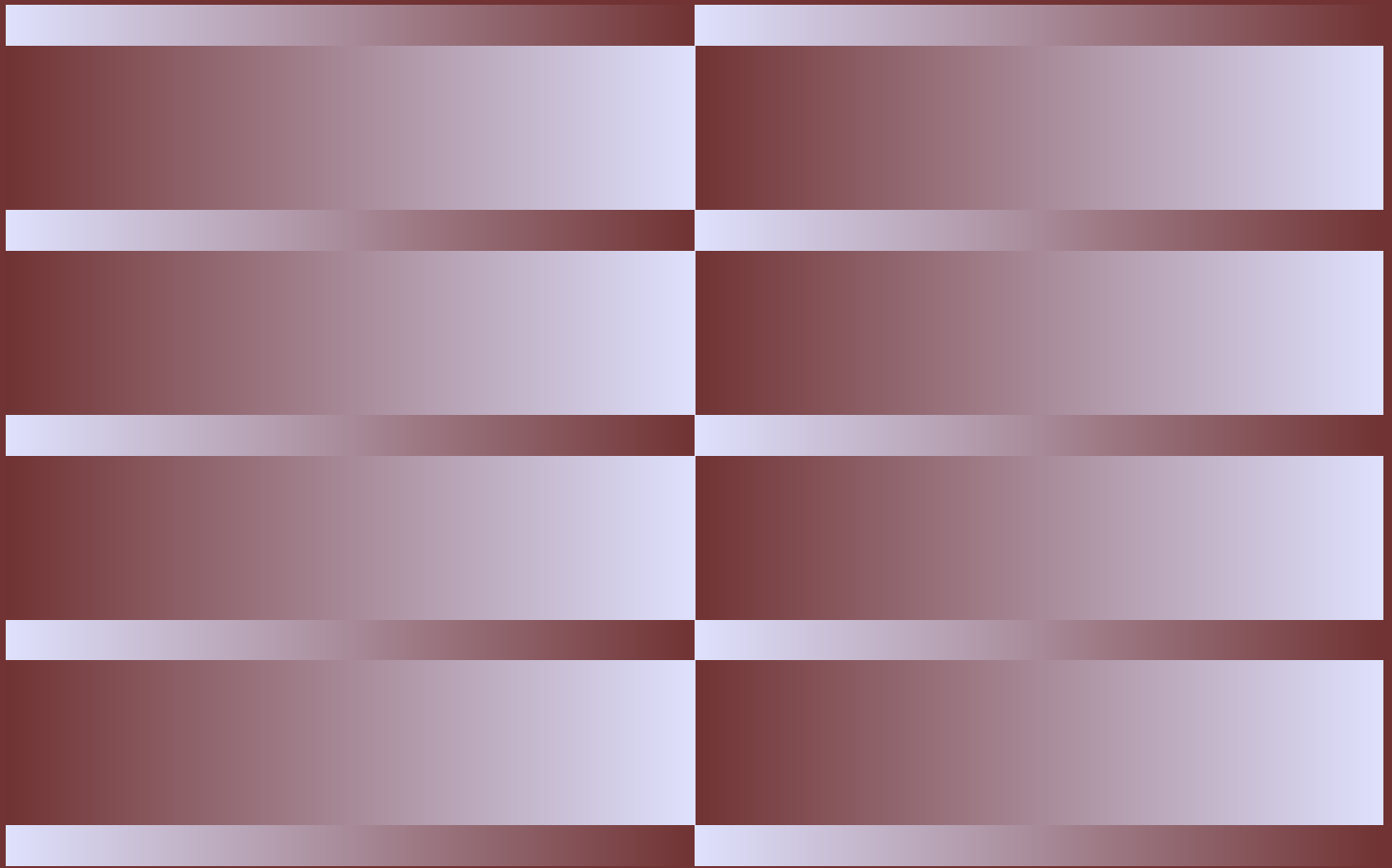




POLICY BRIEF

Tech Sovereignty and the EU's Chips Act 2.0 in Practice

A Case Study on Commercial Cooperation Between the Republic of Korea and the EU

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October 15, 2026

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Executive Summary

With the publication of the Tech Sovereignty Package on 3 June 2026, the European Commission has, for the first time, put open strategic autonomy into concrete operational terms across a range of technology ecosystems, particularly artificial intelligence (AI) and semiconductors. The underlying logic is straightforward: Europe's long-term competitiveness and resilience cannot rest on domestic capabilities alone; they increasingly depend on strategic partnerships with like-minded allies. This resonates with a broader shift in the policy discourse around strategic indispensability, managed interdependence and middle-nation leverage. The Package redefines technological sovereignty less as autarky than as the ability to shape the terms of interdependence.

Using cooperation in semiconductors between the Republic of Korea (ROK) and the European Union (EU) as a case study, this paper analyses how "openness" is operationalised in the second EU Chips Act (ECA 2.0) proposal. Additionally, we zoom in on the state of play in bilateral cooperation. In June 2026, the EU and the ROK launched the new Competitiveness Partnership, aiming to deepen cooperation on trade, investment, economic security and industrial policy – signalling that both sides intend to move beyond current collaboration regarding research and innovation. We put forward three avenues through which these ambitions could be turned into concrete action.

- **Avenue 1 (business as usual)** would continue the current research and development (R&D) focus and let commercial outcomes emerge organically. This avenue would fall short of the ambition both sides signalled with the Competitiveness Partnership.
- **Avenue 2 (large-scale investment, e.g attracting a Korean leading-edge fab to Europe)** has been the implicit goal shaping the EU discourse for some time now. Our analysis concludes that this is not the logical next step, for both political and economic reasons.
- **Avenue 3 (strategic building blocks)** is, based on our analysis, the most realistic path forward: a portfolio of smaller wins and trust-building measures that pave the way for deeper cooperation and, in time, could open the door to large-scale investment as well. Three blocks structure the approach:
 - **Block 1: Bridge knowledge gaps** by using the Strategic Mapping outlined in ECA 2.0 and the Semiconductor Regions of Excellence label to sharpen the EU's own understanding of its dependencies and communicate its strengths credibly to trusted partners.
 - **Block 2: Increase industry engagement in political fora** by bringing government-led and industry-led cooperation tracks closer together, through an EU-ROK (semiconductor) business council or the inclusion of the industry in the envisioned "high-level industry dialogue" under the Competitiveness Partnership, working groups on shared interests (green semiconductor technologies, chip design, compound semiconductors, defence applications) and a stronger joint EU-ROK presence at events such as SEMICON Korea and SEMICON Europe.
 - **Block 3: Strengthen R&D** with a Grand Challenges orientation by expanding joint R&D into shared AI hardware priorities aligned with the ECA 2.0 Grand Challenges, with an explicit focus on commercialising outcomes through joint ventures, spin-offs and smaller ecosystem investments.

These building blocks translate into four broader recommendations for EU tech diplomacy that reach well beyond the ROK case: **first**, communicate where openness is actually invited more clearly. **Second**, set clear priorities regarding alignment with the industry: with limited political bandwidth, effective Strategic Partnerships require sharp choices regarding whom to partner with and which technologies to focus on. **Third**, align cooperation interests through intermediate steps that produce small wins and build mutual trust. **Fourth**, clarify responsibilities and capacities across policy levels.

Introduction

In recent years, the nature of tech diplomacy has changed. Because of the high degree of market concentration and transnational interdependencies, technologies such as semiconductors and AI models are increasingly understood as strategic assets.¹ Approaches to securing access and building out domestic capabilities are increasingly shaped by considerations of geopolitical leverage.² In turn, decisions regarding who to partner with are increasingly being defined by "win-win" and "commercial reasonableness" perspectives on both ends, representing a clear focus on more transactional partnerships.³ Concurrently, over recent years, the European Union (EU) has had to navigate and react to an environment that is markedly more uncertain both politically and technologically. An intensifying United States (US)-China technology rivalry, Donald Trump's return to the White House and significant US advances in artificial intelligence (AI) resulted in Ursula von der Leyen's European Commission declaring a "geopolitical" orientation with a dedicated focus on "catching up with the AI frontier."⁴

This trajectory started with the AI Continent Action Plan in April 2025 and culminated in the publication of the Tech Sovereignty Package on 3 June 2026. The latter includes two legislative proposals – the Chips Act 2.0 (ECA 2.0) and the Cloud and AI Development Act (CADA) – as well as the Open-Source Strategy and the Strategic Roadmap for Digitalisation and AI in Energy.⁵ Together, these measures represent a comprehensive approach to technological sovereignty grounded in what the European Commission describes as "openness, partnership and fair competition. Strengthening the EU's technological base enables it to remain open and cooperative while safeguarding its capacity to act independently and protect its interests, security and democratic

1 Jeffrey Ding and Allan Dafoe (2021). The Logic of Strategic Assets: From Oil to AI. <https://arxiv.org/pdf/2001.03246>

2 Tomas Johannsson (2026). Managing Risk, Building Resilience: Korea-EU Cooperation in Economic Security.

3 Korea JoongAng Daily (2026). Korea nears selection of first U.S. investment project.

4 European Commission (2025). Speech by President von der Leyen at the Artificial Intelligence Action Summit. https://ec.europa.eu/commission/presscorner/detail/lt/speech_25_471

5 European Commission (2026). Strengthening Europe's Tech Sovereignty. <https://digital-strategy.ec.europa.eu/en/policies/eu-tech-sovereignty>

principles."⁶ This approach represents the first concrete attempt to operationalise open strategic autonomy across different technology ecosystems. The EU aims to strengthen domestic capabilities while explicitly acknowledging that full autonomy is neither feasible nor desirable. Instead, Strategic Partnerships, which are explicitly proposed in ECA 2.0, become a defining principle going forward.

This development underlines how industrial policy must work along two dimensions at once. Long-term competitiveness and resilience cannot be centred around domestic capabilities alone; these goals increasingly depend on carefully navigating uncertain geopolitical waters while strengthening partnerships with like-minded allies – both to secure supply and to attract more investment into the EU.

This paper examines how openness to foreign-company participation and to international cooperation is operationalised in the instruments of the ECA 2.0. We use cooperation in the semiconductor value chain between the Republic of Korea (ROK) and the EU as a case study for this broader question. For decades, Seoul has deliberately built up domestic industries to make itself indispensable to strategic technology ecosystems. Today, the Korean companies Samsung and SK hynix are front and centre in the current AI compute build-out, providing high-bandwidth memory (HBM) chips that are part of every AI accelerator.⁷ Only Micron (in the US) is competing in this market segment.

In general, having leverage is highly important to the ROK, as they are reliant on China as a key export market and on the US as their security guarantor. Maintaining good relations with both underlines President Lee Jae Myung's stance of aiming for "win-win" partnerships.⁸ As Washington and Beijing both push to win the AI race, newly proposed multilateral formats, such as Pax Silica (steered by the US) and the World Artificial Intelligence Cooperation Organization (WAICO; steered by China), increasingly put pressure on middle powers to declare an allegiance. The ROK signed a memorandum of understanding (MoU) regarding the Technology Prosperity Deal with Washington in late 2025, followed within weeks by the ROK becoming a founding member of Pax Silica, potentially aligning Seoul with all actors across the entire AI value chain with the US being in the centre.⁹ Yet alignment buys less than it once did. In August 2026, Trump abruptly ordered a substantial reduction in joint military exercises between the two countries, citing Seoul's refusal to back the US campaign against Iran, while pushing for more Korean chip production plants in the US.

6 European Commission (2026). Communication on European Tech Sovereignty, Accompanied by an EU Open Source Strategy.

7 Counterpoint (2026). Global DRAM and HBM Market Share: Quarterly. <https://counterpointresearch.com/en/insights/global-dram-and-hbm-market-share>

8 Scott Synder (2026). How Lee Jae Myung Bought South Korea Diplomatic Space, Time, and Leverage.

9 Darcie Draudt-Véjares and Seungjoo Lee (2026). Governing AI in the Shadow of Giants: Korea's Strategic Response to Great Power AI Competition. <https://carnegieendowment.org/research/2026/04/governing-ai-in-the-shadow-of-giants-koreas-strategic-response-to-great-power-ai-competition>

The EU's starting point was different: when the idea of digital partnerships was established around 2022, Brussels turned to partners sharing democratic values and placed information-sharing regarding the root causes of shortages and collective resilience measures at the centre of semiconductor cooperation. When Pax Silica was founded, the EU did not collectively communicate a clear stance right away. Instead, several member states joined first; only in the summer of 2026 did the EU become an official member. This decision aligns with the competitiveness shift spelled out in ECA 2.0, with the EU now turning to partners with advantages in the global semiconductor ecosystem.¹⁰

On the bilateral level, cooperation between the ROK and the EU in semiconductors to date has mainly been fruitful in the areas of collective research and development (R&D) and sharing information to identify supply chain disruptions and avoid future chip shortages. But the latest developments indicate that both sides intend to change this. In June 2026, the EU-ROK Competitiveness Partnership was launched with the aim "to enhance competitiveness and economic resilience in a structured manner"¹¹ and the intention to deepen their cooperation regarding economic security, trade and industrial policy through a high-level economic dialogue.¹²

In this policy brief, we explore what these latest policy initiatives and partnerships could mean for the future of bilateral cooperation between the ROK and the EU. We will do so by connecting the dots between the proposed ECA 2.0 instruments most relevant for foreign-company participation and examining the status quo of the ROK-EU partnership. Based on an analysis of both, we put forward three avenues for cooperation. Each avenue spells out the implications of such cooperation and what it would take for EU policymakers to aim for outcomes in a partnership that is focused on competitiveness and economic resilience.

