain equally vital to South Korea's own growth. The U.S.-ROK relationship has been mutually reinforcing and beneficial for decades.

The durability of the U.S.-ROK partnership will depend in part on the reliability of U.S. policy. South Korea's incentive to hedge between Washington and Beijing is shaped in part by the reliability of U.S. policy—an unpredictable relationship with Washington makes commercial alignment with the United States a harder case for Seoul to make at home, regardless of how the underlying interests align.

To facilitate deeper integration, Seoul and Washington should take the following confidence-building measures, which will deliver quickly while also building longer-term institutions that make the relationship durable across political cycles.

In the near term, Seoul should consider two areas of action:

- **Develop a plan to support U.S. apprenticeships in shipbuilding** by deploying retirees, or other appropriately identified personnel, as master instructors.
- **Strengthen measures to foster digital services trade integration as part of South Korea's AI road map**, including through clear and consistent regulatory requirements of domestic and foreign providers alike.

In the near term, Washington should likewise consider four areas of action:

- **Remove bottlenecks to South Korean investment** through coordinated investment facilitation, permitting, and timely security reviews.
- **Facilitate visas for South Korean managers, tradespeople, and retirees** to support U.S. production and apprenticeship programs in shipbuilding and advanced manufacturing.
- **Support sustained demand for South Korean–backed shipbuilding** through advance purchase agreements and, in the early phases, co-production of vessels with South Korean yards.
- **Signal a clear path to tariff reduction** tied to demonstrable South Korean action on non-tariff barriers and predictable, nondiscriminatory treatment of U.S. digital services and technology exporters.

Over the medium term, Seoul and Washington should find opportunities for a deeper economic security partnership, including in four areas:

- **Deepen scientific cooperation** linking the Genesis Mission with South Korean research programs, including clear arrangements for participation and access.
- **Support joint investment in critical minerals projects** in developing countries using guarantees and other risk-sharing instruments to draw in private capital. Separately, explore compatible reserve arrangements and negotiated South Korean participation in Project Vault.
- **Co-fund the proposed Technology Dexterity Fund** to support early-stage firms and the expansion of strategic industries and their suppliers.
- **Deepen collaboration on investment screening** by leveraging CFIUS's technical guidance to modernize South Korea's regime, calibrate it to actual risks, streamline procedures, and provide investors with greater predictability.

South Korea's transition to an ecosystem power will not happen overnight—the Miracle on the Han River played out across decades. The policy actions outlined above will span different time horizons, require varying levels of resources, and need to be robust to political cycles. Sequencing should begin with measures that enable subsequent investment and cooperation: removing administrative bottlenecks, improving economic intelligence, and negotiating reciprocal commitments. Successfully navigating this transition will require South Korea's government and businesses to pursue economic statecraft with a long-term perspective while working in lockstep with the United States to implement short- and medium-term policies. Done well, this approach can put South Korea on a path toward interdependence on more favorable terms, fostering sustained growth and greater security for South Koreans and Americans alike.

Appendix A

South Korea: Country Economic Security at a Glance

COUNTRY ECONOMIC SECURITY AT A GLANCE

South Korea

Growth

STANDARD METRICS

Korea ▮ OECD median

LABOR

Fertility rate[1]
1.41 — 0.8

Working-age population, 10-year change[2]
+4% — -2.4%

CAPITAL

Capital stock / annual output[3]
4.96x — 5.13X

Capital contribution to GDP growth[4]
0.61 — 1.11

Gross fixed capital formation / GDP[5]
22.5% — 30.7%

TOTAL FACTOR PRODUCTIVITY

TFP level[6]
84.5 — 66.1

R&D financing, share of GERD[7]



Business ▮ Government ▮ Other

TRADE AND DEMAND

Trade / GDP[8]
83.4% — 86.4%

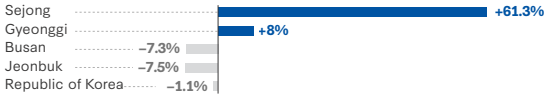
GDP composition[9,10]



