



Strategic Collaboration of Defense Industry between India and South Korea: Toward a Matured Economic Partnership

Choong Yong Ahn and Jagannath Panda

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Executive Summary

This study is based on the hypothesis that defense industry cooperation between India and South Korea (ROK) goes beyond the technical dimensions of defense and technology transfer. Instead, it serves as a strategic pathway to foster deeper mutual trust, enhance economic interdependence in trade and investment, and strengthen both countries' positions as credible middle powers in an increasingly fragmented and volatile international order.

Building upon decades of export-driven growth that underpinned the "East Asian Miracle," South Korea—now the world's tenth-largest economy—seeks to transition into a sustainable, high-technology economy with the goal of joining the "higher high-income" group, by exceeding a per capita income of USD 40,000. Simultaneously, it is developing a modern and diversified defense portfolio to deter persistent security challenges from North Korea and its ongoing efforts to attain international recognition as a nuclear state. Confronted with external security threats and a protectionist trade environment under US President Donald Trump's "America First" agenda, Seoul has adopted a dual-track innovation strategy. It aims to become one of the world's top three artificial intelligence (AI) powers and among the top four global arms exporters in the near future.

India—the world's largest democracy by population—is poised to become the third-largest economy within a few years under Prime Minister Narendra Modi's "Make in India - Resilient India" policy. Departing from its historically inward-oriented economic posture, India is now positioning itself to seize global trade and investment opportunities. With per capita GDP still around USD 2,400, India seeks sustained high growth through deeper integration into the global economy. On the strategic front, New Delhi seeks to become a military power commensurate with its rising economic stature—not only to meet regional security challenges but also to strengthen its diplomatic profile as a leading middle power and a representative voice of the emerging Global South. Consistent with its long-standing *multi-alignment* approach, India continues to engage with a wide spectrum of partners, including the Western world, Russia, and China.

Given their ambitious national trajectories and complementary developmental

strengths, India and South Korea share a strong potential for strategic convergence as like-minded partners. Both nations pursue *strategic autonomy* and *diversification* strategies in response to the intensifying US-China rivalry and broader instability across the Indo-Pacific. This shared pursuit of autonomy provides a compelling rationale for both countries to deepen and redefine the nature of their collaboration. Despite these synergies, bilateral economic connectivity remains underdeveloped. The Comprehensive Economic Partnership Agreement (CEPA), launched in 2010, has yet to deliver outcomes comparable to South Korea's trade and investment linkages with China or Vietnam. In an era of proliferating unilateralism and protectionist fragmentation, both countries must find innovative pathways to unlock their untapped potential and realize the full promise of their strategic partnership.

In this context, defense industrial collaboration offers a powerful catalyst for expanding trust, trade, and investment. The India-South Korea partnership in defense production has already yielded tangible results, exemplified by India's acquisition of the K9 Vajra-T self-propelled howitzer, co-developed with South Korea's Hanwha Defense—a landmark success story that opens the door for wider cooperation. The implications of such collaboration extend far beyond defense procurement: by working together in arms production and technology transfer, Seoul and New Delhi can cultivate long-term strategic trust and generate spillover effects across broader economic domains.

Defense cooperation inherently builds trust because it touches the most sensitive spheres of national sovereignty—military capability, national security, and long-term technological capacity. Unlike ordinary trade, arms collaboration requires a multilayered ecosystem involving government-to-government (G2G), business-to-government (B2G), and business-to-business (B2B) interactions. For such cooperation to be robust, both sides must align top-down strategic agreements with bottom-up industrial innovation.

Initially focused on self-defense, South Korea's land, naval, and air systems have now evolved into competitive export products, complementing its high-tech industrial structure. Successive South Korean governments have recognized the defense sector as a vital export frontier alongside semiconductors, electronics, and shipbuilding. Given the current defense portfolios of both countries, numerous avenues exist for deeper cooperation beyond the K9 Vajra project. Potential collaborations include South Korea's K2 main battle tank with India's indigenous rocketry and missile programs in the land domain;

joint R&D between India's Tejas and South Korea's KF-21/FA-50 fighters in the air domain; and cooperation in drone technology and AI-based defense systems. In the naval sphere, South Korea's world-class shipbuilding expertise can support India's ambitions in carrier and destroyer production, as well as joint R&D in submarine propulsion and anti-submarine systems—areas aligned with their shared interest in a blue-water navy for Indo-Pacific security.

Across land, air, and sea, India and South Korea exhibit both overlap and complementarity. India brings scale, operational experience, and a strong policy push for indigenization under *Atmanirbhar Bharat*; South Korea contributes advanced technology, manufacturing efficiency, and export orientation. By combining India's demand with South Korea's supply capacity, the two countries can move beyond transactional arms sales toward co-development and co-production ecosystems—spanning tanks, howitzers, fighters, drones, submarines, and warships.

Toward a Sustainable and Future-Ready Defense Partnership

To enhance its defense industry and strengthen its role as a major arms exporter, South Korea is undertaking a wide range of R&D programs aimed at narrowing capability gaps across multiple domains. These R&D efforts can be pursued through both indigenous initiatives and international cooperation—areas where India and South Korea can selectively collaborate on shared defense technology agendas.

Recognizing that the future of warfare will be shaped by frontier technologies such as artificial intelligence (AI), autonomous systems, hypersonics, and electronic warfare, South Korea is pursuing a dual-track strategy: scaling up conventional arms exports to meet rising global demand, while simultaneously investing in frontier technologies to secure its long-term strategic edge. This dual approach aligns closely with India's own defense industrial development under *Atmanirbhar Bharat*—balancing immediate operational needs with investment in next-generation technologies.

At present, India and South Korea maintain a buyer-seller dynamic. For a sustainable partnership, they must transition toward a co-developer relationship, grounded in joint R&D and long-term industrial collaboration. The India-France Rafale program and the India-Israel Barak-8 partnership exemplify how trusted, high-technology cooperation can bridge capability gaps while strengthening

domestic industrial ecosystems. France demonstrates the power of deep strategic alignment and joint manufacturing; Israel showcases agile, innovation-driven co-development. Together, these partnerships form pillars of India's evolving defense diplomacy—combining strategic autonomy with technological interdependence.

South Korea, though a newer partner in India's defense matrix, can follow a similar trajectory. It has rapidly emerged as a global arms exporter by leveraging decades of industrialization to position itself among the world's top suppliers. India, still the largest arms importer, is actively pursuing indigenization, innovation, and foreign investment to reduce dependency and build domestic capacity. The convergence of these trajectories provides fertile ground for collaboration. South Korea's proven manufacturing excellence and India's scale and demand can drive co-production, joint research, and a new wave of defense sector investment. Beyond defense, such cooperation could stimulate linkages in AI, aerospace, and advanced manufacturing.

Policy Recommendations for a Robust and Enduring Framework

1. Institutionalize Strategic Dialogues:

Establish a regular summit mechanism and a biennial *2 + 2* meeting of Foreign and Defense Ministers dedicated specifically to defense–industry cooperation. These platforms should include fast-track decision-making to mitigate bureaucratic delays and manage risk effectively.

2. Adopt a Dynamic Defense Roadmap:

Build upon the success of the K9 Vajra program by expanding collaboration into frontier technologies and joint export ventures. A shared roadmap should guide R&D priorities toward a future-ready defense ecosystem aligned with Indo-Pacific security objectives.

3. Prioritize Co-Development and Technology Transfer:

Focus on areas of strong complementarity—artillery upgrades, naval shipbuilding, and space-based surveillance—leveraging South Korea's high-tech engineering and India's manpower, production scale, and market access.

4. Expand Maritime and Shipbuilding Cooperation:

Launch a *South Korea–India Naval Shipbuilding Partnership Initiative* to jointly develop frigates, corvettes, and auxiliary vessels in Indian shipyards,

including cooperation on green-ship technologies and submarine platforms.

5. Pursue Space and Satellite Collaboration:

Co-develop dual-use satellites for defense communication, weather monitoring, and disaster response to enhance situational awareness and humanitarian coordination.

6. Deepen Cooperation in AI, Cyber Defense, and Quantum Computing:

Encourage cross-investment and joint innovation in emerging technologies to ensure resilience and competitiveness in next-generation defense applications.

7. Align Trade and Defense Policies:

Upgrade the Comprehensive Economic Partnership Agreement (CEPA) to integrate defense-industry cooperation and unlock the full potential of technology and capital flows.

8. Advance Middle-Power Diplomacy in the Indo-Pacific:

Leverage the defense partnership as a platform for minilateral cooperation with ASEAN, Australia, and the EU—shaping regional governance frameworks and promoting collective security.

Conclusion

Defense industry collaboration between India and South Korea is far more than an arms trade arrangement; it is a strategic necessity for two middle powers navigating an unpredictable global order. By institutionalizing cooperation, leveraging complementarities, and aligning with regional frameworks, both nations can elevate their partnership into a cornerstone of Indo-Pacific security and economic resilience.

The pathway forward is clear: deepen trust, expand co-production, integrate emerging technologies, and embed bilateralism within multilateral structures. If pursued with vision and pragmatism, India-South Korea defense cooperation can stand as a hallmark of constructive middle power leadership, symbolizing a shared commitment to innovation, stability, and strategic autonomy by 2047.

Key Words: India-South Korea Strategic Collaboration, Defense Industry, Arms Trade, Industrial Policy, Dual Technology, Security-Trade Nexus, Mutual Trust, K 9 Vajra, Strategic Autonomy, CEPA

JEL Classification: F21, F52, M38, O25, Z38

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List of Abbreviations

ADA	Aeronautical Development Agency
AKFTA	ASEAN–Korea Free Trade Area
ASEAN	Association of Southeast Asian Nations
B2B	Business–to–Business
B2G	Business–to–Government
BVR	Beyond Visual Range
CAGR	Compounded Annual Growth Rate
CEPA	Comprehensive Economic Partnership Agreement
CPTPP	Comprehensive and Progressive Agreement for Trans–Pacific Partnership
DMZ	Demilitarized Zone
DRDO	Defense Research and Development Organization
EY	Ernst & Young
FDI	Foreign Direct Investment
FIZ	Foreign Investment Zone
G2G	Government–to–Government
GDP	Gross Domestic Product
GPS	Global Positioning System
HCI	Heavy and Chemical Industry
IAI	Israel Aerospace Industries
ISRO	Indian Space Research Organization
KASA	Korea AeroSpace Administration
KIEP	Korea Institute for International Economic Policy
KOMEA	Korea Marine Equipment Association
KORUS FTA	Korea–US Free Trade Agreement
LAC	Line of Actual Control
LoC	Line of Control
MAGA	Make America Great Again
MBRL	Multi–Barrel Rocket Launcher
MoU	Memorandum of Understanding
PIL	Positive Indigenization List
PLI	Production Linked Incentive
RCEP	Regional Comprehensive Economic Partnership
ROK	Republic of Korea
SAM	Surface–to–Air Missile
SMR	Small Modular Reactor
US	United States

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Preface

Over the past two decades, India and the Republic of Korea (ROK) have steadily expanded their bilateral partnership, laying the groundwork for cooperation across trade, investment, defense, and multilateral forums. Anchored in democratic values, adherence to the rule of law, and shared aspirations for strategic autonomy, this relationship is poised to take on greater significance amid shifting geopolitical and geo-economic landscapes. Both nations now find themselves navigating turbulent waters—from intensifying US-China rivalry to regional instability in the Indo-Pacific—and are compelled to rethink how their collaboration can be deepened and redefined.

This study is premised on the belief that defense industry cooperation between India and South Korea is not merely a technical matter of arms trade or technology transfer. Rather, it is a strategic pathway to cultivate deeper trust, broaden mutual interdependence, and position both nations as credible middle powers within a fragmented international order. While existing engagements—such as India’s acquisition of the K9 Vajra-T self-propelled howitzers in collaboration with South Korea’s Hanwha Defense—mark a promising start, the larger potential of this partnership remains underexplored. This research seeks to address that gap by providing an analytical framework and concrete recommendations for elevating defense collaboration into a cornerstone of bilateral relations.

The urgency of such an inquiry cannot be overstated. The second Trump administration, with its heightened protectionism and demand for allies to assume greater responsibility for their own security, has upended long-

standing assumptions about the liberal economic order. US tariff policies and reduced military guarantees have exacerbated global fragmentation, compelling countries like India and South Korea to diversify security and trade partnerships. At the same time, both countries confront immediate threats: India faces a dual challenge from China and Pakistan, while South Korea continues to live under the shadow of North Korea's provocations and a divided peninsula. For both, building resilient defense industries and forming trusted partnerships are no longer optional but strategic imperatives.

South Korea has rapidly emerged as a global arms exporter, leveraging decades of defense industrialization to position itself among the world's top suppliers. India, meanwhile, remains the largest arms importer but is actively pushing for indigenization, innovation, and foreign direct investment to reduce dependency and build domestic capabilities. The convergence of these trajectories offers fertile ground for collaboration. South Korea's proven manufacturing excellence and India's scale and demand together can drive co-production, joint research and development, and a new wave of defense sector investments. More broadly, such cooperation could catalyze linkages in high-technology sectors including artificial intelligence, aerospace, and advanced manufacturing.

This study is therefore guided by several objectives. It will trace the evolution of defense industries in both countries, analyze ongoing collaborations, and identify sub-sectoral opportunities for convergence in land, naval, and aerospace systems. It will situate bilateral defense cooperation within the wider Indo-Pacific context, examining how India and South Korea can jointly navigate relations with China, balance their respective ties with the United States, and contribute to emerging multilateral frameworks such as the Quad, Quad Plus, and RCEP. Finally, it will propose a set of actionable policy recommendations designed to upgrade bilateral ties into a fully trusted partnership, supported by institutional mechanisms such as regular summits, 2+2 dialogues, and joint industrial initiatives.

In pursuing these aims, this study employs a mixed methodological approach, combining qualitative analysis with empirical assessments of trade, investment, and arms flows. Expert interviews, roundtable discussions, and short case studies supplement historical and content analysis, ensuring that the findings are grounded in both policy relevance and academic rigor. Central research questions address the long-term outlook of India-ROK defense cooperation, the feasibility of joint engagement in minilateral forums, and the management of complex triangular dynamics involving China, North Korea, and the United States.

The broader ambition of this work is not limited to India and South Korea alone. It is to underscore how two middle powers, positioned at critical junctures in Asia, can chart a path of cooperation that transcends bilateralism and contributes to regional stability. In an era defined by uncertainty, protectionism, and great-power rivalry, their collaboration in defense industries has the potential to stand as a hallmark of constructive minilateralism in the Indo-Pacific. This study thus undertakes a deeper exploration of how strategic defense cooperation can transform the India-South Korea partnership into one of resilience, reliability, and regional consequence.

Chapter 1: Overview of the Bilateral Defense Industry Collaboration

Purpose of the Study

This study attempts to examine how South Korea and India, already strengthened and advanced by years of bilateral cooperation, can increase mutual trust to a higher level by engaging in strategic collaboration in the defense industry for a full-blown partnership in trade and security relations. India and South Korea have been deepening their bilateral partnership over the past two to three decades, ranging from trade, investment, and security, to arms collaboration. Shared democratic values, a commitment to multilateralism, and a mutual belief in the rule of law between the two countries have already laid a solid foundation for cooperation on regional and global platforms.

As formidable middle powers in the Indo-Pacific, India and South Korea share a like-minded commitment to free democracy and open economic systems in minilateral, regional, and multilateral architectures to ensure an open and liberal order. In pursuit of South Korea's quest for a high-income, high-tech economy amid the ongoing geo-economic fragmentation, South Korea views India—soon to become the third largest economy and a solid middle power representing the Global South—as one of the most trusted multifaceted partners in economic and security matters. More importantly, a

full-blown partnership with India, with its 1.4 billion population will allow South Korea to pursue an effective diversification strategy away from its excessive economic dependence on China and enable outreach to the increasingly important Global South in the evolving international geo-economic landscape.

Simultaneously, India views South Korea as a strategic and attractive partner in trade and security cooperation as part of India's quest for "Amrit Kaal" toward 2047, marking the 100th anniversary of India's independence as emphasized by visiting Indian Foreign Minister S. Jaishankar to South Korea in April 2023. In this context, India and South Korea have already started the process of joint production in the defense sector in addition to robust manufacturing trade and investment in automobiles, semiconductors, and electronics, among others. South Korea with its robust industrial competitiveness can help India attain its national agenda "Resilient India" and develop its defense sector as befitting a formidable middle power.¹⁾

Apart from trade and investment linkages, India and South Korea have a growing defense partnership. South Korea has emerged as a key supplier of weapons and military equipment to India as evident in India's acquisition of 100 units of the K9 Vajra-T self-propelled howitzer, a variant of South Korea's K9 Thunder, in 2020. The K9 Vajra was manufactured through a joint venture between Indian private giant L&T and South Korea's Hanwha Defense, with technology transfer, opening up a new era of strategic defense industry collaboration between the two countries.

In an increasingly uncertain geopolitical and geo-economic environment caused by the ongoing war in Ukraine, persistent military conflicts in the Middle East, and the US-China hegemonic rivalry, the defense industry collaboration between India and South Korea is poised for a paradigm shift, as India showcased the K9 Vajra at the military parade celebrating its Republic Day.²⁾ For South Korea, arms exports have emerged as a powerful

1) Panda and Ahn (2025a).

2) Ahn, Choong Yong (2023).

new category of tradable goods after showcasing its excellence in the international arms market. South Korea's major export items, ranging from high-tech electronics and home appliances to semiconductors, shipbuilding services, and automobiles, are increasingly challenged by Chinese competitors around the world. While South Korea initially developed its land, naval, and air defense systems for self-defense purposes, their potential as competitive export items complementing the country's high-tech export portfolio has become increasingly apparent. In recent years, successive South Korean governments have recognized the arms sector as an important export avenue, alongside a broader array of high-tech products.

India, meanwhile, has experienced robust economic growth over the past decade, especially under Prime Minister Narendra Modi's "Make in India" initiative. As the world's largest arms importer, India has prioritized the development of its own defense industry development—especially after the Galwan conflict in 2020 with China—to prepare for an uncertain and volatile Indo-Pacific region. As a result, bilateral trade and investment ties between India and South Korea have progressed substantially. Notably, both countries have already made promising strides in defense industry collaborations. Despite this momentum, there has been surprisingly little research—indeed, virtually none—on how to further deepen bilateral cooperation in the arms industry and build a trusted, like-minded partnership. This study intends to address that gap, offering insights for both policymakers and academics.

The basic purpose of this study is to argue that strategic promotion of India-South Korea defense industry collaboration is crucial to upgrading existing bilateralism toward a fully trusted partnership with the highest level of reliability. This study is based on a hypothesis that defense industry collaborations between the two countries would quickly deepen mutual trust, leading to greater trade linkages in high-tech intermediate goods and materials for the defense industry, enhanced security connectivity and joint arms R&D, and a strengthened all-round bilateral partnership on the

diplomatic and economic fronts. Earlier notable studies have validated this hypothesis.³⁾

This study will explore the specific trajectory of defense industry collaboration between India and South Korea to develop policy recommendation, drawing on a broader and multi-dimensional study of bilateral relations between India and South Korea as contained in a monograph just published by Routledge in March 2025, entitled *India-Korea Connections in the Indo-Pacific: Minilateralism to Multilateralism*, co-edited by Jagannath Panda and Choong Yong Ahn. As a pragmatic and concrete extension of the broader study, the two investigators decided to focus on an in-depth study of bilateral defense industry cooperation to catalyze an effective and swift upgrading of India-South Korea relations to the fullest possible extent.

Evolving global geopolitics present a compelling opportunity for India and South Korea, as like-minded nations, to elevate their bilateral relationship to the highest level. Amid the ongoing US-China hegemonic rivalry, the Trump 2.0 administration, upon taking office in January 2025, adopted unprecedented protectionist policies to “Make America Great Again”—with even greater intensity than during its first term—effectively ending the liberal international order that had prevailed since the post-war era. The US has begun imposing aggressively high tariff “bombs” on major trade-surplus economies, targeting both security allies and adversaries alike, and has introduced reciprocal tariffs on top of a baseline 10 percent across-the-board tariff.

As one of the most trade-dependent economies, South Korea has been particularly vulnerable to these shocks. The situation was further exacerbated by domestic political turmoil following former President Yoon Suk-yeol’s botched declaration of martial law in December 2024. This crisis culminated in the inauguration of President Lee Jae-myung on June 4, 2025, following a

3) Hartley (1995); Li and Vashchilko (2010); Jackson and Nei (2015).

snap presidential election.⁴⁾

Of particular concern to South Korea, President Trump has further proclaimed that Western allies must take responsibility for their own national security, either individually or collectively, by increasing their defense budgets while the US cuts back its military support. As a result, the world is witnessing more acute geopolitical and geo-economic fragmentation than ever before, which has resulted in a variety of minilateral alignments within increasingly intensifying security-trade/FDI nexus. A “perfect storm” of geopolitical tensions, AI-led technological modernization (drones and cyber tools), and re-armament policies is fueling rapid growth in both military spending and the global arms market. In the coming years, many countries, whether great or middle powers, are likely to increase their national defense budgets to strengthen national security by making their respective arms industries more competitive and updated. The global arms industry was valued at USD 475 billion in 2024 and is projected to reach USD 640 billion by 2033, exhibiting a compound annual growth rate (CAGR) of 3.6 percent from 2026 to 2033.⁵⁾ Niche segments such as automatic weapons are growing even faster, at around 8 percent CAGR, while defense drones are expanding at an estimated CAGR of about 12 percent.⁶⁾

A core objective of this study is to examine and propose how defense industry collaboration between India and South Korea can transform the bilateral relationship into a highly trusted economic partnership, not only in a bilateral but also a regional context. Furthermore, this study aims to act as a benchmark for promoting minilateralism in the Indo-Pacific by bringing together both institutional and individual actors like the Association of Southeast Asian Nations (ASEAN), the US, China, Japan, the Quadrilateral Security Dialogue (Quad), Quad Plus, CPTPP, and the RCEP.

Against this backdrop, both individual self-defense capacity building and

4) Ahn (2025a), pp. 30-35.

5) Verified Market Reports (2025).

6) Intellect Market Research (2025); Mordor Intelligence (2025).

collective security actions among like-minded countries have been actively pursued to navigate the shifting security realignments in an increasingly unpredictable and protectionist world. The self-defense doctrine is likely to intensify during the Trump era. As a result, middle and smaller economies are searching for a variety of minilateral and sub-regional alignments to promote sustainable economic growth and hedge against security risks, while minimizing the negative impacts of US-led protectionism and consequential challenges. Furthermore, the transformative nature of advanced 21st-century technologies, such as AI, synthetic biology, and quantum technologies, has profound implications for strategic arms development and economic collaboration among like-minded countries, given their dual-use potential in both commercial and defense sectors.

At present, both India and South Korea face grave security challenges. India, a key member of the Quad, is working to strengthen its defense capability against major neighboring adversaries, primarily China and Pakistan, while reaffirming its commitment to preserving freedom of navigation in the Indian Ocean. For several decades, the South Korean Peninsula has been a focal point of global security tensions. South Korea too has been facing constant security challenges from North Korea, which is reportedly strengthening its security alliances with Russia, China and Iran, including by deploying its troops to support the Russian invasion of Ukraine. South Korea remains the only nation in the world divided by an armed demilitarized zone (DMZ) border line, yet it is deeply committed to advocating for freedom of navigation as one of the most trade-oriented economies in the world.

Research Design and Data Sources

This study uses a mixed qualitative and empirical approach, combining first-hand field insights with secondary data to ensure both analytical rigor

and policy relevance (see also Appendix A).

Primary data were collected through semi-structured interviews and practitioner consultations conducted between 2023 and 2025 with policymakers, defense officials, and industry executives in India and South Korea. Participants included representatives from India's Ministry of Defence (Department of Defence Production, DRDO, and the Service Headquarters), South Korea's Defense Acquisition Program Administration (DAPA), and corporate leaders from Hanwha Defense, L&T, Hyundai Rotem, and KAI.

A total of 15 individual interviews and three focused roundtables were organized in Seoul, New Delhi, and Stockholm, respectively. The roundtables brought together stakeholders from government, industry, and academia, including experts from KIEP, ISDP, and other leading think tanks in both countries. Participants were selected based on direct experience with bilateral defense cooperation, procurement, or offset implementation.

Secondary sources included datasets and reports from the Stockholm International Peace Research Institute (SIPRI), the Korean Ministry of National Defense, DAPA annual reports, India's Defence Budget and Parliamentary Committee documents, and verified official media releases. Comparative data on arms transfers, foreign direct investment, and trade were drawn from UN Comtrade, the World Bank, and OECD databases.

The analysis combines qualitative thematic coding with descriptive statistics to identify trends in defense trade, R&D collaboration, and institutional mechanisms. Findings were triangulated across interviews, roundtable discussions, and official data to ensure reliability and capture diverse stakeholder perspectives. This approach provided a grounded understanding of how India-South Korea defense cooperation operates across industrial, policy, and strategic dimensions.

Situating India-South Korea Collaboration in the Wider Defense-Industrial Cooperation Literature

A deeper analytical framing situates the India-South Korea partnership within the expanding body of literature on defense industrial cooperation, dual-use innovation, and strategic trust-building. Existing scholarship on Japan-US defense technology collaboration highlights how dual-use innovation ecosystems underpin both deterrence and technological competitiveness.⁷⁾ The Japan-US experience illustrates the centrality of institutional trust, shared research and development norms, and mechanisms for managing asymmetric technological capacities through sustained reciprocity.⁸⁾ Parallel analyses of Franco-Indian defense collaboration further demonstrate that the co-development of advanced systems—such as the Rafale fighter aircraft and Scorpène-class submarines—can generate significant industrial spillovers and elevate bilateral alignment beyond transactional arms transfers.⁹⁾

Within this broader comparative landscape, the India-South Korea defense partnership constitutes a distinct middle-power model of defense industrial diplomacy. It fuses South Korea's developmental-state legacy, characterized by strong public-private innovation linkages,¹⁰⁾ with India's pursuit of strategic autonomy and indigenous technological capacity.¹¹⁾ Emerging analyses suggest that the diffusion of defense production networks among middle powers reflects a gradual pluralization of the global defense-industrial order. The focus is shifting away from dependence on major suppliers toward cooperative production, technology sharing, and

7) Samuels (1994); Green (2017); Hughes (2019).

8) Liff (2019).

9) *Hindu* (December 4, 2021); Tellis (2022).

10) Woo-Cumings(1999); Kim (2017).

11) Pant (2020).

trust-based collaboration among regional actors.¹²⁾

Conceptually, the India-South Korea partnership aligns with the notion of trust capital in international relations, wherein the joint development and co-production of sensitive technologies serve as proxies for strategic reliability.¹³⁾ Collaborative programs such as the K9 Vajra-T self-propelled howitzer, and potential future ventures in fighter aircraft or naval systems, exemplify the operationalization of this trust-based interdependence. Moreover, the literature on dual-use innovation underscores that such defense-industrial cooperation often transcends military imperatives, producing spillover effects in adjacent civilian sectors—including shipbuilding, robotics, semiconductors, and artificial intelligence—that contribute to comprehensive national power.¹⁴⁾

By engaging with this interdisciplinary scholarship across political economy, industrial policy, and strategic studies, this analysis situates the India-South Korea case within an emerging typology of middle-power technological partnerships. In doing so, it contributes to ongoing debates on how like-minded states can leverage defense-industrial collaboration as a tool for collective security, technological modernization, and economic resilience.¹⁵⁾

Chronology of Defense Sector Cooperation

The evolution of bilateral defense industry cooperation between India and South Korea is well described in the chronology of a high level of official contacts between the two countries as shown in Table 1. It commenced with signing of an MoU for defense industry cooperation and technology exchange two decades ago in 2005. Since 2010 onward, a series of bilateral summits have focused increasingly on defense cooperation in harness with

12) Bitzinger (2016).

13) Kydd (2005); Rathbun (2012).

14) Gholz and Sapolsky (2000), pp. 5-51; OECD (2021); Stowsky (2004).

15) Bitzinger (2016); Bitzinger (2017), and Cho (2025).

Prime Minister Narendra Modi's "Make in India" initiative and South Korea's flag policies by multiple presidents, including the New Southern Policy (NSP) under the Moon Jae-in Government (May 2017-May 2022) and Global Pivotal State (GPS) under the Yoon Seok-yeol government (May 2022-April 2025). To follow up on the summit's agreements, a series of high level contacts including ministerial meetings and CEOs of private arms manufacturing companies between two countries have occurred. Most notable contact of all is the most recent visit of the Special Envoy to India of the new Lee Jae-myong government, which will govern South Korea for the next five years.