The ROK and the EU: Positions in the Global Semiconductor Value Chain

Before examining the two sides' current industrial policy approaches, this chapter briefly outlines their respective roles in the global semiconductor value chain, focusing on the most recent developments.

¹⁰ Brandon Drenon and Jake Kwon (2026). Trump says US to reduce military drills with South Korea after it stayed out of Iran war.

¹¹ Delegation of the European Union to the Republic of Korea (2026). Joint Statement Following the 11th European Union – Republic of Korea Summit. https://www.eeas.europa.eu/delegations/south-korea/joint-statement-following-11th-european-union-%E2%80%93-republic-korea-summit_en

¹² European Commission (2026). Joint Statement Following the 11th European Union - Republic of Korea Summit. https://ec.europa.eu/commission/presscorner/detail/en/statement_26_1326

The ROK

Measured by wafer capacity, the ROK is the second-largest manufacturing hub for advanced wafer fabrication after Taiwan,¹³ both for logic and for memory chips: TSMC, Samsung, and Intel are the only manufacturers still competing at the leading edge of logic-chip production.^{14, 15} Samsung has also emerged as one of the key suppliers of dynamic random-access memory (DRAM), alongside SK hynix. Together, these two firms held roughly two-thirds of the global DRAM market in Q1 2026: 38% (Samsung) and 29% (SK hynix).¹⁶ Both companies also have the largest market shares in HBM chips, a sub-category of DRAM that provides short-term memory to AI accelerators and has become the key bottleneck in the current AI compute expansion.¹⁷ HBM provides significantly higher memory bandwidth than traditional DRAM, which is particularly crucial in the training and deployment phase of AI models, when large amounts of data are being handled simultaneously. Samsung is the market leader in this regard (38% market share), followed by SK hynix (25%).¹⁸ This dominance in memory is a key driver behind the recent 169% year-on-year rise in Korean semiconductor exports, which now account for more than 42% of the country's total exports.¹⁹ In response to surging AI chip demand, the Korean government has announced an investment package of approximately KRW 900 trillion (EUR 510 billion) to reinforce the central role of Samsung and SK hynix in the domestic ecosystem, with two new fabs announced for each company.²⁰ The two firms will finance the largest share themselves (KRW 800 trillion), with the remaining KRW 100 trillion (approximately EUR 56.6 billion) expected from local governments, which will also provide streamlined permits and infrastructure support.^{21, 22} Korea's ecosystem is also expanding in terms of materials (e.g. SK Specialty, Dongjin Semichem, Soulbrain) and equipment (e.g. SEMES, Wonik IPS,

13 SEMI World Fab Forecast Q3 2026. <https://www.semi.org/en/products-services/market-data/world-fab-forecast>

14 Anton Shilov (2026). Intel 14A defect density is dropping faster than the company expected — 'we have not seen this performance since 22nm,' says CFO. <https://www.tomshardware.com/tech-industry/semiconductors/intel-14a-defect-density-is-dropping-faster-than-the-company-expected-we-have-not-seen-this-performance-since-22nm-says-cfo>

15 Anton Shilov (2026). Leading-edge foundry roadmaps for TSMC, Intel and Samsung — outlining the path to 1.4nm nodes and beyond. <https://www.tomshardware.com/tech-industry/semiconductors/leading-edge-foundry-roadmaps-for-tsmc-intel-and-samsung-outlining-the-path-to-1-4nm-nodes-and-beyond>

16 Counterpoint (2026). Global DRAM and HBM Market Share: Quarterly. <https://counterpointresearch.com/en/insights/global-dram-and-hbm-market-share>

17 Julia Christina Hess and Maria Nowicka (2026). Direct Emissions in Semiconductor Manufacturing Are Increasing Again — What Is Behind the Shift? <https://www.interface-eu.org/publications/semiconductor-emissions-data-2026>

18 Counterpoint (2026). Global DRAM and HBM Market Share: Quarterly. <https://counterpointresearch.com/en/insights/global-dram-and-hbm-market-share>

19 Randall Jones (2026). South Korea's Economy Accelerates Despite the Middle East Energy Shock. <https://keia.org/analysis/south-koreas-economy-accelerates-despite-the-middle-east-energy-shock/>

20 Michaël Aussems (2026). 510 billion euros for South Korean chip industry puts European initiative into perspective. <https://itdaily.com/blogs/business/south-korea-investment-chip-eu/>

21 Hyunjoon Jin and Heekyong Yang (2026). Samsung and SK Hynix's mega South Korea chips gamble tests optimism of AI cycle. <https://www.japantimes.co.jp/business/2026/07/01/tech/samsung-sk-hynix-korea-chips/> and Mels Dees (2026)

22 Samsung and SK Hynix invest \$518B in expansion. <https://www.techzine.eu/news/infrastructure/142507/samsung-and-sk-hynix-invest-518b-in-expansion/>

Global Zeus).²³

The EU

Europe's role, on the other hand, is less straightforward when looking solely at its share of global wafer capacity, which stands at below 10%.²⁴,²⁵ A closer look, however, reveals strengths that are complementary to those of the ROK: European companies such as Bosch, Infineon, NXP and STMicroelectronics are strong in analogue/mixed-signal and power semiconductors, as well as microcontrollers. In addition, the European Semiconductor Manufacturing Company (ESMC) joint venture between TSMC, Bosch, Infineon and NXP exemplifies the strength in automotive semiconductors.²⁶ Apart from production, European companies play significant, and in some cases market-leading, roles as suppliers: ASML is the most prominent example, holding a monopoly in extreme ultraviolet lithography equipment essential for advanced wafer fabrication. At the same time, ASML itself depends on a tightly integrated European supplier network, including Zeiss and TRUMPF. ASM International and Aixtron supply front-end wafer fabrication equipment, while BE Semiconductor Industries, EV Group and SÜSS MicroTec produce different types of back-end manufacturing equipment for chip assembly. Moreover, chemical and materials suppliers such as Air Liquide, BASF, Linde and Merck KGaA (chemicals) as well as substrate suppliers Siltronic and Soitec are an integral part of the European ecosystem. Europe is also home to some of the world's leading research and technology organisations (RTOs), namely imec, Fraunhofer and CEA-Leti.²⁷

State of Play: Industrial Policies

Over the last five years, both the EU and the ROK have continuously refined their semiconductor industrial policies to strengthen their respective domestic ecosystems. A key milestone came in 2023: the EU adopted the European Chips Act²⁸ and the ROK passed the K-Chips Act.²⁹ One important driver was the unprecedented shortages that severely disrupted the global semiconductor supply chain during the COVID-19

23 Invest Korea (2026). <https://www.investkorea.org/ik-en/cntnts/i-312/web.do>

24 SEMI World Fab Forecast Q3 2026. <https://www.semi.org/en/products-services/market-data/world-fab-forecast>

25 Nick Flaherty (2026). A leading edge fab for Europe in Chips Act 2.0. <https://www.eenewseurope.com/en/a-leading-edge-fab-for-europe-in-chips-act-2-0/>

26 The planned fab is expected to have a monthly production capacity of 40,000 300 mm (12-inch) wafers on TSMC's 28/22 nanometre planar CMOS and 16/12 nanometre FinFET process technology, further strengthening Europe's semiconductor manufacturing ecosystem with advanced FinFET transistor technology and creating about 2,000 direct high-tech professional jobs. ESMC aims to begin construction of the fab in the second half of 2024, with production targeted to begin by the end of 2027.

27 Paolo Bonnet et al. (2025). EU's Strengths and Weaknesses in the Global Semiconductor Sector. <https://publications.jrc.ec.europa.eu/repository/handle/JRC141323>

28 European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

29 Godwin (2023). The South Korean K-Chips Act and Its Impact on International Companies and Investors. <https://www.goodwinlaw.com/en/insights/publications/2023/06/alerts-privateequity-the-south-korean-k-chips-act>

pandemic. This paper does not aim to trace the full evolution or the changing nature of governments' role in the semiconductor value chain. Instead, we focus on the current state of industrial policy and chip diplomacy in the EU and the ROK to identify concrete opportunities for strengthening bilateral cooperation. We will start by closely examining the proposal of ECA 2.0, which is the central element in the EU's industrial policy centred around semiconductors.

The EU Chips Act 2.0 as part of the EU's Tech Sovereignty Package

On 3 June 2026, the European Commission published the Tech Sovereignty Package, which included two legislative proposals – ECA 2.0 and CADA – as well as the EU Open-Source Strategy and the Strategic Roadmap for Digitalisation and AI in Energy.³⁰ With ECA 2.0, the Commission revises and expands initiatives, instruments and concepts from the first Chips Act (ECA 1.0). The two overarching objectives of ECA 2.0 primarily focus on strengthening domestic capabilities:

1. One aim is to "increase the competitiveness of the European semiconductor value chain to improve its technological sovereignty and resilience – by (i) accelerating the industrial deployment of research and innovation; (ii) ensuring security of supply; and (iii) reducing strategic dependencies in cutting-edge and mature semiconductor technologies."³¹
2. Additionally, the regulation seeks to enhance "crisis preparedness to ensure the EU's security of supply – by improving the functioning of the internal market through a uniform legal framework that protects the Union's economic security and increases its indispensability, resilience and prosperity in semiconductor technologies."³²

While ECA 1.0 focused on supply sides measures, ECA 2.0 includes new instruments designed to stimulate demand and vertical integration. Since this paper focuses on the "openness element," placing emphasis on the international dimension of the proposed regulation, we do not present all changes and newly proposed instruments. Instead, we concentrate on the most important instruments through which third country participation is possible or feasible.

New framework around Strategic Partnerships

The most straightforward instrument for international cooperation in ECA 2.0 is the proposed framework for Strategic Partnerships – designed for engaging "with international strategic partners that have advantages in the semiconductor industry" and

30 European Commission (2026). Strengthening Europe's Tech Sovereignty. <https://digital-strategy.ec.europa.eu/en/policies/eu-tech-sovereignty>

31 European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

32 European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

"setting out concrete actions of mutual interest."³³ This framework applies to both bilateral and multilateral formats. According to the proposed regulation, such partnerships should be coordinated between the Commission and member states, with support from the European Semiconductor Board.³⁴ Strategic Partnerships have a non-binding character and do not specifically talk about enhanced commercial cooperation. At this point in time, it is not clear whether this is an entirely new partnership framework or a reframing of the existing Digital Partnership's semiconductor workstream.

ECA 2.0 also establishes a systematic framework determining who qualifies as a "trusted partner" outside of the EU via Domestic Undertakings. This is relevant for foreign companies participating in European Semiconductor Technology Initiatives (ESTIs) or Strategic Projects. The underlying rationale behind Domestic Undertakings is to open the door to trusted partners that are eligible to receive public financial incentives to then create value in the EU – namely foreign companies whose countries have either a free trade agreement (FTA) or a WTO Government Procurement Agreement³⁵ with the EU. The partnership with the ROK ticks both boxes.³⁶

Overview of the ECA 2.0 proposal

ECA 2.0 preserves the three-pillar structure of the first EU chips act while revising existing instruments and adding new ones. The section that follows focuses only on the frameworks, conditions and instruments relevant to foreign-company participation.

Pillar 1: Cooperation opportunity via Grand Challenges

At the heart of Pillar 1 is Chips for Europe Initiative 2.0, which pursues a vertical integration approach spanning the entire value chain from R&D to industry collaboration with manufacturers and end users. The initiative directly addresses a critical challenge often discussed in the EU: translating R&D success into commercial outcomes. Central to this approach is closer coordination between semiconductor technology providers and end users to include demand considerations already in the design process. This collaboration is aimed at developing technical requirements and solutions that meet the EU ecosystem's needs.³⁷ In ECA 2.0, a proposed instrument for facilitating this process is the Demand Forum, which focuses on the aggregation of demand segments across the EU to better

33 European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

34 The European Semiconductor Board is the coordination body established under ECA 1.0 and expanded under ECA 2.0. It is chaired by the Commission and composed of representatives of all 27 member states, with industry representatives, RTOs and other stakeholders admitted as observers only. Under ECA 2.0, its role includes coordinating Strategic Partnerships, monitoring supply chain risks and providing advisory support on the financing of European Semiconductor Technology Initiatives (ESTIs) and Strategic Projects.

