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Governing AI in the Shadow of Giants: Korea's Strategic Response to Great Power AI Competition

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Introduction

As AI development concentrates in the United States and China—the two countries command [over 90 percent](#) of global computing power—middle powers face mounting pressure to align with one ecosystem or the other. From a geo-economic perspective, the [choice for middle powers can appear stark](#): secure access through alignment or risk falling behind. Given the scale and speed of AI development, presumably middle powers may be best served by bandwagoning with a greater power.

South Korea illustrates this distinction, both in industrial and geopolitical terms. As an advanced industrial middle power with a [key position](#) in global technology supply chains, it has long navigated asymmetric relationships by anchoring its security in the United States while sustaining essential economic ties with China.

Leveraging its role in AI supply chains, Korea is using alignment with the United States not simply to secure access, but to expand industrial space, preserve strategic agency, and maintain leverage within a hierarchical system to bargain for security commitments and access cutting-edge technology ecosystems.

But this presentation of the strategic dilemma also risks viewing alignment in AI as an endpoint rather than a strategy—leaving open how states operate within these ecosystems once they commit to a side. Not all middle powers approach this choice from the same position, and variation in industrial capabilities and governance shapes [what alignment can achieve in practice](#).

Much of the debate over this [Sino-U.S. AI competition](#) focuses on foundation or frontier model training. This lens foregrounds compute and model leadership while potentially underweighting system-level integration across the full stack of the AI value chain: chips,

infrastructure, data, deployment, energy, and industrial application. As a result, countries whose strengths lie in integrating and deploying AI across value chains—rather than dominating frontier model development—may be underestimated.

This experience highlights the [convergence of two strategic logics](#): industrial strategy and national strategy. In AI, these streams are increasingly fused. Industrial capabilities—especially in semiconductors and advanced manufacturing—are not just economic assets. Instead, AI development comprises a broader, multi-layered [AI value chain](#) spanning upstream inputs to downstream deployment, and these components can also serve as instruments of geopolitical positioning, shaping how Korea aligns, where it retains leverage, and how it operates within a U.S.-led ecosystem.

From Catchup to Full Stack: Korea's Industrial AI Strategy

For decades, Seoul has navigated interdependence by making itself essential within overlapping systems, an industrial strategy that underpins how [Korea builds industrial position](#) in emerging technology domains today, particularly in balancing the use of Chinese inputs and building out markets in the Americas, Europe, and Southeast Asia. Korea's AI strategy follows this pattern: investing in infrastructure, deepening its role in semiconductor supply chains, and expanding deployment capabilities relied upon by both superpowers.

This strategy aims to protect security, sustain growth, and preserve policy space within a system structured by larger powers. This reflects Korea's renewed push for industrial policy under new constraints.

Korea's traditional industrial policy in the 1970s focused on “picking winners,” a [model of state-led coordination](#) that intensively invested midstream stages within the value chain to secure manufacturing competitiveness.

The next wave of Korea's industrial policy in the 1990s shifted to building a collaborative ecosystem among diverse actors. Identifying the IT industry as a new growth engine, the Korean government encouraged major players such as industry, universities, and research institutes to form collaborative consortia to spearhead indigenous technological innovation. As a result, Korea emerged as a major player in the information and communications technology (ICT) industry as it became the [first in the world](#) to commercialize Code Division Multiple Access (CDMA) technology.

This ICT-focused evolution of industrial policy builds on familiar logic from a Cold War-era catchup strategy that leveraged great power competition—U.S.-backed security and economic alignment—and a more closed global economy, enabling Korea to rise from one of the poorest countries in the world to a [top-twelve OECD economy](#) with prominence in some of the world's sophisticated-tech sectors.

Korea's AI development strategy today reflects a new era of the global tech value chain, one characterized by a “dual full-stack” approach in which Korea pursues domestic capability-building across layers of the AI value chain while aligning with the U.S.-led ecosystem internationally. Unlike earlier periods of industrial upgrading, it unfolds within a global value chain that is much more transnational and interdependent and at a moment when it is also increasingly securitized and fragmented by great powers.

In this difficult context, the Korean government is trying to find success by [strengthening ecosystem linkages](#) across upstream, midstream, and downstream stages, and by combining cooperation and competition.

A key implication is that it is not enough to accumulate discrete industrial capabilities, but to build system-level coordination capacity—through governance reforms; dedicated committees that include government, civil society, and the private sector; and industry and research and development (R&D) incentives—to orchestrate complex industrial systems and value chains across layers.

The Korean government today hopes to translate its industrial comparative advantages, human resources, and governance expertise into a coordinated government–private sector push to [propel the Korean AI industry](#) onto the global stage. Korean conglomerates, small and medium enterprises (SMEs), and startups have been making essential strides in [AI-related work for decades](#). It was against this backdrop that the government coalesced around a more activist role in a coordinated AI strategy amid the global AI race.

