

Industrial Open Strategic Autonomy in the Indo-Pacific

Focusing on high-tech industrial innovation
and supply chain security

10 December 2025

Editors |

Benedetta Girardi and Young-ook Jang



The Hague Centre
for Strategic Studies

KIEP Korea Institute for
International Economic Policy

04

Cooperation on Control Points is Needed for Strategic Autonomy

Joris Vierhout, Amber Geurts

TNO Vector

Rising tensions in the Indo-Pacific present new challenges for policymakers worldwide

Decades of globalization have lowered the costs of doing business and created interconnected economies with mutual interests towards further globalization. Companies increased their profits by outsourcing manufacturing to lower-cost countries, which in turn contributed to the rapid industrialization of those countries. Over the past several decades we have seen the rise of the Asian Tigers, and China's entry into the World Trade Organization (WTO) and becoming the world's manufacturing hub. This led to a complex web of supply chains among the globe's economic production networks.³⁴

Today, the world faces geopolitical and geo-economic challenges. During the Covid-19 crisis, for instance, vulnerabilities in global production and supply chains were brought to light, showing some shocks could spread rapidly to other countries in the globalized system.³⁵ When the *Ever Given* was stuck in the Suez Canal, a single ship blocked a straight through which 12% of world trade flows.³⁶ This resulted in delays for companies and consumers in products as diverse as oil and gas to auto parts and clothing.³⁷ However, the risks and uncertainties in the center of many of the world's value chains have further increased with rising geopolitical tensions, putting global value chains and technological dependencies under greater scrutiny and increasing neo-mercantilist concerns. This poses significant geo-economic risks.³⁸ Thus, an important question is: How can countries ensure their strategic au-

34 Richard Baldwin and Javier Lopez-Gonzalez, *Supply-Chain Trade: A Portrait of Global Patterns and Several Testable Hypotheses*, 2013.

35 M. Damen, *EU Strategic Autonomy 2013–2023: From Concept to Capacity*, 2022.

36 "A Giant Container Ship Accidentally Blocks the Suez Canal," *The Economist*, March 25, 2021.

37 LaRocco, Lori Ann. "Suez Canal Blockage Is Delaying an Estimated \$400 Million an Hour in Goods." *CNBC*, March 25, 2021.

38 Farrell, H., & Newman, A. L. (2019). Weaponized Interdependence How Global Economic Networks Shape State Coercion. *International Security*, 44, 42-79.

tonomy goals and objectives, and with whom can they do so?

The Netherlands and the Republic of Korea are two countries that can be characterized as open economies that rely on imports from abroad for many of the products they need. For instance, for the Republic of Korea foreign trade accounted for 97% of its economy in 2022,³⁹ while for the Netherlands this was 184% in the same year.⁴⁰ Such openness is not inherently problematic, but dependencies will need to be robust and reciprocal. That is, when these dependencies are marked by one-sided dominance, a lack of alternatives, or political influence, they become risky and can quickly turn into vulnerabilities that affect strategic autonomy.⁴¹ “Open” strategic autonomy thus reflects the aspiration to combine openness with strategic caution, emphasizing cooperation where possible and strategic restraint where necessary, in line with the guiding principle: “as open as possible, as closed as necessary”.⁴²

While high-level policy goals for Open Strategic Autonomy (OSA) thus dominate current geopolitical and geo-economic debates, actionable strategic diagnostics are needed to support OSA policymaking in countries such as the Netherlands or the Republic of Korea. This brief therefore offers an analytical, operational, measurable and comparative way to approach OSA by introducing the Control Points framework. Control Points refer to valuable and unique strategic positions within global value chains, production networks and RD&I systems where influence is concentrated and dependencies can be governed.⁴³ This framework has been developed to help policymakers systematically address power relations in value chains and improve its ‘open strategic autonomy.’

Conceptual Foundations

Open Strategic Autonomy’s rise on the policy agenda

“Strategic autonomy” refers to a country’s or region’s capacity to act and provide without being dependent on other countries in strategically important policy areas.

39 De Esperanza Picardo, Cristina, Mario Esteban, en Raquel Jorge-Ricart. *The EU-Republic of Korea Economic Security Engagement: Policy Recommendations and Next Steps*. 2024.