35 Agreement on Government Procurement (2021 edition). https://www.wto.org/english/res_e/booksp_e/sli_e/24gpa.pdf

36 European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

37 European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

assess how they match the existing and emerging European semiconductor capabilities. The second proposed instrument, the Demand Accelerator, goes further by facilitating collaborative actions and establishing connections to Pillar 2 instruments such as Strategic Projects (see following section). The collective aim of these new mechanisms is to create a feedback loop between innovation and market demand, ensuring that technological advances translate into practical market solutions.³⁸

The main new instrument introduced in Pillar 1 – and one that offers potential for cooperation with foreign companies – is the concept of Grand Challenges. These "focus on the development, integration and industrial deployment of promising and critical semiconductor and related technologies of key importance for the Union."³⁹ Aligning and scaling ROK-EU R&D cooperation with Grand Challenge tracks is one of the most clear paths to collaboration at the EU level, for three reasons. First, of the new ECA 2.0 instruments, the Grand Challenges are the most open to foreign participation – they do not impose the Domestic Undertaking requirement that ESTIs and Strategic Projects apply (see next section). Second, Korean entities can access this route through existing standard research-cooperation channels: the Chips Joint Undertaking (JU) and Horizon Europe association, which the ROK joined in July 2025 (the first Asian country to do so). Third, the proposed Grand Challenges strongly overlap with the ROK's research interests.

Grand Challenges applications qualify if they either enable the next generation of semiconductor technologies or address key technological roadblocks (see text box below for details). Notably, CADA also introduces Grand Challenges as an instrument, and ECA 2.0 establishes a direct link between them:⁴⁰ "A close link between the R&I activities to address the two complementary challenges shall be established, including possible coordinated calls for proposals."⁴¹ The strong emphasis on AI chips and hardware solutions underscores this strategic logic: successful research, development and innovation outcomes are intended to lay the foundation for integrating more European technology solutions into the new data centres and AI compute clusters envisioned in CADA. The EU's weaknesses in the design and fabrication of advanced logic and memory chips – technologies critical for AI accelerators – are clearly reflected in the list of Grand Challenges:

Proposed Grand Challenges in ECA 2.0

1. Energy-efficient computing technologies

Development of energy-efficient, secure and distributed AI infrastructures, enabling the

³⁸ European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

³⁹ European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

⁴⁰ European Commission (2026). Proposal for the Cloud and AI Development Act. <https://digital-strategy.ec.europa.eu/en/library/proposal-cloud-and-ai-development-act-cada>

⁴¹ European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

following:

- High-performance AI accelerators (HBM-class memory, stacked logic, optical/RF interconnects)
- Agentic and embodied AI systems
- Contextual edge intelligence and secure low-power infrastructures

Cross-referenced CADA Grand Challenge: "Pioneering energy- and resource-efficient compute infrastructure, with a view to enhancing sustainability at scale"

2. EU AI processors and accelerators

Design and manufacturing of EU-based AI processors and accelerators as part of the cloud and AI stack, with the goal of reducing European dependencies in critical technologies.

Cross-referenced CADA Grand Challenge: "Reaching autonomy across the cloud and AI stack, with a view to eliminating dependencies in critical technologies"

3. Physical AI

Development of foundational technologies for humanoid and industrial robots, targeting deployment in medical technology, healthcare, manufacturing, the aerospace industry and defence. Focus areas include the following:

- Power semiconductors, microcontrollers and analogue/mixed-signal and sensor technologies
- Industrial production and commercialisation of embedded advanced AI in autonomous machines and robots

4. Smart glasses and virtual worlds

Integration of ultra-low-power components into functional prototypes and demonstrators, including power electronics, sensors, cameras, audio devices, lasers, displays, neuromorphic chips and AI processors.

5. Market targets and applications

Concrete deployment goals include the following:

- Taping out chips from 100 fabless start-ups, including 10 unicorns by 2035
- Development of automotive hardware platforms
- Full-stack solutions for AI gigafactories
- New semiconductor production technologies (e.g. material recycling and circularity initiatives, advanced cooling technologies)

Apart from Grand Challenge 5, all of the challenges listed above follow the same logic: they start from an AI application or product and then derive the semiconductor components needed to enable it. This broad list sets out the areas where R&D in Pillar 1 is envisaged, spanning virtually all major chip categories.

Pillar 2: Cooperation opportunity via ESTIs

Pillar 2 focuses on the revision of "security of supply" measures. At its centre, an entirely new instrument is introduced: Strategic Projects, a term assigned by the Commission for

projects that "provide significant added value to the Union" and contribute to strengthening "the indispensability, resilience and prosperity of the Union's semiconductor value chain and the Union's technological sovereignty and technological leadership."⁴² In practice, the priority areas for Strategic Projects set out in Annex 2 of ECA 2.0⁴³ and referenced in the textbox below are longer-term ambitions for which every major chip jurisdiction is simultaneously trying to secure technical leadership:⁴⁴

Six Priority Areas for Strategic Projects:

1. Advanced semiconductor manufacturing: 3 nm and below + chiplet integration + 2.5D/3D packaging
2. AI chips and systems for EU compute infrastructure
3. Automotive application processor for autonomous driving
4. European memory fabrication facility
5. Leading-edge chip design
6. Strengthening key segments of the value chain

Putting these priorities into action requires highly advanced technological expertise from across the whole semiconductor ecosystem: supplier markets, production steps, RTOs and end customers. The proposal rightly frames this as a consortia-oriented, cross-border exercise. A particular focus is on the first priority area – advanced semiconductor manufacturing at 3 nm nodes and below – an idea similar to Rapidus, the Japanese initiative founded in 2022 by a consortium of eight private-sector partners (Toyota, Sony, SoftBank, NTT, NEC, Kioxia, Denso and MUFG).⁴⁵

Rapidus aims to close the gap to most advanced wafer fabrication by building a competitive domestic Japanese foundry. The plan is to achieve mass production of 2 nm logic chips at its IIM-1 facility in Chitose, Hokkaido, by 2027.⁴⁶ Importantly, Rapidus caters to a more diverse set of customers than TSMC, including those with lower volumes and more customised solutions at the cutting edge.⁴⁷ The company's own estimate for the total investment required to reach mass production is around JPY 5 trillion (around EUR 31 billion). On paper, Rapidus has all three of the ingredients typically considered

⁴² European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

⁴³ European Commission (2026). Proposal for the Chips Act 2.0. Annex 2. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

⁴⁴ European Commission (2026). Proposal for the Chips Act 2.0. Annex 2. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

⁴⁵ Rapidus (2026). <https://www.rapidus.inc/en/about/>

⁴⁶ Luke James (2026). Rapidus fab roadmap examined – first new leading-edge chipmaker in decades has one Hokkaido fab, a 2027 deadline, and 60 potential customers. <https://www.tomshardware.com/tech-industry/semiconductors/rapidus-fab-roadmap-examined>

⁴⁷ Takenaka Harukata (2023). Japan's New Model of Advanced Chip Manufacture: An Interview with Rapidus President Koike Atsuyoshi (Part 1). <https://www.nippon.com/en/in-depth/a09004/>

essential for a project at this scale: sustained government backing covering roughly half of the total investments required,⁴⁸ a global multi-stakeholder framework and a decade-long timeline supported by a large consortium.

Yet, even with all of these, Rapidus is struggling. In early 2026, Rapidus scaled back parts of its US 2 nm R&D programme, referring to funding constraints and schedule pressure. At the same time, they reported a net loss for fiscal year 2025 alongside rising liabilities.⁴⁹ One key challenge is that they did not yet overcome the very common hurdle of moving from R&D to technology transfer and commercialisation. Since their successful prototype verification of a 2 nm Gate-All-Around (GAA) transistor and the industry's first prototype of an organic insulating film Redistribution-Layer (RDL) interposer last year, no significant progress was reported.⁵⁰ This is connected to a lack of a strong customer base, which is the key for a successful foundry business model.⁵¹ From 60 potential customers in discussion, only about 10 had received initial quotes by early 2026.^{52, 53} Rapidus deliberately targets smaller orders and specialised and customised demands. Whether this strategy will prove successful remains to be seen, especially since its direct competitors are very well established and have decades of experience. In addition, several sources have reported that Rapidus is facing a shortfall of the substantial private sector funding needed to pave the way to mass production.^{54, 55} It remains to be seen whether they still plan to begin producing customer-designed 2 nm test chips by late 2026,⁵⁶ and all of these challenges combined make it highly unlikely that they will be able to achieve mass production by 2027.

The takeaways from Rapidus are important to keep in mind when operationalising an EU Strategic Project such as the one aiming for advanced manufacturing at 3 nm and below: a realistic timeline spans a decade, and the chances of success in the long term will be highly dependent on strong public and private sector backing, international partners and cooperation throughout the whole value chain, including a strong customer base.

48 Cumulative Japanese government support has reached approximately JPY 1.72 trillion (EUR 9.64 billion); total government commitments are projected at about JPY 2.45–3 trillion (EUR 13.73–16.82 billion).

49 Daniel Chiang (2026). Rapidus scales back US 2nm R&D early, raising timeline and funding concerns. <https://www.digitimes.com/news/a20260318PD222/rapidus-2nm-funding-production-government.html>

50 Rapidus (2026). https://www.rapidus.inc/en/news_topics/information/bedo approves-rapidus-fy2026-plan-and-budget-for-2nm-semiconductor-projects/

51 Felicity Hurley (2025). Rapidus' Bold Chipmaking Venture Faces Financial and Technological Hurdles. <https://thefinancialanalyst.net/2025/07/18/rapidus-bold-chipmaking-venture-faces-financial-and-technological-hurdles/>

52 Trendforce (2026). Rapidus 2025 Financials Unveiled: Posts JPY 375M Loss; Assets Surge to JPY 749.5B on Rising Liabilities. <https://www.trendforce.com/news/2026/04/30/news-rapidus-2025-financials-unveiled-posts-jpy-375m-loss-assets-surge-to-jpy-749-5b-on-rising-liabilities/>

53 John Boyd (2025). Rapidus Starts Path to Advanced Chipmaking in Japan: Government-Backed Startup's 2-Nanometer Pilot Production Gets Underway. <https://spectrum.ieee.org/rapidus-japan-semiconductor>

54 Felicity Hurley (2025). Rapidus' Bold Chipmaking Venture Faces Financial and Technological Hurdles. <https://thefinancialanalyst.net/2025/07/18/rapidus-bold-chipmaking-venture-faces-financial-and-technological-hurdles/>

55 Atsushi Sumikawa (2025). Can Rapidus Achieve Japan's Semiconductor Revival? <https://thediplomat.com/2025/07/can-rapidus-achieve-japans-semiconductor-revival/>

56 Trendforce (2026). Rapidus 2025 Financials Unveiled: Posts JPY 375M Loss; Assets Surge to JPY 749.5B on Rising Liabilities. <https://www.trendforce.com/news/2026/04/30/news-rapidus-2025-financials-unveiled-posts-jpy-375m-loss-assets-surge-to-jpy-749-5b-on-rising-liabilities/>

Out of the six Strategic Project priority areas, this first one aiming for advanced manufacturing is the only one in which development in "close collaboration with domestic and international stakeholders, including credible technology and manufacturing partners"⁵⁷ is envisioned. The rhetoric around the other EU Strategic Projects is strongly connected to the goal to reduce reliance on non-EU suppliers and increase European technological sovereignty, meaning that this instrument is one in which bilateral cooperation is highly unlikely. Thus, we will not dive deeper into this instrument as a short- to mid-term way to enhance ROK-EU cooperation.⁵⁸

ESTIs have a shorter time horizon and offer more realistic potential for foreign participation. These initiatives must "contribute to the indispensability, resilience, prosperity, competitiveness and security of supply of the Union's semiconductor ecosystem."⁵⁹ They build on the First-of-a-Kind initiatives (see type a in the text box below) in ECA 1.0 but offer a broader scope (see types b to e): ESTIs no longer only concern bringing a technologically innovative element to the internal market and also include facilities that reduce strategic dependencies on third-country imports. In turn, facilities that either increase the EU's technological competitiveness or the resilience of its semiconductor ecosystem (or both) are eligible for public support. In contrast to the narrow focus of ECA 1.0 on front-end and back-end manufacturing, ESTIs span across the whole ecosystem, including supplier markets, mature and advanced wafer fabrication processes, assembly, testing and packaging and final products:

ESTI Types⁶⁰

- (a) new or substantially upgraded semiconductor manufacturing facility
- (b) new or substantially upgraded facility/process for production of equipment
- (c) new or substantially upgraded facility/process for key components or inputs (materials)
- (d) new or substantially upgraded facility for electronics manufacturing or integration
- (e) new manufacturing-centred chip design activities

If a Korean firm wants to invest under the ESTI framework, it would – as previously stated – qualify as a Domestic Undertaking via the EU-ROK FTA and Korea's GPA membership, provided the entity is not controlled by a non-qualifying third country. This Domestic Undertaking could, for example, take the form of Korean chipmakers such as Samsung or SK hynix setting up front-end manufacturing in the EU (type a), or Korean chemical suppliers establishing a facility in the EU to increase the security of supply

⁵⁷ European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

⁵⁸ In addition, the implementing acts that will operationalise who is eligible to be a Domestic Undertaking and third-country derogation have not yet been drafted, making potential foreign participation difficult to reliably assess at this stage.