Household ▮ Government ▮ Private fixed investment ▮ Other

MODULAR METRICS Korea-specific

Regional population divergence, 2016–2025[11]



Productivity gaps by sector and firm size

Business-services gross value added per person / manufacturing[12]: 48.1% — Manufacturing = 100%

SME value added per worker / large firms[13]: 26% — Large firm = 100%

Public-equity market depth

Market capitalization / GDP[14]
51.7% — 147.2%

Stocks traded / GDP[15]
17.1% — 176.3%

Resilience

STANDARD METRICS

EXTERNAL POSITION

Korea ▮ OECD median

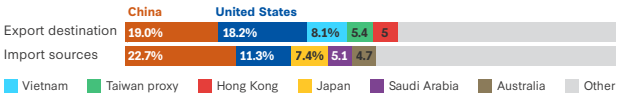
Exports of goods and services / GDP[16,19]
42.3% — 45.8%

Net IIP / GDP[17,19]
-8.4% — 63%

Inward FDI stock / GDP[18,19]
13.6%

STRATEGIC TRADE EXPOSURE

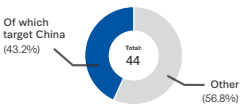
Leading goods-trade partners[20]



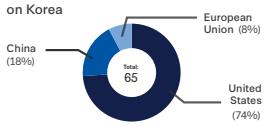
Vietnam ▮ Taiwan proxy ▮ Hong Kong ▮ Japan ▮ Saudi Arabia ▮ Australia ▮ Other

MODULAR METRICS Korea-specific

Trade-remedy exposure[21]
Korea: active AD measures



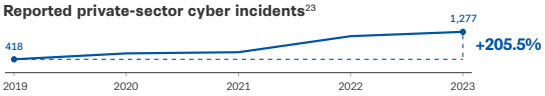
U.S., China, and EU AD/CVD measures on Korea



Select sources of Korea's inward FDI stock[22]



Reported private-sector cyber incidents[23]



Alliances and Alignment

STANDARD METRICS

NETWORK & STRATEGIC CAPITAL

Liner Shipping Connectivity Index, Q2 2026[24]
637.2

KIC assets under management, End-2025[25]
$232 BN

ISO + IEC leadership positions, 2026 baseline–2030 target[26]
305 → 337

SELECTED CRITICAL MINERALS DEMAND POWER

Korea share of global import value, 2022–2024 average[28]

Lithium **37.1%**
Graphite **8.7%**
Nickel **4.5%**
Manganese **4.1%**
Cobalt **3.8%**
Rare earths **2.6%**

DEVELOPMENT AND EXPORT FINANCE

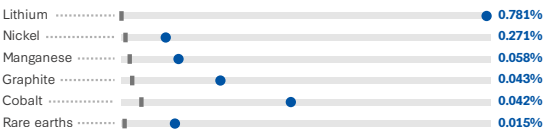
Official development assistance, 2024[29]
$4.03 BN

ODA / GNI, 2024[30]
0.21%

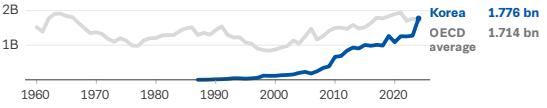
K-SURE trade-insurance support, 2025[31]
KRW 268 TN

MODULAR METRICS Korea-specific

Strategic input import intensity[32,33]
Selected mineral imports / total goods imports, 2022–2024 average



ODA to low- and lower-middle-income countries (World Bank definition)[34]
Aid disbursements to low- and lower-middle-income countries in constant 2024 USD



Shipbuilding influence[35]

Global new-vessel orders, 2025
21%

Global LNG-carrier market share, early 2026
~70%

1. "Birth Statistics in 2025," Ministry of Data and Statistics, https://mods.go.kr/board.es?act=view&bid=204&list_no=446625&mid=a10301010000; and "Fertility rate, total (births per woman)," World Bank, https://data.worldbank.org/indicator/SP.DYN.TFRT.IN.