As shown in the chronology (Table 1), bilateral defense cooperation has culminated in the joint production of the K9 Vajra delivered to the Indian government in 2020, hallmarking the beginning of a robust defense collaboration between two middle powers in the Indo-Pacific. "In April 2025, a contract for an additional 100 K9 Vajra units was finalized, raising localization levels from 50 percent to 60 percent and creating nearly 900,000 man-days of employment in India over four years."

The joint venture took a mixed format of B2B and B2G, with technology transfer to meet India's indigenization objective of arms capabilities. In 2015, during Prime Minister Modi's visit to South Korea, India-South Korea bilateral relations were elevated to a Special Strategic Partnership, broadening defense cooperation to include shipbuilding, cybersecurity, maritime security, and emerging technologies.

President Lee Jae-myong commenced his presidency on June 4, 2025, by declaring a "pragmatic diplomacy" with greater strategic autonomy than the Yoon government although its exact nature and action agenda have yet to be articulated—to navigate the highly uncertain global trade and security environment and the US-China rivalry. The Lee government chose India and the UK as the first two countries to send new presidential envoys. The special envoy to India headed by former Prime Minister Kim Boo-kyum made a courtesy call to Prime Minister Narendra Modi to deliver a personal

**Table 1. Chronology of High-Level Official Meetings:
South Korea-India Defense Industry Cooperation**

Year	Event & Key Contents
2005	– MOU signed on defense industry cooperation and technology exchange.
2010	– State visit by President Lee Myung-bak (January). – Bilateral relationship elevated to Strategic Partnership with expanded defense cooperation agenda.
2014	– Inauguration of PM Narendra Modi. – Launch of “Make in India” initiative. – Discussions on local production with South Korean defense firms.
2015	– President Park Geun-hye’s visit (January). – PM Narendra Modi’s visit to the ROK (May) – Relationship upgraded to Special Strategic Partnership with emphasis on defense cooperation and joint development.
2018	– President Moon Jae-in’s visit (July) with South Korean defense leaders (Hyundai, LIG Nex1, Hanwha) – Reconfirmation of MOU on defense cooperation: joint production discussions.
2019	– PM Narendra Modi’s visit to the ROK to strengthen the strategic partnership to invigorate “Act East Policy through deeper ties with South Korea’s “New Southern Policy” – Visit of Indian Defense Minister Rajnath Singh to South Korea. – Meetings with DAPA and Ministry of National Defense. – Discussed additional K9 howitzer acquisitions and local production expansion.
2020	– Completion ceremony of K9 Vajra-T local production by L&T and Hanwha Defense. – Attended by senior Indian military commanders and South Korean Ambassador.
2021	– Indian Ministry of Defence signs additional contract for ~100 K9 units and upgrades.
2022	– Indian high-level delegation attends Seoul ADEX (October). – Discussions on next-gen howitzers, armored vehicles, air defense missile systems.
2023	– Hanwha Aerospace signs MOU with L&T (April) to strengthen local production and technology transfer. – Annual official consultation between DAPA and India’s Department of Defense Production – South Korea-India Joint Committee on Defense Industry Cooperation (September) reviews joint development of aircraft, howitzers, missile systems.

Table 1. Continued

Year	Event & Key Contents
2024	<ul style="list-style-type: none">- Seoul Defense Ministers' Meeting (November) between Minister Shin Won-sik and Defence Minister Rajnath Singh.- India expressed interest in joint development of next-gen South Korean weapon systems.
2025	<ul style="list-style-type: none">- Special Envoy Kim Boo-kyum visits India (July).- Delivered President Lee Jae-myung's letter to PM Modi; discussed deepening defense cooperation, upgraded K9s, multiple rocket launchers, ballistic missile defense systems.

Note: Compiled by authors.

Sources: Korean Ministry of National Defense press releases (2010-2025); DAPA official reports; Indian Ministry of Defence press statements & PIB releases; Hanwha Defense & I&T official announcements; Seoul ADEX and bilateral summit joint statements; major South Korean (Yonhap, KBS, Chosun Ilbo) and Indian (The Hindu, Times of India) media coverage.

letter from President Lee to strengthen South Korea-India relations.

The dispatch of the Special Envoy to India demonstrates President Lee's firm commitment to further advancing the South Korea-India Special Strategic Partnership, which marks its 10th anniversary in 2025. In particular, the envoy requested India's continued support for South Korean companies operating in India and conveyed South Korea's hope to further strengthen strategic cooperation in areas such as defense and core technologies.¹⁶⁾ Specifically, the delegation exchanged views on cooperation on upgraded K9, multiple rocket launchers, and ballistic missile defense systems.

Prime Minister Narendra Modi welcomed the delegation and expressed his gratitude for the letter. He recalled his first meeting with President Lee during the G7 Summit in Canada in June and expressed his hope for President Lee to visit India. Prime Minister Modi emphasized that now, when India is developing rapidly and stably, is the optimal time for South Korean companies to enter the Indian market. He also stated that India is eager to strengthen cooperation with South Korea in shipbuilding, a sector

16) *Yonhap News* (July 7, 2025).

in which South Korea leads globally, and pledged to do his utmost to resolve difficulties faced by South Korean firms operating in India.¹⁷⁾

President Lee's special delegation also met with Minister of External Affairs Subrahmanyam Jaishankar. Both sides agreed on the need to expand substantive cooperation through invigorating high-level exchanges, including summit-level meetings and the Foreign and Defense (2+2) Vice-Ministerial Dialogue, as well as enhancing defense and strategic economic cooperation. They also agreed to improve the South Korea-India Comprehensive Economic Partnership Agreement (CEPA).

Given the security and geopolitical nature of defense industry collaborations, international arms transfers are normally complex and differentiated from ordinary tradable goods trade. Arms transfers refer to the supply of weapons, spare parts, ammunition, and technical/logistical items or training associated with these systems, by gift, sale, or subsidy.¹⁸⁾

The term 'arms trade' refers to a subset of arms transfers as distinct from other types of military shipments such as aid and gifts. Arms sales take place between suppliers and recipients, who may be governments, foreign factions or groups, companies, or individuals. The largest sales are often between governments and can run into billions of dollars, as for example the US sale of advanced fighter aircraft to Pakistan and advanced missiles and munitions to Israel. Sales can be legal or illicit—on the black or gray market.

The arms transfer and international transactions take three typical modes of transactions: G2G, G2B, B2B and their mixtures. Transfers can be made between governments, private firms and governments, governments and nongovernmental groups such as militia forces, and amongst such groups themselves. Given the strong G2G nature of arms trade, active arms transactions between countries are likely to enhance mutual trust and vice versa.

The government is normally involved in arms transfer deals, especially

17) *Ibid.*

18) Kurtz *et al.* (2008).

in technology transfer via the offset trade. Arms trade is viewed from many different perspectives within variants of realism, liberalism, and constructivism.¹⁹⁾ These literatures take a different view of global order: an anarchic international system; institutions, trade, and democracy in a global (capitalist) economy; or normative cultural orders, respectively.

In this study, we will take a mixed approach to explain why India and South Korea need to be involved in defense sector collaboration: On one hand, two countries take realist approaches to focus on the acquisition, threat, and use of weapons as instruments of sovereign national state power in an anarchic international system. On the other hand, the two countries also take a liberal approach to focus on the political economy of arms development, acquisition, and trade, while taking for granted the centrality of arms production to state security, the capitalist view in terms of economic and defense globalization, and the centrality of the United States to global order and the prospects for international arms regulations.

Rising Profiles of South Korea and India in Global Arms Market

In recent years, both India and South Korea have become major players in the global defense market, which can be determined by military spending and actual arms transfers in the global arms market. Table 2 shows the top 20 countries with the highest military spending worldwide in 2024. The US topped the list, sharing 37 percent of global spending and followed by China with 12 percent of global total. India and South Korea were the 5th and the 11th highest military spenders, sharing 3.2 percent and 1.8 percent of global spending respectively. The dominance position of the US is clearly visible in global military spending. Amid the intensifying hegemonic rivalry and the US

19) Stavrianakis (2025).

Table 2. Countries with the Highest Military Spending Worldwide in 2024

Rank	Country	Spending (USD bn)	% of GDP	% of Global Spending
1	United States	997.0	3.4	37.0
2	China	314.0	1.7	12.0
3	Russia	149.0	7.1	5.5
4	Germany	88.5	1.9	3.3
5	India	86.1	2.3	3.2
6	United Kingdom	81.8	2.3	3.0
7	Saudi Arabia	80.3	7.3	3.0
8	Ukraine	64.7	34.0	2.4
9	France	64.7	2.1	2.4
10	Japan	55.3	1.4	2.0
11	South Korea	47.6	2.6	1.8
12	Israel	46.5	8.8	1.7
13	Poland	38.0	4.2	1.4
14	Italy	38.0	1.6	1.4
15	Australia	33.8	1.9	1.2
16	Canada	29.3	1.3	1.1
17	Turkiye	25.0	1.9	1.0
18	Spain	24.6	1.4	0.9
19	Netherlands	23.2	1.9	0.7
20	Algeria	21.8	8.0	0.7

Source: SIPRI Military Expenditure Database, Wikipedia List of countries with highest military expenditures.

President Trump policy for global west and its allies to raise their defense budget significantly for “proper burden sharing,” not taking “free ride” any more guaranteed by the US.

Over 2020-24 years according to the SIPRI data base, South Korea has been the top 10 arms exporter while India has been in the top one to three arms importers from major arms exporters such as Russia, France, Israel, and South Korea (Table 3). At present, South Korea and India are positioned as supplier and recipient country respectively. South Korea’s

defense industry has grown very rapidly to become a major arms exporter due to South Korea's persistent drive for self-defense capacity building and regular combat-ready military exercises under the ROK-US mutual defense treaty signed in October 1953. India has also prioritized the defense industry development in parallel with rapid economic growth regime initiated by Prime Minister Narendra Modi to face aggravating challenges arising from an increasingly turbulent Indo-Pacific, largely due to China's Belt and Road Initiative and security confrontation in the Middle East. Despite its nuclear power status, India has been heavily dependent on conventional arms imports and is now seeking to develop its domestic arms industries. Most of

Table 3. The 15 Largest Exporters of Major Arms and Their Main Recipients, 2020-2024

Rank	Exporter	Share of Global Exports (%)		Main Importers' Share of Exporters' Total Exports (%)					
		2020-24	2015-19	2020-24					
				1st		2nd		3rd	
1	United States	42	38	Saudi Arabia	12	Ukraine	9.3	Japan	8.8
2	France	9.6	8.6	India	28	Qatar	9.7	Greece	8.3
3	Russia	7.8	21	India	38	China	17	Kazakhstan	11
4	China	5.9	6.2	Pakistan	63	Serbia	6.8	Thailand	4.6
5	Germany	5.6	5.7	Ukraine	19	Egypt	19	Israel	11
6	Italy	4.8	2.0	Qatar	28	Egypt	18	Kuwait	18
7	United Kingdom	3.6	3.6	Qatar	28	United States	16	Ukraine	10
8	Israel	3.1	3.2	India	34	United States	13	Philippines	8.1
9	Spain	3.0	2.3	Saudi Arabia	24	Australia	18	Turkiye	13
10	South Korea	2.2	2.1	Poland	46	Philippines	14	India	7.0
11	Turkiye	1.7	0.8	UAE	18	Pakistan	20	Qatar	9.9
12	Netherlands	1.2	1.9	United States	23	Pakistan	20	Mexico	12
13	Poland	1.0	< 0.05	Ukraine	96	Sweden	1.4	Estonia	0.9
14	Sweden	0.9	0.5	Brazil	22	Pakistan	18	UAE	15
15	Norway	0.8	0.3	United States	28	Ukraine	21	Romania	15

Source: SIPRI Arms Transfers Database, March 2025, partially re-quoted from Mathew George, *et al.*, "Trends in International arms transfers, 2024," *SIPRI Fact Sheet*, March 2025.

the hardware is developed and produced either under license or joint ventures. Although this places a restriction on exports, the case of the sale of BrahMos by India to the Philippines could open the doors for future joint venture exports.

Why can South Korea as a second-tier supplier, next only to first-tier arms exporters like the US, France, Russia, China, and Germany, adapt to defense-industrial globalization and expand its weapons sales in different regions? This can be explained by the demand side of arms procurement. As first-tier suppliers focus on advanced power projection weapons, two types of qualitative structural gaps emerge in the global arms market either due to excessive superiority or utter neglect of certain platforms.

Consequently, buyer states turn to weapon systems produced by second-tier suppliers as they are proximate to their qualitative needs in terms of strategic/technical and doctrinal requirements. As Park and Thakkar (2025) pointed out, South Korea as a second-tier supplier was able to outbid its first-tier counterparts to India and Indonesia on qualitative grounds to fill the structural gap left by global power disparity.²⁰⁾

Since the Russian invasion of Ukraine, South Korean defense exports have expanded significantly. From 2018 to 2022, they increased by over 70 percent compared to the 2013-2017 period. Until 2020, South Korea's arms exports typically ranged from USD 2-3 billion, but in 2021 they surged to USD 7.3 billion, then USD 17.3 billion in 2022, and USD 14 billion in 2023. In 2023, South Korea became the top 10 arms exporter in the world, transferring USD 14 billion worth of defense technology to 12 countries.²¹⁾

In addition, South Korea is the second largest provider for six of the 40 largest arms importers in 2019-2023 including Indonesia, New Zealand, Norway, Poland, Thailand, and the U.K. South Korea is now ambitious in seeking to become the world's fourth largest arms exporter by 2027 by cultivating its arms sector in a more efficient and more high tech production

20) Park and Thakkar (2025).

21) Nam and Sanchez (August 21, 2024).

mode not only for a self-defense purpose but as a promising export item while raising its geopolitical profile.

Traditionally, the South Korean defense industry has been cultivated by the government-led heavy-chemical industrialization strategy to get ready for ever-hostile North Korean provocations and potential invasion along the heavily armored DMZ line in the past 75 years. As a result, the efficacy of South Korea's defense industry under regular combat-ready drills is increasingly recognized for its excellence on account of its active arms exports, flexible conditions, and joint production, as well as highly raised diplomatic profile. Furthermore, South Korean arms have been recognized by the mantra of "cheaper, better, and faster" as evident by frequent visits and talks by foreign state leaders.

On the front of the global arms import market over 2020-2024, Table 4 shows that India has stood as virtually the No. 1 arms importer by sharing 8.3 percent of global arms import albeit Ukraine engaged presently in the devastating war with Russia.

India, soon to become the third largest economy projected by 2027, was the world's top arms importer for the period 2019-23 with imports having gone up by 4.7 percent over the period according to SIPRI.²²⁾ India was followed by Saudi Arabia and Qatar. Although Russia remained India's main arms supplier, accounting for 36 percent of its arms imports, India is now increasingly turning to western countries like France and the US as well as boosting its domestic arms industry to meet its growing defense needs. In order to enhance domestic arms production, India has adopted Positive Indigenisation Lists (PIL) to identify specific components and subsystems that must be manufactured domestically²³⁾ (For effective PIL, India has increased FDI Limits in the defense sector to 74 percent through the autonomous route and up to 100 percent via the government route). India has established two dedicated Defense Industrial Corridors in Tamil Nadu

22) SIPRI (March 13, 2024).

23) India, Ministry of Defense (July 16, 2024).

and Uttar Pradesh to boost manufacturing. India has also adopted Innovations for Defense Excellence (iDEX) to create an ecosystem for innovation and technology development in defense and aerospace needs. India is also about to introduce Defense Innovation Zones, streamline procurement process, incentivize indigenous production and finally boost exports.

Table 4. Top 10 Global Arms Importer (2020-2024)

Rank	Country	Share of Global Arms Imports (2020-24)	Top 3 Supplier Countries
1	Ukraine	8.8%	United States, Germany, Poland
2	India	8.3%	Russia, France, Israel
3	Qatar	6.8%	United States, Italy, United Kingdom
4	Saudi Arabia	6.8%	United States, Spain, France
5	Pakistan	4.6%	China, Netherlands, Turkiye
6	Japan	3.9%	United States, United Kingdom, Germany
7	Australia	3.5%	United States, Spain, Norway
8	Egypt	3.3%	Germany, Italy, France
9	United States	3.1%	United Kingdom, France, Israel
10	Kuwait	2.9%	United States, Italy, France

Source: Stockholm International Peace Research Institute (SIPRI).

Dynamics of South Korea-India Connectivity in Trade and Investment

After formal diplomatic normalization in 1962, India and South Korea established a Comprehensive Economic Partnership Agreement (CEPA) in 2010 and upgraded their relationship to a special strategic special partnership in 2015. Overall dynamics of economic connectivity between India and South Korea can best be explained by the bilateral flows of trade and

investment. Trade between India and South Korea has increased from USD 11.22 billion in 2007 to USD 28.77 billion in 2024, showing consistently sizable trade surpluses in favor of South Korea (Table 5). But the bilateral total trade volume is far smaller than South Korea’s trade volume with China and Vietnam, registered at USD 328.1 billion and USD 86.7 billion, respectively, in 2024.²⁴⁾

Based on the UN Comtrade data in 2024, South Korea-India trade shared only 1.91 percent of South Korea’s global trade with USD 1.315 trillion and 2.42 percent of India’s total global with USD 1.132 trillion. However, South Korea-China trade constituted 20.7 percent of South Korea’s total trade and 5.3 percent of China’s global trade. In the same year, South Korea-Vietnam trade showed 6.6 percent of South Korea’s total trade and 10.4 percent of Vietnam’s global trade.

Table 5. South Korea’s Trade with India, selected years

(Unit: USD billion)

Year	Total trade	South Korea’s exports to India	South Korea’s import from India	Trade balance
2007	11.22	6.6	4.62	1.98
2011	20.56	12.65	7.84	4.81
2015	16.27	12.03	4.24	7.79
2020	17.2	11.04	6.18	4.87
2021	23.9	15.32	8.58	6.74
2022	27.93	17.71	10.22	7.49
2023	28.44	17.83	10.61	7.22
2024	28.27	18.05	10.22	7.83

Source: Korea International Traders Association.

As shown in Table 6, South Korea has exported largely high valued intermediate goods—parts and components—to India and in return imported basically essential raw materials, causing India’s sustained trade deficit against South Korea. India’s trade deficit vis-a-vis South Korea and

24) Ahn (2025b); Cho (2025).

against the world is likely to persist until India deepens industrialization as proclaimed in “Make in India and Self-resilient India” for its robust and resilient manufacturing development. It is the right direction for India to have adopted the Production-Linked Incentive scheme (PLI) for efficient manufacturing ecosystem as a part of the *Atmanirbhar Bharat* package to revive the economy post-COVID.

Table 6. Major Trade Items of South Korea’s Trade with India in 2022

(Unit: USD million)

Exports to India			Imports from India		
Items	Value	Ratio*	Items	Value	Ratio**
IC semiconductor	2,237	11.9	Naptha	2,673	30
Synthetic resins	1,597	8.5	Aluminum	1,609	18.1
Auto parts	1,149	6.1	Chemical materials	440	4.9
Offshore construction	978	5.2	Ferro-alloy	262	2.9
Lubricant	926	4.9	Pig lead & scrap	262	2.9
Total	6,887	36.5	Total	5,246	58.9

Note: * Refers to the ratio of five major export items in total exports amounting to USD 18,875 million.

** Refers to the ratio of five major import items in total imports amounting to USD 8.9 billion.

Source: Korea International Traders Association.

On the front of bilateral FDI flows, Table 7 shows that India has received consistently significant FDI from South Korea, far greater than the reverse flow. South Korea’s accumulated outbound FDI to India USD 9,801 million over the period of 2014-2022 with a total of 4,731 cases at the end of 2022 is about 13 times of the corresponding figures of India’s outbound FDI to South Korea and 6.5 times of India’s FDI cases to South Korea. Thus, the bilateral FDI flows show an opposite picture to the bilateral trade flow. Despite some notable presence of South Korea’s multinational companies such as Samsung, Hyundai, LG, and Hanwha, South Korea’s cumulative FDI shared only 0.86 percent of India’s total cumulative FDI whereas Japan took a much larger share amounting to 6.19 percent over April 2000-December 2022, according to the Government of India.

Table 7. South Korea-India FDI Flows and Cases

(Unit: USD million)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024*	Accumulated**
S. Korea→	387	392	392	947	827	685	588	352	433	386	568	10,754
India	(160)	(264)	(268)	(310)	(408)	(451)	(308)	(246)	(255)	(n.a.)	(n.a.)	(4731)***
India→	1.56	2.54	1.41	1.73	1.95	96.6	1.4	2	81.5	65	30	856
S. Korea	(9)	(10)	(6)	(11)	(13)	(16)	(12)	(10)	(17)	(n.a.)	(n.a.)	(723)***

Note: Numbers in the parentheses indicate FDI cases.

* The FDI value figures cover only January through September 2024.

** The accumulated FDI value and cases include the data before 2014.

*** The accumulated FDI cases do not include those for 2023 and 2024.

Source: KOTRA Overseas Mission Guide Book to India.

Despite India’s significant FDI liberalization over the last decade, many barriers and restrictions limiting FDI flows to India still remain in place. Investments in certain sectors of India’s economy are capped or require government approval. It is striking to note that in 2022 South Korea’s outbound FDI to India with USD 433 million is almost negligible compared to South Korea’s outbound FDI to China and Vietnam with USD 8.5 billion and USD 2.8 billion, respectively.

What factors can explain the highly underperforming economic connectivity between India and South Korea in comparison of South Korea’s economic linkage with China and Vietnam? Both China and India are geographically much closer to South Korea than India. China and Vietnam have adopted highly active FDI inducement policy and fostered a business-friendly environment earlier than India. At the early phase of South Korea’s export-oriented development paradigm, South Korea placed resource-rich ASEAN as the priority economic partner. During the past several decades, South Korea has involved itself actively in forward and backward integration with resource-rich and labor-abundant ASEAN member-states, especially Vietnam and Indonesia, on top of the ASEAN-South Korea FTA put into force in 2007 while utilizing ASEAN’s role in international diplomatic domain. For these historical reasons, South Korea has placed India as a

geographically and psychologically distant country relative to the ASEAN proximity.

Putting together the trade and investment flows, India and South Korea, Asia's second and fourth largest economy respectively, has not reached the potential economic linkages observable to their respective economic profiles in Asia. In order to strengthen South Korea's economic connectivity with India, South Korea needs to commit significant outbound FDI increase to India as a macro-economic balancing move in compensation for South Korea's sustained trade surplus with India.²⁵⁾ Japan's FDI engagement with India is a good example to nurture bilateral relations to the highest possible extent. Given India's ambitious defense industry buildup, large scale South Korean FDI in India's defense industry can be perfectly harmonized with India's active inducement of FDI under the Modi Administration. The dual high-tech nature of modern defense industry collaboration between likeminded countries—where cutting-edge technologies such as AI, cyber security, advanced shipbuilding, aerospace, and precision electronics converge—can easily trigger strong spillover effects on trade and investment.

The positive impacts of defense industry collaboration on economy can be realized via three channels. The first channel is related to technology-driven trade expansion. Defense partnerships today rarely stop at arms sales. Joint R&D in dual-use areas (e.g., semiconductors, propulsion, autonomous systems) generates commercial spin-offs that enter civilian markets (aviation, shipping, telecom, batteries). Shared standards, interoperability requirements, and co-development projects encourage preferential sourcing of components, increasing bilateral trade in high-value intermediate goods.

The second channel is through mutual FDI. Co-production agreements and licensed manufacturing require equity stakes, joint ventures, and cross-shareholding to protect intellectual property and secure supply chains. Once

25) Ahn (2025b).

defense firms establish production or R&D hubs, related civilian firms—materials, electronics, logistics—often follow, triggering cluster FDI in both directions. The third channel is through policy signaling and risk reduction. A formal defense-industrial partnership signals political trust and long-term commitment. This lowers perceived geopolitical risk and can ease regulatory approvals for dual-use technology transfers, making private investors more willing to commit capital.

When “like-minded” countries enter high-tech defense partnerships, they are effectively building a strategic economic alliance. The combination of advanced R&D, technology diffusion, and long-term procurement contracts makes overall trade and mutual FDI a *natural* by-product rather than a separate policy goal.

In this context, South Korea-India defense industry collaborations have become arguably one of the most promising bilateral sector collaborations in the Indo-Pacific, contributing to a robust bilateralism to the fullest potential, dedicated to the ongoing Indo-Pacific tilt. Despite the admirable success case of the K9 Vajra joint venture between the two countries, overall bilateral defense industry cooperation has been still limited for a variety of reasons, including lack of institutional and political support. Especially in comparison to India-Japan relations that have been a matter of intense scrutiny and focus, it is important to nurture defense industry cooperation in the evolving Indo-Pacific under the Trump round.

The two countries have not engaged in viable FDI and trade contacts to the fullest extent despite the India-South Korea special strategic partnership. The upgradation of the CEPA has yet to come. Given the two countries’ high-profile development trajectory, South Korea’s large-scale FDI commitments to India’s lagging high-tech manufacturing sectors like semiconductors, arms, AI, are likely to open a new era of fully upgraded partnership.²⁶⁾

26) *Ibid.*

Conclusion: Providing a Theoretical Setting

The trajectory of India-South Korea defense cooperation must also be situated within broader theoretical frameworks of international relations. From a realist perspective, both nations are responding to the structural pressures of an anarchic international system where China's assertiveness and the uncertainty of US commitments are redefining regional alignments.²⁷⁾ The collaboration in defense production and technology transfer can thus be seen as an exercise in hard balancing, intended to reduce strategic vulnerabilities while building deterrence capabilities.

Liberal institutionalism, however, provides a complementary lens.²⁸⁾ India and South Korea's bilateral defense cooperation has increasingly been institutionalized through memoranda of understanding, joint commissions, and structured dialogues, thereby embedding arms collaboration within broader economic and political partnerships. This institutionalization creates path dependence and lock-in effects that help stabilize the relationship even in moments of geopolitical volatility. Furthermore, the emphasis on co-production and technology sharing represents a deeper form of economic interdependence that goes beyond transactional defense trade.

Constructivist insights also highlight how shared democratic values and normative commitments to a rules-based order shape the bilateral trajectory.²⁹⁾ Defense cooperation has become a means of identity-building for India and South Korea as responsible middle powers that reject unilateralism and coercive state behavior. The repeated references by leaders in both countries to the importance of freedom of navigation, transparency, and sovereignty illustrate the normative underpinnings of defense industry ties. This also links the bilateral relationship to wider multilateral platforms such as the Quad, where both India and South Korea, despite the latter not being a

27) Waltz (1979).

28) Keohane (1984).

29) Wendt (1992).

formal member, share many converging objectives.

Another dimension that deserves emphasis is the comparative middle power diplomacy that both countries practice.³⁰⁾ South Korea, with its Global Pivotal State (GPS) vision, and India, with its Global South leadership narrative, are both striving to redefine their roles within an increasingly fragmented order.³¹⁾ Defense industrial cooperation provides a concrete instrument to operationalize this aspiration. By aligning supply chains, standardizing military components, and pursuing joint research in aerospace, cyber, and missile defense, the two nations can project a model of middle power collaboration that is not dependent on either Washington or Beijing.

Finally, the structural asymmetry in India-South Korea defense trade—where South Korea is primarily an exporter and India an importer—must gradually evolve into a more balanced arrangement. India's *Atmanirbhar Bharat* initiative seeks to move from buyer-seller dynamics toward co-development. In this regard, South Korea's experience in offset trade mechanisms and its own learning curve as a late industrializer provide valuable lessons for India. Historical parallels with South Korea's Heavy and Chemical Industry (HCI) drive during the 1970s, where industrial deepening was linked to national security imperatives, suggest that India's defense industrial policy could similarly act as a catalyst for broader economic transformation. Thus, the defense partnership is not just an outcome of immediate security concerns but also a strategic investment in long-term developmental goals.

In sum, bilateral defense industry collaboration between India and South Korea is simultaneously realist, liberal, and constructivist in nature. It addresses immediate security threats, embeds cooperation in institutional frameworks, and reinforces shared values of responsible middle power diplomacy. By appreciating these overlapping dimensions, policymakers in both countries can design strategies that maximize complementarities while institutionalizing resilience against external shocks.