Korea is seeking to respond to these pressures through a more coherent institutional architecture. Seoul enacted the [world’s second AI Framework Act](#) in January 2025 (effective January 2026) [less than a year after](#) the [EU AI Act in 2024](#). The act provides the [legal and institutional foundation](#) for fostering the AI industry, mandating safety measures for high-risk AI, and ensuring transparency. Following this legislation, the Korean government established an [AI Action Plan](#), outlining twelve strategic areas and ninety-nine action items, with the [stated goal](#) of becoming one of the world’s top three AI powers. Achieving this goal requires fostering an AI innovation ecosystem and a nationwide AI transformation, which includes providing AI-based public services, public administration, preventive welfare, and national security.

In July 2025, as part of its domestic full-stack strategy, the Korean government launched the [Indigenous AI Foundation Model Project](#) to develop sovereign AI, including large language models (LLMs) and multi-modal models by 2027. This plan aims to reduce technological, cultural, economic, and security dependencies by developing an indigenous foundational model. The indigenous foundational model is defined as a “[domestically designed and pre-trained model developed from scratch](#),” rather than a derivative model adapted from fine-tuning foreign LLMs.

In tandem with similar moves from other middle powers [for strategic autonomy](#) and to [avoid overreliance](#) on China or the United States, the goal of this strategy is to leverage

its advanced technology sectors to secure a spot as one of the few nations to [possess an AI full-stack](#) encompassing chips and computing infrastructure, cloud data centers, algorithms, applications, and services.

From Alliance to Leverage: Korea’s AI Geopolitical Strategy

Korea benefits from and relies on the security guarantee provided by its seventy-year alliance with Washington. In the twenty-first century Seoul and Washington have sought to evolve toward a broader partnership. This relationship has expanded beyond a narrow focus on deterring North Korea to encompass a wider regional security role, as well as deeper industrial cooperation and technological alignment.

At the same time, Korea has managed its relationship with China with care. Despite efforts to diversify its supply chains, Seoul remains [linked](#) to Chinese-centered production networks and cannot fully disentangle from them economically or diplomatically. As a result, Korea faces the dual challenge of transforming its traditional security alliance with the United States into a comprehensive economic security partnership that encompasses high-tech industries, while managing its bilateral relations with China. This dual approach reflects the constraints facing middle powers in the current era, where AI development is inseparable from broader geopolitical competition.

Importantly, making itself essential to AI ecosystems does not mean dominance or guiding the greater power, but instead reflects a strategy of generating leverage through integration. This is the insight that outsiders to middle powers often make when gauging the national interests, goals, and tactics of middle powers. The national strategy is to protect national security, ensure economic growth and social stability, and preserve diplomatic voice by securing strategic indispensability.

As Korea has increasingly aligned with U.S. supply chains as they became more heavily securitized over the past decade, Seoul's strategy is not about choosing sides or purely going it alone. Nor is it about strategic ambiguity. Korea has actively built out industrial capabilities particularly in existing and emerging technology sectors, seeking embeddedness in global economic systems as a means of producing leverage within them. For effective industrial policy, Korea benefits from strong domestic coordination capacity executed through consultation and coordination among guidepost-setting ministries and business conglomerates.

An essential pillar of Korea's AI strategy is international cooperation—an international full-stack alignment—centered on cooperation with the United States. This is evident in the [October 2025 memorandum of understanding](#) (MOU) signed between the two countries regarding the U.S.-ROK Technology Prosperity Deal. Through this MOU, Korea and the United States agreed to cooperate “across the full stack of AI hardware, models, software, applications, and standards.” This signifies that cooperation with Korea is essential to the United States to secure AI full-stack leadership.

Korea's role in supporting the United States is exemplified by the [SK Hynix/Samsung-Nvidia](#) alliances, Korea has strengthened its pivotal role in supplying high bandwidth memory (HBM) semiconductors to Nvidia. The Korean government has lent flanking support for the private sector, which was evident during the October 2025 APEC Summit, when Nvidia's CEO Jensen Huang, in a meeting with President Lee Jae Myung, [pledged to supply 260,000 of the latest GPUs](#) to Korea by 2030. These GPUs are slated for Samsung, Hyundai Motor Group (HMG), SK, and Naver.

Korean firms are rapidly gravitating into the U.S. AI ecosystem, illustrating cross-layer embeddedness across upstream, midstream, and downstream activities.

In the upstream, beyond the aforementioned HBM collaboration, cooperation is expanding to include [Samsung and Google collaborating on tensor processing units](#) (TPUs). Samsung [passed the HBM4 quality test](#) for Google's next-generation TPUs in December 2025, securing a supply volume more than triple for 2026.