2. "Population ages 15-64, total," World Bank, https://data.worldbank.org/indicator/SP.POP.1564.TO.

3. "Penn World Table version 11.0," Groningen Growth and Development Centre - GGDC, https://doi.org/10.34894/FABVLR. PWT cn (capital stock at current PPPs)/cgdpo (output-side real GDP at current PPPs); both are in million 2021 U.S. dollars.

4. OECD Productivity Database, archived growth rates dataflow, https://sdmx.oecd.org/archive/rest/data/OECD.SDD.TPS,DSD_PDB@DF_PDB_GR,/AUS+AUT+BEL+CAN+CHL+COL+CRI+CZE+DNK+EST+FIN+FRA+DEU+GRC+HUN+ISL+IRL+ISR+ITA+JPN+KOR+LVA+LTU+LUX+MEX+NLD+NZL+NOR+POL+PRT+SVK+SVN+ESP+SWE+CHE+TUR+GBR+USA.A.KSER_PCCONG……?startPeriod=2018&endPeriod=2022&dimensionAtObservation=AllDimensions. Arithmetic mean of the five annual OECD contribution observations for 2018–2022.

5. "Gross fixed capital formation (% of GDP)," World Bank, https://data.worldbank.org/indicator/NE.GDI.FTOT.ZS. Unweighted arithmetic mean of the 10 annual WDI gross-fixed-capital-formation-to-GDP ratios from 2015–2024.

6. "Penn World Table version 11.0," Groningen Growth and Development Centre - GGDC, https://doi.org/10.34894/FABVLR. TFP at current PPPs, expressed as an index with United States = 100. PWT variable ctfp is multiplied by 100; 2023 observations.

7. OECD Main Science and Technology Indicators, https://sdmx.oecd.org/public/rest/v1/data/OECD.STI.STP,DSD_MSTI@DF_MSTI,/AUS+AUT+BEL+CAN+CHL+COL+CRI+CZE+DNK+EST+FIN+FRA+DEU+GRC+HUN+ISL+IRL+ISR+ITA+JPN+KOR+LVA+LTU+LUX+MEX+NLD+NZL+NOR+POL+PRT+SVK+SVN+ESP+SWE+CHE+TUR+GBR+USA.A.G_FB+G_FG+G_FON+G_FA.PT_GERD._Z._Z?startPeriod=2020&dimensionAtObservation=AllDimensions. G_FB, G_FG, G_FON, and G_FA; unit PT_GERD; South Korea 2024.

8. "Trade (% of GDP) - Korea, Rep.," World Bank, https://data.worldbank.org/indicator/NE.TRD.GNFS.ZS?locations=KR. WDI-published ratio: (exports + imports of goods and services) / GDP x 100.

9. OECD national accounts, GDP expenditure components, https://sdmx.oecd.org/public/rest/v1/data/OECD.SDD.NAD,DSD_NAMAIN10@DF_TABLE1_EXPENDITURE,/A.AUS+AUT+BEL+CAN+CHL+COL+CRI+CZE+DNK+EST+FIN+FRA+DEU+GRC+HUN+ISL+IRL+ISR+ITA+JPN+KOR+LVA+LTU+LUX+MEX+NLD+NZL+NOR+POL+PRT+SVK+SVN+ESP+SWE+CHE+TUR+GBR+USA.S1+S1M+S13.S1.B1GQ+P3+P5+P51G+P6+P7….XDC.V.N.T0102?startPeriod=2022&dimensionAtObservation=AllDimensions. Korea 2024 current-price GDP and expenditure components.