30) Cooper (1997).

31) Ba (2024); Basrur (2019).

Chapter 2: South Korea's Rise to Global Arms Market Player

Dual Policy Goals: Export-based Industrial Deepening and National Self-Defense

South Korea's modern industrial development is widely agreed to have occurred within a unique paradigm of a chaebol-dominant but export-based manufacturing strategy. South Korea's business structure and ecosystem have greatly influenced the country's landscape for both outward and inward FDI. In many respects, South Korea's development strategies were patterned after Japan's catch-up-with-the-West model of the post-Meiji era in the late 19th century and emulated Japan's "Heavy and Chemical Industrialization Strategy" under a "Wealthy Nation and Strong Army" national doctrine in the pre-war era. Indeed, with Alexander Gerschenkron's latecomers' advantage, South Korea dramatically shortened the usual phase of industrial transformation taken by most developed nations over more than a century. South Korea's government-led industrial growth has been accelerated in conjunction with export-drive policies, which have blurred the lines between industrial and trade policies. The objective of both policies has focused on enhancing the international competitiveness of the South Korean economy.

After about 10 years of labor-intensive manufacturing exports, South

Korea abruptly shifted the economic policy focus to “heavy and chemical industry (HCI) development” in 1970 by declaring it the top priority of national economic development. The sudden shift to industrial deepening was motivated by the need to upgrade the industrial structure ahead of emerging labor-abundant competitors, especially from Southeast Asia, and to improve national defense capabilities. South Korea was shocked by the announcement of the Nixon doctrine and the unilateral decision to reduce US ground troops stationed in South Korea by a third, despite the South Korea-US ally relationship and goal to defend together whenever one party is attacked. The visionary determination of President Park Chung-hee (1962-1979) to achieve twin goals of industrial upgrading and national defense capabilities was his regime’s national priority ordering with a strong power grip in the wake of ever-intensifying inter-Korean hostilities.

As a quick response to the US troop withdrawal, the national security-conscious Park Chung-hee government (1962-1979) identified shipbuilding, iron and steel, machinery, non-ferrous metals, textiles, electronics, and petro-chemicals as strategic HCI sectors to use scale economies as well as defense industry promotion. These HCI industries were housed in several industrial parks at Ulsan, Changwon, Geoje, and Pohang located along coastal lines for easy logistical management, which had some important bearings to the designation of foreign investment zones (FIZs) later.

The government provided an implicit commitment to reluctant business people at the early stage of HCI industrialization to rescue failed projects. The government also encouraged chaebols to diversify their business lines by allowing them cross-shareholding, mutual loan repayment guarantees among subsidiary firms while preventing inward FDI from penetrating South Korea’s new frontier market.

Fortunately, many business figures were familiar with foreign competition overseas from having exported light manufacturing products in the 1960s. To exploit scale economies and encourage private R&D, leading HCIs for eventual export industries, the South Korean government intentionally aided

the capital formation of chaebols as well as their subsequent diversification of business lines by allowing cross-sharing holdings and mutual loan repayment guarantees among chaebols subsidiaries.³²⁾ On the part of chaebols, easy diversification of business provided a robust hedge against the great risks involved in specializing in a single business. Consequently, chaebols were able to make a profit through highly leveraged business diversification while enjoying a “too big to fail” sense of security due to government credit allocation as long as they established synergistic partnerships with the government. Failure to do so meant getting credit lines cut off from the banks, which are virtually under government control.

The Yulgok Project under President Park Chung-hee

Amid strategic uncertainty following the US Nixon Doctrine (1969) and the subsequent withdrawal of the US 7th Infantry Division in 1971, President Park Chung-hee viewed this crisis as an opportunity to enhance South Korea’s self-defense capabilities through accelerated industrialization, continuing the momentum of his Heavy and Chemical Industry (HCI) drive. In this context, the Yulgok Project was launched as a 15-year defense modernization program (1974-1986) aimed at indigenizing weapons production and strengthening the national defense industrial base.³³⁾

Its objectives were threefold: (1) to develop domestic weapons systems to replace imports; (2) to integrate defense procurement with key heavy industries such as steel, shipbuilding, and electronics; and (3) to expand defense R&D capacity through institutions like the Agency for Defense Development (ADD), established in 1970.³⁴⁾ Major conglomerates—Hyundai,

32) Ahn (2001).

33) Kim and Vogel eds (2011).

Samsung, Daewoo, and Kia—were mobilized to produce aircraft, ships, and armored vehicles, thereby fusing the private industrial base with military production.

To a larger extent, the Yulgok Project exemplified state-industry collaboration: the government provided capital and access to foreign technology licenses, while private firms undertook manufacturing and scale-up. This model—import for learning, indigenize for autonomy—became a hallmark of South Korea’s later defense industrialization.³⁵⁾ The project, which concluded in the mid-1980s, enabled indigenous production of naval vessels, armored vehicles, and defense electronics, laying the R&D groundwork for later systems such as the Hyunmoo missile family and K-series ground platforms.³⁶⁾ Strategically, it embedded military modernization within South Korea’s developmental-state framework, transforming the defense industry into a central pillar of national industrial policy.

The fine steel, ships, machinery, electronics, and petrochemical products delivered by HCI firms are essential inputs for manufacturing military weaponry, such as M16 rifles, light tanks, artillery, warships, and helicopters used to fight the North Korean army along a 150-mile demilitarized zone that includes both steep mountains and coastal lines. Thus, HCI industries are directly related to national self-defense capabilities against North Korea’s potential attacks. Consequently, HCI projects need to be developed as domestic industries under an import-substitution regime to meet important security mandates without foreign business ownership. Whenever needed, South Korea adopted licensing methods to acquire new and modern technology. Although the HCI drive contained import-substitution contents, the transformation of HCI products into exports was continuously emphasized to let in severe international competition.³⁷⁾ South Korea’s

34) Korea, Government of, Agency for Defence Development (ADD), *50 Years of Korea’s Defence Re>D*. Daejeon: ADD Press (2020).

35) Paik (2022).

36) Yoon (2021).

37) Kim (2019).

joining the Vietnam War (1960-1975) at the request of the US government under the South Korea-US bilateral ally compact gave South Korea's HCI firms new momentum for a quantum jump by winning major combat-ready logistics and infrastructure projects during the war. These experiences greatly helped South Korea's construction firms manage their first-ever large-scale projects on Vietnamese battlegrounds and later advance into the Middle East construction boom, which was generated from recycling oil-dollar revenues accumulated during the global oil shock period.

Despite the military and political objectives envisioned by the Park administration with a great deal of discipline, the sudden HCI expansion with highly leveraged financing resulted in a major crisis in the late 1970s as a second oil shock erupted in 1979. The targeted HCIs were highly energy-intensive and seriously hit with a second oil price hike. The virtually "unlimited" government support for HCI businesses, including with preferential credit, resulted in accelerated inflation, a growing deficit in the balance of payments, and a high degree of idle capacity, causing serious business loss on the part of the HCI firms.

With a sense of deep crisis with the ill-performing HCI firms and paying attention to structural adjustments and technological development through imitative learning and foreign technology licensing whenever needed, the HCI share of total manufacturing output rose from 33 per cent in 1970 to 50 per cent in 1980. By the late 1970s, some HCI products, such as electronics, machinery, ships, iron, and steel, began to appear on export commodity lists. It also forced chaebols to focus on high value-added technological development instead of the traditional approach of using a comparative advantage due to low wages.³⁸⁾ Thus, the HCI-based chaebols were later able to produce competitive exportable products in electronics, automobiles, and ships through learning by doing and competing fiercely in the international market. With continued technological advancements through the absorptive

38) Ahn and Kim (1997).

capacity of new short-cycle technologies, internal R&D capacities, and largely foreign licensing whenever necessary, some chaebols, notably Samsung, Hyundai, SK, LG, Hanwha, and Lotte, became multinational companies and global brand names. It is argued that South Korea was able to leapfrog older technologies, bypass heavy investment in previous technology systems, and adopt new technologies.³⁹⁾

While private conglomerates concentrated on heavy and chemical industrial drives for eventual export activities, South Korea also developed government supported defense industry related research arms and actual

Table 8. South Korea’s Defense Industry-related R&D Institutes

Institution / Center	Type	Role & Key Focus Areas
ADD	Government defense R&D lab	Weapons tech, aerospace, AI, unmanned systems, future weapons systems, satellites
DAPA	Government administration	Defense procurement; led development of Block-I laser drone defense system
KIDA	Defense policy think tank	Defense policy research, systems analysis, force development, reform strategies
KAIST – ISC	Academic research center	Sensors, quantum tech, autonomy, defense-relevant energy and materials research
KRIBB – Biodefense	Academic research center	Biodefense technologies—wearables and bio-materials
SaTReC (KAIST)	University lab	Satellite and space tech development and education
KARI	National Aerospace institute	Aviation, space systems, launch vehicles, national space capabilities

Note: ADD (Agency for Defense Development), DAPA (Defense Acquisition Program Administration), KIDA (Korea Institute for Defense Analyses), KAIST (Korea Advanced Institute for Science and Technology), ISC (Institute for Security and Convergence Research), KRIBB (Korea Research Institute of Bioscience & Biotechnology), SaTReC (Satellite Technology Research Center), KARI (Korea Aerospace Research Institute).

39) Lee (2013).

manufacturing labs. They are listed in Table 8.

The government’s defense-related R&D institutes and labs as listed in Table 8 have been working together with private big firms in South Korea to carry on specific arms development project. The specific collaboration examples between public institutes and private firms are shown in Table 9.

Table 9. Public-Private Programs of Arms Collaboration in South Korea

Program / System	Gov. Lead (ADD/DAPA/KIDA)	Industry Partner(s)	Notes
KF-21 Borame Fighter Jet	ADD + DAPA	KAI, Hanwha Systems	Stealth, aviation, AESA radar
K9 Thunder Howitzer	DAPA (export push)	Hanwha Defense	Co-production in Poland, India
KDDX Destroyer (future navy)	ADD (combat systems)	HD Hyundai, Hanwha	South Korean-built AEGIS-type warship
M-SAM / L-SAM Missile Defense	ADD	LIG Nex1, Hanwha	Domestic multi-layered missile defense
Laser Drone Defense (Block-I)	DAPA + ADD	Hanwha Systems	~USD 1.45 per shot energy weapon
Military Satellites	KAIST SaTReC + ADD	KAI, Hanwha Aerospace	Recon and communication satellites

In South Korea, the public-private partnership can be mutually reinforcing when there exist robust private arms manufacturing companies in a coordinated business ecosystem to carry on G2B and B2B collaborations. Table 10 lists some of the key players in arms manufacturing, making significant impacts domestically and globally.

Table 10. Prominent South Korean Arms Manufacturing Companies

Company	Area of Expertise & notable achievements
Hanwha Aerospace / Defense	-Artillery, armored vehicles, upcoming engines -South Korea's largest defense group to export self-propelled howitzers
Hyundai Rotem	-Main battle Tanks and armored vehicles
Korea Aerospace Industries	-Military aircraft and aerospace components
HD Hyundai Heavy Industries	-Naval vessels and shipbuilding
LIG Nex1	-Electronics and missile systems
Poongsan	-Ammunition and metalworking
Hyundai Wia	-Gun barrels
SNT Motiv	-Firearms for military units
Samyang Comtech	-Ballistic and vehicle armor
Others (Huneeed, Vorasky, etc.)	-UAVs, airborne systems, defense electronics

Learning via the Offset Trade Mechanism and South Korea's Rise as Arms Exporter

South Korea has evolved into one of the world's leading arms exporters, with a diversified and increasingly competitive defense sector. In 2023, South Korea became a *top 10 arms exporter*, with USD14 billion in exports to 12 countries.⁴⁰⁾ The nation aims to become the 4th-largest weapons exporter globally by 2027. It has built a reputation for producing cost-effective, high-quality systems—especially tanks, howitzers, and light fighters—that appeal to international buyers.⁴¹⁾ South Korean firms are increasingly integrated with NATO and strategic partners through technology transfers and local production deals.⁴²⁾

40) Nam and Sánchez (2024).

41) Song Jung-a (2025).

42) Joyce Lee (2024).

South Korea has actively utilized the offset trade mechanism to acquire arms technology and later arms transfer to its arms trading partnering countries. The offset trade occurs when a country purchasing high-value goods (commonly arms, aircraft, or large machinery) requires the foreign supplier to provide some form of compensating economic benefit in return, offsetting the cost of the purchase for the buyer's economy. When South Korea buys fighter jets from the US, South Korea demanded some components to be manufactured locally. In addition, South Korea negotiated the US supplier agrees to invest in civilian industries, technology transfer, or training programs in South Korea. Through the offset mechanism, South Korea was able to boost domestic industrial capacity, promote technology transfer and local R&D, and create jobs while stimulating indigenization of parts and components and foreign direct investment.

In recent years, South Korea has seen a significant surge in arms exports, with contracts exceeding billions of dollars particularly to European countries following the war in Ukraine, emerging as new frontier export items for country's sustainable high-tech development. The industry is diversifying its export destinations, moving beyond traditional markets to include countries in Europe, Southeast Asia, and beyond.

South Korea has been actively forging partnerships with the US under one of the staunchest ally pacts and now diversifying countries like Poland, Australia, India, among others to enhance its defense capabilities and expand its arms export market

South Korea's Arms Portfolio Over Land, Air, and Naval Systems

In order to deter North Korea's ever intensifying hostilities since the armistice agreement in July 1953, South Korea under the national slogan

of self-defense has developed well balanced and competitive arms systems in land, air, and naval domains. They are briefly described below.

Land Systems

South Korea has established itself as a leader in advanced land-based weapons, especially artillery and armored platforms (Table 11). The **K9 Thunder self-propelled howitzer** is perhaps the most prominent example — a 155mm system combining mobility, precision, and rapid firepower. It has become one of the world’s best-selling artillery systems, exported to countries from India to Poland, Finland, Australia, and Turkey. Alongside it, the **K2 Black Panther main battle tank** and **K21 infantry fighting vehicle** demonstrate South Korea’s capacity to produce world-class armored vehicles, integrating cutting-edge fire control, mobility, and protection. These systems reflect South Korea’s ability to blend technological sophistication with export competitiveness.

Table 11. ROK’s Arms Portfolio: Land Systems

Sorts	Descriptions
Tanks	<ul style="list-style-type: none"> ▶ K1A1: Upgraded main battle tank with 120mm smoothbore gun. ▶ K2 Black Panther: Advanced MBT with autoloader, composite/reactive armor, active protection system (APS), and export success in Poland and Egypt.
Armored Vehicles	<ul style="list-style-type: none"> ▶ K21 IFV: Infantry fighting vehicle with amphibious capability. ▶ KM500 series: Tactical trucks for logistics and artillery towing.
Artillery & Rocket Systems	<ul style="list-style-type: none"> ▶ K9 Thunder: 155mm self-propelled howitzer, widely exported (Turkey, India, Australia, Poland, Norway, Egypt). ▶ K239 Chunmoo MLRS: Multi-caliber rocket launcher (130mm, 230mm, 239mm), comparable to HIMARS.
Anti-Tank & Air Defense	<ul style="list-style-type: none"> ▶ Raybolt (Cheongeon): Portable anti-tank guided missile (ATGM). ▶ KP-SAM (Shingung): MANPADS for short-range air defense.

Sources: South Korea Ministry of National Defense (MND) 2022-2025 White Papers; Korea Aerospace Industries (KAI) KF-21 program updates; Hanwha Defense press releases on K2 and K9 exports; Army Recognition (2022-2025) defense procurement news; Naval News reports on KSS-III development.

Naval Systems

At sea, South Korea has become one of the world’s foremost naval shipbuilders, leveraging its commercial shipbuilding expertise (Table 12). The **KSS-III Dosan Ahn Chang-ho-class submarine** is a milestone — the first fully indigenous South Korean submarine, equipped with Air-Independent Propulsion and capable of launching submarine-launched ballistic missiles. This platform significantly enhances South Korea’s undersea deterrence. Beyond submarines, South Korea builds **Aegis-equipped destroyers (KDX-III)**, modern **frigates (FFX series)**, and large amphibious ships like the **Dokdo-class Landing Platform Helicopter**. These systems not only bolster South Korea’s naval power but are also being exported, particularly frigates and corvettes to Southeast Asia and South America.

Table 12. ROK’s Arms Portfolio: Naval Systems

Sorts	Descriptions
Destroyers & Frigates	<ul style="list-style-type: none"> ▶ KDX-III Sejong the Great-class destroyer: Aegis-equipped, ballistic missile defense capable. ▶ KDX-II Chungmugong Yi Sun-sin-class destroyer. ▶ FFX-class frigates (Incheon-class, Daegu-class): Modular, anti-submarine warfare (ASW)-focused.
Submarines	<ul style="list-style-type: none"> ▶ KSS-II Son Won-il-class (Type 214): AIP-equipped diesel-electric submarines. ▶ KSS-III Dosan Ahn Chang-ho-class: Indigenous 3,000t submarine with VLS for SLBMs (Hyunmoo-4-4).
Amphibious & Patrol	<ul style="list-style-type: none"> ▶ Dokdo-class LPH: Amphibious assault ships capable of operating helicopters and future F-35B. ▶ PKX-B patrol crafts (Chamsuri-211): High-speed coastal defense boats.

Sources: South Korea Ministry of National Defense (MND) 2022-2025 White Papers; Korea Aerospace Industries (KAI) KF-21 program updates; Hanwha Defense press releases on K2 and K9 exports; Army Recognition (2022-2025) defense procurement news; Naval News reports on KSS-III development.

Air Systems

In the air domain, South Korea’s flagship product is the **FA-50/T-50 Golden Eagle**, a supersonic light fighter and advanced trainer developed by Korea Aerospace Industries. It serves both as a training platform and a cost-effective multi-role combat aircraft, already exported to the Philippines, Iraq, Thailand, and most recently Poland. This program marked South Korea’s entry into the supersonic aircraft market, laying the foundation for more ambitious projects like the **KF-21 Boramae**, a next-generation multirole fighter now in advanced testing. Additionally, South Korea is expanding into **helicopters** and **unmanned aerial vehicles**, strengthening its aerospace capabilities and reducing dependence on foreign suppliers. The arms portfolio in air domain is provided in Table 13.

Table 13. ROK’s Arms Portfolio: Air Systems

Sorts	Descriptions
Fighter Jets	<ul style="list-style-type: none"> ▶ KF-21 Boramae: Indigenous 4.5+ gen fighter under development with Indonesia, test flights ongoing. ▶ FA-50: Light attack fighter, exported to Philippines, Iraq, Poland, Malaysia, and others. ▶ F-35A: Stealth fighters acquired from the US for strategic deterrence.
Helicopters	<ul style="list-style-type: none"> ▶ Surion (KUH-1): Utility helicopter for army and marine corps, co-developed with Airbus Helicopters. ▶ MUH-1 Marineon: Marine version for amphibious operations.
UAVs	<ul style="list-style-type: none"> ▶ KUS-FT: Tactical UAV for reconnaissance. ▶ HALE UAV (under development): Indigenous high-altitude long endurance UAV to enhance ISR capabilities.
Missiles & Air Defenses	<ul style="list-style-type: none"> ▶ Cheongung-II (KM-SAM Block II): Medium-range surface-to-air missile system. ▶ L-SAM (under development): Long-range SAM for upper-tier missile defense, similar to THAAD.

Sources: South Korea Ministry of National Defense (MND) 2022-2025 White Papers; Korea Aerospace Industries (KAI) KF-21 program updates; Hanwha Defense press releases on K2 and K9 exports; Army Recognition (2022-2025) defense procurement news; Naval News reports on KSS-III development.

Together, these land, air, and naval systems illustrate South Korea's transformation into a top-tier arms producer and exporter and innovator. From battle-tested artillery and cost-effective fighter jets to indigenous submarines, South Korea has created a balanced portfolio that combines self-reliance with international competitiveness, building both self-reliance at home and strong defense-industrial partnerships abroad.

Rise of South Korea's Shipbuilding Industry

The modern shipbuilding industry is a highly capital- and labor-intensive sector that relies on vast infrastructure, advanced technology, and skilled workers. Its production process is complex, as each ship is typically custom-built and integrates thousands of components sourced from wide supply chains. To be competitive, a nation should possess a well-functioning business ecosystem, requiring a long time for creation. Modern shipyards depend heavily on research and development, incorporating digital design, robotics, and innovations aimed at improving fuel efficiency and meeting strict environmental regulations.

The industry is cyclical, with demand rising and falling in line with global trade, energy markets, and defense spending. Because ships are essential for both commerce and national security, many governments consider shipbuilding a strategic industry and support it through subsidies or military contracts. Globally, the industry is highly competitive but geographically concentrated, with South Korea, China, and Japan dominating commercial shipbuilding, while Europe focuses on specialized vessels like cruise ships and advanced naval craft.

Currently, South Korea is one of the "Big Three" shipbuilding nations alongside China and Japan. South Korean companies (Hyundai Heavy Industries; Samsung Heavy Industries; Daewoo Shipbuilding & Marine Engineering, now part of Hanwha Ocean) collectively account for 30-35

percent of global shipbuilding output by gross tonnage. The industry focuses on high-value vessels such as LNG carriers, VLCCs (very large crude carriers), and advanced container ships. Very recently, South Korea’s shipbuilding industry is indeed becoming a formidable force in the global arms sector, with a growing focus on naval defense and arms exports. South Korea, surrounded by powerful maritime actors and facing North Korean threats, relies heavily on naval power. Its shipbuilding industry is both a commercial giant and a crucial defense pillar. Indeed the shipbuilding industry has triggered South Korea’s last minute tariff deal with the US. The shipbuilding collaboration was an important topic in the recent summit between South Korean president Lee Jae-myung and the US President Donald Trump on August 26, 2025.

South Korea’s competitiveness in the shipbuilding industry well stands out in comparison with the United States as shown in Table 14. South Korea

Table 14. Productivity and Capacity Comparison of shipbuilding industry between the US and South Korea as of 2024/2025

Metric (Latest Available)	United States	South Korea
▶ Share of 2024 commercial deliveries (CGT)	≪1% (~0.2% of global tonnage)	~28% of world output (~11.4m CGT)
▶ Builders capable of oceangoing ships	~20 shipbuilders	Multiple mega-yards (HHI Ulsan ~50 ships/yr)
▶ Estimated 2024 deliveries (CGT)	Not significant (naval-focused)	≈11.4 million CGT
▶ Direct employment (latest)	105,652 (2023, MARAD)	≈58,000 (2023, implied)
▶ Labor productivity trend (2024)	BLS index 152.7 (-1.0% y/y)	≈195 CGT/employee (derived)
▶ Production over past 10 years	37 ships	2,405ships
▶ Production cost on the basis Of one unit of King Jeongjo	USD 0.6 billion	USD 1.6 billion

- CGT (Compensated Gross Tonnage) is an international metric for standardized shipbuilding effort.
- US naval shipbuilding output is not captured in CGT commercial figures, which biases comparisons.

Sources: Clarksons Research (2024/2025 market review); US CRS (IF12534, Shipbuilding Industry Overview); US MARAD Fact Sheet (July 2024); US BLS Productivity Data (Apr 2025); Hyundai Heavy Industries (Ulsan yard specifications); Hellenic Shipping News (2025, workforce composition).

enjoys an absolute advantage over the US in terms of production capacities and cost. It explains why President Donald Trump proposed this as the priority project in collaborating with South Korea.

The current global attention to South Korea's shipbuilding industry is driven by a combination of factors, including the industry's expertise in building high-tech vessels, a strategic pivot towards higher-margin specialized ships, and catch-up with China's undisputed number one shipbuilding capabilities. South Korea's shipbuilding industry is not only vital for national economic growth but also central to its national defense and global security contributions. The dual-use infrastructure and indigenous R&D capabilities of South Korea position it to lead in 21st-century naval innovation.

With the global rise of the shipbuilding industry, naval shipbuilding has grown simultaneously. The shipbuilding industry is now moving away from mass-produced container ships towards higher-margin vessels like LNG carriers, chemical tankers, and specialized defense platforms, where they have a competitive edge. In particular, South Korean shipyards, particularly mid-sized ones like HJSC (formerly Hanjin Heavy Industries), are actively expanding their capabilities in naval defense, building patrol vessels, landing craft, and other military ships. South Korean shipbuilders are leveraging their expertise in advanced technologies like dual-fuel engines and eco-friendly propulsion systems for both commercial and naval applications, creating synergies. With the rise of commercial shipbuilding into global prominence, the South Korean government is actively supporting the industry's growth in defense, facilitating partnerships with the US and other nations, and promoting arms exports through various initiatives. In sum, South Korea's shipbuilding industry is successfully leveraging its core strengths and government support to become a significant player in the global arms sector, with a focus on naval defense, high-value vessels, and expanding arms exports. However, the industry needs to invest in sustainable technologies and practices to meet future environmental regulations and maintain its long-term competitiveness.

In South Korea, there are four key players in the shipbuilding industry: a) HD Hyundai Heavy Industries (HD HHI), which is a global leader in shipbuilding, with a strong focus on both commercial and naval vessels, b) Samsung Heavy Industries (SHI), another major player, known for its expertise in building large and complex ships, including naval platforms, c) Hanwha Ocean, a leading shipbuilder that has also entered the naval defense market, with a focus on specialized vessels, and d) HJSC (formerly Hanjin Heavy Industries), a mid-sized shipyard that has successfully pivoted towards naval shipbuilding and eco-friendly technologies.

Despite South Korea's rise as global competitor in shipbuilding industry, recently China has outperformed the production capacities of South Korea. South Korean shipbuilders need to maintain their technological edge and also focus on niche markets to stay ahead. In sum, South Korea's shipbuilding industry is successfully leveraging its core strengths and government support to become a significant player in the global arms sector, with a focus on naval defense, high-value vessels, and expanding arms exports.

Promoting Defense Industry as a Strategic Export Sector

While South Korea is at the threshold of entering a “higher” high income group from the current belonging to “lower” high income group with per capita GNI less than USD 40,000, high-tech led economic transformation is absolute necessity. Given the blurry nature of technologies modern high techs between civilian industries and defense ones, South Korea's high tech defense industries show a very high economic ripple effect in terms production, employment, backward, and forward linkage effects.

On the basis of the 2020 basic input-output table and 2021-2022 extension

tables from *Statistics Korea*, production and employment inducement effects, and backward and forward linkage effects of the three arms subsectors-naval shipbuilding, aircraft & spacecraft, and weapons & ammunitions are provided in Table 15. Especially, the shipbuilding and aircraft manufacturing supply to civilian sectors such items as aircraft components, shipbuilding components, maintenance, repair, and overhaul (MRO), and space technologies, contributing to production in other industries.

Naval ships (destroyers, frigates, corvettes, LSTs, etc.) are classified under the shipbuilding industry (KSIC 3011: Ship and Boat Building). The shipbuilding industry, naval and civilian, shows strong production inducement and employment. The naval shipbuilding's backward linkages with 1.89-1.95 in the upper range suggest that it draws heavily from upstream industries like steel, machinery, electronics, ICT, and computers. But forward linkages reflect that shipbuilding largely produces final good, not intermediate inputs for other sectors.

The aircraft and space craft manufacturing sector shows higher linkage effects in both counts compared to those of the weapons and ammunition manufacturing sector. Its backward linkage (2.30-2.40) is very high, showing strong composite-inducement effect by using integrated machinery, electronics, materials, etc. The forward linkage (1.05-1.10) is also in an Upper range, supplying to civilian sectors such as aircraft components, maintenance, and space technologies, contributing to production in other industries. The production inducement and employment inducement effects of the aircraft manufacturing are the highest among three arms subsectors.

The backward linkages with 1.85-1.90 in the upper-mid range of the Weapons and Ammunition Manufacturing sector shows strong production inducement effects through purchases of steel, machinery, explosives, electronic components, etc., implying an additional 85-90% production in other industries. However, the forward linkage with 0.95-1.00 in the lower-mid range explains mainly for military demand, with a limited supply effect on other industries.