⁵⁹ European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

⁶⁰ European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

(type c) that EU chemical suppliers are unable to produce themselves. In particular, the former option, attracting a Korean logic or memory manufacturer capable of supplying critical inputs for the planned AI compute and data centre expansion (namely AI accelerators, processors or HBM), has been a key goal of EU policymakers for some time. We return to the likelihood of this scenario succeeding in Chapter 6.

The situation is different for value-chain segments for which the EU has no competitive incumbent today but could fill the gap given lower barriers to entry. To stick with the example of a foreign, in our case Korean, chemical supplier investing in the EU, such a situation would apply regarding nitrogen trifluoride (NF₃), a critical fluorinated chemical used for plasma etching and chemical vapour deposition chamber cleaning. SK Specialty (formerly SK Materials) is the world's largest producer of NF₃.⁶¹ Technically, under the ESTI framework, an NF₃ SK Specialty production plant could be subsidised. But since the EU already has leading chemical suppliers active in producing other chemicals and materials, it would also be possible to subsidise them to start producing NF₃. Comparing these two options, EU policymakers would likely favour subsidising an EU company to enter the market segment and produce the chemical domestically, if the company is technically able to do so. Thus, foreign-company participation might not always be realistic even if it is technically possible on paper.

Pillar 3: Strings attached to public financial incentives

Based on our analysis of the feasibility of foreign-company cooperation under the proposed measures in Pillars 1 and 2, we have identified two potential avenues for ROK-EU cooperation: Grand Challenges (Pillar 1) and ESTIs (Pillar 2). As described in the previous section, the Grand Challenges instrument is the new overarching R&D instrument in Pillar 1; participation is not tied to the Domestic Undertaking requirement and can take place, for example, via Horizon Europe. ESTIs, on the other hand, come with significant conditions attached. These conditions become clearer when Pillar 3 is examined more closely. Much like in ECA 1.0, Pillar 3 pursues two goals: anticipating disruptions through monitoring and information exchange and acting swiftly at the first sign of a shortage or disruption. If a company qualifies as a Domestic Undertaking and receives public support under Pillar 2, it commits to both preventive and emergency toolbox measures, namely the following:

Preventive Measures Obligatory for Domestic Undertakings

- Information-sharing and taking part in the new Business-to-Business (B2B)

61 SK (2026). SK Ecoplant Materials. <https://eng.sk.com/companies/info/sk-ecoplant-materials>

Semiconductor Supply Chain Platform: envisioned as a digital twin, the platform aims to increase transparency and resilience by analysing aggregated data to identify bottlenecks, risks and early warnings.⁶²

- Responding to Preventive Alerts and Information-Gathering Requests: e.g. those regarding production capacities, supply chain sourcing and front-end/back-end-locations.

Another preventive measure that is the responsibility of the European Commission is the Strategic Mapping of the semiconductor sector based on commercially and publicly available data. The goal is to understand the strengths and weaknesses of the EU semiconductor ecosystem.⁶³ This process does not entail any obligations for the undertakings.

Emergency Toolbox Measures⁶⁴ Obligatory for Domestic Undertakings

- Crisis-Stage Information Gathering: once the crisis stage⁶⁵ is activated, all undertakings must share information on matters such as production capabilities, lead times and current primary disruptions.
- Priority-rated Orders: companies receiving public support may also be required to accept and prioritise orders for crisis-relevant products. These priority-rated orders are restricted to end users from or undertakings supplying critical sectors facing a disruption or being disrupted. Importantly, this is only applicable if the requesting entity can demonstrate that their own risk mitigation measures were not sufficient to mitigate the impact of the shortage.

Another measure in the emergency toolbox is Common Purchasing. Upon the request of two or more member states, the Commission may act as a central purchasing body on behalf of all member states to procure crisis-relevant products for critical sectors. This does not entail any obligations for the undertakings.

Importantly, all emergency toolbox obligations for Pillar 2 beneficiaries were already in place under ECA 1.0. What is new is the requirement to qualify as a Domestic Undertaking (trusted partner) to be eligible for public funding and the obligation to take part in the B2B Semiconductor Supply Chain Platform, marking a shift from the previously Commission-led monitoring exercise to a "business data-driven" instrument. For (foreign) companies, the latter could stand in conflict with obligations they might have with their own or other governments or with their discomfort with sharing sensitive

⁶² In addition, companies that receive public support under the ESTIs and Strategic Projects framework have to share information on their supply chain (the origin of equipment, components and materials, for example) and if applicable, the location of their front- and back-end manufacturing processes. The rationale behind this is to test whether the investment actually increases the resilience of the EU semiconductor ecosystem.

⁶³ These could be key products and critical infrastructures in the internal market that depend on the supply of semiconductors, main user industries and their current and expected needs, key segments of the Union's semiconductor supply chain, technological characteristics, dependencies on third-country technology and providers, etc.

⁶⁴ In reaction to the measures proposed in Pillar 3 in ECA 1.0, we published three papers, zooming in on monitoring and mapping exercises in the semiconductor ecosystem as well as providing an analysis of the feasibility of the measures proposed in the crisis response toolbox. Many findings are applicable to the instruments proposed in Pillar 3 of ECA 2.0. The policy briefs can be found here: [Governments' role in the global semiconductor value chain](#); [Governments' role in the global semiconductor value chain #2](#); [Governments' role in the global semiconductor value chain #3](#)

⁶⁵ Article 39 puts forward two conditions that need to be fulfilled to activate a semiconductor crisis: "(a) there are serious disruptions in the semiconductor supply chain or serious obstacles to trade in semiconductors within the Union causing significant shortages of semiconductors, intermediate products or raw or processed materials; (b) such significant shortages prevent the supply, repair or maintenance of essential products used by critical sectors to the extent that it would have serious detrimental effect on the functioning of the critical sectors due to their impact on society, economy and security of the Union."

data outside their own business activities without demonstrated benefits for them. What should be factored in here is that for European companies themselves, it could be difficult to adhere to these obligations, since they often invest in other countries such as the US (or have subsidiaries that fall under US regulation). Importantly, the proposed ECA 2.0 explicitly asks companies that receive public funding for an assurance that they are "not subject to the extraterritorial application of public service obligations of third countries" in a way that may undermine the undertaking's ability to comply with the aforementioned obligations.⁶⁶

The preventive and emergency toolbox measures amount to a substantial set of conditions attached to pillar 2 public support. For foreign firms in particular, the business case for accepting these conditions must be clear: a high level of trust, visible ecosystem synergies, credible market pull from EU demand and clear financial incentives that justify the compliance burden. The greater the mismatch between what the EU ecosystem gains – in both competitiveness and resilience terms – and what the foreign firm is obligated to share and potentially loses in a crisis, the lower the likelihood of third-country participation.

ROK: AI Era K-Semi Strategy

This section will examine one of the most recent Korean industrial policies strategies. The AI Era K-Semi Strategy is similar to the Tech Sovereignty Package and is focused on the intersection of AI and semiconductors. This section compares its priority areas with those of ECA 2.0 to identify potential cooperation areas.

Narrative: Semiconductors as a key leverage point in the AI competition

In December 2025, the ROK published the AI Era K-Semi Strategy, outlining a policy shift toward strengthening the sovereignty of the whole domestic semiconductor ecosystem. The strategy explicitly links this recalibration to the AI boom, stating that "AI leadership is determined by who secures more and better chips,"⁶⁷ and frames global competition as evolving from firm-to-firm rivalry to AI-semiconductor ecosystem competition and, ultimately, to nation-to-nation strategic rivalry.⁶⁸

The strategy acknowledges the ROK's leading position in memory chip production,

⁶⁶ European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

⁶⁷ Ministry of Trade, Industry and Resource (MOTIR) (2025). (Reference Material) The Future of an AI Powerhouse Opened by K-Semiconductors. <https://www.motir.go.kr/kor/article/ATCL3f49a5a8c/171326/view>

⁶⁸ Ministry of Trade, Industry and Resource (MOTIR) (2025). (Reference Material) The Future of an AI Powerhouse Opened by K-Semiconductors. <https://www.motir.go.kr/kor/article/ATCL3f49a5a8c/171326/view>

identifying Korean firms as strong beneficiaries of the current AI semiconductor boom through their dominance in DRAM and HBM. At the same time, the strategy warns that failure to keep pace in future semiconductor technologies would risk relegating the ROK to a low-value memory subcontractor role, and it explicitly diagnoses a structural overreliance on memory chips. To maintain and expand competitiveness, the strategy introduces the "4S Semiconductor Strategy," which is organised around the following four pillars:⁶⁹

4S Semiconductor Strategy

- Sovereignty (technological & production sovereignty)
- Strength (strengthen system semiconductor capabilities)
- Supply Chain (expand materials, components, equipment, talent supply chain)
- Spillover (expand & regionalize the semiconductor ecosystem)

These four pillars support a broader goal: strengthening the semiconductor ecosystem as a whole, with a specific focus on moving from semiconductors to system solutions, increasing fabless and foundry capabilities and expanding the ROK's role in materials and equipment.⁷⁰ To illustrate this direction more tangibly, SK hynix's recent acquisitions, business expansions and technology roadmap offer a useful case in point. While the company is currently reaping the benefits as one of the global suppliers of HBM, its future strategy is to move beyond memory and establish itself as a system-level partner for AI customised memory solutions and infrastructure via partnerships across the whole AI supply chain with companies such as Broadcom, NVIDIA, TSMC and OpenAI.⁷¹ Strong HBM revenues make such large investments possible and show that the likelihood of achieving the goals set out in the AI Era K-Semi Strategy increases significantly when domestic companies already hold a competitive advantage. This is a very different starting point from that of the EU, which has far fewer existing strengths in AI hardware to build on.

Overview of priority areas (EU vs. ROK)

While the ROK and the EU have complementary strengths to date, they share very similar goals for the role that they want to play in the global semiconductor ecosystem in the

69 Ministry of Trade, Industry and Resource (MOTIR) (2025). (Reference Material) The Future of an AI Powerhouse Opened by K-Semiconductors. <https://www.motir.go.kr/kor/article/ATCL3f49a5a8c/171326/view>

70 Ministry of Trade, Industry and Resource (MOTIR) (2025). (Reference Material) The Future of an AI Powerhouse Opened by K-Semiconductors. <https://www.motir.go.kr/kor/article/ATCL3f49a5a8c/171326/view>

71 Chris Mellor (2026). SK Hynix chipping away at AI memory wall from several angles. <https://www.blocksandfiles.com/flash/2026/08/25/sk-hynix-chipping-away-at-ai-memory-wall-from-several-angles/5292113>

future. In terms of technological priority areas, the ROK strategy clearly focuses on competing in growth markets related to AI chips and infrastructure, setting specific goals such as the development and commercialisation of Neural Processing Units (NPU) and the next generation of HBM ("Post-HBM"), the establishment of a dedicated advanced packaging cluster in Gwangju, investment in compound semiconductors (SiC, GaN, Ga₂O₃) and the expansion of chip design capabilities.⁷² However, when directly comparing the priority areas set out in ECA 2.0 and the K-Semi Strategy it is important to keep in mind that both frameworks follow fundamentally different logics. ECA 2.0, both with its Strategic Projects and Grand Challenges such as "leading-edge chip design" and "physical AI," defines broader categories within which companies can apply for public funding. The K-Semi Strategy, by contrast, lists concrete projects, each with its own budget (public and private funding) and timeline.⁷³

Conclusion: Sovereignty as the common denominator

The EU and the ROK approach semiconductors no longer as merely an industrial sector but as an economic and strategic asset. Both of their strategies prioritise competitiveness in AI hardware, which has become the single most important downstream driver of chip demand. Both aim to integrate the full value chain, treat the system rather than the individual chip as the primary product and increasingly push for vertical integration. With one exception – sustainability and circularity, which the EU emphasises as part of its green-transition framing but which is absent from the K-Semi Strategy – the two strategies overlap substantially in their technological priority areas. Furthermore, both explicitly stress talent and skills as a binding constraint.

However, there are also some key differences in the EU's and the ROK's industrial policy approaches. One divergence lies in the logic and instruments of chip industrial policy: ECA 2.0 defines broader categories within which companies can apply for public funding, primarily through coordinated state aid, the Chips JU framework, Horizon Europe and the new European Competitiveness Fund.⁷⁴ The K-Semi Strategy, by contrast, lists concrete projects that are funded through forms of direct state financing such as tax credits, low-interest loans, infrastructure subsidies and cash grants.⁷⁵

72 Ministry of Trade, Industry and Resource (MOTIR) (2025). (Reference Material) The Future of an AI Powerhouse Opened by K-Semiconductors. <https://www.motir.go.kr/kor/article/ATCL3f49a5a8c/171326/view>

73 To give two examples from their strategy, the ROK puts forward longer-term goals such as building up domestic foundry capacity through the so-called "shared-growth foundry", initially targeting mature nodes (40 nm) with an allocation of KRW 4.5 trillion (EUR 3 billion). In parallel, plans are underway to build 16 new fabs by 2047, adding capacity of 7.9 million wafers per month, as part of an overall cluster investment of KRW 700 trillion by 2047. Importantly, these budgets encompass public and private investment necessary to put this into practice.