10. OECD national accounts, Annual government non-financial accounts and key indicators (Expenditure), https://sdmx.oecd.org/public/rest/v1/data/OECD.SDD.NAD,DSD_NASEC10@DF_TABLE12_EXP,/A.AUS+AUT+BEL+CAN+CHL+COL+CRI+CZE+DNK+EST+FIN+FRA+DEU+GRC+HUN+ISL+IRL+ISR+ITA+JPN+KOR+LVA+LTU+LUX+MEX+NLD+NZL+NOR+POL+PRT+SVK+SVN+ESP+SWE+CHE+TUR+GBR+USA.S13._Z.D.P51G._Z._Z.XDC.S.V.N.T0200?startPeriod=2022&dimensionAtObservation=AllDimensions. Korea 2024 current-price general-government fixed investment.

11. "Resident registration population and household status by administrative district," Ministry of the Interior and Safety, Republic of Korea, https://jumin.mois.go.kr/statMonth.do. Year-end 2016 and 2025. Registered population is not the same as census/de facto population.

12. "STAN Database for Structural Analysis, 2025 edition," OECD, 2025, https://data-explorer.oecd.org/vis?df%5Bag%5D=OECD.STI.PIE&df%5Bds%5D=dsDisseminateFinalDMZ&df%5Bid%5D=DSD_STAN%40DF_STAN_2025&df%5Bvs%5D=1.0&dq=A.KOR.C%2BGTNXL.B1G%2BEMP.V%2B_Z.XDC%2BPS&p-

d=2022%2C2022&to%5BTIME_PERIOD%5D=false&vw=tb. Korea 2022; current-price GVA and persons engaged; activities C and GTNXL.

13. OECD, *OECD Reviews of Innovation Policy: Korea 2023* (Paris: OECD, July 2023), Section 1.3.3, https://www.oecd.org/en/publications/oecd-reviews-of-innovation-policy-korea-2023_bdcf9685-en/full-report/component-4.html.

14. "Market capitalization of listed domestic companies (% of GDP)," World Bank, https://data.worldbank.org/indicator/CM.MKT.LCAP.GD.ZS. 2025 reporting economies only; no imputation for non-reporters.

15. "Stocks traded, total value (% of GDP)," World Bank, https://data.worldbank.org/indicator/CM.MKT.TRAD.GD.ZS. 2025 reporting economies only; no imputation for non-reporters.

16. "Exports of goods and services (% of GDP)," World Bank, https://data.worldbank.org/indicator/NE.EXP.GNFS.ZS. Korea 2025; peer median 42.326692%; 37 OECD peers.

17. Gian Maria Milesi-Ferretti, "The external wealth of nations database," Brookings, April 9, 2026, https://www.brookings.edu/articles/the-external-wealth-of-nations-database. 2024 field "net IIP excl gold / GDP domestic currency." Uses net IIP converted at year-end exchange rates and GDP converted at annual-average exchange rates.

18. "Direct Investment Positions by Counterpart Economy (formerly CDIS)," International Monetary Fund, https://data.imf.org/en/datasets/IMF.STA:DIP; and "GDP (current US$)," World Bank, https://data.worldbank.org/indicator/NY.GDP.MKTP.CD. 2024 reported inward FDI stock (IMF series KOR.O.INWD_D_NETLA_FALL_ALL.G001.A) divided by 2024 nominal GDP (WDI series NY.GDP.MKTP.CD), in matching USD units, multiplied by 100.

19. "GDP (current US$)," World Bank, https://data.worldbank.org/indicator/NY.GDP.MKTP.CD. Korea 2024; Inward FDI and bilateral export ratios use this denominator.

20. BACI HS2017, release V202601, CEPII, https://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37. 2024 bilateral goods trade, summed across product categories for each trading partner. Values are reported in thousands of US dollars and converted to dollars by multiplying by 1,000. Korea country code: 410.

21. "Trade Remedies Data Portal," World Trade Organization, member notifications, https://trade-remedies.wto.org/en. Measures in force at December 31, 2025. AD and CVD counted separately; based on member notifications.

22. "Direct Investment Positions by Counterpart Economy (formerly CDIS)," International Monetary Fund, https://data.imf.org/en/datasets/IMF.STA:DIP. Counterparts USA, CHN, HKG, and World G001; 2024 reported official positions.