Table 15. Production, Employment, Backward, and Forward Linkage Effects of ROK Arms Sector

Sector	Year	Production Inducement	Employment Inducement	Backward Linkage	Forward Linkage	Notes
Shipbuilding (Naval)	2020	2.45	6.5	1.95	0.68	Strong backward linkage; final good
	2021	2.42	6.6	1.92	0.67	Slight decline; stable employment
	2022	2.40	6.7	1.89	0.65	Continues strong
Aircraft & Spacecraft	2020	2.60	7.0	2.10	0.85	Highest among defense sectors; high-tech inputs
	2021	2.58	7.0	2.08	0.84	Marginal decrease; employment stable
	2022	2.55	7.0	2.05	0.82	Maintains strong ripple effects
Weapons & Ammunition	2020	2.38	6.3	1.70	0.62	~18% higher vs. civilian mfg
	2021	2.37	6.3	1.68	0.61	Stable
	2022	2.36	6.4	1.67	0.60	Slight rise in employment

Note: Backward linkage measures the relative strength of a sector's dependence on other industries for its production. The production inducement effects measure the total amount of production induced across the entire economy due to 1 unit increase in final demand for a specific product or sector including itself and all upstream industries.

Source: Derived from the ROK Input-Output Table.

The linkage effects of the arms sector of South Korea suggest an important policy implication. The weapons and ammunition manufacturing has been predominantly dominated by backward linkages to call for policies for the subsector to be connected with domestic parts, materials, and chemical industries to maximize its spillover effects. On the other hand, the shipbuilding and aircraft & spacecraft manufacturing reveal strong effects in both backward and forward linkage due to dual use (military and civilian) applications. Therefore, MRO (maintenance, repair, overhaul) services, and entry into civilian shipbuilding space sectors should be promoted to maximize its supplying inducing effect. Strengthening domestic supply

chains for naval ship and aircraft components can maximize economic ripple effects, while enhancing integration with ICT and weapon systems increases strategic value.

The strong ripple effects of those defense industries suggest that South Korea's high tech economic transformation and modern arms sector development tend reinforce each other. Therefore, the more South Korea promote arms industry as strategic export industry, the better they will contribute to high tech transformation of South Korea and its sustainable growth given rapidly rising global arms market.

Conclusion: Catalysts of South Korea's Export Success

South Korea's rise as a global arms exporter is not only a product of industrial deepening but also of sustained policy innovation that sought to transform vulnerabilities into strategic assets. One important driver has been the chaebol-centered industrial ecosystem, which has consistently blurred the boundaries between defense and civilian manufacturing. Firms like Hanwha, Hyundai, Samsung, and LIG Nex1 developed competencies in electronics, shipbuilding, and metallurgy that seamlessly fed into the defense sector. The dual-use nature of these technologies allowed South Korea to reduce unit costs and maintain export competitiveness while building scale economies.⁴³⁾

A second crucial factor lies in South Korea's adept use of offset mechanisms in procurement contracts. By requiring foreign suppliers to provide technology transfer, local co-production, and investments in civilian industry, South Korea leveraged its role as an importer in the 1970s-80s to build indigenous capacity.⁴⁴⁾ This transformed the country into a credible

43) Bitzinger (2016).

exporter by the 2000s.⁴⁵⁾ India, which remains the world's largest arms importer, could learn from this trajectory by more aggressively enforcing offset provisions in contracts. While India has adopted an offset policy, its implementation has often been diluted by bureaucratic hurdles and weak monitoring mechanisms.

South Korea's competitiveness in the arms market also stems from its ability to identify niche segments. Unlike China or the United States, which prioritize volume and global reach, South Korea positioned itself in high-quality but relatively affordable systems, such as the K9 Thunder howitzer, the K2 Black Panther tank, and the FA-50 light fighter.⁴⁶⁾ These products appeal to middle and emerging powers in Europe, Asia, and the Middle East that require sophisticated but cost-effective systems. In the wake of the Ukraine war, for example, Poland's decision to procure large numbers of K2 tanks and K9 howitzers underscores South Korea's reputation as a reliable supplier capable of rapid delivery.

Another distinguishing element of South Korea's export model is its emphasis on adaptability and customization.⁴⁷⁾ Arms contracts with Poland, India, and Australia include provisions for localized production and modifications to suit domestic operational environments. This contrasts with the more rigid licensing practices of many Western suppliers. For India, such flexibility is particularly appealing as it aligns with the objectives of *Atmanirbhar Bharat* by allowing higher levels of localization.

Beyond economics, South Korea's arms export surge also reflects a recalibration of its security posture. By strengthening ties with NATO and multilateral partners, South Korea has sought to embed itself within broader strategic frameworks while simultaneously reducing dependence on the United States. Defense industrial partnerships are thus not only commercial

44) Ahn Se Hyun (2020).

45) Yeo (2019).

46) SIPRI Arms Transfer Database 1950-2024 (March 2025).

47) Raska (2023).

transactions but also diplomatic instruments that project South Korea as a responsible and reliable middle power.⁴⁸⁾ For India, engaging with South Korea represents both a diversification strategy—reducing reliance on Russia and France—and an opportunity to integrate into global defense supply chains where South Korea is becoming a key node.

Looking forward, South Korea's ambition to become the world's fourth-largest arms exporter by 2027 is ambitious but achievable. The combination of robust industrial foundations, export-oriented policies, and geopolitical demand factors provides a favorable environment. For India, the lesson is twofold: to emulate South Korea's focus on niche markets where it can achieve competitiveness (such as missile systems and space-related defense technology), and to leverage South Korea's willingness to share technology as a means of accelerating domestic defense industrial growth.

Ultimately, South Korea's rise illustrates how a late industrializer can leverage strategic policies, industrial ecosystems, and adaptive diplomacy to climb the global arms hierarchy. By drawing on these lessons, India can reorient its defense industrial strategy to transform from a net importer into a credible co-producer and exporter in the decades ahead.

48) Bowers and Hiim (2023).

Chapter 3: India's Defense Sector Development and Future Trajectories

India's defense industry has evolved through successive phases shaped by its strategic environment, industrial policy, and technological ambitions. Following its independence in 1947, India inherited only limited maintenance and repair facilities from the colonial era. The early decades (1950s-1970s) were characterized by a state-led industrialization model, under which the government created Defence Public Sector Undertakings (DPSUs) and Ordnance Factories to pursue self-reliance. Major entities such as Hindustan Aeronautics Limited (HAL), Bharat Electronics Limited (BEL), and Bharat Dynamics Limited (BDL) formed the backbone of the public defense sector.⁴⁹⁾

Following the 1962 Sino-Indian War and subsequent conflicts with Pakistan, India expanded its defense research capacity through the Defence Research and Development Organisation (DRDO), established in 1958.⁵⁰⁾ Indigenous programs such as the Integrated Guided Missile Development Programme (IGMDP 1983) and the Light Combat Aircraft (LCA Tejas) exemplified the drive toward technological autonomy, though progress remained uneven due to limited resources, technological dependence, and bureaucratic rigidity.⁵¹⁾

49) India, Ministry of Defense (2023), Annual Report 2022-23. *New Delhi: Government of India.*

50) Government of India(2025), Defense Research and Development Organisation (DRDO), "About DRDO."

The economic liberalization of the 1990s initiated a gradual opening of the sector to private firms and foreign collaboration. The Kargil conflict of 1999 exposed persistent import dependence, prompting reforms such as the Defence Procurement Procedure (DPP 2002) and greater emphasis on “Buy and Make (Indian)” categories.⁵²⁾

In the 21st century, India’s defense industrial policy has increasingly emphasized indigenization and co-development. Initiatives such as *Make in India* (2014) and *Atmanirbhar Bharat* (Self-Reliant India) seek to integrate domestic private industry into global supply chains while strengthening the technological base.⁵³⁾ Large conglomerates—Larsen & Toubro, Tata Advanced Systems, and Mahindra Defence—now collaborate with international partners through joint ventures and technology-transfer agreements. The Defence Production and Export Promotion Policy (DPEPP 2020) further aims to transform India into a global defense manufacturing and export hub.⁵⁴⁾

Today, India’s defense industry represents a hybrid ecosystem—anchored by the public sector yet increasingly driven by private innovation and international co-production—marking its gradual transition from a predominantly import-dependent system toward a more self-reliant and export-capable defense industrial base.⁵⁵⁾

Table 16 sums up India’s current military status with global power ranking number 4 after the US, Russia, and China, budget support, defense enterprises, and major collaborating countries.

51) Behera (2016).

52) Government of India, Ministry of Defense, Defense Procurement Procedure 2002 and subsequent updates.

53) Rastogi (2023).

54) Government of India, Ministry of Defense, “Defense Production and Export Promotion Policy (DPEPP 2020).”

55) Tellis (2010).

Table 16. India's Defense and Military Capacity Overview (2023-2024)

Indicator	Description / Estimate	Source
Total Defense Budget (FY 2024-25)	₹ 6.21 trillion (≈ US\$ 75 billion); 1.9 % of GDP	Ministry of Defence (2024)
Personnel Strength	~ 1.44 million active; 2.1 million reserve forces	Global Firepower Index 2024
Defense R&D Expenditure	~ 6 % of defense budget (≈ ₹ 370 billion)	DRDO Annual Report 2023
Major Defense Enterprises	16 DPSUs; 41 Ordnance Factories (restructured into 7 corporations in 2021)	MoD White Paper 2023
Private Sector Share	~ 22 % of defense production value	DDP Statistics 2023
Defense Exports (2023-24)	US\$ 2.6 billion (target US\$ 5 billion by 2025)	DPEPP 2020 Progress Report
Main Import Partners	Russia, France, USA, Israel, South Korea	SIPRI Arms Transfer Database 2024
Global Firepower Ranking (2024)	Rank 4 (after US, Russia, China)	Global Firepower 2024

Note: Budget and export figures rounded; conversion at ₹ 83 = US\$ 1.

Building upon this historical trajectory, India's current defense capability reflects both the legacies of state-led industrialization and the ongoing transition toward diversified co-development models. The composition of India's arms portfolio—spanning land, air, and naval systems—illustrates how successive policy reforms, domestic R&D investments, and international partnerships have strengthened India's defense production base. This evolving portfolio not only underpins India's pursuit of strategic autonomy but also provides a substantive foundation for future India-South Korea collaboration in advanced defense manufacturing and co-development projects.

India's defense industrial development has culminated in a broad and increasingly sophisticated arms portfolio encompassing land, air, and naval systems. This portfolio reflects the country's long-standing aspiration for self-reliance in defense production while integrating selective foreign

technologies and joint ventures to accelerate capability enhancement. The Indian Armed Forces today operate a mix of indigenously developed platforms—notably from DRDO, DPSUs, and emerging private firms—alongside co-developed and licensed systems sourced from trusted international partners. The following subsections provide an overview of India’s principal weapons platforms in each domain, highlighting their operational significance and potential relevance for future India-South Korea defense co-production and technology partnership initiatives.

► India’s arms portfolio: land systems

India’s land systems form the backbone of its conventional deterrence and reflect steady advances in indigenous tank, artillery, and missile technologies.

Table 17. India’s Land Systems Portfolio

System / Platform	Origin / Developer	Type / Role	Remarks	Collaboration Potential (with ROK)
Arjun Mk-I / Mk-IA MBT	DRDO / CVRDE	Main Battle Tank	Indigenous tank with imported German engine and Israeli FCS	Armour composites, fire-control tech
T-90 Bhisma	Licensed from Russia	MBT	Backbone of Indian Armoured Corps	Possible upgrade and localization collaboration
K9 Vajra-T	Hanwha Defense (ROK) / L&T India	155mm SP Howitzer	Successful Indo-South Korean co-production (100 units)	Model for joint artillery programs
Pinaka MBRL	DRDO / Tata / L&T	Multi-Barrel Rocket Launcher	Indigenous long-range rocket system	Guidance and mobility tech co-R&D
Akash SAM System	DRDO / BEL	Surface-to-Air Missile	Widely deployed, export-ready variant	Radar & missile seeker co-development
ATAGS Howitzer	DRDO / Bharat Forge / Tata	Towed Artillery	Indigenous 155mm system under trials	Joint component sourcing and mobility integration

Source: Compiled by authors from SIPRI arms transfer data base, World Bank’s World Development Indicators, Government of India/MOD and Press Information Bureau, and SME partners.

The post-1990s period has seen a decisive shift toward localization and public-private collaboration, culminating in successful programs such as the K9 Vajra-T, jointly developed by Hanwha Defense (ROK) and Larsen & Toubro (India). Table 17 summarizes key land systems that define India's armoured and artillery capabilities.

► India's arms portfolio: air systems

India's air systems represent the most dynamic component of its defense modernization efforts, illustrating a gradual transition from license assembly to genuine co-development. The Tejas and AMCA programs symbolize indigenous aerospace capability, while the success of imported platforms such as Rafale and Su-30MKI ensures operational balance. India's emerging UAV and AEW&C programs have further expanded its aerospace ecosystem. Table 18 outlines major platforms shaping India's air capabilities and identifies prospective areas of cooperation with South Korea.

Table 18. India's Air Systems Portfolio

System / Platform	Origin / Developer	Type / Role	Remarks	Collaboration Potential (with ROK)
LCA Tejas Mk-I / Mk-IA	DRDO / HAL	Light Combat Aircraft	Fully indigenous jet; advanced avionics and composites	Avionics, radar, and composite material R&D
AMCA (under development)	DRDO / HAL	5th-Gen Fighter	Stealth design; prototype stage	Engine, stealth coating, digital twin collaboration
Su-30MKI	HAL under license from Russia	Multirole Fighter	Mainstay of IAF fleet	Maintenance and avionics upgrade partnership
Rafale	Dassault Aviation (France)	Multirole Fighter	High-end imported platform	Possible tri-national MRO or avionics hub
Netra AEW&C	DRDO / CABS	Airborne Early Warning	Indigenous radar on Embraer platform	Joint radar and sensor fusion research
Rustom / Tapas UAVs	DRDO / ADE	Medium-Altitude UAV	Indigenous surveillance drones	AI-based control, swarm drone R&D links

Source: Compiled by authors from SIPRI arms transfer data base, World Bank's World Development Indicators, Government of India/MOD and Press Information Bureau, and SME partners.

► India’s arms portfolio: naval systems

India’s naval sector has undergone one of the most successful indigenization drives, transitioning from dependency on foreign shipyards to producing complex warships and submarines domestically. Programs led by MDL and GRSE have yielded modern destroyers, frigates, and carriers, while new-generation submarines under Project 75(I) signal future deep technology transfer opportunities (Table 19). Given South Korea’s global strength in shipbuilding and marine systems, the naval domain presents particularly strong complementarities.

Table 19. India’s Naval Systems Portfolio

System / Platform	Origin / Developer	Type / Role	Remarks	Collaboration Potential (with ROK)
INS Vikrant (IAC-1)	Cochin Shipyard Ltd.	Aircraft Carrier	First indigenous carrier (commissioned 2022)	Marine propulsion & ship automation systems
Kolkata / Visakhapatnam Class	MDL	Guided Missile Destroyers	Indigenous design with advanced sensors	Hull design, propulsion, and modular build methods
Shivalik / Nilgiri Class	GRSE / MDL	Frigates	Improved stealth features	Electronics integration, propulsion co-work
Scorpène Class Submarines	MDL / Naval Group	Diesel-Electric Submarine	Licensed French tech, AIP retrofit planned	ROK input on AIP & lithium-battery tech
Project 75(I) (planned)	MDL / Foreign Partner TBD	Next-Gen Submarine	Under bidding; tech transfer central	ROK’s DSME or HHI as competitive partners
Coastal Patrol Vessels / OPVs	GRSE / L&T	Multi-mission Platforms	Increasing private-sector role	Collaboration in patrol craft and export markets

Source: Compiled by authors from SIPRI arms transfer data base, World Bank’s World Development Indicators, Government of India/MOD and Press Information Bureau, and SME partners.

Across all three domains—land, air, and naval—India’s defense portfolio reflects a progressive diversification and co-development orientation. The gradual inclusion of private industry, modular production, and international technology sharing has reshaped India’s defense industrial ecosystem. South Korea’s strengths in precision manufacturing, electronics integration, and shipbuilding align well with India’s drive for indigenization and export competitiveness. Building on the successful K9 Vajra-T experience, both nations can deepen collaboration in next-generation artillery, aerospace materials, and naval propulsion systems—advancing not only bilateral trust but also shared strategic resilience within the Indo-Pacific security architecture.

Riding high on the success of Operation Sindoor, India has now set its eyes on extensive defense sector development. With projections indicating that India could become the world’s third-largest economy by 2027,⁵⁶⁾ a larger allocation to defense is both timely and necessary.

In the recently released Union Budget 2025, the defense sector saw a whopping increase of 9.5 percent. Finance Minister Nirmala Sitaraman demonstrated strategic thinking by allocating the highest budget share to defense. The total defense outlay rose from INR 6.22 lakh crore in 2024 to INR 6.81 lakh crore in 2025.⁵⁷⁾

The main reason behind this increase is the pressing need for the modernization of military equipment and the broader goal of becoming ‘*atmanirbhar*’ (self-reliant). India is now focused on indigenously producing as much defense equipment as possible to reduce dependence on other nations, especially in times of critical need. Even when importing top end military equipment from foreign nations, India is increasingly opting for technology transfers agreements. This enables domestic integration of upgrades and encourages co-production of different equipment. This is why India is steadily looking to partner with like-minded nations like South Korea and Japan, particularly in the co-development of naval and air force equipment.

56) Government of India, Press Information Bureau (PIB), October 19, 2023.

57) Reuters (May 20, 2025).

The Indian government has consistently shown their commitment to allocating a more robust and strategically improved budget for the defense sector. Over the past three years, the defense budget has recorded a cumulative growth of 30 percent. However, a closer examination reveals that the modernization component of the budget has not seen a proportional increase. Given the current tumultuous geopolitical scenario, it is important for India to update and upgrade its arsenal. Integrating robotics, artificial intelligence, and cutting-edge technological advancements into military equipment has become an absolute necessity. Western nations and even the Asian nations like South Korea have already embraced this shift. India, too, is looking to follow suit.

Under the leadership of Prime Minister Narendra Modi, India is not only diversifying its defense imports to reduce its reliance on specific countries but is also accelerating its *Atmanirbhar Bharat* initiative, which emphasizes domestic defense production. India is actively pursuing defense treaties that include technology transfer clauses, allowing for the integration of indigenous upgrades and bolstering local manufacturing capabilities.

A notable example is the Indo-French agreement allowing the manufacturing of Rafale fighter jet bodies in India. Similarly, India is working with South Korea on satellite development, launch technologies, and ship building projects. The K-9 Vajra artillery system marked a milestone in strengthening India-South Korea defense relations.

While the capital outlays in the defense budget have increased substantially, the allocation for modernization has paradoxically declined. A study of the 2025 defense budget reveals that domestic production has received the highest priority, with 75 percent of capital procurement earmarked for local suppliers.⁵⁸⁾ India is making concerted efforts to improve its R&D capabilities, so that advanced technology integration and innovation can be done successfully within its defense ecosystem.

58) *Ibid.*

India's Defense Budget vis-a-vis Other Nations

While India is working to increase its net defense budget, it still lags significantly behind global powers like China, the US, and even some Western nations. Since 2015, China has more than doubled its military budget,⁵⁹⁾ reaching approximately USD 245 billion, compared to India's allocation of around USD 75 billion⁶⁰⁾—highlighting a stark disparity between the two neighbors. The People's Liberation Army has more than 2 million active personnel, and China reported a 7.2 percent increase in its annual defense budget. However, many experts are of the opinion that this figure is conservative, estimating that actual budget allocation is 40-50 percent higher due to undisclosed allocations. This aggressive expansion is part of China's broader strategy to assert itself as a global superpower and bolster its military dominance, particularly with regard to regions like Taiwan and Tibet. China is rapidly modernizing its armed forces, including AI and cyber warfare. In contrast, India currently allocates merely 25 percent of its defense budget towards modernization.⁶¹⁾

India's defense expenditure currently stands at 1.9 percent of its GDP, which falls short of the minimum 2.5 percent that defense analysts recommend. General HS Panag has argued that India needs to allocate at least 4 percent of GDP towards defense in anticipation of potential future conflicts.⁶²⁾ He warns that growing ties between Pakistan and China, particularly in the context of nuclear and military cooperation, could expose India to a two-front war, a possibility that calls for immediate and sustained strategic investment.

59) *Mint* (March 6, 2024).

60) Siddiqui, Huma, *Financial Express* (July 4, 2024).

61) *Economic Times* (March 6, 2025).

62) Saurabh Sharma (June 5, 2025).

If India is to gain an edge over its adversaries like China and Pakistan, India must urgently enhance its military capabilities, particularly through the development of a modern, technologically advanced arsenal. Collaborations with countries like Japan and South Korea offer promising opportunities for joint production and technology sharing. India is already engaged in defense procurement from nations such as Japan, Israel, and Russia.

China's advancements in space and cyber warfare are also a growing concern. Its deployment of J-20 stealth fighters, advanced fifth generation aircraft, near the Line of Actual Control (LAC) is particularly alarming. Reports suggest that China is already working on sixth-generation fighter prototypes, showcasing a pace of modernization that remains unmatched globally.

It is the Indian Air Force (IAF) that needs the most upgrades. There are just 30 fighter squadrons while the sanctioned strength is 42.5.⁶³ Many aircraft in service are outdated and the domestically produced Tejas fighters have faced repeated delays. This has crippled India's aerial combat strength significantly.

But India is committed to strengthening national defense, as evidenced in it being the top arms importer from 2019 to 2023.⁶⁴ The Galwan attack of 2020 and tensions along the Indo-China border have only underscored the urgency of enhancing military preparedness. China has more than 600 operational nuclear warheads while India only has 160-170. China also has the biggest navy in the world with more than 370 warships and submarines. This is a growing cause of concern give the strategic completion in the Indian Ocean Region.

In truth, China holds a clear edge over India in both defense spending and military modernization. Should a conflict arise in the near future, India could struggle to match China's capabilities. The situation is further complicated by growing instability in the Indo-Pacific region, especially following US

63) *Economic Times* (March 6, 2025).

64) SIPRI (March 13, 2024).

reduction in foreign military aid and its push for allies to prioritize their own national security. This shift has altered the strategic calculus for India, which must now take greater responsibility for its security posture. India needs to accelerate defense procurement, strengthen military-industrial partnerships, and invest in R&D to close the widening gap. With China continuing to build dual-use “ghost villages” dangerously close to the border, it is essential to undertake strategic defense planning and execution.

The India-South Korea Angle

The strength of a nation is often measured by the strength of its defense sector and its ability to safeguard borders, deter threats, and respond effectively when needed. As India works to diversify its military arsenal, South Korea has emerged as a key strategic partner with immense potential for collaboration. India and South Korea have already laid a strong foundation for defense cooperation. Key agreements such as the 2005 Defense and Logistics Cooperation Agreement and the 2014 pact on the Protection of Classified Military Information reflect a growing strategic alignment. These agreements have helped solidify mutual trust and facilitate deeper military collaboration.

In November 2023, General Manoj Pande, Chief of the Indian Army, visited South Korea with the aim of further improving India-South Korea defense relations.⁶⁵⁾ The partnership aims not only to strengthen the military capabilities of both nations but also to contribute to regional security and stability in the Indo-Pacific and South Asia.

An example of successful collaboration is the K9-Vajra, a self-propelled howitzer built in India using South Korea’s K9 Thunder platform. Indian company Larsen & Toubro acquired the technology from Hanwha Défense,

65) *India Today* (November 19, 2023).

a major South Korean defense company. The project has been a great success, exemplifying how co-production can deliver strategic and economic benefits. Such partnerships are key to fostering mini-lateral associations, which have become the new norm in the changing geopolitical scenario.

India has traditionally been reliant on Russia for arms imports. According to SIPRI (Stockholm International Peace Research Institute), India was the second largest importer of arms in the world between 2020 and 2024,⁶⁶⁾ after Ukraine. However, India's reliance on Russia is shifting. Russian imports accounted for 72 percent of India's arms purchases in 2010-14,⁶⁷⁾ falling to 55 percent in 2015-19 and down to 36 percent in 2020-24. This decline reflects a broader strategy of reducing dependence on any single supplier and building a more self-reliant defense ecosystem. Under the *Atmanirbhar Bharat* initiative led by Prime Minister Narendra Modi, India is aiming to replicate China's model of home production of arms and armaments. Indigenous production not only strengthens national security but also supports economic growth.

In this context, South Korea assumes significant importance. Unlike the US and even some top Western nations, South Korea has shown greater willingness to collaborate and co-produce rather than merely sell finished products. This cooperative model aligns well with India's goals of self-reliance and technological advancement. As India deepens their defense ties with South Korea and works towards modernize its military with technologies such as robotics, artificial intelligence, satellite tracking and unmanned aerial vehicles (UAV), partnerships with tech-savvy nations like South Korea will become increasingly critical. Further, both countries are exploring cooperation in nuclear energy and deterrence, recognizing the strategic importance of maintaining a strong yet responsible nuclear posture. India and the ROK have also been discussing the possibility of collaborating on aspects like space warfare, cyber security and critical infrastructure

66) Peri, Dinakar (March 11, 2025).

67) *Ibid.*

protection. From aviation to ship building, semiconductors industry, electric vehicles, there are many opportunities for cross-sectoral collaboration that can mutually benefit both nations.

Both countries also have a role in the Indo-Pacific area both from geopolitical and economics standpoint. While the US plays a leading role in counterbalancing China's growing assertiveness in the South China Sea, regional powers like India, Japan, and South Korea must also play a proactive role. This is why interoperability is key and this can only improve with the help of joint mock drills and exercises. India and ROK have also agreed to undertake joint patrolling and information sharing in parts of the Indian Ocean. Such initiatives not only improve operational readiness but also signal a shared commitment to maintaining a free and open Indo-Pacific.

Their association is just the tip of the iceberg. The two nations have unmatched strengths which when tapped to their full potential could help them redefine defense cooperation. As India continues to modernize its defense sector and expand domestic production, South Korea stands out as a committed, capable, and collaborative partner. The success of projects like the K9 Vajra is just the beginning.

Deepening Defense Ties with France and Israel

India and France recently signed a major defense deal worth INR 63,000 crore,⁶⁸⁾ for 26 Rafale M-Jets, with deliveries scheduled between 2029 and 2031. The Rafale-M, among the world's most advanced naval fighter aircrafts, has until now been operated exclusively by the French Navy. This deal is a reflection of the India-France strategic partnership, which prioritizes not only arms procurements but also technology transfer. It allows India to

68) Shivani Sharma (April 28, 2025).

improve their indigenous defense manufacturing capabilities as well.

In addition to the Rafale-M, India will also acquire three more Scorpene-class submarines, taking the total deal value to around ₹1 lakh crore.⁶⁹⁾ These submarines will be integrated with India's DRDO-developed Air-Independent Propulsion (AIP) system, allowing for customization to Indian requirements. The Cabinet Committee for Security has been closely involved in finalizing these high-value procurements aimed at significantly modernizing India's naval strength.

In another significant development, Tata Advanced Systems Ltd (TASL) has signed four production transfer agreements with Dassault Aviation to make Rafale fuselages in India.⁷⁰⁾ TASL will set up a production facility in Hyderabad, which will manufacture the different structural sections for the Rafale jets. This underscores India's shift from being a buyer to a co-producer of advanced defense systems—focusing on indigenous manufacturing, collaboration, and long-term capability building.

The agreement with France also includes logistical support, personnel training and a suite for fleet maintenance. India has also requested the integration of indigenous weapons systems such as the Astra Beyond Visual Range (BVR) missiles and the Rudram anti-radiation missiles onto the Rafale-M platform. These jets will operate from INS Vikrant and INS Vikramaditya, boosting India's maritime strike capabilities.

In a notable shift, France has shown interest in purchasing India's Pinaka Multi-Barrel Rocket Launcher (MBRL) system, highlighting India's emergence as a capable defense manufacturer and the growing reciprocity in Indo-French military relations. India and France have also signed a letter of intent to jointly design and produce Small Modular Reactors (SMRs) for nuclear energy. This project leverages France's technological expertise and India's industrial ecosystem to build sustainable, cost-effective energy solutions.

69) Rajat Pandit, (February 11, 2025).

70) Vincent, Pheroze L. (June 6, 2025).

Additionally, 2026 has been proposed as the India-France Year of Innovation, with joint work on an AI roadmap to develop next-generation technologies aligned with the shared values of both countries.⁷¹⁾

India is also deepening defense cooperation with Israel, a long-standing ally. Recent defense deals worth over USD 2 billion dollars,⁷²⁾ include procurement of advanced surface to air missile systems, capable of destroying hostile aircraft and drones within a range of 70 km. Israel has been consistently supporting India, and has openly applauded India's Operation Sindoor in response to Pakistan-sponsored terrorism.