74 European Commission (2026). Proposal for the Chips Act 2.0. Annex 2. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

75 Ministry of Trade, Industry and Resource (MOTIR) (2025). (Reference Material) The Future of an AI Powerhouse Opened by K-Semiconductors. <https://www.motir.go.kr/kor/article/ATCL3f49a5a8c/171326/view>

The most consequential difference, however, is the degree to which "openness" is treated as part of tech sovereignty. As described in the previous chapter, both the European Commission's definition of tech sovereignty and the ECA 2.0 provision on Strategic Partnerships signal a dual strategy: increasing the competitiveness and resilience of the EU chip ecosystem through both domestic strengthening and international cooperation. This openness is less visible in the ROK's industrial and foreign policy initiatives, in which the primary emphasis appears to be on protecting the national ecosystem and its champions and expanding their role – underlined by 2025's Special Act on the Fostering of National Strategic Technology.⁷⁶ Coming back to the two cooperation options under ECA 2.0, this analysis highlights that while Grand Challenges cooperation appears well aligned with the ROK's approach, investing in ESTIs may not be the ROK's preferred option. We will revisit this issue in more detail in Chapter 6.

State of Play: ROK-EU Cooperation

Even before ECA 1.0 was adopted, the European Commission and several EU member states had been active in fostering technology partnerships, with a particular focus on Indo-Pacific nations. Having examined the potential cooperation avenues within ECA 2.0 and compared them with the ROK's current industrial policy direction, the next chapter turns to international cooperation: the bilateral track between the ROK and the EU through the Digital Partnership, the newly established EU Competitiveness Partnership and the most mature initiatives at the member state level.

EU-level partnerships

We will first zoom in on the EU level: the ROK-EU Digital Partnership and the Competitiveness Partnership.

PROFILE: THE ROK-EU DIGITAL PARTNERSHIP

Four years into the Digital Partnership, the ROK and EU have collectively tackled several different topics regarding semiconductors. This partnership is the most mature forum for ROK-EU cooperation in chips. The following partnership profile gives a structured overview on the state of play.

"The Digital Partnership is crucial in boosting competitiveness, innovation and resilience

76 Korea Legislation Research Institute (2025). Special Act on the Fostering of National Strategic Technology. https://elaw.klri.re.kr/eng_service/lawView.do?hseq=71005&lang=ENG

in emerging technologies through advanced cooperation in research and innovation. It also enhances economic security by promoting resilience in digital critical technologies."⁷⁷

Governance

- **European Union, Republic of Korea: officially launched in 28 November 2022**⁷⁸
 - Annual ministerial meetings of the Digital Partnership Council between Korean Minister of Science and ICT Minister DPM Bae Kyung-hoon and Executive Vice-President (EVP) for Tech Sovereignty, Security and Democracy Henna Virkkunen
 - ROK formally associated with Horizon Europe since 2025
 - Annual ROK-EU International Semiconductor Researchers Forum
 - ROK-EU Semiconductor R&D Cooperation Center (KERCC) in Brussels to serve as the ROK's strategic R&D hub in Europe

Milestones, Outcomes and Achievements

- **11 November 2022**
Launch of Digital Partnership⁷⁹
- **30 June 2023**
First meeting of ROK-EU Digital Partnership⁸⁰
- **1 February 2024**
Chips JU and ROK's National Research Foundation (NRF) launched first joint call on heterogeneous integration and neuromorphic computing technologies for semiconductors. EU allocated EUR 6 million; NRF matched.⁸¹
- **24 March 2024**
Second Digital Partnership Council, Brussels. Co-chaired by Commissioner Breton and Minister Lee Jong-Ho. Confirmed launch of collaborative semiconductor R&I projects.⁸²
- **25–26 March 2024**
Inaugural ROK-EU Joint International Semiconductor Researchers Forum, Brussels (organised by International Cooperation on Semiconductors (ICOS))⁸³
- **17 July 2024**
ROK-EU announced support for four jointly funded projects regarding semiconductors as

⁷⁷ European Commission (2025). Joint Statement of the Third Meeting of the EU-Republic of Korea Digital Partnership Council. <https://digital-strategy.ec.europa.eu/en/library/joint-statement-third-meeting-eu-republic-korea-digital-partnership-council>

⁷⁸ Ministry of Science and ICT (2022). Korea and the EU Launch the ROK-EU Digital Partnership. <https://www.msit.go.kr/eng/bbs/view.do?sCode=eng&mId=4&mPid=2&pageIndex=&bbsSeqNo=42&nttSeqNo=759&searchOpt=ALL&searchTxt>

⁷⁹ Ministry of Science and ICT (2022). Korea and the EU Launch the ROK-EU Digital Partnership. <https://www.msit.go.kr/eng/bbs/view.do?sCode=eng&mId=4&mPid=2&pageIndex=&bbsSeqNo=42&nttSeqNo=759&searchOpt=ALL&searchTxt>

⁸⁰ European Commission (2024). EU and Republic of Korea Reaffirm Their Partnership for an Inclusive and Resilient Digital Transformation. https://www.eeas.europa.eu/eeas/eu-and-republic-korea-reaffirm-their-partnership-inclusive-and-resilient-digital-transformation_en

⁸¹ Science Business (2024). EU launches joint call with South Korea for chips research. <https://sciencebusiness.net/news/semiconductors/eu-launches-joint-call-south-korea-chips-research>

⁸² European Commission (2024). EU and Republic of Korea Reaffirm Their Partnership for an Inclusive and Resilient Digital Transformation. https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1708

⁸³ ICOS (2024). EU-South Korea Joint Researchers Forum on Semiconductors. <https://icos-semiconductors.eu/news/eu-south-korea-joint-researchers-forum-on-semiconductors/>

a deliverable of the EU–Republic of Korea Digital Partnership. Chips JU and ROK's NRF launched their first joint call in February 2024, with EUR 12 million total funding (EUR 6 million from EU, EUR 6 million from Korea). Four projects were selected, focusing on heterogeneous integration and neuromorphic computing technologies. Projects monitored jointly by Chips JU and NRF.⁸⁴

- **June 2025**

Second ROK-EU Joint International Semiconductor Researchers Forum, Jeju, Korea. Included updates on trilateral ROK-US initiatives and exploration of UK collaboration.⁸⁵

- **17 July 2025**

ROK formally associated with Horizon Europe. Transitional arrangement from 1 January 2025 allowed Korean researchers to apply for Pillar 2 grants on equal footing with EU researchers. Formal association agreement signed 17 July 2025, making Korea the first Asian country to be associated with Horizon Europe.⁸⁶

- **28 November 2025**

Third Digital Partnership Council, Seoul. Co-chaired by DPM Bae Kyunghoon (ROK) and EVP Virkkunen (EU). Confirmed semiconductor projects underway; expanded cooperation explicitly to AI (including AI Act alignment, AI safety), 6G, quantum technologies, data spaces and cybersecurity. Researcher Mobility Program welcomed. Fourth council planned for Brussels in second half of 2026.⁸⁷

- **10 June 2026**

11th EU-ROK summit: reinforcement of the Digital Partnership with the goal to "further strengthening research, innovation and regulatory cooperation, as well as engagement of industry and business stakeholders." Launch of new Competitiveness Partnership to deepen bilateral cooperation in areas of strategic importance; Digital Trade Agreement signed.⁸⁸

*Objectives and Areas of Cooperation*⁸⁹

- **Policy Cooperation**

- Subsidy transparency, avoiding distortions of competition
- Dialogue on economic security, including supply chain resilience and export controls
- International standardisation of trusted chips and chip security

- **Research Cooperation**

- ROK formally associated with Horizon Europe
- Annual ROK-EU International Researchers Forum
- Four R&D focus areas:

⁸⁴ European Commission (2024). EU-Republic of Korea Digital Partnership - Joint EU/Republic of Korea Chips Projects Announced. <https://digital-strategy.ec.europa.eu/en/news/eu-republic-korea-digital-partnership-joint-eurepublic-korea-chips-projects-announced>

⁸⁵ ICOS (2025). 2025 International Semiconductor Researchers Forum. <https://icos-semiconductors.eu/wp-content/uploads/2025/07/Report-ROK-EU-Forum.pdf>

⁸⁶ European Commission (2025). Korea. https://research-and-innovation.ec.europa.eu/strategy/strategy-research-and-innovation/europe-world/international-cooperation/association-horizon-europe/korea_en

⁸⁷ European Commission (2025). Joint Statement of the Third Meeting of the EU-Republic of Korea Digital Partnership Council. <https://digital-strategy.ec.europa.eu/en/library/joint-statement-third-meeting-eu-republic-korea-digital-partnership-council>

⁸⁸ European Commission (2026). Joint Statement Following the 11th European Union - Republic of Korea Summit. https://ec.europa.eu/commission/presscorner/detail/en/statement_26_1326

⁸⁹ Based on the analysis of official press releases and MoUs published over the course of the digital partnership from 2022-2026.

- **ENERGIZE** (developing brain-like circuits that use two-dimensional materials. This saves energy, and the circuits can handle AI tasks effectively without needing centralised data centres)
- **NEHIL** (developing a laser-based radar system that integrates different technologies to efficiently measure distances with high precision)
- **HAETAE** (developing brain-like chips that use light in their circuitry to quickly and efficiently process AI tasks and adapt to new tasks)
- **VITFOX** (upgrading AI that processes visual data by using special materials that help save power and improve performance, such as ferroelectric oxides)
- Researcher Mobility Program connecting young EU & Korean researchers (welcomed at 3rd Digital Partnership Council)
- Intention to further enhance cooperation between leading research institutes
- **Commercial Cooperation**
 - No dedicated focus yet but 3rd Digital Partnership Council Meeting describes goal to further deepen Digital Partnership and "to involve stakeholders in its implementation to foster industry cooperation"
 - EVP Virkkunen held business roundtables with Korean semiconductor and AI industry leaders during her Seoul visit
- **Preparedness & Crisis Response**
 - Information-sharing on supply chain data a prominent topic since the start, importance highlighted again in 3rd Digital Partnership Council Meeting
 - No concrete measures announced
- **Workforce Development**
 - Nothing apart from Researcher Mobility Program mentioned above under "Research Cooperation"

The new ROK-EU Competitiveness Partnership

The latest upgrade of the ROK-EU bilateral cooperation track was announced during the EU-ROK Summit on 10 June 2026. To further strengthen bilateral cooperation in "areas of strategic importance for our economies, notably, trade, investment, supply chains, digital, advanced technologies, energy, and innovation," both sides launched a new Competitiveness Partnership with the objective to "enhance competitiveness and economic resilience in a structured manner."⁹⁰ Based on von der Leyen's speech, there seems to be a strong focus on attracting investment.⁹¹ To further strengthen their economic ties, they also agreed to establish a high-level economic dialogue "bringing together our work on trade, investment, economic security, and industrial policy."⁹² This

90 European Commission (2026). Joint Statement Following the 11th European Union - Republic of Korea Summit.

91 YouTube (2026). Digital Trade Agreement Unveiled: Forging a Future-Ready EU-Korea Partnership. https://www.youtube.com/watch?v=MNgFf0-IO_0

is intended to be underpinned by the EU-ROK Trade Committee, the EU-ROK Strategic Dialogue on Economic Security and Emerging Trade Issues and the EU-ROK Industrial Policy Dialogue.⁹³

Member states with mature partnerships

Alongside the EU-level Digital Partnership and the new Competitiveness Partnership with the ROK, several EU member states pursue their own bilateral partnerships. The following section briefly describes those government-led partnerships that have already produced concrete deliverables regarding semiconductors.

Belgium

Belgium and the ROK hold bilateral summits, but they have not yet introduced a dedicated semiconductor workstream. However, a substantial and long-running researcher exchange runs through imec, one of the leading EU semiconductor RTOs. At the bilateral summit in June 2026, ROK President Lee noted that around 120 Korean researchers currently work at imec and expressed hope for expanded bilateral cooperation regarding semiconductors through the institute. The Belgian side signalled interest in deepening commercial cooperation, with Prime Minister De Wever pointing to the ROK's "world-class semiconductor firms."⁹⁴ At the same summit, the two governments also signed an MoU committing "to strengthening SME and startup support through bilateral policy dialogue, facilitating exchanges of specialist personnel, advancing technology cooperation, and pursuing business matching initiatives between Korean and Belgian companies."⁹⁵ Although semiconductors are not explicitly mentioned in the MoU text, this signals a first step toward enhanced commercial cooperation.