23. "Korea Internet & Security Agency_Number of reports of domestic private sector infringement accidents," Korea Internet & Security Agency, 2023, https://www.data.go.kr/data/15140309/fileData.do. Domestic private-sector cyber-infringement incident reports, 2019–2023.

24. "Liner shipping: Connectivity index - Quarterly (analytical)," UNCTAD Data Hub, https://unctadstat.unctad.org/datacentre/dataviewer/US.LSCI. Republic of Korea, Q2 2026; 637.1520586, second globally.

25. Korea Investment Corporation, *2025 Annual Report* (Seoul: Korea Investment Corporation, 2025), https://www.kic.kr/annual-report/2025/en/. End-2025 AUM, USD 232 billion.

26. Ministry of Trade, Industry and Resources, *Sixth National Standards Basic Plan*, 2026–2030 (Seoul: Ministry of Trade, Industry and Resources, 2026), 29, https://itskorea.kr/downloadFile.do?fileId=-FILE_000000000108863&fileSn=1. ISO/IEC technical-committee chairs, secretaries, and convenors; 305 (2026) to 337 (2030).

27. BACI HS2017, release V202601, CEPII, https://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37. 2022–2024 annual trade values. Arithmetic average of annual ratios; not a ratio of three-year totals.

28. "Trade in critical minerals shapes energy transition, digital transformation and industrial development worldwide," UNCTAD, https://sdgpulse.unctad.org/critical-minerals. Selected HS2017 baskets; nickel sulphate additionally follows WTO/ADB classification.

29. "Development finance statistics: Data on flows to developing countries," OECD, DAC Table 1, final 2024 ODA, https://www.oecd.org/en/data/datasets/development-finance-statistics-data-on-flows-to-developing-countries.html. Grant-equivalent ODA in current USD million and ODA/GNI.

30. 32 DAC country members, excluding EU institutions from country ranks.

31. "Statistics related to trade insurance," Ksure, https://www.ksure.or.kr/rh-md/cntnts/i-749/web.do. 2025 underwriting by product; total 2,679,548 × KRW 100 million.

32. BACI HS2017, release V202601, CEPII, https://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37. 2022–2024 annual trade values. Arithmetic average of annual ratios; not a ratio of three-year totals.

33. "Trade in critical minerals shapes energy transition, digital transformation and industrial development worldwide," UNCTAD, https://sdgpulse.unctad.org/critical-minerals. Selected HS2017 baskets; nickel sulphate additionally follows WTO/ADB classification.

34. CSIS Economic Security and Technology Department calculations based on "DAC2A: Aid (ODA) disbursements to countries and regions," OECD Data Explorer, last modified August 31, 2026, https://data-explorer.oecd.org/vis?fs[0]=Topic,1%7CDevelopment%23DEV%23%7COfficial%20Development%20Assistance%20%28ODA%29%23DEV_ODA%23&fs[1]=Topic,2%7CDevelopment%23DEV%23%7COfficial%20Development%20Assistance%20%28ODA%29%23DEV_ODA%23%7CFlows%20by%20provider%20and%20recipient%23DEV_ODA_FPR%23&pg=0&fc=Topic&snb=8&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_DAC2%40DF_DAC2A&df[ag]=OECD.DCD.FSD&dq=.LMICWB%2BOLICWB%2BALLMR.206.USD.Q&to[TIME_PERIOD]=false&pd=1960,2024&vw=tb. OECD average excludes Chile, Colombia, Costa Rica, and Mexico. Low- and lower-middle-income recipient totals are combined for each donor and year; the comparison series is the unweighted donor average.

35. Ahn Sung-mi, "China rules the yards, but Korea leads in high-end ships, geopolitics," *Korea Herald*, February 10, 2026, https://www.koreaherald.com/article/10673626. Korea 21 percent of 2025 new orders, China 63 percent, Japan 5 percent; approximately 70 percent LNG market share.