Indian firm NIBE Limited has signed a USD 17.5 million export deal with an Israeli company for the supply of universal rocket launchers with a range of 300 km.⁷³⁾ Moreover, DRDO will be working with Israel Aerospace Industries (IAI) to produce a regiment of Barak-8 medium range surface-to-air missile (SAM) systems, including 16 launchers and 560 missiles.

Multiple deals for the Barak-8 have been signed since 2014 worth over USD 6 billion for arming Indian Navy warships and future projects. The system, co-developed and produced in both countries, provides naval and land-based air defense against aerial threats, with different companies like Bharat Electronics Limited (BEL) and Bharat Dynamics Limited (BDL) involved in its supply and manufacture. For India, it provides a sophisticated air defense system crucial for modernizing its military. For Israel, it offers access to India's large defense market, reinforcing their strategic partnership.⁷⁴⁾

Another deal involves integrating the new SAM system on India's pride INS Vikrant, with work underway at the Cochin Shipyard. While these developments reflect India's growing indigenous production abilities, there have been severe bottlenecks like unwanted delays, cost overruns, and slow delivery. India needs to be much more vigilant in these aspects if they are

71) Mathou, Thierry (February 11, 2025).

72) Pandit, Rajat (April 7, 2017).

73) *MSN News* (May 31, 2025).

74) Elmas, Dean Shmuel (September 14, 2025).

truly serious about emerging as one of the top defense manufacturers in the world.

As India explores defense deals globally, Russia does not want to be left behind. Russia has offered India the source code for the Su-57E stealth fighter jet,⁷⁵⁾ enabling full customization and indigenous integration. This will make it difficult for India to choose between more Sukhoi or America's F-35 jets. The much-coveted F-35 contains supremely complex source code which the US is unlikely to share with India. This move by Russia is seen as response to the growing Russia-US rivalry. Access to the Su-57's source code could be a critical enabler for India's goal of a self-reliant defense ecosystem. India's defense strategy is clearly transitioning—from a buyer-dependent model to one that emphasizes self-reliance, co-development, and high-end technology integration.

Strategic partnerships with nations like France and Israel, coupled with initiatives like Make in India and *Atmanirbhar Bharat*, signal a long-term vision to establish India as a global defense manufacturing hub. However, to fully realize this vision, India has to streamline project execution, enforce accountability, and ensure that ambitious deals translate into timely and efficient results on the ground.

The India-France Rafale program and the India-Israel Barak-8 partnership exemplify how trusted, high-technology cooperation can bridge capability gaps while strengthening domestic industrial ecosystems. France demonstrates the power of deep strategic alignment and joint manufacturing; Israel showcases agile, innovation-driven co-development. Together, these partnerships form pillars of India's evolving defense diplomacy—combining strategic autonomy with technological interdependence.

These partnerships highlight different but complementary models of defense collaboration. The Rafale deal, with its substantial offset obligations, has catalyzed technology transfer and boosted India's aerospace ecosystem,

75) Paul, Subhankar (June 7, 2025).

providing a blueprint for future large-scale procurements. In contrast, the Barak-8 program underscores the benefits of modular, co-designed systems that allow for iterative innovation and quicker deployment timelines. Both cases reflect India's shift from being a buyer to becoming a co-developer and co-producer of advanced technologies.

Together, these partnerships form key pillars of India's evolving defense diplomacy—balancing strategic autonomy with technological interdependence. They highlight how India's "multi-alignment" strategy operates through differentiated partnerships: leveraging France for high-end industrial co-production under a framework of strategic convergence, and Israel for flexible, innovation-driven collaboration that prioritizes speed and adaptability. The convergence of these models signals the emergence of a hybrid framework in India's defense-industrial policy, one that seeks to reconcile the imperatives of sovereignty, capability enhancement, and international collaboration. In doing so, India contributes to the broader evolution of middle-power defense-industrial diplomacy, where technology partnerships become instruments of both deterrence and development.

Going forward, India should deepen such bilateral frameworks by prioritizing joint R&D, shared IP models, and workforce integration. Establishing long-term, project-specific innovation hubs with partner nations could accelerate capability development. Moreover, aligning these initiatives with India's Defense Acquisition Procedure (DAP) and the Make in India and *Atmanirbhar Bharat* policies can ensure strategic autonomy without sacrificing quality or timelines. Encouraging cross-border SME collaboration and reciprocal market access would also expand the industrial base and innovation pipeline. These partnerships must be viewed not as transactions, but as strategic investments in national security and technological sovereignty. At present, India and South Korea maintain a buyer-seller dynamic. For a sustainable partnership, they must transition toward a co-developer relationship, grounded in joint R&D and long-term industrial collaboration.

FDI and Military Deals

Foreign direct investment (FDI) in India has hit an all-time high of USD 81 billion in the year 2024-25⁷⁶— a whopping 14 percent year-on-year growth. As India aims to become the world's third largest economy, FDI is a crucial pillar. By offering tax incentives and low labor costs, the Indian government is trying their best to attract greater foreign investment.

A stronger economy, in turn, enables a larger military budget, allowing India to procure more advanced weaponry from several nations. Moreover, increased FDI inflows bolster India's technology prowess, which supports the growth of indigenous arms production.

The government has been actively implementing proactive trade policies, promoting better trade practices, and reducing bureaucratic hurdles to create a dynamic and investor-friendly business environment. All this collectively encourages international companies to invest in India thereby improving technical knowhow and creating more job opportunities.

Two key factors that have improved FDI inflow have been the implementation of the Goods & Services Tax (GST), which brought in much needed transparency, and the liberalization of FDI policies. Earlier, strict trade norms and bureaucratic red tape discouraged foreign investment. However, recent reforms have significantly improved the ease of doing business, leading to the current surge in FDI.

This upward trend in FDI is likely to continue, according to Amardeep Singh Bhatia, the Secretary of the Department for Promotion of Industry and Internal Trade (DPIIT).⁷⁷ He credited the growth to the strengthening Indian economy and increased competitiveness across sectors. India is also forging a wide array of global partnerships, ranging from countries in the Global South to strategic alliances like the Quad, bilateral deals with several

⁷⁶ *Business Standard* (May 29, 2025).

⁷⁷ Harsh Kumar (May 29, 2025).

EU member-states, close economic ties with Japan, and military deals with South Korea. These partnerships reflect India's rising geo-strategic and geo-political influence on the global stage.

With India pursuing military deals, including with South Korea, it is important to maintain strong FDI inflows and streamlined foreign investment procedures. The government's focus is on benefitting both domestic and international businesses, by promoting free trade agreements while ensuring that national security is not compromised.

India is also working to cut down trade barriers and open its markets further to foreign capital. In 2024-25, Singapore led the list of FDI contributors, with a total net investment of USD 14.94 billion.⁷⁸⁾ In total, more than 170 nations have invested in India and the net FDI inflow from April 2000 to December 2024 stood at a whopping USD 719.53 billion.⁷⁹⁾ Furthermore, the first half of 2025 saw a 26 percent increase in FDI with net inflows reaching USD 42.1 billion.

Such sectors as computer software, hardware, trading, and services induced the highest volumes of FDI. This has helped India strengthen their technical knowhow and integrate the best of foreign expertise. For the development of any military equipment, a sound knowledge of both hardware and software is needed along with the implementation of artificial intelligence. The seamless flow of global technology through FDI is significantly broadening India's research and innovation ecosystem.

India has shown resilient growth and its supply chain network have become more diversified. As the country expands its global export share, the manufacturing sector continues to attract foreign investment.

With growing doubts about the future of US-China trade relations, India has emerged as one of the preferred choices for trade partnerships. Several reports suggest that China's loss can turn out to be India's gain. However, the million-dollar question remains: will India be able to meet global demand?

78) *Deccan Herald* (June 1, 2025).

79) IBEF (September 2025).

While India can match China in terms of manpower, the real challenge lies in replicating China's scale and efficiency in manufacturing. Despite attracting considerable FDI, India still needs to maximize its potential. Capitalizing on this opportunity remains crucial. Yet, despite all the revised rules, bureaucratic hurdles remain a cause for worry for foreign investors.

One of the most significant sources of FDI is expected to come from US-based Apple. As America wants to move away from China, where iPhones have traditionally been manufactured and only assembled in California, India has emerged as Apple's best choice. In this context, Foxconn is all set to invest an amount close to USD 1.5 billion to expand Apple's manufacturing operations in India.⁸⁰ Even the EU is looking to move away from China, though doing so is easier said than done. China remains one of the dominant global players in trade, thanks to its unmatched production capabilities, scale, and speed. However, given the current trade row and re-distributed liberal world order, India now has a prime opportunity to attract substantial FDI and strike a diverse range of trade agreements. As India continues to ease trade restrictions and improve accessibility for foreign businesses, investment by international companies in India is expected to increase manifold.

Defense Industry and Firms of India

There are several private firms that are slowly but steadily establishing a strong presence in India's defense sector. Noteworthy players include Tata Advanced Systems Limited, Mahindra, Reliance Naval and Engineering Limited, Bharat Forge-Kalyani Group, and L&T India.

These companies are actively collaborating with government entities or partnering with international firms to develop a range of defense products.

⁸⁰) *US News* (May 20, 2025).

For example, TASL recently partnered with Dassault Aviation (France) to manufacture different Rafale parts in India. L&T has collaborated with DRDO and the IAF to develop a wide array of defense products and advanced platforms in line with the *Atmanirbhar Bharat* campaign. In less than a decade, L&T has built more than 65 defense vessels and currently handles maintenance for several naval ships and submarines. They also partnered with a South Korean company for the K-9 Vajra and with MBDA, a global leader in missile systems. These joint ventures are sure to benefit India's defense industry and bolster the Make in India initiative.

Reliance Naval and Engineering Limited was the first private sector company in India to secure a license to build warships.⁸¹⁾ Meanwhile, Reliance Infrastructure, in collaboration with DRDO, has developed four types of next-generation artillery ammunition. The company anticipates orders close to INR 10,000 crore from the Ministry of Defense over the next decade and also plans to export this next-gen ammunition in the near future.

In recognition of the growing capabilities of private sector firms, the Indian government has allowed private sector participation in the fifth generation Advanced Medium Combat Aircraft program.⁸²⁾ The underlying aim of the program is to boost indigenous defense capabilities. The Aeronautical Development Agency (ADA) is leading this program and will form partnerships to execute various deals, ensuring equal opportunities for both the private and public sectors.

Space, Satellites, and Defense

The Indian Space Research Organization (ISRO) continues to make headlines for all the right reasons. Its track record of cost-effective innovation,

81) *Financial Express* (June 9, 2025).

82) *ANI* (May 27, 2025).

successful missions, and growing international cooperation has made India a rising leader in space exploration.

In a parallel development, South Korea launched its own dedicated space agency, the Korea AeroSpace Administration (KASA), in August 2024 and plans to double its space budget by 2027.⁸³ This signals South Korea's growing ambitions in satellite technology, surveillance, and space exploration. While South Korea has been working on advanced satellites, India leads with a diverse range of launch vehicles. Stronger collaboration between the two nations can significantly enhance both space programs, deepening bilateral ties and delivering mutual benefits. As the strategic importance of space rapidly increases—especially in military and geopolitical domains—both India and South Korea are well-positioned to benefit from deeper collaboration.

For South Korea, North Korea's long-standing space ambitions are a major concern. North Korea has operated a dedicated space program since the 1980s and continues to test ballistic missiles and advance nuclear capabilities. This has prompted South Korea to take its own space and military integration more seriously. India, meanwhile, faces its own challenges along the Line of Actual Control (LAC) with China and the Line of Control (LoC) with Pakistan. While the regions of concern may differ, both nations share the strategic imperative of bolstering defense through space-based technologies. Moreover, both countries recognize the critical importance of the Indo-Pacific region, not just for security, but also for trade and global influence. Collaborating on space initiatives can significantly strengthen their positions—individually and jointly.

India has been investing heavily in space infrastructure and launch technologies. India has managed to make a lot of different launch vehicles including but not limited to GSLV Mk III, small satellite launch vehicle, polar satellite launch vehicle, geosynchronous satellite launch vehicle, and Rhami-1, a reusable hybrid rocket. India used their PSLV-C37 to launch as

83) Korea, Yonhap News (March 13, 2024), "Doubling Space Budget by 2027."

many as 104 satellites of several countries.⁸⁴⁾ When India became the first nation in the world to orbit Mars in their first attempt, they managed to create history. India is also just the fourth nation in the world to have successfully landed on the Moon. Further, the Aditya-L1 solar mission has been launched with the key aim of studying the details of sun's surface including the solar winds, the sun's corona, and magnetic activity.⁸⁵⁾ ISRO has collaborated with various countries on missions such as NISAR with the US, Saral with France, and Lupex with Japan. India has also developed Rhumi-1, a reusable hybrid rocket that is completely pyrotechnic free.⁸⁶⁾ The Mangalyaan and Chandrayaan are two of India's top satellite programs and South Korea can do the research and design and even execute missions targeted towards moon and even Mars. India aims to launch their own space station called Bhartiya Antariksha Station by 2035.⁸⁷⁾

Given their shared goals and complementary capabilities, a space partnership between India and South Korea could be transformational. South Korea can contribute through research, design, and technological expertise, while India offers proven launch capabilities, deep-space mission experience, and cost-effective operations.

Satellites and space exploration are closely tied with defense and military and by working together, India and South Korea can benefit a great deal. There are limitless opportunities that are present and when tapped fully, the two nations can push their prowess further as far as spy satellites, modern space exploration, and military tracking is concerned. There is already a history of scientific partnership between the two nations. A Science and Technology Agreement was signed back in 1976. Since then, technology and science has continued to be the key aspect that has driven the two nations closer. Green energy, space exploration, remote sensing, planetary science,

84) India, Indian Space Research Organisation (February 2, 2015).

85) India, Indian Space Research Organisation (January 25, 2024).

86) *Ibid.*

87) IBEF (2025).

astronomy, 5G networks, astrophysics, shared technology, earth observation, free trade, lunar exploration are all key aspects wherein both the nations can collaborate together. South Korea remains one of the very first nations to launch 5G services. As India is expecting to witness a staggering 68 percent growth in 5G subscription rate by 2029,⁸⁸⁾ India can team up with South Korea to learn a lot more.

India and South Korea can together work on satellites that will help them understand the different climate patterns and this in turn can aid in predicting natural disasters with better accuracy. Both the nations have a lot to tap, adapt, and explore and this will allow them to grow manifold.

The Trilateral Tech Alliance

In December 2023, the US and South Korea decided to form a strategic technology alliance with India.⁸⁹⁾ This trilateral partnership is mainly going to work on key sectors such as clean energy and semiconductors.

Critical and emerging technologies have become essential in today's global landscape, and semiconductors remain one of the most crucial areas of focus. With this trilateral, the three nations aim to bring greater stability and technological advancement in the Indo-Pacific region. Defense and technology sectors stand to benefit significantly from advancements in green energy and semiconductor development. Another vital area of collaboration is artificial intelligence, which is rapidly evolving and offers immense potential for innovation.

With the election of President Lee Jae-myung, South Korea is undergoing a strategic shift in its international posture. Moving away from a historically subordinate position to the US, South Korea is now positioning itself as a

88) Kumar, Sanjay (December 26, 2023).

89) Alexander, Susannah (2023).

global pivotal state. This shift could be highly beneficial for India, opening up a wide array of opportunities for deeper cooperation. President Lee's foreign policy emphasizes multi-alignment over unilateral alliances, creating space for more balanced and meaningful partnerships.

While South Korea continues to rely on China for significant imports, it does not need to oppose the US or China outright. Instead, by strengthening its economy, expanding its space and semiconductor industries, and boosting trade ties with fast-growing economies like India, South Korea can enhance its global standing and become a key player in the Indo-Pacific. South Korea already holds a strategic geographic position. Given the ongoing tensions with North Korea, maintaining a strong defense posture is essential. This makes joint military exercises, defense interoperability, and enhanced military production all the more critical. India, meanwhile, is striving to become the world's third-largest economy within the next decade. To do so, it is actively seeking strategic partnerships across multiple sectors. South Korea could emerge as one of India's most valuable partners as it seeks to reclaim its strategic autonomy.

India also aims to become a global manufacturing hub to reduce the world's dependence on China. By scaling up production and strengthening supply chain networks, India has a unique opportunity to meet global demand and become a vital part of the international supply chain. With strong biotechnological collaborations and the exponential rise of AI, India and South Korea can collectively help safeguard the Indo-Pacific region and counterbalance China's growing influence.

China has made rapid advancements across numerous sectors, with a clear ambition to dominate critical industries, particularly semiconductors. A monopolized supply chain controlled by China would give it substantial leverage over global trade. This is where trilateral alliances like the one between India, South Korea, and the US become crucial. By pooling resources, fostering innovation, and boosting manufacturing capabilities, these nations can challenge China's dominance and elevate their own technical

expertise.

India has already launched initiatives such as Chips to Startup and Make in India, aimed at strengthening domestic semiconductor production. The country is also actively engaging with firms from South Korea, Japan, and Taiwan to accelerate its progress in this space. Foreign Direct Investment (FDI) from Japan into India has surged, particularly in the semiconductor sector. A recent “Semi-Connect” event in Gujarat saw a Japanese delegation of 75 members, including representatives from major firms like Tokyo Electron and Renesas, both of which are now collaborating with India on semiconductor development.⁹⁰⁾

India can learn from South Korea’s streamlined and efficient industrial model to boost domestic production. With a strong focus on science, technology, and AI, South Korea offers a template that India can adapt. To realize its ambition of becoming a global semiconductor powerhouse, India must establish large-scale production facilities. FDI will play a key role in achieving this goal.

Semiconductors and Their Role in Defense

In the world of robotics and AI, new-age technologies are growing rapidly. As India sets its sights on becoming a leader in the world of semiconductors, it is important to note that semiconductors play a critical role in military armmunitions and the broader defense industry. Satellites, cruise missiles, and even stealth aircraft; all need semiconductors for smooth operation. Recently, Indian Navy Chief Admiral Dinesh K Tripathi emphasized the need for a robust semiconductor policy and how vital it is for indigenous defense manufacturing.⁹¹⁾

90) *Times of India* (April 7, 2025).

91) *Indian Defense News* (February 25, 2025).

For India to make home-grown GPS-guided munitions or pursue quantum computing, semiconductors are essential. With semiconductor imports rising sharply, the Indian government has come up with several initiatives like the Production Linked Incentive (PLI) scheme and the India Semiconductor Mission, among others. Efforts are being taken to boost domestic production of semiconductor devices and once again, partnerships with technology giants like South Korea and Japan could prove to be game-changers. China remains a global leader in both AI and semiconductors, and as a result, its domestic arms manufacturing industry is expanding rapidly. India needs to ramp up their semiconductors development and manufacturing if it wants to strengthen its defense sector and also become a global player in semiconductor exports.

There is now unprecedented demand for semiconductors. South Korea, a global powerhouse in chip manufacturing, is home to industry giants like Samsung, Hyundai, and SK Hynix. By partnering with South Korea, India can leverage critical and emerging technologies to mutual benefit. South Korea has already pioneered advanced semiconductor processes such as 3D chip stacking and sub-10 nm fabrication. With these shared technologies, India can truly jumpstart into the next league of semiconductor manufacturing.

The 3rd Korea-India Future Economy and Industry Forum was held recently on June 5, 2025 in New Delhi, co-hosted by the Korea Institute for International Economic Policy (KIEP) and the Ernst & Young (EY) India team.⁹²⁾ The forum aimed to bring together senior government officials, policy experts, and academy researchers from both nations to explore technical collaboration and potential breakthroughs.

The focus was on the future of India's semiconductor industry and how South Korea-India cooperation could shape its trajectory. With a political shift underway in South Korea under President-elect Lee Jae-myung, the country appears poised to forge new business relations and strike trade deals

⁹²⁾ *Asian Community News* (June 9, 2025).

with multiple nations, India being key among them. The new president, attuned to the evolving multipolar world order, has been advocating for green growth and a balanced policy framework. Historically, South Korea has often leaned on the US for major decisions and depended heavily on China for trade. The new direction in leadership could signal a meaningful shift.

India, on its part, must work out the hiccups in the Comprehensive Economic Partnership Agreement (CEPA) and the existing trade imbalance to secure a fair deal with its South Korean counterparts. Prime Minister Modi is working to streamline trade so as to attract more FDI and establish stronger economic ties across Asia.

At the event, Dr. Choongjae Cho, Director of KIEP's Delhi office, described semiconductors as the "true backbone of the digital age" and a foundational pillar for both national economies and the global supply chain.

Under Modi's leadership, India has reformed many restrictive policies that previously hindered international trade. As EY India, a key event partner noted: India's investment friendly reforms and growing openness to cross border collaborations in the field of semiconductors are encouraging signs. Some of the top South Korean officers acknowledged India's massive digital consumer base and its potential not just as a strategic base for manufacturing and research but also as an export market for South Korean semiconductor products. This creates a win-win situation for both countries and positions them as change-makers in the Indo-Pacific.

As free trade ensues between the two countries, bilateral relations are likely to deepen, fostering a stronger and more resilient Indo-Pacific. Given Trump's 'America First' policy, more and more countries are looking to find the best multilateral associations. This aligns with the growing multi-polar world order, which still supports a rules-based international system.

Collaboration in Shipbuilding Sector

While India will continue to engage in arms imports and international collaborations, strategic alliances with like-minded nations remain vital to its growth and global stature. Notably, the Indian Navy has also been receiving significant attention, with South Korea emerging as a key partner in naval shipbuilding. In 2017, an MoU was signed between India and the ROK for cooperation in shipbuilding.⁹³⁾

Whenever shipbuilding is discussed, countries like Japan, South Korea, and China are often mentioned due to their unmatched infrastructure. South Korea has made massive investments in this sector while India, despite having more than 20 shipyards, faces severe bottleneck. This is why collaboration with South Korea in shipbuilding could be ground-breaking for India. Given the long gestation period and massive infrastructural cost required for shipbuilding, South Korea's expertise could help India advance its naval capabilities through technological upgradation and workforce training.

India currently holds less than 1 percent of the global shipbuilding market.⁹⁴⁾ However, India wants to change this and is seeking partnerships with global shipbuilding leaders, particularly South Korea and Japan, with the aim of attracting investment, facilitating technology transfer, and strengthening its domestic shipbuilding ecosystem.

South Korea, home to industry giants like Hanwha Ocean, Samsung Heavy Industries, and HD Hyundai, is a global leader in advanced shipbuilding, particularly in LNG carriers and green ship technologies. While China dominates in volume, holding 62.9 percent of global shipbuilding orders (worth USD 67.9 billion in early 2024),⁹⁵⁾ South Korea leads in quality, innovation, and eco-friendly solutions.

93) Yadav, Priyanka (March 27, 2025).

94) Sharma (September 19, 2025).

95) *Ibid.*

India has set the ambitious goal of breaking into the top 10 shipbuilding nations by 2030, and then becoming one of the top 5 builders by 2047. To realize this, shipbuilding clusters are being developed in Gujarat, Odisha, and Andhra Pradesh, backed by a dedicated ₹25,000 crore Maritime Development Fund announced in the Union Budget.⁹⁶⁾ Additionally, India has introduced customs duty exemptions for raw materials and components to incentivize domestic production.

Recognizing India's potential, South Korea has stepped up. The Korea Marine Equipment Association (KOMEA), a non-profit organization based in Seoul, has pledged to support Indian shipyards with joint vessel construction, technology transfers, and on-site training. Top South Korean companies, including Hanwa Ocean and Samsung Heavy industries, have shown willingness to localize the production of marine equipment and spare parts in India, helping reduce dependence on imports. In December 2024, a high-level Indian delegation visited HD Hyundai's shipyards in Ulsan, gaining insights into South Korea's cutting-edge shipbuilding processes and green technologies. These visits reinforced India's need to acquire at least 1,000 commercial vessels in the coming years to meet its growing maritime trade demands.⁹⁷⁾

India's 28 domestic shipyards currently lack the capacity to build large-scale commercial vessels. Key bottlenecks include delays in raw material procurement, prolonged construction timelines, and limited experience with specialized vessels. India aims to overcome these challenges by leveraging South Korea's expertise, automation technologies, and design capabilities, especially in green and dual-fuel ships.

Meanwhile, South Korea is facing a workforce shortage, with 14,000 unfilled roles and a projected need for 45,000 more workers to meet current order volumes. A partnership with India could help South Korea bridge this gap by utilizing Indian manpower and infrastructure.

96) India Sea Trade News (February 4, 2025).

97) Lee Jeong-gu and Kim Mi-geon (2024).

China's shipbuilding dominance is not just economic but strategic as well. With over 2,500 vessels on order, and no available yard space until 2027, China's naval expansion poses direct challenges to regional stability. The US Navy, facing delays and cost overruns, has only five new ship orders compared to China's 1,800.⁹⁸⁾ As a result, the US is now turning to India, South Korea, and Japan to counterbalance China. Recently, the US signed agreements with Indian shipyards for repair and maintenance of auxiliary vessels, signaling trust in India's potential.

The India-South Korea partnership could significantly alter the maritime landscape. While neither country can afford to take an openly anti-China stance, closer trilateral ties between India, South Korea, and Japan could serve as a powerful strategic bloc to challenge China's market dominance, improve military interoperability, and secure supply chains in the Indo-Pacific.

Furthermore, India's Ship Recycling Credit Note Scheme is designed to encourage dismantling of old global fleets in Indian yards, which will aid in modernization and sustainability. It is hoping this will encourage global and even domestic fleet owners to dismantle their old ships at Indian yards.

With 95 percent of India's trade volume transported by the sea,⁹⁹⁾ India needs to work on improving its maritime strength to safeguard maritime trade and provide maritime security. China's growing naval presence in the South China Sea underscores the urgency for India to bolster its naval capabilities in the Indian Ocean Region.

India is planning to introduce a new shipbuilding policy by 2026 with a focus on sustainable, green technologies. If effectively implemented, and with continued collaboration with South Korea and Japan, India could realize its dream of becoming a global shipbuilding powerhouse by 2047.¹⁰⁰⁾ Such a transformation would not only boost India's economy but also

98) Sharma (September 19, 2025).

99) Lee Jeong-gu and Kim Mi-geon (December 26, 2024).

100) Urban Acres (December 5, 2024).

significantly enhance its naval strength, helping it assert a stronger presence in a rapidly shifting Indo-Pacific geopolitical landscape.

In the world of defense, it is not just the air force and army that one needs to strengthen. The naval force is of utmost significance and with the Indian Ocean and the South China Sea, showing a lot of turbulence already, the presence of a large and modern naval fleet has the potential to truly strengthen a nation. If India manages to realize its ambition of becoming a shipping powerhouse, it too can become a very powerful naval force.

Conclusion: At an Inflection Point

India's defense sector development faces a critical paradox: while budgetary allocations are rising, the pace of modernization and technological advancement lags behind global benchmarks. The 2025 Union Budget, with its 9.5 percent increase for defense, reflects political will, but structural challenges in procurement, indigenous R&D, and project execution continue to slow progress. The defense sector remains heavily burdened by legacy platforms, cost overruns, and bureaucratic procedures that delay critical acquisitions.

A comparative perspective underscores the scale of India's challenge. Whereas China allocates nearly 40 percent of its defense spending toward modernization and advanced platforms, India spends just about a quarter on this component.¹⁰¹⁾ This imbalance directly affects the Indian military's ability to compete in domains such as artificial intelligence, cyber warfare, and space security. Unless modernization spending is increased proportionally, India risks being locked into an unfavorable cycle of maintaining outdated systems at the expense of developing next-generation capabilities.¹⁰²⁾

101) SIPRI, Military Expenditure Database, 2024 update.

102) Bedi, Rahul. (2025).

The India-France Rafale program and the India-Israel Barak-8 partnership exemplify how trusted, high-technology cooperation can bridge capability gaps while strengthening domestic industrial ecosystems. France demonstrates the power of deep strategic alignment and joint manufacturing; Israel showcases agile, innovation-driven co-development. Together, these partnerships form pillars of India's evolving defense diplomacy—combining strategic autonomy with technological interdependence.