In the midstream, [Samsung and SK Hynix](#), along with [OpenAI and Oracle](#), are pursuing collaboration for Stargate. Samsung exchanged a [letter of intent](#) with OpenAI in October 2025, agreeing to smoothly supply high-performance, low-latency memory as a strategic partner.

In the downstream, HMG, which had [acquired Boston Dynamics](#) in June 2021, unveiled the cutting-edge Atlas robot at the 2026 Consumer Electronics Show. The company [announced plans to commercialize the Atlas](#) with production starting at its new HMG factory in Georgia in 2028. Annual production of Atlas is projected to reach [150,000 units by 2029](#). HMG is planning to [adopt Alpamayo](#), NVIDIA's open-source physical AI model, to build autonomous driving systems. [Samsung and Tesla are collaborating on foundry services](#) for full self-driving and the Optimus robot.

Taken together, these dynamics show how alignment produces embedded leverage. While TSMC and Micron are seeking to catch up to Korean chip dominance in these sectors, Korea holds a near-term advantage. By supplying indispensable inputs—HBMs and advanced manufacturing capacity—and extending into deployment layers such as robotics, automation, and smart factories, Korea occupies positions that are not easily substitutable within the U.S.-led AI ecosystem due to the concentration of capabilities, scale, and integration across layers. In this way, alignment secures access while simultaneously translating system position into potential future bargaining power within a hierarchical, multi-layered AI order.

Tensions in the Dual Full-Stack Strategy

Korea's strategy does not come without limitations and trade-offs. This attempt at a middle power AI alignment strategy depends on overcoming some very real limitations and managing the strategic trade-offs, such as hedging against the Sino-U.S. binary or trying to go it alone.

First, efforts to develop Korea's own sovereign full-stack frontier AI has raised some skepticism from industry experts. While it is certainly true that Korea has core industrial and technological competencies in parts of the AI stack, there are also important material limitations on whether Korea can build out its promised data centers, particularly when it comes to questions around [energy security and regulatory inefficiencies](#) for joining the electricity grid. More than [half](#) of the energy grid buildout projects planned by the Korea Electric Power Corporation (KEPCO), the country's largest public electric utility, are delayed largely due to lengthy permitting processes.

Second, recent events have also reignited controversy regarding the nature of indigenous AI foundational models. Naver led the sovereign AI discourse in Korea when it [unveiled HyperCLOVA](#) in 2021. However, Naver was [eliminated from the national competition](#) as it used a vision encoder from Alibaba's Qwen, failing to meet the criteria for indigeneity.

This leads to a central tension within Korea's dual full-stack strategy that gets at the heart of Korea's domestic debates over the future of their AI development strategy. On the one hand, it seeks to improve its domestic AI industrial capabilities by building out its own frontier model. Advocates for sovereign AI argue that foregoing the domestic model would make Korea dependent on the U.S. and/or Chinese AI developers.

On the other hand, it also seeks to integrate components of that full stack into the U.S. ecosystem. Granting that the race for foundational AI may have [already](#)

[been set](#) by the two great powers and their massive innovation ecosystems, this perspective suggests that the foundational models are the starting point for future innovations where Korea does have the potential to excel in diverse applications, especially in physical AI.

While they may be at odds with each other, Korea has pursued both strategies simultaneously through division of labor and coordination between government and business. The Korean government prioritizes the enhancement of strategic autonomy, while companies work together to strengthen their positions in global AI value chains by collaborating with leading U.S. firms.

Finally, the alignment strategy itself may backfire in the long term for Korea, which remains the smaller partner despite the continued expansion of [US-ROK global comprehensive strategic partnership](#). Though Korea was growing more economically dependent on rising China in the 2000s and early-2010s, Korea made a strategic choice starting in the 2020s to align heavily with the United States not only in security, but also in economic and technological domains, despite lingering suspicion in Washington that Korea was hedging between Washington and Beijing.

However, this alignment carries strategic risks should the United States pull back from the region in general and continues to [seek a transactional approach to Korea](#). If Korea goes all in on alignment with the United States, it risks being left without a reliable partner or becoming entrapped in its embeddedness within U.S. systems.

Middle Power AI Strategy Beyond Korea

Even though Korea's current domestic debate over AI strategy reveals some tensions, at a broader level, Seoul's experience also suggests how middle powers can navigate technological fragmentation, uncertainty, and potential confrontation. Success will require an institutional legacy of industrial policy, supply chain

management, and energy infrastructure that most middle powers lack. Even Korea's longstanding developmentalist approach faces serious sustainability questions as China and the United States rush toward AI dominance.

In this context, Korea's experience suggests that success under conditions of technological fragmentation requires not only technological capability, but institutional capacity for coordination across sectors, firms, and policy domains. Because of this variation, middle powers' strategic choices over AI depend not only on industrial competitive edge, but also governance capacity over global value chains. Such capacity, however, is the product of long-term industrial development that is not easily replicable.

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