France

Enhanced cooperation regarding semiconductors between France and the ROK, with a particular focus on R&D and innovation, was first formalised in April 2026 as part of a broader upgrade of the high-level Global Strategic Partnership. The two countries revised three agreements and signed 11 MOUs.⁹⁶ Among them, a letter of intent on AI,

92 YouTube (2026). Digital Trade Agreement Unveiled: Forging a Future-Ready EU-Korea Partnership. https://www.youtube.com/watch?v=MNgFf0-l0_0

93 Insight EU Monitoring (2026). EU and South Korea deepen strategic partnership on trade, security and technology. https://ieu-monitoring.com/editorial/eu-and-south-korea-deepen-strategic-partnership-on-trade-security-and-technology/1243101?utm_source=ieu-portal

94 Jung Min-kyung (2026). Lee, Belgian PM agree to expand cooperation in strategic industries, SMEs.

95 Ministry of SMEs and Startups (2026). Korea and Belgium Sign First-Ever Federal SME and Startup MOU, Opening a New Gateway to Europe. <https://www.mss.go.kr/site/eng/ex/bbs/View.do?cbldx=244&bclidx=1068968>

96 Élysée (2026). Joint Statement Between the President of the French Republic and the President of the Republic of Korea.

semiconductors and quantum cooperation set out four priority tracks: intergovernmental policy exchange, joint research, people-to-people exchange and industry cooperation.⁹⁷

Germany

There is no bilateral partnership or workstream between Germany and the ROK explicitly focused on semiconductors. The only substantive mention of such a collaboration came during former Chancellor Scholz's visit to Seoul in May 2023, when he expressed hope that ROK companies would invest in chip production plants in Germany.⁹⁸ However, there are several separate collaborations initiated by different ministries. The Federal Ministry for Digital Transformation and Government Modernisation has had a digital dialogue with the ROK's Ministry of Science and Technology since 2022.⁹⁹ In August 2026, Germany's Federal Ministry of Research, Technology and Space and Korea's Ministry of Trade, Industry and Energy jointly published a new funding guideline for strategic bilateral projects. The programme uses the "2+2" research format – pairing two industry partners and two research partners, one from each country – and targets the themes of semiconductors and AI-based assistance robotics as part of Germany's High-Tech Agenda.¹⁰⁰

The Netherlands

The Netherlands has by far the most advanced bilateral partnership with the ROK among all EU member states, with a dedicated Semiconductor Dialogue that was established in 2023 between the ROK's Ministry of Trade, Industry and Energy and the Dutch Ministry of Economic Affairs. In February 2026, they held a 2+2 high-level dialogue that brought together foreign affairs and industry ministers from both sides. The accompanying joint statement pledges to reinforce strategic cooperation by connecting the two countries' semiconductor ecosystems, reaffirmed plans to explore joint R&D in strategic sectors (including the semiconductor sector) and committed to continued discussions on supply chain monitoring, diversification and stockpiling policies for critical minerals.¹⁰¹

In addition, the two countries have successfully established a joint education programme

<https://www.elysee.fr/en/emmanuel-macron/2026/04/03/joint-statement-between-the-president-of-the-french-republic-and-the-president-of-the-republic-of-korea>

97 Sejong (2026). The Dawn of a ROK-France "Global Strategic Partnership" Era and Remaining Challenges. <https://sejong.org/web/board/1/egoread.php?bd=22&itm=&txt=&pg=16&seq=12933>

98 DW (2023). Germany, South Korea to sign military secrets pact. <https://www.dw.com/en/germany-south-korea-to-sign-military-secrets-pact/a-65690224>

99 International Digital Dialogues (2026). Republic of Korea. <https://digital-dialogues.net/en/partner-countries/republic-of-korea>

100 Bundesministerium für Forschung, Technologie und Raumfahrt. Bekanntmachung. <https://www.bmfr.bund.de/SharedDocs/Bekanntmachungen/DE/2026/08/2026-08-11-bekanntmachung-halbleiter.html>

101 Government of the Netherlands (2026). Joint Statement Between the Minister of Foreign Affairs and the Trade Minister of the Republic of Korea and the Minister of Foreign Affairs and the Minister of Foreign Trade and Development of the Kingdom of the Netherlands. <https://www.government.nl/documents/2026/02/11/joint-statement-between-the-minister-of-foreign-affairs-and-the-trade-minister-of-the-republic-of-korea-and-the-minister-of-foreign-affairs-and-the-minister>

on cutting-edge semiconductor technology. Launched in 2024, 60 Korean students have already travelled to the Future Chips Academy in Eindhoven, with a target of 500 expert training exchanges between the two countries by 2028.¹⁰² In addition, a new forum – the Netherlands-Korea Semiconductor R&D Cooperation Seminar – was launched at SEMICON Korea 2025.¹⁰³

Summary: State of play: Cooperation between the ROK & EU

Taking into consideration both the EU-level and member state-level partnerships, the most tangible outcomes of such collaboration clearly lie in R&D cooperation, specifically since July 2025, when the ROK became the first country to be formally associated with Horizon Europe. Since then, the two sides have engaged in joint chip projects with a total budget of EUR 12 million, split evenly between Chips JU (EUR 6 million) and Korea's NRF (EUR 6 million). Four dedicated focus areas frame the ongoing joint R&D.¹⁰⁴ To put this into perspective, the EUR 12 million covers four collaborative projects (ENERGIZE, NEHIL, HAETAE and ViTFOX) for their full runtime over the course of three years. This is enough for basic research and first prototypes, but additional funding would certainly be needed to scale and commercialise. Factoring in the capital-intensiveness of the highly complex semiconductor industry, private investments are substantially higher than publicly available support. Samsung, for example, spent KRW 37.7 trillion (EUR 24.3 billion) on R&D in 2025.¹⁰⁵

Interestingly, Chips JU's 2026 work programme does not include a dedicated follow-up project with the ROK.¹⁰⁶ Moreover, the 2026 EU international cooperation call, which is worth EUR 5 million, targets Japan, Taiwan and Singapore.¹⁰⁷ Additionally, a separate 2026 call on AI chiplet ecosystems is designed for cooperation with Japanese consortia.¹⁰⁸ While there is Korean participation in 13 topics in the broader Horizon Europe Pillar 2 2025 work programme, there is no dedicated bilateral Chips JU cooperation as a follow up to the 2024 call. On the member state level, however, a strong and reinforced R&D focus becomes apparent via the new 2+2 R&D programme between

¹⁰² The Netherlands-Korea Joint Education Program on Cutting-Edge Semiconductor Technology. Future Chips Academy. <https://ehv-sk-futurechipsacademy.nl/>

¹⁰³ SEMI (2025). SEMICON Korea 2025 – Bringing Together the Global Semiconductor Ecosystem to Drive Innovation. <https://www.semi.org/en/blogs/semicon-korea-2025-bringing-together-the-global-semiconductor-ecosystem-to-drive-innovation>

¹⁰⁴ Korea-EU Research Centre (2024). Horizon Europe Launches Joint Call with South Korea on Semiconductor as Part of Digital Partnership. <https://k-erc.eu/2024/02/news-activities/17516/>

¹⁰⁵ Yonhap (2026). Samsung Electronics spent \$25.6 bil. on R&D in 2025. <https://www.koreatimes.co.kr/business/companies/20260310/samsung-electronics-spends-w377-tril-in-rd-in-2025>

¹⁰⁶ European Commission (2026). Chips JU Opens 16 Calls for Proposals. <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/news/40043>

¹⁰⁷ Vinnova (2026). Chips JU Calls in Semiconductor Technology and Opportunities to Collaborate with Japan, Taiwan and Singapore. <https://www.vinnova.se/globalassets/utlysningar/2023-03764/omgangar/chips-ju-calls-2026-international-cooperation-21-maj1519238.pdf>

¹⁰⁸ Republic of Cyprus (2026). International Collaboration EU and Japan on Semiconductors.

Germany's Federal Ministry of Research, Technology and Space and Korea's Ministry of Trade, Industry and Energy on semiconductors and AI-based assistance robotics.¹⁰⁹

The largest gap, however, lies in commercial cooperation. Tangible results in this regard are still largely absent. This gap can be partly explained by the fact that the two most promising partnerships for achieving commercial outcomes, the Netherlands' high-level dialogues on trade and economic issues and the EU-ROK Competitiveness Partnership, were only launched this year. However, these initial announcements do not yet point to clear outcomes. In the next chapter, we therefore outline three ways forward to achieve more tangible commercial results.

Avenues for Enhanced Commercial Cooperation

Building on the above preliminary findings, this chapter sets out three avenues for closing the identified commercial-cooperation gap. Each reflects a different level of ambition for future ROK-EU engagement and considers how ECA 2.0 could support the necessary actions, as well as what EU policymakers would need to bring to the table to make them work.

Avenue 1: Stick to the R&D focus

The first option for bilateral cooperation between the ROK and the EU would be to continue on a "business-as-usual" (BAU) track – or, as von der Leyen put it in her speech at the EU-ROK Summit in Brussels, to focus on "the European crown jewels": "research and innovation to shape the technologies of tomorrow together."¹¹⁰ This avenue would be primarily anchored in what already works well – building on a strong R&D partnership at both the EU and member state levels and continuing the Digital Partnership/Strategic Partnership tracks. Most of the cooperation would take place at the academic and RTO level. Since the Grand Challenges track in Pillar 1 is accessible to Korean entities through existing standard research-cooperation channels (Chips JU and Horizon Europe), participants would not need to qualify as Domestic Undertakings. In terms of research areas, existing joint R&D cooperation already overlaps with several of the Grand Challenges themes and with the K-Semi Strategy's priorities. Based on the shared strong research interest in AI hardware segments, new joint R&D could be added

¹⁰⁹ Bundesministerium für Forschung, Technologie und Raumfahrt. Bekanntmachung. <https://www.bmfr.bund.de/SharedDocs/Bekanntmachungen/DE/2026/08/2026-08-11-bekanntmachung-halbleiter.html>

¹¹⁰ YouTube (2026). Digital Trade Agreement Unveiled: Forging a Future-Ready EU-Korea Partnership. https://www.youtube.com/watch?v=MNgFf0-IQ_0

in areas such as advanced memory, AI automotive applications or chip design.

As previously noted, the new Pillar 1 in ECA 2.0 sets a much stronger focus on the demand side, system integration and commercialisation. Grand Challenges are, in the words of the proposed regulation, "expected to result in technology advances in mainstream and leading-edge technologies, end-to-end product integration through the whole product development lifecycle, and their pre-commercial industrialisation."¹¹¹ Given that results from previous and ongoing joint R&D activities – which naturally take time to materialise – may have commercial potential, the next step would be to translate these results into spin-offs or joint ventures involving ROK and EU partners, in line with the Grand Challenges framework.

In this first avenue, the approach would be to let commercialisation emerge organically from successful R&D partnerships and industry engagement while making strategic use of the Grand Challenges framing, with both governments taking a more passive role. This BAU scenario is focused on governments creating the framework conditions for both sides to intensify their R&D efforts, matching the Korean expectations more closely than those currently prominent in European policy discussions around new competitiveness alliances and middle-nation leverage. However, growing research and innovation cooperation can also lead to a stronger integration in the semiconductor ecosystems and end-customer markets and will likely increase access to talent and capital. Sticking to this approach would represent a deliberate strategic choice to dedicate constrained time and resources elsewhere – either to other partner countries or to other topics or technologies.

Avenue 2: Focus on securing large investments

In public and policy discourse on enhanced cooperation regarding semiconductors, EU policymakers and trade-and-investment organisations frequently express their hope that Korean chip manufacturers such as Samsung or SK hynix will build a leading-edge fab in Europe, as well as their interest in this. German stakeholders in particular are very vocal about this, pointing to the Silicon Saxony cluster (with its headquarters in Dresden) and the success of attracting the ESMC joint venture. Such an investment is often framed as a strategic entry point into Europe – allowing Korean firms to tap into the substantial existing clusters, from R&D sites to the supplier ecosystem.¹¹² In early 2026, rumours also gained traction that Samsung might consider filling the gap Intel left with their decision not to move forward with their Magdeburg investment in the state of Saxony-Anhalt.¹¹³

¹¹¹ European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

¹¹² The Korean Herald (2026). German states court Korean chipmakers for EU push. <https://www.koreaherald.com/article/10673938>

¹¹³ Sherri Wang (2026). Germany pivots to Korean chipmakers as Intel retreats. <https://www.digitimes.com/news/a20260202VL206/europe-germany-semiconductors-fab-development.html>

Another indication that a Korean fab is perceived as the logical next step on the European side is that within ECA 2.0, potential cooperation beyond Grand Challenges is most likely through ESTIs. As explained in Chapter 4, ESTIs are large-scale investments in different types of production facilities (from front- and back-end manufacturing to chemical or equipment facilities) for which foreign companies can receive public support if they qualify as Domestic Undertakings. Yet neither official government announcements (such as MoUs or summit statements) nor industry representatives have publicly stated that this is a form of cooperation both sides will be actively pursuing in the near future. In the following section, we conclude that this avenue is not the next logical step based on examining the issue through both a geopolitical perspective and a business perspective.

Hurdles to large-scale investments in the EU:

1. Strategic and diplomatic alignment

ROK-EU relations are not (yet) mature enough

Over the course of this paper, we have traced both the evolution and the current state of cooperation between the EU (and its member states) and the ROK regarding the specific case of semiconductors. It has become clear that the biggest success to date has been R&D cooperation. Achieving this has not required major commitments from either governments or industry: the primary responsibility for tangible R&D outcomes rests with researchers and RTOs. Moving further toward investments – whether small or large – changes this picture. It expands the circle of actors who need to be on board and willing to commit time and resources, drawing in both governments and industry on both sides.