The organizational structure of India's defense sector is another impediment. The state-owned defense public sector undertakings (DPSUs) dominate procurement, but their record in delivering timely and technologically advanced systems remains mixed. While private sector firms like Larsen & Toubro and Tata Advanced Systems have made significant contributions, their participation is still constrained by regulatory hurdles and limited access to critical technologies. Lessons from South Korea suggest that close public-private collaboration, reinforced by government-backed R&D institutes, can accelerate defense industrial growth. India's DRDO must evolve into a more agile, collaborative institution that can leverage private sector innovation.

Another dimension relates to supply chain vulnerabilities. The Russia-Ukraine war has revealed the risks of dependence on a limited set of suppliers. India's long-standing reliance on Russian hardware is increasingly problematic, given sanctions, supply disruptions, and Moscow's own shifting priorities toward China. Diversification toward France, Israel, and South Korea is a positive step, but India must simultaneously enhance domestic production of spare parts and critical components. Otherwise, even the most sophisticated acquisitions risk becoming liabilities during prolonged conflicts.

Equally important is the need to recalibrate India's defense industrial policy toward emerging domains. The integration of robotics, AI-driven surveillance, unmanned systems, and quantum computing is no longer optional but essential.¹⁰³) India's innovation ecosystem—anchored in start-

ups, premier institutes like IITs, and defense-focused incubators—needs to be systematically integrated into defense procurement pipelines. Without such integration, India risks perpetuating a siloed approach where research and operational needs remain disconnected.

Finally, India's ambitions must be benchmarked against its long-term strategic objectives. If New Delhi aspires to play the role of a net security provider in the Indian Ocean and a credible Indo-Pacific power, incremental improvements will not suffice.¹⁰⁴⁾ Defense expenditure must rise closer to 3 percent of GDP, and procurement must be streamlined through institutional reforms that minimize bureaucratic red tape. Moreover, international partnerships should be structured around co-production and joint R&D rather than traditional buyer-seller arrangements. South Korea's experience with offset mechanisms and Europe's collaborative defense projects (such as Airbus and MBDA) provide potential templates.

In conclusion, the defense industry has emerged as one of the most critical sectors for national growth and security. Strategic and well-timed partnerships with nations like South Korea can truly usher in a new chapter in India's defense development. Today, India's defense sector stands at an inflection point. Rising budgets provide opportunities, but without structural reforms, these allocations risk being absorbed by legacy costs. By prioritizing modernization, leveraging private sector capabilities, and institutionalizing global partnerships, India can move closer to its goal of becoming a resilient, technologically advanced military power.

103) Raska (2023a).

104) Panag, H. S. (2025).

Chapter 4: Strategies for Collaboration of Defense Industry Sector

India and South Korea are looking ahead to a partnership that could reshape the roadmap of the defense industry. With growing concerns over North Korea's nuclear advancements, South Korea recognizes the need to strengthen its regional security. This will require deeper defense cooperation, stronger bilateral trade, and more meaningful strategic alignments. Under its newly elected president, who advocates for a policy of multi-alignment rather than uncritical alignment with the US, South Korea is poised to partner with several nations, particularly India.

The Indo-Pacific has emerged as one of the most critical and contested regions globally, largely due to the high volume of trade that passes through it. China's growing naval and air power, driven by its rapidly expanding defense industry, has drawn global attention and concern. In this context, partnerships such as the India-South Korea, India-South Korea-Japan trilateral, Squad, Quad, and similar multilateral groupings are becoming increasingly significant. These alliances may eventually compel China to go on the back foot and recalibrate its aggressive posture in the region.

India, meanwhile, must contend with ongoing tensions along both the Line of Actual Control (LAC) with China and the Line of Control (LOC) with Pakistan. Given Pakistan's close ties with China, the risk of a two-front confrontation cannot be ignored. This is why India needs to truly work on its defense industry and ensure that the air force, navy, and army are prepared

for any future challenges that may arise.

China has been very aggressive in its pursuit of growth and seems to have its eyes set on becoming a world superpower. Even its tussle with the US with regard to the tariff war did not deter its resolve given their strong economy and defense power. This is why India needs to work on its defense budget, integrate the most modern features in different armaments and bolster domestic defense production.

The advent of the second Trump administration in 2025 has fundamentally altered the global trade environment, especially for economies such as India and South Korea. With the sweeping tariff hikes imposed under the “Make America Great Again” (MAGA) protectionist framework, both countries face unprecedented challenges in safeguarding their export competitiveness and maintaining predictable economic ties with Washington.

In August 2025, President Trump slapped a 15 percent reciprocal tariff on South Korea, effectively nullifying the landmark South Korea-US Free Trade Agreement (KORUS FTA) that had been in force since March 2012.¹⁰⁵ For India, the blow was even harsher: a 50 percent tariff, including a punitive 25 percent penalty for continuing to import Russian oil on top of a 25 percent baseline reciprocal tariff.¹⁰⁶ But the US and India reached a trade deal to reduce the reciprocal tariff 18 percent on February 2, 2026 according to the CNBC news. These measures reflected Washington’s fixation on recalibrating trade ties purely through the lens of bilateral deficits. In 2024, the US goods trade deficit with South Korea stood at USD 66 billion, while with India it was around USD 45.8 billion.¹⁰⁷

Certain sectors were targeted disproportionately. For South Korea, automobile parts and steel—critical pillars of its export-driven economy—were hit with tariffs as high as 50 percent. The impact was immediate, straining Seoul’s industrial base and generating political backlash. Trump

105) Mackenzie Jean and Osmond Chia (2025).

106) Inamdar, Nikhil (2025).

107) US, Office of the United States Trade Representative (USTR) (2025a); (2025b).

initially announced a 25 percent tariff in April 2025 but later reduced it to 15 percent after Seoul pledged a whopping USD 350 billion investment in the US economy—a sum comparable to South Korea’s entire foreign exchange reserves. However, negotiations on how to finance and allocate this investment remain contentious. In a dramatic turn, US immigration authorities raided a South Korean factory under construction in Georgia, detaining engineers for visa violations.¹⁰⁸⁾ This episode exposed the inherent contradiction between Washington’s aggressive drive to attract FDI and its hardline immigration policies.

Political economists such as Robert Keohane and Joseph Nye Jr. have warned that such coercive and short-sighted protectionism risks eroding the very international order the US once championed. They note that an “obsession with coercive hard power tied to trade asymmetries” undermines trust in US leadership and destabilizes the global economic system.¹⁰⁹⁾

For India and South Korea, the volatility of Trump’s tariff regime underscores the urgent need to diversify trade relationships and reduce overdependence on the US market. East Asian economies, including Japan, ASEAN members, and South Korea, now perceive Washington as an unreliable partner. As a result, regional actors are redoubling efforts to strengthen existing free trade frameworks such as the RCEP, AKFTA, and CEPA with India, while also pursuing entry into advanced agreements like the CPTPP.¹¹⁰⁾ Neither Seoul nor New Delhi wishes to be forced into a binary choice between the US and China. Instead, both prefer a balanced, multi-vector approach, leveraging regional frameworks to ensure resilience against external shocks. By fully implementing mega-regional trade deals like the RCEP and CPTPP, East Asian economies can collectively assert themselves as credible voices in shaping the rules-based order.¹¹¹⁾

108) *The Wall Street Journal* (September 12, 2025).

109) Keohane and Nye (June 2, 2025).

110) Ahn (2025c).

111) Ahn (2025a).

For South Korea in particular, joining a range of minilateral platforms—digital trade agreements, supply chain resilience pacts, and green growth initiatives—offers hedging options against US unilateralism. India, meanwhile, with its fast-approaching status as the world’s third-largest economy and a long tradition of multi-alignment, represents a natural partner in this strategy. Strengthening and upgrading the India-South Korea Comprehensive Economic Partnership Agreement (CEPA) is thus an urgent priority. Moreover, expanding into defense industry cooperation could anchor a deeper, trusted partnership capable of withstanding turbulence in the global trading system.

Beyond trade, India and South Korea share a unique bond as military powers of considerable stature. According to the Global Firepower Index 2025, they rank 4th and 5th respectively in terms of overall power, placing them within the global top five (Table 20). India maintains a massive military personnel strength exceeding 5.1 million, while South Korea commands nearly 3.8 million, largely due to its conscription system.

In terms of spending, India ranks 5th globally with expenditures of USD 86.1 billion, representing 3.2 percent of global defense spending. South Korea, with a smaller economy but intense security pressures, stands at 11th place with USD 47.6 billion in annual defense outlays—equivalent to 2.6 percent of GDP.

Table 20. Global Firepower Index 2025 Rankings

Rank	Country	Power Index 2025	Military Personnel (est.)
1	United States	0.0744	2127500
2	Russia	0.0788	3570000
3	China	0.0788	3170000
4	India	0.1184	5137550
5	South Korea	0.1656	3820000

Source: Global Firepower (Accessed September 15, 2025).

South Korea-India Defense Collaboration as a Catalyst for Realizing Trade and Investment Potential

Defense collaboration between South Korea and India has significance that extends far beyond military procurement. By strengthening cooperation in arms production and technology transfer, Seoul and New Delhi can build mutual trust and create spillover effects that stimulate broader trade and investment flows. Given that India is projected to become the third-largest economy by the late 2020s and South Korea currently ranks around the tenth-largest, the synergies between these two economies offer a pathway toward a matured strategic and economic partnership.¹¹²⁾

Despite strategic convergence, South Korea-India trade and investment ties lag behind those with other Asian partners. In 2023, bilateral trade was approximately USD 28 billion, far below South Korea's trade with China (USD 310 billion) or Vietnam (USD 80 billion).¹¹³⁾ FDI flows also reveal disparity: cumulative South Korean investment in Vietnam has surpassed USD 80 billion, while investment in India, though rising, was about USD 7 billion.¹¹⁴⁾ South Korean firms view India as a large but complex market, while Indian policymakers have sometimes perceived South Korea's focus as disproportionately tilted toward China and Southeast Asia.

Yet, despite growing complementarities, bilateral economic connectivity remains underdeveloped compared to South Korea's trade and FDI relationships with China and Vietnam. Bridging this gap requires embedding defense collaboration into a wider framework of industrial cooperation, regional integration, and joint market strategies. Defense collaboration builds trust because it involves the most sensitive sectors of state sovereignty

112) IMF (2024); Goldman Sachs (2022).

113) Korea International Trade Association (KITA) (2025).

114) Export-Import Bank of Korea, *Overseas Direct Investment Statistics* (2023).

—military technology, national security, and long-term capability development. Once partners demonstrate reliability in such high-stakes cooperation, the relationship creates political confidence that can spill over into civilian industries, finance, and infrastructure investment.

For South Korea, joint production of the K9 Vajra-T howitzer by the South Korean defense giant Hanwha Defense partnered with Larsen & Toubro (L&T) in India marked a milestone in showing how industrial partnerships in defense can anchor wider corporate engagement.¹¹⁵⁾ Similarly, potential cooperation in naval shipbuilding, missiles, and electronic warfare systems could provide templates for cross-sector partnerships where South Korean technology and Indian scale combine. For South Korea and India, arms collaboration thus serves as a gateway to deeper economic connectivity.

India's External Affairs Minister S. Jaishankar along with his South Korean counterpart Mr. Cho Tae-yul has spoken about the likelihood of resuming the joint vice-ministerial level defense and foreign affairs 2+2 dialogue.¹¹⁶⁾ Talks are also underway about having a free trade agreement that would kickstart a series of sales that will be mutually beneficial.

Defense collaboration, however, can shift perceptions. Successful co-production projects demonstrate South Korea's willingness to transfer technology and invest in local ecosystems, while India offers large-scale demand and human capital. As trust grows in defense, spillovers into electronics, shipbuilding, automobiles, and green technology become more feasible towards a trusted full range economic partnership.

115) Hindu (February 18, 2021).

116) *Times of India* (February 22, 2024).

Holistic Approach to India-South Korea Defense Industry Collaboration through G2G, B2B, and B2G engagements

Unlike ordinary trade goods, defense industry collaboration and trade is normally conducted through three interconnected modes of engagement: government-to-government (G2G), business-to-business (B2B), and business-to-government (B2G). Each mode carries distinct strengths and challenges, but taken together, they illustrate the layered and multi-faceted ecosystem of modern arms collaboration.¹¹⁷⁾ Therefore, robust arms collaboration between India and South Korea requires a well-coordinated ecosystem between top-down (G2G) strategic agreements and bottom-up industrial innovations (G2B, B2B).

Given the national security dimension of arms collaboration, G2G transactions form the backbone of defense collaboration between likeminded countries. G2G is typically conducted under formal agreements or memoranda of understanding, requiring political commitment and sovereign guarantees. B2B arms collaborations need the government approval. Although implemented through a B2B consortium, the K9 Vajra project was politically underwritten by the two governments, signaling trust and long-term strategic alignment.

Beyond arms procurement, G2G channels also extend to joint R&D collaborations, naval exchanges, and defense policy dialogues, institutionalized under frameworks such as the India-South Korea Defense Ministers' meetings. These arrangements provide the policy umbrella under which industry collaboration can flourish, reducing political risks and reinforcing India's *Atmanirbhar Bharat* indigenization requirements and South Korea's export-driven defense industrial policy.

117) Ji and Jang (2013), pp. 57-70.

If G2G deals provide political assurance, B2B cooperation supplies the industrial substance of India-South Korea defense ties. South Korean shipbuilders such as Hyundai Heavy Industries and Daewoo Shipbuilding have explored cooperation with Indian shipyards, seeking to leverage India's growing naval requirements alongside South Korea's globally competitive shipbuilding expertise. With G2G agreement, the aerospace sector has also seen tentative steps toward B2B engagement, with South Korean companies exploring partnerships with Indian firms in avionics, simulators, and unmanned systems. Importantly, these collaborations are not confined to traditional weapons platforms: dual-use areas such as cyber defense, AI-driven surveillance, and electronic warfare systems are increasingly attractive fields for joint ventures. B2B collaboration is further reinforced by offset obligations. South Korean firms entering Indian defense contracts are required to reinvest in local co-production with Indian firms, R&D, innovation, and technology transfer, to ensure long-term industrial linkages.

While G2G sets the framework and B2B develops industrial partnerships, B2G transactions remain crucial for agility for procurement flexibility and competitive edge. In this mode, South Korean companies directly contract with Indian government agencies, subject to approval by Seoul's defense export controls.

Hanwha Defense's bids for Indian armored vehicle programs and South Korean aerospace firms' participation in Indian tenders are classic examples of B2G. These transactions often move faster than G2G negotiations, especially when Indian procurement follows a competitive bidding route. They also allow South Korea's private sector to demonstrate technological advantages and cost competitiveness directly to Indian policymakers.

What makes the India-South Korea case instructive is the interplay between the three modes of connectivity. G2G channels provide strategic stability, ensuring that arms collaboration is politically sustainable. B2B networks, meanwhile, enhance innovation and deepen industrial linkages, generating economic spillovers in shipbuilding, aerospace, and electronics.

B2G mechanisms create competitive dynamism, allowing South Korean firms to adapt to India’s procurement requirements and industrial policies.

Taken together, these three layers form a resilient partnership model for the Indo-Pacific era. They highlight how like-minded countries can not only trade arms but also co-develop technologies, strengthen defense supply chains, and create industrial complementarities that reinforce both security and economic growth through a layered ecosystem of cooperation.

Potential Collaborations Given Comparative India-South Korea Arms Portfolios

The defense industries of India and South Korea are evolving in ways that make them increasingly complementary partners. While India brings scale, strategic ambition, and an expanding domestic defense market, South Korea offers technological sophistication, cost-efficient production, and a track record of successful exports. A comparative look at land, air, and naval portfolios is presented in Table 21, revealing both overlaps and opportunities for deeper cooperation between India and South Korea.

Table 21. Comparative India-South Korea Arms Portfolio and Potential Collaboration Areas

Domain	India (Key Platforms)	South Korea (Key Platforms)	Complementarity / Collaboration Potential
Land	<ul style="list-style-type: none"> - T-90S / T-72 MBTs (Russian origin, upgrades) - Arjun MBT (indigenous, limited numbers) - K9 Vajra-T SP Howitzer (South Korean-origin, licensed production with L&T) - Pinaka MBRL (indigenous rockets) - Akash SAM (indigenous air defense) 	<ul style="list-style-type: none"> - K2 Black Panther MBT (advanced, high mobility) - K21 IFV - K9 Thunder SP Howitzer (export success, incl. India, Australia, Poland) - Cheongung-II SAM (medium-range air defense) - Hyunmoo missiles 	<ul style="list-style-type: none"> - Howitzer model (K9 Vajra) already proves B2B/G2G synergy. - South Korea’s K2 tank tech could complement India’s MBT modernization. - India’s rocketry & missile programs could integrate with South Korea’s missile R&D.

Table 21. Continued

Domain	India (Key Platforms)	South Korea (Key Platforms)	Complementarity / Collaboration Potential
Air	<ul style="list-style-type: none"> - Su-30MKI (mainstay multirole fighter) - HAL Tejas LCA Mk1/1A (indigenous) - Rafale (4.5 gen fighter) - AEW&C “Netra” (Embraer-based, DRDO) - MQ-9B drones (procurement underway) - Akash, S-400 (air defense) 	<ul style="list-style-type: none"> - KF-21 Boramae (indigenous 4.5 gen fighter) - FA-50 / T-50 Golden Eagle (trainer/light fighter, export hit) - KFX program (stealth progression) - KAI UAVs / Loitering munitions - KM-SAM (Cheongung)(air defense) 	<ul style="list-style-type: none"> - India’s Tejas and South Korea’s KF-21/FA-50 offer potential for joint fighter R&D, avionics, engine tech. - Drone tech collaboration (surveillance & combat UAVs). - Air defense systems: Akash & Cheongung-II synergies.
Naval	<ul style="list-style-type: none"> - Aircraft Carrier: INS Vikramaditya, INS Vikrant (indigenous) - Destroyers: Kolkata & Visakhapatnam-class (stealth) - Frigates: Shivalik & Project 17A - Submarines: Scorpene-class (conventional) - Maritime Patrol: P-8I Poseidon - BrahMos (naval strike missile) 	<ul style="list-style-type: none"> - Destroyers: Sejong the Great-class (Aegis-equipped, large tonnage) - Frigates: Daegu-class, Incheon-class - Submarines: KSS-III (AIP, SLBM capable) - Amphibious ships: Dokdo-class LPH - Naval missiles: Haeseong, Hyunmoo variants 	<ul style="list-style-type: none"> - South Korea’s shipbuilding edge (Ulsan, DSME, HHI) complements India’s naval expansion (carriers, destroyers, subs). - Joint R&D in submarine propulsion (AIP/nuclear), anti-sub systems, ship electronics. - Shared interest in blue-water navy capabilities for Indo-Pacific security.

Source: Defense Industry Report, India: <https://exportvirginia.org/sites/default/files/2023-07/India%20-%20Defense%20Report%20-%20June%202023.pdf>; Mordor Intelligence, India Defense, <https://www.mordorintelligence.com/industry-reports/india-defense-market>; The Economic Times, July 4, 2025 Warships, missiles and spy planes: Here’s what Rs 1 lakh crore is buying for Indian armed forces; Wikipedia/related sources; International Trade Administration, South Korea Defence Industry Equipment 2022-12-05; Inder Singh Bishit, “South Korea to Upgrade Indigenous KF-21 Into Stealth Fighter,” The Defence Post, Sept 15, 2025, <https://thedefensepost.com/2025/09/15/south-korea-kf-21/>; David Choi and Yoojin Lee, “South Korea seeks \$47.6 billion defense budget, biggest increase in 7 years,” Star and Stripes, Sept 2, 2025, https://www.stripes.com/theaters/asia_pacific/2025-09-04/south-korea-record-defense-budget-18970959.html.

Land System Areas: Artillery, Armor, and Air Defense

India's land-based arsenal is anchored in a mix of legacy Soviet systems and indigenous programs. The T-90S and T-72 remain its principal main battle tanks, with incremental upgrades, while the indigenous Arjun Main Battle Tank (MBT) has seen limited service due to weight and logistical constraints. India has developed strong capabilities in rocket artillery (Pinaka Multibarrel Rocket Launch (M-BRL)) and surface-to-air missiles (Akash), which reinforce its ground-based firepower.

South Korea, by contrast, fields highly modernized and export-oriented platforms. The K2 Black Panther MBT is one of the most advanced tanks in the world, combining firepower, mobility, and sophisticated electronics. South Korea also leads in infantry fighting vehicles (K21) and is a global exporter of the K9 Thunder self-propelled howitzer. Indeed, the K9 has already been localized in India as the K9 Vajra-T, demonstrating the effectiveness of a B2B and G2G hybrid model. South Korea's Cheongung-II air defense system and Hyunmoo tactical missile family add further strength in land-based deterrence.

The clear synergy between India and South Korea lies in artillery and armored vehicles. India's need for next-generation tanks and advanced artillery meshes with South Korea's export-ready designs, while India's indigenous missile and rocket expertise could complement South Korean missile development.

Air Power Areas: Fighters, Drones, and Air Defense

The Indian Air Force's portfolio is diverse but modernization-heavy. The Su-30MKI remains its backbone multirole fighter, supplemented by Mirage 2000s, MiG-29s, and a new fleet of Rafales. India's pride lies in the indigenous HAL Tejas light combat aircraft, which is entering serial production in the

MK1A configuration. Alongside manned platforms, India is investing in AEW&C systems, MQ-9B drones, and an expanding missile defense shield that includes the S-400 and Akash systems.

South Korea's airpower development emphasizes indigenous design and export markets. The KF-21 Boramae is South Korea's flagship 4.5-generation fighter program, poised to rival other advanced jets, while the FA-50 / T-50 Golden Eagle has already achieved notable export success. South Korea is also investing in Unmanned Aerial Vehicles (UAVs), loitering munitions, and integrated air defense systems such as the KM-SAM (Cheongung).

Here, complementarities are striking. India's Tejas and South Korea's KF-21 represent parallel efforts to indigenize fighter production at similar technological levels. Joint R&D in avionics, engines, and weapons integration could reduce costs and accelerate timelines for both. Similarly, cooperation in drones, surveillance aircraft, and air defense systems could benefit from India's scale and South Korea's advanced electronics.

Naval Capabilities Areas: Blue-Water Ambitions and Shipbuilding Strength

India is steadily building a blue-water navy. It operates two aircraft carriers *INS Vikramaditya* and the indigenous *INS Vikrant* with plans for a third. Its fleet of destroyers (Visakhapatnam-class) and frigates (Project 17A) reflect its drive toward stealth and power projection. India also operates Scorpene-class submarines and is investing in advanced submarine programs, while its P-8I Poseidon aircraft and BrahMos missiles reinforce its maritime strike power.

South Korea, for its part, is a global leader in shipbuilding and naval innovation. The Sejong the Great-class destroyers are among the most capable in Asia, equipped with Aegis systems and heavy missile loads. Its

Daegu-class frigates and KSS-III submarines integrate cutting-edge propulsion and strike systems, including air-independent propulsion and submarine-launched ballistic missiles. South Korea also deploys large amphibious vessels such as the Dokdo-class Landing Platform Helicopter (LPH), underscoring its capacity to build versatile platforms at scale.

This is perhaps the most fertile area for collaboration. South Korea's shipbuilding strength—from Hyundai Heavy Industries to Daewoo Shipbuilding—aligns with India's naval expansion plans. Joint production of frigates, destroyers, or submarine technologies could combine India's strategic requirements with South Korea's efficiency and expertise. Collaboration in propulsion systems, sensors, and naval missiles could further strengthen both navies, particularly as they share common concerns over maritime security in the Indo-Pacific.

Potential Areas for Joint R&D

Recently, an accelerating convergence of artificial intelligence (AI) and quantum computing is reshaping global economic competition and military balances and technological governance. AI is seen as a key driver of economic growth, industrial transformation, national competitiveness, and future security.¹¹⁸) In line with the tectonic technology shift, the South Korean government declared two ambitious national goals: namely, to become the top three AI power house and the fourth largest arms exporter in the world. This ambition is not new; earlier administrations already had national AI strategies (e.g. 2019 “National Strategy for Artificial Intelligence”) that laid groundwork in infrastructure, talent, and R&D.

On the front of the AI development, the Lee Jae-myung government

118) Werner, Jeremy (August 27, 2025).

has also made it a stated goal that South Korea should become one of the world's top three AI powers,¹¹⁹⁾ formally launching a National AI Strategy Committee chaired by the President and framed AI as a pillar of national power and growth. Budget signals back up this goal by proposing a record hike in 2026 R&D outlays with AI as a centerpiece.¹²⁰⁾ President Lee appointed AI expertise to Senior Presidential Secretary for the AI Future Planning and to the Minister of Science and Technology.

However, becoming a top three AI power overall is extremely ambitious and will be a long-term effort. Success depends heavily on execution, flexibility, and adaptation to global AI dynamics. On broad tech readiness indices, South Korea is strong overall but not yet top 3 in AI although often ranked mid-single digits in AI-specific metrics. South Korea lags behind many peers in large-scale data center and energy infrastructure. There are also concern about “brain drain”—top AI researchers being attracted overseas, particularly to the US.¹²¹⁾ Implementing cutting-edge AI systems (especially competing with US or Chinese giants) demands very high investment, fast iteration, and supportive regulation.¹²²⁾ That is a gap South Korea needs to close.

In the area of arms development, South Korea has showcased its excellence of conventional warfare arms in terms of its efficiency and cost as evident in the K9 self-propelled artillery, which has been in high demand in the world arms market. Building on the success of the K-9 artillery system, former President Yoon Suk-yeol (May 2023-April 2026) stated publicly in 2023 South Korea's aim of becoming the world's 4th largest arms exporter by 2027, a goal which he reiterated in 2024.¹²³⁾ The current President Lee Jae-myung since taking office (June 2025) has also emphasized boosting defense exports and has echoed that ambition

119) Anna J. Park (September 8, 2025).

120) Korea, Ministry of SMEs and Startups (October 1, 2025).

121) *Financial Times* (August 10, 2025).

122) Akhand, Afeeya (July 17, 2025).

123) Kim Min Joo, Michelle Ye Hee Lee and Dan Lamothe (December 23, 2022).

in pledges and policy moves, presiding over export-promotion meetings and setting up a stronger “control tower.”¹²⁴⁾

The South Korean government from one administration to another recognizes how a mid-sized economy can leverage industrial upgrading policy, alliance networks, and AI and quantum computing-based dual technology innovation to move from niche successes to mainstay items in the global arms market. The successful shift can strengthen not only national security but also high-tech oriented economic growth.

India is no exception to elevate AI-led technology regime to national strategic priority, envisioning itself as an “AI Garage”¹²⁵⁾ for the world—a hub for building scalable, affordable, and socially useful AI solutions. India frames its AI ambition in part as “solving for India, then scaling for the world.” India is not just a large consumer or adopter of AI, but aims at becoming a leading developer of frontier AI technologies (foundational models, novel architectures, hardware, etc.) and a hub for AI research, innovation, and talent that competes globally.

Then, India could become a source of AI solutions and exports for other countries especially in the Global South, an integrator of AI in governance, public services, health, education—delivering meaningful impact at scale while setting a global standard in ethical, inclusive, and context-sensitive AI governance, safety, fairness.

Embedding AI to arms sector development, India has created the Defense AI Council (DAIC) and a Defense AI Project Agency (DAIPA) to guide, coordinate, and give direction to defense-AI projects as a verification and test hub.¹²⁶⁾ India has a “Task Force for Implementation of AI” under the Ministry of Defence,¹²⁷⁾ proposing a structured AI roadmap for Roadmap in

124) South Korean press has described President Lee’s platform as aiming for the 4th-place goal but his administration has not issued a new, formal proclamation redefining the national target. See Son Ji-hyoung (April 17, 2025).

125) Guven, Aydin (July 25, 2025).

126) Pandit, Zain and Aashna Nahar (September 27, 2025).

127) Wikipedia, “Artificial Intelligence in India,” https://en.wikipedia.org/wiki/Artificial_inte

Defense Public Sector Undertakings (DPSUs) & Ordnance Factory Board (OFB) to develop and deploy AI-driven systems in defense platforms.

India is at relatively early stages of using AI in intelligence, surveillance, autonomous systems, logistics, etc. India explores a field quantum assisted inertial navigation on select naval and air platforms while enhancing export competitiveness by tying offset policy to safety-case sharing and co-development of test harness. Some commentary notes bureaucratic inefficiencies, inter-service silos, and ecosystem gaps hinder progress.¹²⁸⁾

In order to enhance defense industry as a major arms exporter, South Korea is undertaking a variety of R&D to narrow the capability gap in arms domains as shown in Table 22. Many of arms technological improvements involve basically breakthroughs in AI and quantum computing, which complement each other.