Appendix B

Shipbuilding Model Methodology

The shipbuilding model is best thought of as empirically informed, spreadsheet-powered napkin math. It is grounded in reasonable assumptions derived from cited sources. It is not a forecast, an engineering estimate, an econometric model, or an estimate of the probability that the United States will reach the modeled outcomes.

The model's principal benchmark is public information on the Hanwha-Philly investment, including its proposed ramp-up schedule, labor demand, and output. The research team calibrated a Cobb-Douglas production function (with time-varying productivity) to match the Hanwha-Philly projections, then applied a 35 percent haircut to account for overly optimistic corporate forecasts and the likelihood that Hanwha-Philly represents low-hanging fruit.

The model's production function is calibrated in three ways. First, factor shares are calibrated to match shipbuilding industry norms and to be consistent with Hanwha-Philly in particular. Second, a tech-transfer component is used to calibrate the productivity gap between U.S. and South Korean firms in general. Third, the team calibrated a learning-by-doing component to match the projected ramp-up in productivity at Hanwha-Philly.

$$(1)\ Q_t = 0.65\ \underbrace{A_{US}\left(\frac{A_{KR}}{A_{US}}\right)^{\tau_t}\left(\frac{E_t}{E_0}\right)^{\lambda}}_{A_t\text{: technology and learning}}\ K_t^{\alpha} L_t^{1-\alpha}$$

The team assumes Hanwha-Philly is representative of the maximum feasible technology transfer, with a common learning-by-doing rate. This allows conceptualization of the effects of South Korean investment on productivity through two channels. The first involves a simple expansion of output into new classes of vessels and the associated efficiency gains; the second is the transfer of technological expertise from South Korean firms and employees to U.S. workers through direct training and apprenticeship.

As configured for this paper, the model addresses two distinct questions: First, could a stylized expansion of U.S. commercial shipbuilding capacity produce a fleet of 250 ships within a selected horizon? Second, under what assumed combination of scale, demand support, learning, and South Korean technology transfer would domestic production cross a normalized operating-cost-plus-annual-capital-cost threshold? In other words, the scenarios were specifically designed to show that even demand support as high as 150 percent of the world price was insufficient to cover the cost of capital, but that when combined with the deep integration of South Korean firms and high levels of skill transfer, U.S. shipbuilding could cover its capital costs.

The lesson is that the United States' disadvantage is not just higher wages. To be competitive in the world market, the United States must do whatever is necessary to increase its domestic productivity to South Korean levels. In practice, that means things like deep integration with South Korean firms and allowing retired South Korean tradespeople to come to the United States to train apprentices. In this context, a demand-support mechanism designed to counter the wage differential has a chance of working.

Most relationships in the model were calibrated by hand, including the Cobb-Douglas exponents, ramp speeds, demand factors, and tech-transfer and learning-by-doing effects, to match information from public non-technical sources. The model presented here is not an econometric estimation or an attempt at an equilibrium estimation. The precision of a reported crossing year reflects spreadsheet arithmetic, not corresponding precision in the underlying evidence.

Variables:

Q_t is commercial shipbuilding output; K_t and L_t are capital and labor inputs.

α is the output elasticity of capital, with constant returns to scale assumed.

A_{US} is baseline U.S. productivity, and A_{KR}/A_{US} is the benchmark South Korean productivity advantage, measured at a common level of production experience.

τ_t measures technology transfer through South Korean participation, training, and apprenticeships. Zero means no transfer; one means full adoption of the benchmark South Korean technology.

E_t/E_0 measures accumulated production experience relative to a positive initial baseline. Using cumulative output for E_t makes this a learning-by-doing mechanism.

λ is the learning elasticity, common across projects and calibrated to Hanwha-Philly's projected productivity ramp.

0.65 applies the 35 percent haircut to modeled output.

Appendix C

Stakeholders Consulted

Korea Ministry of Science and ICT

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- Chayeon Lee, Deputy Director, Americas & Asia Cooperation Division
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