Prioritisation of US over EU relations

The ROK-US relationship remains the ROK's most consequential external partnership despite the notably bumpy dealings with the Trump administration. Since Trump's return to office in January 2025, tariff threats have become a recurring pattern, with sectoral tariffs on semiconductors and their downstream products under near-constant renegotiation. The latest dispute is centred around the delay in the ROK's investment commitment in the US, with the Korean side actively pushing back against pressure from the US to expand memory chip production.¹¹⁴ Yet the ROK has to find middle ground with the US. Two structural reasons explain this requirement. First, the US is the ROK's single most important export market for HBM chips – the demand backbone of the current AI compute expansion. Thus, expanding chip production in the US, close to the end customers, is economically more feasible than setting up manufacturing in the EU. Second, the US remains the ROK's principal security provider, and any move perceived

114 Korea JoongAng Daily (2026). Korea nears selection of first U.S. investment project. <https://www.koreajoongangdaily.com/business/korea-nears-selection-of-first-us-investment-project/12787237>

as pivoting away from Washington carries direct national security costs. As long as these two factors do not substantially change, a large-scale Korean investment in the EU is not a political priority for Seoul.

2. Business reasons

Higher operational expenditures (OPEX) and capital expenditures (CAPEX)

From a European perspective, thriving semiconductor clusters in several member states, combined with indispensable positions in equipment and chemicals as well as some of the world-leading RTOs, create a very attractive environment for chip investment. But what we tend to forget from within is that Europe conveys a different image when one considers the manufacturing capacity (below 10%) and virtually no high-volume, advanced logic and memory wafer fabrication. High electricity and labour costs, together with stricter environmental and labour regulations, may further deter foreign companies from seriously exploring the EU as a semiconductor business case. For front-end manufacturing in Germany, for example, costs are 3–4 times higher for personnel, 2–3 times higher for electricity, and 20–25% higher for construction.¹¹⁵ The following two factors show how different the framework conditions in the ROK are. First, the government takes on part of the responsibility for providing key infrastructure, such as affordable and reliable access to energy and water. Second, both the Semiconductor Special Act and the "Mega-Special Zone Law" (currently being negotiated) discuss an exemption for workers in the semiconductor industry from Korea's 52-hour workweek limit to create more flexibility and "accelerate balanced regional development."¹¹⁶,¹¹⁷

Uncertain financial incentives

Consequently, when trying to attract investments in front-end wafer fabrication in the EU, establishing the necessary financial incentives to outweigh higher OPEX and CAPEX costs is crucial. In this regard, the underlying budget for the instruments proposed in ECA 2.0 is still unclear, as it depends on the European Competitiveness Fund¹¹⁸ envelope that is still to be negotiated under the next Multiannual Framework.¹¹⁹ Additionally, success relies on the respective member states providing co-funding and matching private capital.

Importantly, backing Strategic Projects will come with substantial investment costs: the

¹¹⁵ ZVEI (2026). Europe's Semicon Business Case. https://www.zvei.org/fileadmin/user_upload/Presse_und_Medien/Publikationen/2026/Mai/20260521-ME-Studie/20260521_ZVEI_Mikroelektronik_Studie.pdf The authors of the study point to a comparison to Asia, with India, China and Malaysia being on the lower end and Taiwan and South Korea being at the higher end.

¹¹⁶ Korea JoongAng Daily (2026). Mega-special zone law needs a 52-hour workweek exemption. <https://www.koreajoongangdaily.com/opinion/megaspecial-zone-law-needs-a-52hour-workweek-exemption/12762369>

¹¹⁷ Silicon Analysts (2026). The Hidden Energy Bill Inside Every Advanced Chip. <https://siliconanalysts.com/analysis/chip-manufacturing-energy-cost>

¹¹⁸ The European Competitiveness Fund is the new financing instrument proposed under the 2028–2034 Multiannual Financial Framework; it consolidates previously fragmented EU programmes and channels resources into strategic technologies such as semiconductors, AI, biotech and clean industry. The Commission has proposed approximately €51.5 bn for the digital leadership window. ([Business Europe Position Paper on European Competitiveness Fund](#))

¹¹⁹ European Commission (2026). The 2028-2034 EU Budget for a Stronger Europe. https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/eu-budget-2028-2034_en

ECA 2.0 proposal estimates that operationalising the idea of a leading-edge open foundry with chiplet integration and 2.5D/3D packaging will require an average combined investment of EUR 20–40 billion (which most likely would be on the lower end of what such a foundry would need to be successful).¹²⁰ In a context with constrained financial resources, investing substantial amounts of public funding in Strategic Projects could potentially lead to a situation in which insufficient resources are left for initiatives such as the Grand Challenges, pilot lines and ESTIs. This could present a significant hurdle to attracting foreign investments into the EU.

However, the proposal goes beyond financial incentives to increase attractiveness, addressing a key pain point in past industrial policy implementation: speed. The ECA 2.0 proposal envisions more streamlined and faster permit-granting processes through a single procedure involving one application made through a one-stop shop operated by a member state, with a 45-day completeness check and a 12-month time limit for completion.¹²¹ The European Semiconductor Board is mandated to provide advisory support on the financing structure of both ESTIs and Strategic Projects on request.

Uncertain EU chip demand

Finally, there is the question of how much demand actually exists in Europe for the advanced logic and memory chips currently needed for AI accelerators. Despite ambitious plans to build (AI) data-centre capacity in the EU (via CADA and AI gigafactories) and to invest in physical AI, the countries with the largest AI chip demand – due to their major share of global compute capacity – will remain the US and China. In September 2026, TSMC Senior Vice President and Deputy Co-COO Y.J. Hou reiterated that he remains unconvinced that there is sustainable, long-term market demand for advanced chips in Europe. He explicitly highlighted the need to demonstrate demand that lasts longer than a year and advised finding ways to go beyond creating more demand commitments locally, such as attracting demand from other regions to produce in Europe.¹²²

Recent studies on future EU chip demand try to shed light on this question and point to a substantial increase over the course of the next decade, with demand for graphics processing units (GPUs), central processing units (CPUs) and memory being (unsurprisingly) the fastest growing category. GPU/CPU demand is projected to grow by roughly 3 times in the consumption segment and 7 times in the industry segment – the latter being driven by the build-out of AI (data centres) in Europe. Memory follows a comparable trajectory, growing by roughly 3 times in both consumer and industrial end user markets.¹²³

¹²⁰ European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

¹²¹ European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

¹²² Finance (2026). Europe's 7nm Demand Lacks Scale; TSMC's Y.J. Hou: Proactively Helping Startups Create Demand. <https://finance.biggo.com/news/dcf615d0-c942-4cb3-bf27-8f966dbce1fb>

Information-sharing and crisis response toolbox obligations (Pillar 3, ECA 2.0)

Pillar 3, as previously discussed, imposes clear obligations on Domestic Undertakings (companies that receive public support under Pillar 2). Participation in the new B2B Semiconductor Supply Chain Platform, in which information is shared in aggregated form, might (depending on how the implementation details are settled) be relatively acceptable. Additional crisis-mode obligations, however, pose far more difficulty: adhering to information requests and priority-rated orders in a situation in which end customers around the world are competing for scarce supply are commitments no one would take on lightly. The conditions attached to Domestic Undertaking status could thus be an additional hurdle for foreign companies considering EU investment.

Sovereignty via domestic expansion

A key takeaway from the analysis of the ROK's current industrial policy direction (strengthening both semiconductor and AI ecosystems) is that their definition of tech sovereignty is less open than the EU's most recent framing. The strategy of establishing new industry clusters across the entire country, together with the aforementioned recent announcements of KRW 900 trillion expansions by Samsung and SK hynix,¹²⁴ clearly signals a strong focus on domestic expansion. One explanation for this is that the ROK wants to remain strategically indispensable – for example, through its dominant position in HBM and a transition to memory system solutions. A second is the uncertain economic feasibility of investing abroad, and of building fabs abroad in particular, as discussed in the previous section regarding higher OPEX and CAPEX in the EU.

Avenue 3: Strategic building blocks

The previous section demonstrated that the next step in ROK-EU cooperation is unlikely to take the form described in Avenue 2 (a large-scale investment by Korean companies in chip production capacities in the EU). At the same time, developments regarding the new Competitiveness Partnership in June 2026 show that both sides are interested in stronger cooperation on investments and trade – and that they aim to go beyond their successful R&D cooperation. BAU (Avenue 1) alone would therefore fall short of these expectations. This section proposes an alternative: a set of smaller wins and trust-building measures that can serve as strategic building blocks for a more mature partnership.

Building block 1: Bridge knowledge gaps

via Strategic Mapping

123 ZVEI (2026). Europe's Semicon Business Case. https://www.zvei.org/fileadmin/user_upload/Presse_und_Medien/Publikationen/2026/Mai/20260521-ME-Studie/20260521_ZVEI_Mikroelektronik_Studie.pdf

124 Michaël Aussems (2026). 510 billion euros for South Korean chip industry puts European initiative into perspective. <https://itdaily.com/logs/business/south-korea-investment-chip-eu/>

This first building block involves having and sharing granular information (e.g. key players, concentrated market segments, technology trends, national security implications) on the position of both sides in the global semiconductor ecosystem. In the ECA 2.0 proposal, the European Commission is mandated to carry out a Strategic Mapping of the EU's semiconductor sector, covering the transnationally interdependent supply chain and its various market segments, as well as current and expected needs and dependencies.¹²⁵ Establishing this exercise as a recurring mechanism will be key not only for evaluating existing and future industrial policy measures but also for effectively navigating international partnerships and alliances.

This mapping provides a nuanced view of what dependencies exist and how to categorise them. Following an assessment of which dependencies should be diversified (where possible) and which should be tolerated also paves the foundation for alignment with regard to pooling middle-nation leverage. Forming new alliances only works when each side knows what it brings to the table, so that the combined strengths can be assessed as collective bargaining power.

In addition, when entering bilateral discussions on commercial cooperation with trusted partners such as the ROK, it is essential to bring clear value propositions to the table. These could take the form of a collective effort to diversify sources in the materials segment (in a third country), coordination on strengthening capabilities that both sides can rely on or a specific proposition for investment in the ROK. For all of these actions, granular insight into the entire value chain is fundamental. If the other side matches this with similar insights of its own, the exchange feeds back into the mapping framework and builds trust.

via Semiconductor Regions of Excellence

Another instrument in the ECA 2.0 proposal that could help bridge existing knowledge gaps is the Semiconductor Regions of Excellence label. This label is awarded to regions that provide a credible 10-year semiconductor region investment plan covering semiconductor manufacturing, (sustainable) infrastructure, R&I, skills and investment attractiveness. If this labelling translates into a clear overview of the EU regions with strong, diverse semiconductor clusters (e.g. those that combine R&D, supplier ecosystems and manufacturers), it could become an important "marketing tool" for increasing the visibility of the EU's strengths beyond its borders. The Industrial Alliance on Processors and Semiconductor Technologies as well as representatives from the leading 14 EU semiconductor clusters included under the Silicon Europe Umbrella (Silicon Saxony, Silicon Alps, HighTech NL, GAIA, etc.) should be better integrated into this effort and corresponding exchanges internationally.^{126, 127} The existing European

¹²⁵ European Commission (2026). Proposal for the Chips Act 2.0. <https://digital-strategy.ec.europa.eu/en/library/proposal-chips-act-20>

Semiconductor Regions Alliance representing the regional governments should also be involved to collect existing information and avoid duplication with the new work conducted under the Regions of Excellence.¹²⁸

As noted earlier, foreign companies often perceive the EU as a challenging investment environment due to labour costs, bureaucratic complexity and environmental regulation. Complementing the Semiconductor Regions of Excellence labelling with clear guidance on how labour rules, environmental requirements, construction permits and energy and water availability shape chip-investment feasibility would ensure that all relevant information is transparently available. Finally, progress on the ESMC Dresden fab, which is on track to become operational by the end of 2027, will be watched closely by international observers. Including status updates and milestone reporting regarding this progress in the EU's outward communication could serve as a powerful proof point for the attractiveness of the EU – and in this case Germany's Silicon Saxony in Dresden in particular – as a semiconductor manufacturing hub.¹²⁹

Building block 2: Increase industry engagement in political fora

Currently, EU-ROK cooperation on semiconductors often runs through separate channels. On the one hand, there are government-led partnerships such as the Digital Partnership and the Competitiveness Partnership, as well as member state-level cooperations, that set frameworks and priorities for bilateral cooperation. To date, these have primarily translated into increased engagement between researchers on both sides.