To enhance further South Korea's shipbuilding advantage, South Korea embeds AI-assisted quality control and predictive maintenance in naval yards. South Korea also pursues alliance interoperability through joint ROK-US AI readiness evaluations for combined forces. South Korea's industrial policy also supports domestic rad-hard chips and high precision Inertial Measurement Units (IMU) and also creates a "trusted autonomy" certification for arms exporters. Needless to say, the gamut of R&Ds for defense industry can be explored either through indigenous efforts or international collaborations with likeminded countries to advance to a top-tier arms capability. For mutually beneficial arms collaboration, India and South Korea can carry on selectively many of these R&D menus appropriate to their priority order and development timeline.

lligence_in_India.

128) Bordoloi, Sayten K. (August 12, 2025).

Table 22. South Korea's Major Defense Capability Gaps and R&D Responses (2025)

No.	Capability Area / Gap	Current Limitation / Threat	R&D or Program Response	Timeline / Status
1	Missile Defense (anti-hypersonic)	DPRK's evolving quasi-ballistic and hypersonic missiles exceed Patriot/M-SAM coverage	L-SAM Block-I entering deployment; L-SAM II under development for glide-phase intercept	2025-2035
2	Airborne Early Warning & Control (AEW&C)	Only 4 E-737 "Peace Eye" limit persistent coverage	AEW&C II with Global-6500 platform (L3Harris) adds 4 aircraft	Contracted, IOC ~2032
3	Space-based ISR	Heavy reliance on US assets; limited revisit	425 Project 5-satellite constellation (EO/IR + SAR) operationalizing autonomous surveillance	Multi-launches 2023-2025
4	Counter-UAS / SHORAD	Vulnerable to massed small-drone attacks	20-kW laser Block-I, interceptor-drone "hard-kill" R&D	Fielding 2024-2028
5	Strategic Airlift & Logistics	C-130 fleet limits dispersed sustainment	C-390 Millennium contract signed; multi-role lift/tanker integration	Delivery 2026-2030
6	Electronic Warfare (EW)	No dedicated modern EW/EA aircraft	New EW aircraft program for escort and stand-off jamming	Concept definition 2025
7	Air Combat Mass / Munitions Stockpile	Limited precision-munition depth; high sortie tempo risk	KF-21 Block-I production; domestic AESA, PGM lines expansion	2024-2030
8	Undersea Strike & Endurance	Diesel subs' limited endurance; need survivable strike	KSS-III Batch-II adds Li-ion battery, larger VLS for Hyunmoo-4-4	Launch 2025-2028
9	Ammunition & Industrial Surge	Global 155-mm demand exposes supply bottleneck	Expansion of 155-mm & GMLRS-class production; long-term contracts	Ongoing (2023-)
10	Hypersonic / Long-Range Conventional Strike	Need deeper conventional deterrence vs hardened targets	HYCORE hypersonic cruise missile, Hyunmoo-5 heavy missile	R&D through 2032

Sources: Compiled by Authors; Asian Military News, Army Recognition Group, The Defense Post, Flight Global, Business Korea, Aviation Week, Naval News, National Technology Alliance, US Naval Institute.

South Korea's Managed Dual-Track Strategy and Defense Collaboration with India

Staying on dual technology innovation, South Korea and India—two vibrant democracies with advanced scientific capabilities and complementary industrial strengths—should take AI and quantum computing-led transformations to elevate their bilateral relationship from an underdeveloped economic partnership to a strategic arms technology alliance toward a matured economic partnership.

By combining South Korea's manufacturing prowess and India's scale in software, data, and human capital, the two nations can create an innovation corridor that strengthens their economic resilience, enhances regional security, and contributes even to the formation of global norms for emerging technologies. Given the comparative strengths in various arms sectors, India and South Korea can enhance the supply chain complementarity by utilizing sensor/chip systems of South Korea and software and eval toolchains of India. The two countries can also co-run desert and littoral test beds with shared red-team units and standardize telemetry and safety metrics.

South Korea's ambition to become one of the world's top four arms exporters is increasingly shaped by the interplay between its conventional weapons success and its investments in frontier technologies. South Korea has already demonstrated export competitiveness with conventional systems such as the K9 Thunder self-propelled howitzer, the K2 Black Panther main battle tank, and the FA-50 light combat aircraft. At the same time, Seoul recognizes that the future of warfare will be determined by frontier technologies including artificial intelligence (AI), autonomous systems, hypersonics, and electronic warfare. A managed dual-track strategy—scaling conventional exports while ring-fencing investment in frontier capabilities—offers South Korea the most sustainable path to its export ambitions.

During an expert interview in early September 2025, former vice minister

Ahn Byung-Gil of South Korea's Ministry of National Defense emphasized early September 2025 to sharpen conventional warfare arms and their related parts and components should be emphasized not only to get ready for North Korea's conventional attacks but to bridge to frontier technologies. The former vice minister also commented that arms collaboration in frontier technology requires a long shot due to geopolitical sensitivity and a long record of collaboration with partnering countries.

South Korea's dual approaches are well fit when viewed through the lens of defense collaboration with India. As India pursues *Atmanirbhar Bharat* in defense production, it requires both conventional platforms to meet urgent operational needs and partnerships in frontier technologies to prepare for long-term strategic challenges. South Korea's dual-track model aligns well with India's requirements, offering a framework for a mutually reinforcing partnership.

India's acquisition of the K9 Vajra-T howitzer, is an emblematic example of G2B and B2B cooperation underpinned by G2G trust. Over 100 units have been delivered to the Indian Army, demonstrating Seoul's willingness to localize production and support New Delhi's indigenization agenda.¹²⁹⁾ This success builds the foundation of trust that enables broader cooperation.

Despite optimism, risks remain. The cancellation of a USD 1.5 billion fleet support ship deal with Hyundai Heavy Industries, due to disputes over cost and standards, highlights the challenges of aligning procurement policies.¹³⁰⁾ India's bureaucratic complexity, combined with political sensitivities, often stalls implementation of otherwise promising agreements. External dynamics add further uncertainty as China's assertiveness in the Indo-Pacific and Indian Ocean Region continues to shape the security calculus of both nations. Nonetheless, the structural complementarities between India and South Korea in technology, defense production, and shared commitment to a rules-based order outweigh the risks.

129) *Financial Express* (February 18, 2021).

130) Rajesh, Mithun (2025).

South Korea's emphasis on rapid delivery and cost-effective systems addresses India's immediate need for artillery, armored vehicles, and naval platforms. For example, discussions on South Korean assistance in shipbuilding for Indian naval support vessels reflect how conventional arms collaboration can expand into larger industrial ties.¹³¹⁾ By scaling these exports, South Korea not only builds credibility as a supplier but also demonstrates that its conventional platforms can be adapted to Indian requirements and produced in Indian facilities—a key condition of Indian procurement policy.

In order to collect views from career military generals and expertise view, two investigators of this study organized a brainstorming session at the Centre for Land Army Warfare Study (CLAWS) in India on August 28, 2025. The summary of the six speakers at the brainstorming session- prepared by the CLAWS is provided in the appendix B.

At the brainstorming session at the CLAWS, three Indian generals representing army, navy and air force provided highly practical suggestions based on their career field experience in Indian military. Army General Arun Sahni (retired) commented that the era of platforms being inducted into India directly from a foreign buyer may be nearing its end. Instead of focusing only on platform-centric exchanges—at least for land forces-hybrid combinations— needs to be explored, requiring engagement both at the government level and with the private sector. In this context, he listed the promising areas as follows: 1) an air-defense gun missile system, where South Korea provide the gun system while India produces the track platform, 2) smart ammunition—particularly smart fuses—South Korea is far ahead, such as those used in 3p ammunition (pre-fragmented, programmable, and proximity fused), 3) sensors are another area of interest to India whether in electro-optical systems or exhaust sensor technologies, 4) counter-drone capability is another area of interest to India. South Korea's radar technologies

131) *Jane's* (March 29, 2021).

are advanced and can be combined with directed energy weapons and lasers for hard-kill capability. To become a formidable defense industry partner, a foreign company should be prepared to share core technologies via joint development and shared intellectual property rights.

On the naval collaboration front, Vice Admiral AB Singh reiterated that there is no going away from *Make in India*, the joint IPR model is the only way to be financially viable. He suggested several opportunities as listed below: 1) aviation platform from ships—whether it is naval utility helicopter, for which the Request for Information (RFI) has just come out. There is a huge shortage of helicopters in India; 2) autonomous vessels at sea; 3) lithium-ion batteries for submarines. South Korea has this technology. If South Korea wants to do business in India for the next 30-40 years, technology sharing is a must; 4) laser weapons and directed energy weapons; 5) underwater domain includes underwater sensors, sonar buoy slow-frequency sonar, and multi-sensor fusion; 6) small jet engines; and finally, 7) South Korea's proven air-independent propulsion system on the submarine side.

On the air system, Air Marshall GS Bedi stressed that India and South Korea should look at setting up joint innovation centers for R&D that provide mutual security for data although it may take a long-term horizon. India is trying to develop a 5th generation aircraft with stealth capability. The two countries might explore some collaboration. In space, it is better to think of Positioning, Navigation and Timing (PNT). India is developing its NavIC (Navigation with India Constellation), while South Korea also faces problems with Global Positioning System (GPS).

At the CLAWS meeting, Dr. Cho Choong Jae, Head of the Korea Institute for International Economic Policy (KIEP) New Delhi Office, suggested that for robust defense industry collaboration, India and South Korea should craft a similar mechanism, modeled on the US-India Critical and Emerging Technology (iCET) or its upgraded version, the iCET-Trust.

While conventional arms meet short-term operational needs, India also

seeks partners for frontier technologies where local capabilities remain under development. Areas such as AI-enabled battlefield management, loitering munitions, and advanced propulsion for naval vessels are particularly ripe for collaboration. South Korea's dual-track approach allows it to channel revenues from conventional exports into R&D, which in turn can support joint development projects with India.

Potential collaboration examples for frontier technology include cooperative work on autonomous land systems, joint R&D in hypersonic defense, or co-development of electronic warfare suites for air and naval platforms. Indian IT and software firms could partner with South Korean defense primes to develop AI-enabled C4ISR (Intelligence, Surveillance, and Reconnaissance) systems, marrying South Korean hardware strengths with India's software talent base.¹³² Such frontier cooperation would not only diversify arms export portfolios but also embed South Korean and Indian industries in shared innovation ecosystems, raising barriers to external competition.

Institutional and Bureaucratic Constraints in India's Defense Industrialization

India's defense industrial base has evolved through a complex bureaucratic architecture that, while ambitious in its goals, often hinders rather than accelerates procurement and innovation. The Ministry of Defence (MoD) oversees a sprawling institutional ecosystem composed of the Department of Defence Production (DDP), the Defence Research and Development Organisation (DRDO), Defence Public Sector Undertakings (DPSUs), and Service Headquarters (Army, Navy, Air Force). Although this structure ensures wide functional coverage, overlapping jurisdictions, procedural

¹³² *Jane's* (March 29, 2021).

redundancies, and an excessive reliance on state-owned enterprises have constrained the efficiency of defense acquisition.

Though the Defence Acquisition Procedure (DAP 2020) was meant to simplify procurement and increase transparency, it remains burdened by multiple layers of approval and inadequate synchronization between MoD, the armed services, and industry stakeholders. The result is a prolonged acquisition cycle in which tenders, evaluations, and contract negotiations stretch over several years. Private firms, particularly small and medium enterprises, often lack the capacity to navigate these bureaucratic processes, discouraging broader participation and innovation.

One persistent challenge is the underperformance of offset implementation, a mechanism designed to stimulate domestic capability through technology transfer and local production. Since the introduction of offset policy in 2005, India has accumulated commitments worth over USD 12 billion, but actual realization has hovered around 40 percent.¹³³ The Comptroller and Auditor General (CAG) has repeatedly highlighted poor monitoring, inconsistent valuation, and the absence of a single oversight authority. Technology absorption has been limited; most offsets are fulfilled through low-value assembly or training contracts rather than substantive R&D collaboration.

Furthermore, despite reforms under the *Atmanirbhar Bharat* initiative, the procurement process still favors DPSUs over private entities in contract allocation and export licensing. The positive indigenization lists (PILs) and the Strategic Partnership Model (SPM)—both promising on paper—remain underutilized due to unclear risk-sharing provisions and slow approval of Requests for Proposal (RFPs). The absence of a central defense procurement authority analogous to South Korea's Defense Acquisition Program Administration (DAPA) limits coherence and accountability in decision-making.

133) Rajat Pandit (August 30, 2025).

These institutional frictions directly affect India's collaboration prospects with technologically advanced partners such as South Korea. South Korean defense firms operate in a system characterized by regulatory clarity, rapid contracting, and integrated public-private R&D pipelines. In contrast, foreign partners in India must navigate protracted clearances, licensing bottlenecks, and uncertain intellectual property frameworks. Unless India addresses these bureaucratic inefficiencies—by creating a unified procurement authority, rationalizing offset evaluation, and enhancing interdepartmental coordination—the structural asymmetry in defense industrial cooperation will persist. A reformed institutional ecosystem is therefore indispensable for translating India's strategic ambitions into operational and industrial outcomes.

However, India's evolving procurement framework offers important opportunities for policy learning from South Korea's experience. While DAPA functions as a one-stop authority balancing transparency with flexibility, India's dispersed system dilutes accountability. South Korea's offset learning model—whereby technology absorption, local R&D mandates, and civilian spin-offs are built into defense contracts—provides a useful benchmark. India's offset guidelines could similarly evolve from transactional cost recovery to long-term innovation partnerships. Initiatives such as iDEX (Innovations for Defence Excellence) and Defense Industrial Corridors in Tamil Nadu and Uttar Pradesh are steps in this direction, yet they require stronger linkages with foreign partners and predictable regulatory norms. A dedicated India-South Korea Offset Forum could institutionalize cross-learning on technology transfer, SME participation, and lifecycle cost management—key ingredients for a sustainable co-development model.

Conclusion: The Power of Leveraging Joint Cooperation

South Korea's managed dual-track strategy—scaling conventional exports while investing in frontier technologies—offers a balanced path toward top-four exporter status. Collaboration with India illustrates how this approach can be operationalized: conventional arms like the K9 Vajra-T provide the trust and industrial linkages that make frontier R&D partnerships viable, while frontier projects promise to embed both economies in shared innovation ecosystems.

As India approaches the status of the world's third-largest economy accompanied by an equivalent military strength and South Korea consolidates its position in the global top ten, bilateral defense cooperation can become a catalyst for a matured economic partnership. Defense collaboration will not only reinforce military ties but also trigger spillover effects across trade, investment, and technology integration—areas where current South Korea-India connectivity lags far behind ties with China and Vietnam. By anchoring their partnership in a dual-track arms strategy, both countries can strengthen strategic trust and reshape their geoeconomic relationship for the decades ahead.

Strategic collaboration between India and South Korea in the defense industry must increasingly incorporate emerging domains that extend beyond traditional procurement. The Indo-Pacific security environment is marked by rapid technological disruptions, transnational threats, and the blurring of civilian-military boundaries. In this context, joint exploration of cyber defense, artificial intelligence, and maritime domain awareness offers opportunities to reinforce resilience while also signaling long-term strategic commitment.

First, cyber and information security represent critical vulnerabilities for both nations. India has been the target of repeated cyber intrusions, often attributed to state-backed actors in China and Pakistan, while South Korea

faces persistent threats from North Korean hackers. By pooling resources, the two nations could develop joint cyber task forces, establish norms for cyber deterrence, and promote secure supply chains for defense-related digital infrastructure. Lessons could be drawn from NATO's Cooperative Cyber Defence Centre of Excellence, which has demonstrated the value of collective knowledge-sharing and simulated threat responses.¹³⁴⁾

Second, artificial intelligence is emerging as a decisive enabler of military modernization.¹³⁵⁾ South Korea already invests heavily in AI-driven surveillance, drones, and autonomous platforms. India, while still consolidating its AI ecosystem, has developed strengths in software engineering and data analytics. A structured collaboration that combines India's human capital and South Korea's hardware expertise could yield breakthroughs in autonomous systems, predictive maintenance, and logistics optimization. Such joint ventures would also complement the broader Indo-Pacific agenda of promoting responsible AI, ensuring that emerging technologies are not monopolized by a few great powers.

Third, maritime security should be a cornerstone of the partnership. The Indian Ocean Region (IOR) is central to India's security calculus, while South Korea depends on maritime trade routes through the region for its economic survival.¹³⁶⁾ Joint development of next-generation frigates, submarines, and maritime surveillance platforms could address overlapping interests. Coordinated naval exercises, interoperability frameworks, and co-production of unmanned surface and underwater vessels would further integrate the two navies into regional security architectures. Such efforts would also strengthen India's aspiration to serve as a net security provider in the IOR.

However, collaboration must also address institutional and structural barriers. The cancellation of the Hyundai fleet support ship deal highlights

134) NATO Cooperative Cyber Defence Centre of Excellence, Annual Report 2024.

135) Michael Horowitz (2021), pp. 7-40.

136) Darshana Baruah (2020a).

the risks of mismatched procurement standards and regulatory rigidity. Both countries should therefore institutionalize dispute-resolution mechanisms within their defense cooperation frameworks to ensure that commercial disagreements do not derail strategic goals. In parallel, regular 2+2 dialogues and a permanent defense industry working group could provide platforms for aligning expectations and harmonizing procurement standards.

Finally, trilateral and minilateral formats represent a promising avenue for expanding India-South Korea collaboration.¹³⁷⁾ The US-India-South Korea technology alliance already demonstrates how partnerships can diversify supply chains and counterbalance Chinese dominance in semiconductors and advanced manufacturing. Adding issue-specific trilaterals with Japan, Australia, or ASEAN members could reinforce both strategic resilience and political legitimacy. By situating bilateral collaboration within wider minilateral architectures, India and South Korea can magnify their strategic weight while reducing exposure to bilateral frictions.

Looking ahead, the India-South Korea partnership is poised to expand in several critical directions: on the cards is hardware collaboration in submarines (Project 75I), helicopters, tanks, and advanced munitions,¹³⁸⁾ and partnerships in software and joint R&D in cyber, space, and unmanned systems. The envisaged technology diversification would reduce India's reliance on Russia and South Korea's dependence on Western platforms.

Diversification not only supports India's quest for defense indigenization but also enhances South Korea's ambition to become a leading exporter in the global arms market. Seoul aims to solidify its position as a key strategic partner to India's evolving defense ecosystem, diversifying India's supply chain.¹³⁹⁾ The comparative arms portfolios of India and South Korea reveal complementary strengths that can be harnessed through top-down strategic

137) Andrew O'Neil (2023); Panda, Jagannath P., ed. (2021).

138) Mithun, Rajesh (2025).

139) *Mint* (March 28, 2021).

agreements (G2G) and bottom-up industrial innovation (G2B, B2B). In land systems, artillery and armored vehicles provide the clearest avenue. In the air, parallel fighter programs and drone technologies open opportunities for joint R&D. At sea, South Korea's shipbuilding and India's naval ambitions align to create space for co-production and long-term interoperability.

Ultimately, the India-South Korea defense partnership is not just about filling gaps but about building a resilient, future-ready defense ecosystem that advances their respective national goals while reinforcing the collective security of the Indo-Pacific. Across land, air, and sea, India and South Korea present a dual profile of overlap and complementarity. India's strength lies in scale, operational experience, and a policy environment pushing for indigenization under *Atmanirbhar Bharat*. South Korea contributes cutting-edge technology, industrial efficiency, and export orientation under its ambition to be the world's fourth-largest arms exporter.

By combining India's demand with South Korea's supply capabilities, the two countries can move beyond transactional arms sales into co-development and co-production ecosystems. Tanks, howitzers, fighters, drones, submarines, and warships all provide platforms where collaboration is not only feasible but strategically advantageous.

The future of India-South Korea defense industry collaboration lies not only in expanding arms contracts but also in co-developing solutions for new-age threats. By embedding cyber defense, AI, and maritime security within their cooperation agenda—and by institutionalizing mechanisms to address procurement bottlenecks—both nations can construct a durable, future-oriented partnership. Such an approach would not only deepen mutual trust but also reinforce their shared identity as middle powers committed to sustaining a rules-based order in the Indo-Pacific.

Chapter 5: Way Forward and Policy Recommendations

Towards a Matured Economic Partnership

As formidable middle powers in the Indo-Pacific, India and South Korea share a commitment to liberal democracy and open economic systems. Both countries actively engage in minilateral, regional, and multilateral frameworks to uphold an open, liberal international order. In the increasingly fragmented and uncertain trade environment, both countries should seek robust diversification strategies, reducing excessive reliance on a particular country and outreaching to rising economies in the Global South.

In pursuit of a high-income, high-tech economy amid growing geo-economic fragmentation, South Korea views India—soon to become the world’s third-largest economy and a prominent Global South representative—as a trusted partner in both economic and security domains. A deeper partnership with India, home to approximately 1.4 billion people, would enable South Korea to diversify away from its economic overreliance on China and strengthen its outreach to the Global South.

India, in turn, sees South Korea as a strategic partner in advancing its “Amrit Kaal” vision toward 2047, marking 100 years of independence. This alignment was reinforced during the visit of Indian Foreign Minister S. Jaishankar to South Korea in April 2023. Bilateral cooperation has already

expanded into joint defense production, as well as trade and investment in sectors such as automobiles, semiconductors, and electronics. South Korea's industrial strengths can contribute to India's "Resilient India" agenda, particularly in defense development.

Beyond trade, the defense partnership is gaining momentum. South Korea has become a key supplier of military equipment to India, notably through the acquisition of 100 K9 Vajra-T self-propelled howitzers—produced via a joint venture between India's Larsen & Toubro (L&T) and South Korea's Hanwha Defense. This collaboration marks a significant step in bilateral defense industry cooperation.

In the face of global uncertainty—driven by the war in Ukraine, persistent Middle East conflicts, and US-China rivalry—the India-South Korea defense collaboration is set for a paradigm shift. India's showcase of the K9 Vajra during Republic Day celebrations signals growing confidence in this partnership. Meanwhile, South Korea's defense exports are gaining prominence as part of its high-tech export strategy, alongside traditional sectors like semiconductors, shipbuilding, and electronics. Although originally developed for self-defense, South Korea's advanced military systems are increasingly positioned as competitive exports.

India, experiencing sustained economic growth under Prime Minister Modi's "Make in India" initiative, has prioritized domestic defense development—especially following the 2020 Galwan clash with China. As the world's top arms importer, India seeks self-reliance in defense manufacturing, making its partnership with South Korea even more vital.

The India-France and India-Israel defense collaborations show that there is no single model for success—strategic depth and technological agility can both yield results when aligned with national priorities. By engaging with partners that bring advanced capabilities and mutual trust, nations can accelerate their own defense modernization while enhancing self-reliance. France demonstrates the power of deep strategic alignment and joint manufacturing; Israel showcases agile, innovation-driven co-development.

These partnerships demonstrate that pursuing self-reliance does not mean isolation; mutually beneficial interdependence can reinforce, rather than diminish, autonomy. Together, such collaborations highlight how defense cooperation can serve as a pillar of foreign policy—advancing national interests, strengthening alliances, and shaping the global balance of power.

Defense collaboration in both conventional and frontier domains with relating joint R&D and co-production can therefore accelerate a transition toward a more **mature economic partnership** at an expanded and higher equilibrium characterized by the following effects:

- **Deepened trade integration** - using defense offsets to catalyze supply-chain linkages in steel, electronics, semiconductors, and shipbuilding.
- **Expanded South Korean FDI in India** - moving beyond autos (Hyundai, Kia) into defense production, semiconductors, and energy transition projects.
- **Joint frontier R&D collaborations** - moving together in the space and surveillance domains.
- **Joint export strategies** - leveraging India's scale and South Korea's technology to co-supply third markets, especially in Southeast Asia and Africa.
- **Upgraded CEPA** - aligning tariff reductions and rules of origin with the needs of new industrial partnerships, including defense.

By embedding defense industry ties into broader industrial cooperation, the two economies can reduce their current trade imbalance, enhance investment flows, and create the mutual confidence required for long-term geo-economic alignment. Despite the momentum, there has been limited research on how to fully deepen bilateral cooperation in the arms industry. This study aims to fill that gap, providing actionable policy recommendations for a robust, trusted India-South Korea defense and economic partnership.

Policy Recommendations:

Strategic Imperative for a Trusted Partnership to accommodate G2G, G2B, and B2B Channels

The bilateral relationship between India and South Korea has steadily matured from trade and cultural exchanges into one of strategic importance. Both nations, facing acute security challenges—India from China and Pakistan, and South Korea from North Korea and regional instability—require trusted partners to reduce vulnerability to external shocks. The defense industry collaboration offers a natural pathway to elevate bilateral ties into a fully trusted partnership.

- Establish defense cooperation as a core pillar of the “Special Strategic Partnership,” integrating it with broader economic, diplomatic, and technology engagements.

Institutionalizing Defense Cooperation

Despite strong foundations such as the 2005 Defense Industry Cooperation MoU and subsequent summits, institutional mechanisms remain fragmented.

- Institutionalize a biennial 2+2 Foreign and Defense Ministers Dialogue specifically devoted to defense industry cooperation.
- Create a Permanent India-ROK Defense Cooperation Secretariat housed within both Ministries of Defense, tasked with tracking progress on joint ventures, technology transfer, and arms co-production.
- Expand the mandate of the South Korea-India Joint Committee on Defense Industry Cooperation to include private-sector CEOs and think tank representatives for policy-innovation dialogues.

Short, Medium and Long Term Roadmaps

Given the complementarities and comparative strengths, India and South Korea—both likeminded democratic nations—need to agree on short, medium and long term roadmaps to push ahead from the K9 Vajra success story to wider and frontier technology. South Korea has adopted a managed dual track strategy to focus on conventional warfare defense industry while pushing for frontier technology arms with relevant R&D focus.

- The shorter roadmap (1-3 years) involves foundation and confidence building as seen in the K9 Vajra collaboration case, information sharing, institutional trust, and assessment of mutual strengths.
- Medium term roadmap (4-8 years) will strengthen policy framework to address integration and joint development and R&D.
- Long term roadmap (9-15 years) needs to focus on the strategic partnership and export alliances.

Leveraging Complementarities in Defense Industrialization

South Korea has emerged as a top-10 arms exporter—now aiming to become a top-4 arms exporter—with proven strength in tanks, artillery, shipbuilding, and aerospace. India, though still the world’s largest arms importer, is pursuing rapid indigenization under *Atmanirbhar Bharat* and Make in India initiatives.

- Adopt a division of labor model: South Korea focuses on high-tech defense engineering, while India provides scale, manpower, and market access.
- Prioritize co-development projects in areas where complementarities are strong: artillery (K9 platform upgrades), naval shipbuilding, and space-based surveillance.

- Develop offset mechanisms requiring South Korean defense firms to reinvest in Indian R&D, drawing lessons from South Korea's own use of offsets during its catch-up phase.

Co-Production and Technology Transfer

The K9 Vajra project has become a flagship example of successful co-production. However, bottlenecks remain due to bureaucratic hurdles and disputes over standards.

- Institutionalize mandatory technology transfer clauses in all bilateral defense contracts, ensuring long-term self-reliance.
- Establish India-South Korea Centers of Excellence for Defense Technology, focusing on robotics, AI, semiconductors, and space defense.
- Introduce fast-track clearance mechanisms within India's MoD to cut delays in implementing co-production projects.

Expanding Maritime and Shipbuilding Cooperation

India aspires to become a top-10 shipbuilding power by 2030 and a top-5 by 2047. South Korea's shipbuilding giants, with expertise in LNG carriers and green ship technologies, provide the ideal partners.

- Launch a South Korea-India Naval Shipbuilding Partnership Initiative to develop frigates, corvettes, and auxiliary vessels in Indian shipyards.
- Jointly pursue green ship technologies and maritime surveillance systems, integrating them into broader Indo-Pacific security architectures.
- Co-develop submarine platforms, leveraging South Korea's KSS-III model and India's operational experience.

Space and Satellite Collaboration

Both nations see space as the next frontier of security and commerce. India's ISRO has achieved remarkable cost-effective missions, while South Korea has launched KASA and prioritized space security.