On the other hand, there is also decades-long industry-led cooperation. SK hynix, for example, has engaged in ongoing research cooperation with the Belgian RTO imec since 2007,¹³⁰ and Samsung's EMEA headquarters in Munich conducts research on automotive applications with companies such as NXP and Infineon.¹³¹ European companies, for their part, have established both supplier networks in close proximity to the large manufacturing hubs and dedicated R&D and training presences in the ROK. In November 2025, ASML opened its Hwaseong R&D Campus, which is home to 1,500 employees and equipped with maintenance facilities and training centres for deep ultraviolet and extreme ultraviolet lithography.¹³² Other equipment and material suppliers, such as

126 European Commission (2026). Industrial Alliance on Processors and Semiconductor Technologies. https://single-market-economy.ec.europa.eu/industry/industrial-alliances/industrial-alliance-processors-and-semiconductor-technologies_en

127 Silicon Europe (2026). <https://www.silicon-europe.eu/home/>

128 European Semiconductor Regions Alliance (ESRA) (2026). <https://www.esra-org.eu/>

129 ESMC (2026). <https://www.esmc.eu/de/index.html>

130 SK hynix (2007). hynix Joins IMEC's. <https://news.skhyun.com/en/hynix-joins-imecs/>

131 Samsung (2026). Accelerate the Future with Samsung Semiconductor. <https://semiconductor.samsung.com/about-us/locations/emea/>

132 Jo He-rim (2025). ASML opens major Korea base to deepen ties with Samsung, SK hynix. <https://www.koreaherald.com/article/10614674>

ASM, Merck, Linde and BASF, also have production and R&D facilities in the ROK.

To advance the goal of strengthening trade and investment ties under the new Competitiveness Partnership, it will be important to bring these two tracks closer together – for example, through business roundtables, delegation visits, and a stronger EU-ROK presence at semiconductor conferences such as SEMICON Korea and SEMICON Europa. Increased inclusion of representatives from the EU semiconductor clusters, start-ups and SMEs in these contexts could also be a promising vehicle for small commercial wins. Furthermore, events and exchanges focused on specific areas or applications could incentivise deeper engagement and commercial cooperation. For example, the EU has significant R&D capacity and well-established solutions to offer in areas such as abatement technologies or chemicals with lower global warming potential.¹³³,¹³⁴ Other examples of specific areas in which cooperation could be enhanced include chip design and defence applications (the latter could also be explored through public procurement agreements).¹³⁵,¹³⁶ Past commercial successes, such as ESMC in Germany and the ASML Hwaesong R&D campus in the ROK, show that tangible commercial results rely on high-level political backing, commercial anchor partners on both sides and a supporting layer of R&D and talent exchange mechanisms. Including business participation in the planned high-level economic dialogue or establishing an EU-ROK (semiconductor) business council under the Competitiveness Partnership could provide a structured mechanism and fundament for pooling industry coordination and representation with government cooperation. Ideally, such a mechanism would specifically focus on semiconductors from the start, similar to the Netherlands-ROK Semiconductor Dialogue,¹³⁷ or have a dedicated focus on semiconductors among other tech areas, similar to formats such as the EU-Japan Business Council,¹³⁸ the EU-Japan Digital Week¹³⁹ and the EU-Taiwan Investment Forum.¹⁴⁰ This mechanism could also help in setting a clear agenda, priorities and targets for enhanced commercial cooperation on an annual basis, such as through working groups dedicated to shared interests. Including perspectives from the Industrial Alliance on Processors and Semiconductor Technologies, industry associations, RTOs and Korean representation in the EU (for example, via Korea Innovation Center Europe and the Korean Chamber of Commerce and Industry), could be a good foundation for setting shared priorities.

133 DAS (2026). Our Portfolio for Waste Gas Treatment at Point of Use. <https://www.das-ee.com/waste-gas-treatment/>

134 Merck (2024). Rethinking Sustainability. <https://www.merckgroup.com/en/the-future-transformation/rethinking-sustainability.html>

135 Gi-Wook Shin (2026). EU-Japan-South Korea Cooperation Is Indispensable Now. <https://aparc.fsi.stanford.edu/news/eu-japan-south-korea-cooperation-indispensable-now>

136 Angela Skujins and Peggy Corlin (2026). 'Partners and friends': Trade and defence top of agenda at EU-South Korea summit. <https://www.euronews.com/my-europe/2026/06/10/partners-and-friends-trade-and-defence-top-of-agenda-at-eu-south-korea-summit>

137 Jung Joo-ri (2023). Joint statement declares new chip alliance with Netherlands. <https://www.korea.net/NewsFocus/policies/view?articleId=243754>

138 Japan Business Council in Europe. <https://www.jbce.org/en/>

139 InpaceHub EU (2026). EU-Japan Digital Week 2026. <https://inpacehub.eu/eu-japan-digital-week-2026/>

140 Office of the President Republic of China (Taiwan) (2026). President Lai Attends 2026 EU Investment Forum. <https://english.president.gov.tw/News/7204>

Building block 3: Strengthen R&D efforts with a Grand Challenges orientation

The third building block is strongly anchored in what we described for Avenue 1, and we therefore keep this section brief. The idea would be to continue and expand collective R&D by defining new areas that reflect both sides' focus on AI hardware and align with the Grand Challenges proposed under Pillar 1 of ECA 2.0. This focus should also materialise in the next Horizon Europe framework programme period starting in 2028. In addition, a strong focus should be placed on commercialising the outcomes of joint R&D through joint ventures, start-ups or smaller ecosystem investments. Since both sides have been highly interested in this area from the outset, this is the "safe bet" that should be pursued further.

The above three building blocks focus on driving progress on commercial cooperation, in line with the recently launched Competitiveness Partnership. There are, of course, several other cooperation areas that bilateral engagement could address – talent, information-sharing and export controls, among others. But we believe that strategic building blocks focused on commercial outcomes can also, and perhaps naturally will, open the door to those other areas: for instance, more investment in both directions is likely to enable freer movement of talent, while joint information-sharing on diversification may make both sides more willing to share sensitive data in times of crisis. Focusing on these building blocks will not directly deliver large-scale investments, but it will build knowledge of the ecosystem and strengthen trust between two allies facing similar geopolitical challenges – a trust anchored in continued dialogue, close coordination and industry backing. This focus can also prove helpful in navigating multilateral frameworks. Thus, Avenue 3 is not proposed as an alternative to large-scale Korean investment in the EU but as the logical intermediate steps that could make such investment feasible over time.

Conclusion

Reinforcing openness through the Tech Sovereignty Package is an important signal, but whether it actually leads to stronger cooperation with trusted partners will depend on how attractive the EU's value proposition really is. This boils down to both industrial policy frameworks and diplomatic effort – and both need to translate into clear strategic actions calibrated to each trusted partner the EU wants to cooperate with. The following are the recommendations for strengthening ROK-EU cooperation in the semiconductor ecosystem:

1. Communicate Where Openness is Invited

Under the Tech Sovereignty Package and the new instruments introduced under Pillar 2 of ECA 2.0 that invite foreign participation, namely ESTIs, investment can serve two main objectives: strengthening competitiveness or increasing resilience (or both). However, the benefits for the EU ecosystem – including semiconductor end user industries – and those for the investing company do not always align. Resilience-focused measures, and particularly investments aimed at strengthening the security of supply of the EU ecosystem, are primarily in the interest of the EU. It is therefore critical to design these instruments in a way that they offer a clear value proposition to potential investors, with attractive financial incentives and fast permitting, while also considering how to prevent the strings attached in Pillar 3 from reducing the degree of openness and feasibility. Of course, this is equally important for EU companies looking to expand their operations by applying for support within the ECA 2.0 framework.

Additionally, out of the six Strategic Project priority areas, only the first (European advanced semiconductor manufacturing) explicitly envisages international stakeholder involvement. The rhetoric around the other five is anchored in reducing reliance on non-EU suppliers and strengthening European technological sovereignty – which makes them unlikely vehicles for bilateral cooperation. It is important to consider that this limited room for cooperation under ECA 2.0 might be read as an attempt to decouple, which would work against the EU's own middle-power leverage ambitions.

2. Set Clear Priorities for Alignment With the Industry

When it comes to tangible commercial outcomes in tech diplomacy, the circle of actors who need to be on board and willing to commit time and resources expands substantially compared to previous engagement. With limited political and administrative bandwidth, the effectiveness of the proposed Strategic Partnership framework will depend on whether clear priorities are set regarding which areas to focus on domestically, which partners to select and which technology areas to focus on collectively with such partners. To date, both on EU and member state levels, most chip diplomacy efforts are part of larger digital (and increasingly competitiveness) frameworks, spanning a range of technologies or industries. Anchoring cooperation in a broader framework is perfectly understandable, but it does not remove the need to set a distinct focus tailored to each partner's domestic tech policy agenda and dynamics, its geopolitical reality and the consequent area of shared interest. Without such prioritisation, the operational gap between ambitions and what actually gets delivered will not close.

Alignment with industry representatives should be part of this prioritisation exercise, as it is crucial for commercial outcomes. Historically, industry-led cooperation has run on a separate track from government-led cooperation. Bringing the two tracks together and setting clear priorities – through business roundtables and councils; delegation visits; inclusion of industry associations, semiconductor cluster representatives, SMEs and start-ups; and a stronger EU-ROK presence at SEMICON Korea and SEMICON Europe

– will be key to making the "competitiveness" framing tangible and identifying areas of mutual interest. The foreseen high-level economic dialogue under the Competitiveness Partnership and the Strategic Partnership framework in ECA 2.0 could be useful mechanisms and starting points, as long as they strategically build on one another.

3. Align Cooperation Interests

Throughout this paper, we have argued that the current EU discourse on enhanced cooperation with the ROK is anchored in an implicit ambition – a Korean fab in Europe – and we have set out the strategic and business reasons why this is not the logical next step. To summarise, investing in ESTIs centred around advanced wafer fabrication is unlikely to be the ROK's preferred option, for three reasons: (1) it would primarily be a resilience exercise for the EU, without creating equivalent value for the Korean ecosystem, and would result in higher CAPEX and OPEX costs; (2) it would not directly enhance the ROK's own technological competitiveness; and (3) the conditions attached through Pillar 3 (B2B Semiconductor Supply Chain Platform participation, information-gathering requests, priority-rated orders in crisis mode) could create tensions with other allies and require a high degree of trust in EU crisis-management mechanisms. To make sure that cooperation interests are more aligned, we propose intermediate steps that lead to small wins, build trust and increase the knowledge on the role both sides play in the global ecosystem. To that end, the Strategic Mapping outlined in ECA 2.0 and the Semiconductor Regions of Excellence label can be helpful to better understand the EU's strengths and weaknesses as well as to communicate what Europe can offer.

4. Clear Responsibilities and Capacities Across all Policy Levels

Even small commercial outcomes require deliberate allocations of political capital: sustained ministerial engagement, sufficient internal and financial resources and in-depth technology and industry knowledge. If the EU treats the Competitiveness Partnership signed in June 2026 as self-executing, nothing will change. Success in this regard will be rooted in a long-term strategy with clear priorities backed by the industry and in a clear separation of what is best addressed at which level.

At the EU level, the key challenge is operationalising broad partnership frameworks (see, for example, the Digital Partnership) that span a diverse set of technologies while finding alignment across 27 member states. With the new fora recently launched or proposed, it will be increasingly important to set the right framework conditions – for example through a more nuanced description and clearer operationalisation of the first semiconductor-specific Strategic Partnership instrument envisaged in ECA 2.0. Another goal should be to create attractive conditions for trusted partners under Pillar 2 in ECA 2.0. Once the framework conditions are set, the member state level becomes easier ground on which to pool stakeholders, align positions, and attract investment. Recent partnerships, such as the Netherlands-ROK Semiconductor Dialogue and the February

2026 2+2 ministerial dialogue between these two countries, as well as the new Germany-ROK 2+2 research programme, illustrate the pattern that concrete outcomes often materialise on the member state level. Importantly, these strategic priorities and actions must also be mirrored at the multilateral level, with alignment on how to engage in fora such as Pax Silica and WAICO.

Our analysis has shown that operationalising European tech sovereignty is increasingly a balancing act between resilience-oriented and protective measures on one side and framework conditions that make both EU investments and cooperation with new partners attractive on the other. One key takeaway is that to meet this challenge and translate industrial policy into effective chip diplomacy, the EU needs a clear understanding of the current strengths and a strategy that sets out priorities and realistic long-term goals spanning the whole ecosystem. This would not only help direct public resources toward what is economically feasible but also allow the EU to communicate what it brings to the table clearly to trusted partners.

Many of the findings from our case study on the cooperation instruments in ECA 2.0 and the state of play of ROK-EU cooperation reveal patterns that likely apply to other technology areas. We therefore invite readers to think beyond country-specific partnerships and semiconductors and apply our recommendations to advancing EU tech diplomacy more broadly.

Acknowledgments

This analysis was informed by interviews with both European and Korean stakeholders working at the intersection of semiconductors and various policy dimensions, as well as by a closed-door workshop held in Seoul in June 2026. The views and opinions expressed in this paper are those of the authors and do not reflect the official policy or position of the experts that were consulted over the course of the project. The author would like to thank all subject matter experts for their insights.

At interface, the author thanks Maria Nowicka for her support during the research and writing phase as well as for her help with the organisation of the workshop, Luisa Seeling for her editorial support, Alina Siebert for shaping the paper's layout, and Iana Pervazova for great support during the outreach process.

The project was made possible by the generous support of the Korea Foundation, Mercator Foundation and Böll Foundation.

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