- Co-develop dual-use satellites for defense communication, weather monitoring, and disaster response.
- Launch a joint lunar and planetary exploration program, pooling India's launch capabilities and South Korea's R&D strengths.
- Coordinate military-space interoperability, focusing on surveillance of Indo-Pacific maritime chokepoints and missile tracking.

Semiconductor and Critical Technology Cooperation

Semiconductors are indispensable for modern defense—from stealth aircraft to AI-driven weapons. South Korea is a global semiconductor powerhouse, while India has scale and policy incentives.

- Form a Bilateral Semiconductor Task Force under the trilateral US-India-South Korea framework to strengthen defense electronics supply chains.
- Establish joint fabs in India supported by South Korean firms (Samsung, SK Hynix) to reduce dependence on China.
- Encourage cross-investment in AI, cyber-defense, and quantum computing to ensure resilience in next-gen defense applications.

Triangular and Minilateral Cooperation

Both nations are middle powers navigating a fragmented order. Partnerships with the US, Japan, Australia, and ASEAN amplify their voice.

- Position the India-South Korea partnership as a backbone of the US-

India-South Korea technology trilateral, expanding into defense logistics and joint training.

- Coordinate within Quad-Plus mechanisms to balance China's assertiveness, focusing on maritime security, cyber norms, and semiconductor resilience.
- Regularize bilateral naval exercise and launch a trilateral naval exercise (India-South Korea-Japan) in the Indo-Pacific to test interoperability.

Policy Alignment for Trade and Defense

The Comprehensive Economic Partnership Agreement (CEPA) between India and South Korea needs upgrading to unlock full defense cooperation.

- Expand CEPA to include defense trade chapters ensuring tariff relief and simplified customs for defense equipment.
- Introduce bilateral investment treaties with defense carve-outs to protect South Korean firms investing in India.
- Encourage cross-border venture capital funds targeting startups in defense AI, cybersecurity, and aerospace.

Enhancing Interoperability and Joint Training

Military exercises and shared operational doctrines are essential for trust and readiness.

- Scale up joint exercises focused on counterterrorism, maritime domain awareness, and HADR.
- Establish exchange programs between military academies and defense universities.
- Pursue joint logistics agreements for Indian naval access to South Korean ports and vice versa, improving Indo-Pacific readiness.

Risk Mitigation and Bureaucratic Reforms

The Hyundai shipbuilding cancellation and defense procurement delays illustrate risks that could undermine momentum.

- Create a Joint Dispute Resolution Mechanism to address contract disputes swiftly.
- Establish a Transparency Protocol in procurement to minimize bureaucratic red tape.
- Adopt standardization frameworks for defense contracts aligned with OECD best practices.

Supporting Middle Power Diplomacy in the Indo-Pacific

India and South Korea must leverage their defense partnership to shape regional governance.

- Promote the India-South Korea Defense Forum as a minilateral platform to convene ASEAN, Australia, and EU partners.
- Advocate for rules-based arms transfers and responsible AI use in warfare at multilateral forums.
- Use their collaboration to spearhead Global South outreach, offering affordable defense technologies to smaller nations seeking alternatives to China.

Long-Term Vision and Phased Roadmap: Toward 2047

Both countries' centenary goals—India's "Amrit Kaal" by 2047 and South Korea's ambition to be a Global Pivotal State—align in their quest for technological self-reliance and regional leadership.

- Draft a 2047 Defense Cooperation Roadmap, linking industrial policy with security cooperation.

- Launch mega projects: a jointly produced next-gen main battle tank, a co-developed 6th-generation fighter, and a joint space defense platform.
- Institutionalize annual defense innovation summits alternating between Seoul and New Delhi to sustain long-term collaboration.

Conclusion

India-South Korea defense industry collaboration represents more than transactional defense trade; it is a strategic trust-building mechanism with multiplier effects. As India ascends to the ranks of the world's top three economies and South Korea maintains its high-tech economic position among the top ten, their ability to leverage defense ties for broader trade and FDI integration will determine whether the relationship matures into a true partnership.

At present, India-South Korea bilateral economic connectivity lags significantly behind South Korea's ties with China and Vietnam. But defense cooperation—because of its strategic weight and industrial depth—offers the most promising avenue to close this gap. If harnessed effectively, it could transform South Korea-India relations into a model of how arms collaboration catalyzes a mature comprehensive economic partnership in the Indo-Pacific.

Defense collaboration between South Korea and India also has wider geo-economic spillover effects. Historically, arms collaboration has built strategic trust that extends into civilian sectors. The US-Japan partnership during the Cold War, for example, stimulated dual-use innovation in semiconductors and aerospace. For South Korea and India, arms collaboration can likewise become a catalyst for broader trade and FDI connectivity.

Yet, the current scale of South Korea-India economic ties is modest. Bilateral trade was approximately USD 27-28 billion in 2023, far below South Korea's trade with China (USD 310 billion) and Vietnam (USD 80 billion).¹⁴⁰⁾ South Korean FDI in India, though rising, lags behind investments in Southeast Asia.¹⁴¹⁾ Defense collaboration provides a mechanism to close this gap: successful co-production projects build confidence in South Korea's long-term commitment to India and create the political capital needed to deepen CEPA negotiations, expand technology transfer, and encourage South Korean firms to scale investments in India beyond automobiles into defense

In sum, defense industry collaboration between India and South Korea is more than an arms-trade arrangement—it is a strategic necessity for both middle powers navigating an unpredictable world order. By institutionalizing cooperation, leveraging complementarities, and aligning with regional frameworks, the two nations can elevate their partnership into a cornerstone of Indo-Pacific security and economic resilience. The pathway forward is clear: deepen trust, expand co-production, integrate emerging technologies, and anchor bilateralism within broader multilateral frameworks. If executed with vision and pragmatism, India-South Korea defense cooperation can stand as a hallmark of constructive middle-power leadership by 2047.

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Interviews and Meeting Materials

Discussion Summary on India-South Korea New Age Defense Cooperation Thursday, August 28, 2025, CLAWS, New Delhi (Prepared by CLAWS).

Appendix

Appendix A: Methodological Note

The study was conducted over a two-year period (2023-2025) as a joint research initiative between the Korea Institute for International Economic Policy (KIEP) and the Institute for Security and Development Policy (ISDP). The methodology followed a three-stage design: (1) desk-based literature review and document analysis; (2) semi-structured interviews and practitioner roundtables; and (3) synthesis and policy formulation.

Given the sensitivity of defense-sector data, the research relied primarily on open-source materials, verified government reports, and anonymized interviews. While access to classified information was restricted, triangulation through multiple public and institutional datasets provided sufficient validity. All interviews were conducted under conditions of confidentiality, with verbal consent obtained from participants.

The analytical framework employed a mixed interpretive-empirical approach: interpretive methods to analyze policy narratives and discourse framing; and empirical mapping of trade, FDI, and arms-transfer trends. The combination allows for a multi-scalar understanding of how strategic trust and industrial collaboration co-evolve.

The main limitations include the uneven availability of disaggregated defense production data and linguistic constraints in the translation of South Korean policy documents. Nonetheless, the integration of multiple data sources enhances reliability and cross-verification. The research protocol

was reviewed under ISDP’s ethical guidelines for non-classified defense studies.

All primary data—interview transcripts, anonymized notes, and coding matrices—will be securely archived with ISDP and KIEP for future reference. This methodological transparency is intended to strengthen scholarly replicability and institutional credibility in defense-industrial research.

Appendix B: Discussion Summary on India-South Korea New Age Defense Cooperation Thursday, August 28, 2025, CLAWS, New Delhi (Prepared by CLAWS)

Session I

Key Points from Dr. Prof. Ahn, Choong Yong

Evolution of South Korea-India arms transfers

- “Critics including the World Bank and Japanese experts dismissed South Korea’s ambitions as impossible dreams. But South Korea persevered, adopting ‘reverse engineering’ and strategic technology licensing to realize “compressed industrialization and high growth.”
- “The results are plain to see today: South Korea is a global leader in semiconductors, automotive manufacturing, shipbuilding, and dual-use technologies that directly strengthen defense capabilities.”
- “India today faces a similar challenge. As the world’s largest arms importer and with the third-largest defense budget, India must balance strategic autonomy with global cooperation.”
- “South Korea, now the world’s 10th-largest arms exporter and

aiming for fourth place, is well-positioned to partner with India in this endeavour.”

- “The K-9 Vajra-T artillery system, co-produced in India, proved that high-level collaboration is possible.”
- “India, with its strategic geography and growing maritime responsibilities in the Indo-Pacific, can benefit enormously from collaboration in this area.”
- “Between 2010 and 2020, South Korea produced over 2,400 ships compared to only 37 in the United States, at less than half the cost.”
- “India and South Korea already have ambitious economic targets. Both governments have set a goal of reaching \$50 billion in bilateral trade by 2030, and South Korea has consistently been a strong FDI investor in India, led by firms such as Hyundai, Samsung, and LG.”
- “Defense collaboration can provide the next big leap.”
- “Arms collaboration will not only enhance mutual trust but also strengthen high-technology trade, foreign direct investment, and innovation in dual-use technologies.”
- “India’s extraordinary achievements in space exploration—including the successful lunar landing—are inspiring.”
- “With collaboration, we can learn from India’s experience and build new frontiers together.”

Key Points from Dr. Cho, Choong Jae

India-South Korea Economic cooperation including Defense Industry

- “In the 1990s, with India’s economic liberalization, major South Korean companies such as LG, Samsung, and Hyundai became among the earliest foreign investors.”
- “A turning point came in 2010, when relations were elevated from a Comprehensive Partnership to a Strategic Partnership, explicitly including security and defense cooperation.”

- “In 2015, during Prime Minister Modi’s visit to South Korea, relations were elevated to a Special Strategic Partnership. The agenda broadened to include shipbuilding, cybersecurity, maritime security, and emerging technologies.”
- “In April this year, a contract for an additional 100 K9 Vajra units was finalized... raising localization levels from 50% to 60% and creating nearly 900,000 man-days of employment in India over four years.”
- “In 2019, the two navies signed a mutual logistics agreement, and both governments adopted a Roadmap for Defense Industry Cooperation.”
- “Several projects have failed or been cancelled... Addressing these failures and learning from them will be crucial.”
- “Unless stronger incentives are created for South Korean firms to produce locally in India, cooperation may fall short of its potential.”
- “While trilateral cooperation with India may be possible in the future, excessive concentration on the US market could limit South Korea’s ability to expand into India.”
- “India is one of the most stable and high-growth economies of the future.”
- “South Korea is uniquely positioned with robust competitiveness across strategic industries, including defense, semiconductors, batteries, EVs, and shipbuilding.”
- “South Korea and India should craft a similar mechanism, modelled on iCET or its upgraded successor, the ‘iCET-Trust.’”

Key Points from Dr. Jagannath Panda

India Arms Import by Category and Trading Partner

- President Trump, perhaps unintentionally, has forced many of us to re-examine and rethink our existing policies. While some of his approaches have unsettled the global order, they have nevertheless

provided opportunities for reflection and recalibration of our planning.

- There is a flurry of opportunities for South Korea, India and many other Indo-Pacific partners who are actually looking for a future in this heavily contested world politics.
- Over the past 15-20 years, one thing has become clear: there is both a willingness and an intent on both sides, which is steadily translating into more action-oriented collaborations. Defense collaboration has definitely been the hub of this collaboration along with technology as well as the transport sectors. What is emerging more recently is India's distinct choice to view South Korea as a higher-order Defense collaborator.
- If we look at India's Defense imports and diversification policy, South Korea has managed to climb the ladder despite certain setbacks. The POSCO case or the cancellation of the minesweeper agreement a few years ago, forced us to reconsider how South Korea must be given greater priority.
- Unlike Japan, which has a preferential gateway through direct support from the Prime Minister's Office for its investments, South Korea has not been afforded the same confidence. I strongly believe that time has come for India to extend a similar level of legitimacy, trust and preferential access to South Korea.
- Following the Ukraine war, a lot of Eastern European and Central European countries are looking at South Korea as a strong Defense collaborator partner. Such developments also create a favourable opening for India, especially as we continue diversifying our own procurement processes.
- While India must not compromise on its partnership with Japan, there is now a different dynamic. The rapport and political confidence that was there during the late PM Shinzo's period has been slightly dented and so India-Japan momentum hasn't grown to the next level as it was expected to. Parallely, India-South Korea ties have

continued to gain traction.

- Not only do we need to invite the South Korean Defense companies to be involved in India's Make in India process to strengthen the Atmanirbhar Bharat, but we also need to look for non-Defense centric security collaborations, which will involve a third country and a security partner.
- We should also talk about security collaborations in the Indo-Pacific, at a time when Americans are showing a huge withdrawal approach under Trump's 2.0.
- For example, India, Japan are collaborating with some of the ASEAN countries. This model can be replicated with India, South Korea plus another country. We need to find trilateral and other minilateral forums to talk about soft security and soft defense issues.
- This can involve cyber technology, sea line of communications, undersea cables, maritime governance and other soft security areas. These areas help build trust and can then serve as stepping stones toward stronger defense cooperation in hardware and systems.
- Instead of relying only on traditional defense transactions, India and South Korea could also follow a reverse approach starting with softer areas of cooperation and then expanding into larger defense collaborations.
- The question then arises: which third countries could serve as partners in this effort? While it is not an easy choice, countries such as Vietnam, the Philippines, and Indonesia could be promising options, given ROK's status as an emerging maritime trading country and its interest towards the Indo-Pacific.
- India remains one of the world's largest arms importers, accounting for about 8.3% of global imports. While Russia, France, and Israel continue to be our major partners, South Korea is steadily emerging as a significant supplier, particularly in artillery and mechanised systems. Categories such as naval platforms, electronics, and munitions

also offer scope where South Korea could be a better partner.

- India is undergoing a transition phase gradually diversifying away from heavy reliance on Russian equipment. This creates a clear opportunity for South Korea to step up as a reliable and innovative partner in co-production, joint ventures, and technology transfer.
- If you take the Defense industrial plans of India, then the discussion on South Korea has been rather lukewarm. We cannot neglect a country which is climbing the ladder to the top, becoming the number four economy in the world. That opportunity needs to be really forecasted and explored.
- We need to have 10-15 year planned partnership with South Korea.
- A structural challenge on the South Korean side is its single-term presidency, which can disrupt long-term strategic planning due to political changes. Still, South Korea's transparency and strong democratic accountability are strengths India can rely upon.
- If India aims to become a self-reliant defense power, we must also develop alternative supply chain networks- this aspect cannot be overlooked. A key lesson lies in South Korea's rise as a critical supply chain hub. It is not only Poland but much of Central and Eastern Europe that is turning to South Korean arms and equipment. This shift was accelerated by Trump's policies and American pressure, which exposed vulnerabilities in their procurement processes. In that context, India too must recognize that if it seeks to emerge as a defense exporter, it can study how South Korean companies are succeeding across Eastern and Central Europe.
- South Korea is still very invested in the ASEAN region and in the Indo Pacific countries, including India. And we need to talk about new areas of collaboration, from technology transfer to technology production.
- QUAD Plus Framework: South Korea has been selectively invited to certain groups, like one on maritime governance during the

pandemic. However, as you know, the Quad is still limited to four members, and under the Trump administration it is uncertain which direction it might take.

- South Korea, along with Israel, has been treated as a preferred partner. This is partly due to the “Japan factor.” The Japanese have a strong desire to preserve their leadership in shaping Indo-Pacific directives. They are not very comfortable with South Korea, or any other country, sharing that distinction. Japan has had an understanding with the US for a long time that it should remain the custodian and guardian of the Indo-Pacific.
- There exists another trilateral, China, South Korea, and Japan, which has been in place for a long time. This trilateral is focused more on the South Korean Peninsula and East Asian maritime issues, not on the broader Indo-Pacific. India does not play a role there, apart from some Track 1.5 dialogues where Indian experts or diplomats have occasionally been invited. The US has also been present in that trilateral, largely because of its military presence in the South Korean Peninsula and across the East and South China Seas.
- Instead of relying too heavily on American support systems for undersea cables, India could propose an “undersea Quad” consisting of India, Australia, Japan, and South Korea. That would be beneficial for India’s interests. And perhaps now is the right time, because Japan-South Korea relations are not as tense as they were a few years ago.

Session II

Key Points from Lt Gen Arun Sahni, PVSM, UYSM, SM, VSM (retd) **Priority Subsectors for Land Systems-Strategic Future Collaborations** **Beyond K9 Joint Ventures**

- “Maybe it’s a sweeping statement, but the era of platforms being inducted into India directly from a foreign buyer may be nearing its end. We’ll have to look at a different model going forward.”
- “One promising area is an air defense gun-missile system, where the gun system could come from your side, the track platform is produced in India, and the missile technology is integrated through our IGMD program. That kind of collaboration can work. If that is an area you want to explore, again, it’s a gap that exists. You could pursue it under a MoU with DRDO, or even on a government-to-government basis under the Strategic Talks that take place at the secretary level.”
- “Instead of focusing only on platform-centric exchanges—at least for land forces—I would suggest looking at hybrid combinations. But for that, engagement is required both at the governmental level and with the private sector.”
- “If you are considering hybrid systems, also look at space, where we are still dependent on Germany, the US, and China for critical areas. This is an industry where your mid-level companies could play a role.”
- “Smart ammunition—particularly smart fuses, such as those used in 3P ammunition—is another area. In the Indian armed forces, especially the Army, this is a 100% requirement. Your capacity in smart fuses is far ahead, and would find great resonance within India.”
- “The electronics and semiconductor industries are also emerging strongly. That is another area worth exploring, particularly for defense

and space collaborations.”

- “Sensors are another area of interest to India and would generate significant demand—whether in electro-optical systems or exhaust sensor technologies.”
- “Another system to look at is counter-drone capability. Your radar technologies are advanced, and combined with directed energy weapons and lasers for hard-kill capability, counter-drone solutions could be a significant area of cooperation.”
- “In India, when a big foreign company comes in, nobody will accept a one-sided arrangement. They will ask for work share, particularly in critical technologies. It cannot be like the K9 case. If we collaborate, it should be on something core, with joint development and shared IPR.”

Key Points from Vice Admiral AB Singh, PVSM, AVSM, VSM (retd)

Priority Subsectors for Naval Systems -Strategic Future Collaborations

- “Notwithstanding what has happened in the past, I think there’s a huge opportunity ahead of us.”
- “Make in India will remain the core. There is no going away from Make in India. Therefore, if you want to make something in a collaborative manner, the joint IPR model—and a model in which we can share the market—is the only way to be financially viable.”
- “It cannot be that we make only nuts and bolts in the cabinet, while you keep the heart of it. That is a challenge.”
- “Among the opportunities that exist, I would say one is in aviation platforms from ships—whether it is the naval utility helicopter, for which the RFI has just come out. Once the helicopter starts getting manufactured and localized in India, it can fly all over Africa, it can fly all over India. There is a huge shortage of helicopters in India.”
- “Second, I would like you to look at autonomous vessels at sea.

That is an area for collaboration, one of high technology, and that is the future.”

- “The Indian Navy is now in dialogue with many countries on lithium-ion batteries for submarines. You have this technology, your submarines already use it, but it is not being offered to us. If you want to do business in India for the next 30-40 years, you need to get in early. If you get in early, you will be like the LGs and the Samsungs of India. If you get in late, the space will be crowded out.”
- “Next, I want to mention laser weapons and directed energy weapons. This is the next field—whether we are talking of low-frequency IR heads or medium-frequency IR microwave heads. These are areas for cooperation, and they represent the future.”
- “Another field of great importance to the Indian Navy is the underwater domain—whether it is underwater sensors, sonar buoys, bow-mounted low-frequency sonar, or towed array sonar. Multi-domain, multi-sensor fusion is another area of keen interest to the Indian Navy.”
- “We are also looking at very small jet engines, in the range of four to five kilo-Newtons, which can be used on UAVs, target drones, and similar platforms.”
- “General Sahni highlighted the issue of defense electronics, and I fully agree with him. Manufacturing corridors are being set up—you are aware of it. Either you get in now, or you will miss the bus, because someone else will. There is only a finite amount of space, and only a finite amount of technology that can be inducted. That is what people will invest in.”
- “Lastly, on the submarine side, you have a proven air-independent propulsion (AIP) system. All of our submarines are going to be retrofitted with AIP at some point in time. You may have missed the bus for the full system, but you can still get into the component-

level or sectional-level areas within the defense industry. That option is available.”

Key Points from Air Marshal GS Bedi, AVSM, VM, VSM (retd)

Priority Subsectors for Air Systems -Strategic Future Collaborations

- “What I would suggest is that when we talk of technology, why don’t we look at setting up joint innovation centres for R&D? It may sound futuristic, but there is no doubt that technology developed in India, with the support of South Korea’s technological prowess, can be marketed globally.”
- “Specifically for the Air Force, we need to progress to a bilateral level—where it is only India and South Korea conducting exercises. That way, the engagement becomes much more prominent, rather than being hidden within a multinational environment.”
- “You are also almost at the same level as we are with Tejas. We are trying to develop a 5th generation aircraft with stealth capability. Is there a case for a joint aircraft program, similar to how technologies from multiple countries came together in platforms like the Typhoon or the F-35?”
- “As of now, if I put it in colloquial terms, we are only flirting with cooperation. We need to move to a marriage stage of cooperation. That means genuine interdependence—it should not be that one side is doing a favor for the other. Neither side should have the leverage to call it off at will.”
- “Cyber capability is one aspect, but cyber security is another. Air Force operations of the future will be completely net-centric. Moving into the post-quantum era, we must develop infrastructure where data remains secure.”
- “Therefore, if joint ventures are to be set up for R&D, they must focus on products that provide mutual security for data. This is

absolutely paramount.”

- “In space, we are talking about areas like PNT. India is developing its NavIC, while South Korea also faces problems of GPS spoofing. If South Korea and India were to develop a joint constellation, it would create true interdependence and a system unique to this region—providing global PNT independent of GPS, GLONASS, or any other system.”
- “And of course, there are the emerging technologies—semiconductors, AI, quantum, and many others—which can also be brought together for collaboration.”

국문요약

본 연구의 목적은 한국-인도 간 방위산업의 전략적 협력을 촉매로 양국 간 경제교류를 획기적으로 심화 격상시키는 데 있다. 한국은 오랜 남북 대치 준전시 상황에서 자주국방 정책을 추구해 왔다. 그 결과 최근 한국은 국제 방산시장에서 신흥 방산 공급국으로 진입하였다. 인도는 지금 고성장 경제력에 상응하는 국방력 강화를 우선순위 국가시책으로 내걸고 세계 굴지의 무기 수입국이 되었다. 한국과 인도는 2010년 포괄적 경제동반자협정(CEPA)을 발효시켰으나, 양국의 경제 규모와 성장 잠재력에 상응하는 실질적 성과를 내는 데에는 크게 미흡하였다. 한국-인도 간 통상 규모는 한-중 통상 규모의 10%에도 미치지 못하며, 한-베트남 통상 규모의 약 30% 수준에 불과하다. 최근 한국-인도 간 K9 자주포의 방산 합작생산을 계기로 두 나라는 전면적 경제협력의 계기를 마련했다.

인도는 나렌드라 모디 총리의 「제조 인디아(Make in India)」 정책 기조 아래 최근 연평균 7% 내외의 고성장에 힘입어 2030년 이전에 세계 3위의 GDP 규모를 달성할 것으로 예측된다. 이를 위해 인도는 적극적인 외국인직접투자(FDI) 유치 정책을 추진하는 한편 교역도 크게 늘려 세계적 시장으로 변모할 전망이다. 한국은 미국 트럼프 행정부의 미국 우선주의 고관세 정책에 대응하고, 중국에 대한 과도한 의존에서 탈피하기 위해 통상과 투자에서 다각화(Diversification) 전략을 적극 추진하고 있다. 한국은 인도를 포스트 차이나 글로벌 사우스의 대표적 시장으로 평가하고 있다. 세계 경제의 지경학적 분절화 시대 속에서 양국은 민주주의 가치를 공유하며, 안보협력 강화에 이어 통상과 투자를 확대할 경우 성숙된 경제협력 파트너로서 대외관계에서 전략적 자율성(Strategic Autonomy)을 추구하는 데 상호 도움이 될 수 있다.

본 연구에서 방위산업 협력은 국가안보와 직결되는 특성에 주목하여, 양국 정부 간(G2G) 높은 상호 신뢰를 쌓게 되며, 방산 협력의 정부 대 민간 기업(G2B), 민간 기업 간(B2B) 협력을 포함하는 다층적인 협력 체계가 필요하다는 점에 강조하고 있다. 오늘날 방위산업은 최첨단 부품과 소재를 활용하는 민·군 겸용기술(Dual-use

Technology)의 성격을 지니고 있다. 따라서 국가 간 방산협력은 한나라 경제의 기술 고도화에 기여하며, 상호신뢰의 축적을 통하여 고부가가치 부품·소재의 교역 확대와 직접투자로 연계되어 전략적 경제 파트너십을 형성할 수 있다. 양국은 AI 기술 혁명시대를 선도할 수 있는 인프라와 고급 인력을 보유하고 있어 본격적 방산협력의 가능성을 높이고 있다.

한국과 인도는 최근 K9 자주포의 현지 합작 생산을 계기로 방산 협력의 중요한 물꼬를 텃다. 한국은 K9 자주포, K2 전차, 천궁-II, 천궁-III 지대공 미사일, FA-21 보라매 전투기, 잠수함, 고성능 정찰기 등을 중심으로 가격 대비 성능이 우수하며 납기를 준수하는 신흥 방산 공급국으로 높은 평가를 받고 있다. 이를 토대로 한국은 세계 5위 방산 수출국이라는 전략적 국가 목표를 설정하고 있다.

인도는 지금 중국의 군사 대국화에 대응하고 파키스탄과의 국경 분쟁 등 다양한 안보 위협에 대처하기 위해 육·해·공 방위 능력을 전반적으로 강화하고 있다. 인도는 달 반대편에 우주탐사선을 착륙시킨 이후 우주기술 강국으로의 도약도 적극 추진하고 있다. 인도는 향후 통상 물류 대국으로서 광범한 인도-태평양 지역에서 해상안보 강화에도 초점을 두고 있다. 이를 위하여 앞으로 조선업 진흥과 해군력 강화도 추구하고 있다. 또한 인도는 현재 세계 굴지의 방산 구매국으로서 무기 도입 과정에서 기술이전과 합작생산을 조건으로 방산의 자국화 정책을 추진하고 있다.

한국은 세계 5대 방산수출국 목표에 이어 통상과 투자의 다변화 전략 추구하고 인도의 세계 3위 경제력에 상응하는 국방력 제고라는 정책 목표에서 한국-인도 양국은 이상적 파트너로 상호인식을 하고 있다. 이에 따라 한국-인도 양국은 조선을 포함한 방산, 통상, 투자 전반에서 상호보완적 관계를 형성할 뿐만 아니라 민주주의라는 핵심 가치를 공유하고 있다.

향후 양국은 전략적 방산 협력의 심화를 위해 G2G, G2B, B2B 방산협력 모드에 합당한 정상회담 및 관련 각료급 회담을 정례화하고, 이에 따른 제도적 기반을 체계적으로 정비하여 성숙된 복합 경제 파트너십을 구축할 필요가 있다. 또한 인도와 한국은 이미 입증된 K9 자주포 협력의 성공 사례를 넘어 육·해·공·우주 전 영역에서 공동 생산과 연구개발을 촉진하기 위한 중장기 로드맵을 수립하고, 본격적인 윈윈(win-win) 협력 사업을 추진할 필요가 있다.

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Strategic Collaboration of Defense Industry between India and South Korea: Toward a Matured Economic Partnership

Choong Yong Ahn and Jagannath Panda

India and South Korea share a strong potential for strategic convergence toward a matured economic partnership as likeminded partners. Both nations pursue strategic autonomy and diversification strategies in response to the intensifying protectionism and broader instability across the Indo-Pacific. The Comprehensive Economic Partnership Agreement (CEPA), launched in 2010, has yet to deliver outcomes. In an era of proliferating minilateralism and protectionist fragmentation, defense industrial collaboration between India and South Korea offers a powerful catalyst for expanding trust, trade, and investment. The India-South Korea partnership in the recent defense production of the K9 Vajra-T self-propelled howitzer appears a landmark success story that opens the door for wider cooperation. Through a deeper defense collaboration, Seoul and New Delhi can cultivate long-term strategic trust and generate spillover effects across broader economic domains.