40 World Bank. *Trade % of GDP*. Web page accessed 27 September. 2025.

41 Daan Pisa, Veerle Zuurdeeg and Amber Geurts (2025). From containers to the cloud: how control points turn into chokepoints. (The Hague: TNO).

42 Tocci, N. *European Strategic Autonomy: What It Is, Why We Need It, How to Achieve It*. (Rome: Istituto Affari Internazionali (IAI), 2021).

43 Daan Pisa, Joris Vierhout, Amber Geurts, and Thijmen van Bree, *Getting a grip on Control Points: An exploration of the literature* (The Hague: TNO, 2024).

as.⁴⁴ To acknowledge the aspiration to remain an important cooperative actor on the global stage while safeguarding the capacity to act autonomously, the concept has developed into “Open” Strategic Autonomy (OSA) to stress the need to cooperate with partners as much as possible. For small countries with open economies like the Netherlands and the Republic of Korea, OSA thus does not imply self-sufficiency, but rather, it signifies the ability to act and provide independently when needed, particularly during periods of geopolitical and geo-economic tensions.

One challenge for OSA is that it is a positive externality, an outcome in which the market doesn’t provide automatically. In the classical trade theory by David Ricardo from 1817 goods are produced in the country with a comparative advantage for it.⁴⁵ Both countries involved in trade then gain economically as goods are traded and both can consume at a higher level. Most nations are now heavily engaged in intermediate production. They earn their income by making parts or components and selling those abroad, while also relying heavily on imports from abroad for inputs.⁴⁶ From an economic perspective, this dependency is not inherently problematic as long as it remains advantageous for both parties to continue specializing and trading. If, however, a (high-concentration) trading partner is not geopolitically aligned, these dependencies can turn into vulnerabilities to coercion that limit the decision-making autonomy.⁴⁷

To maintain the ability to pursue their own policy goals, it is crucial for countries like the Netherlands and the Republic of Korea to work towards strategic autonomy.⁴⁸ The Netherlands’ ability to pursue its policy goals is under pressure from several factors.⁴⁹ First, investments in innovation run behind those in the US and China. Second, high energy and carbon prices undermine competitiveness. Third, the Netherlands has significant strategic dependencies in the fields of defense and critical raw materials. However, the Netherlands can build upon a high level of income, has an excellent knowledge and innovation position, and maintains strong positions in a number of strategic value chains, for example several strong positions

44 M. Damen, *EU Strategic Autonomy 2013–2023: From Concept to Capacity* (Brussels: European Parliamentary Research Service, 2022).

45 Daniel M. Bernhofen and John C. Brown, “On the Genius Behind David Ricardo’s 1817 Formulation of Comparative Advantage” (2018).

46 Richard Baldwin and Javier Lopez-Gonzalez, *Supply-Chain Trade: A Portrait of Global Patterns and Several Testable Hypotheses*, 2013.

47 Draghi, *The Draghi Report: A Competitiveness Strategy for Europe* (Part A) (Luxembourg: Publications Office of the European Union, 2025).

48 Idem.

49 Johannes Bollen, Sabine Kerssens, Kimberley Kruijver, Carine van Oosteren, Daan Pisa, Caroline Schipper, Arnold Tukker, and Joris Vierhout, *Dutch Competitiveness in the Light of the Draghi Report: “The Future of European Competitiveness”* (The Hague: TNO Vector, 2025).

in the semiconductor industry. Policy therefore needs to identify and balance dependencies and capacities to ensure its open strategic autonomy.

To proactively work towards open strategic autonomy, strategic intelligence is needed to support policymaking. That is, for policymakers OSA is often too broad a term for tailored policy making, while more concrete concepts like “chokepoints” or “strategic sectors” remain largely undefined due to lack of strategic intelligence. What is needed is therefore “a detailed and deep consideration of value chains, as well as an understanding of the ‘control’ needed over the value chain(..)”.⁵⁰ The Control Points framework provides a concrete and tangible way to establish this intelligence.

Control Points as the building blocks of Open Strategic Autonomy

Control points are unique points in value chains that provide a valuable public good, creating dependence.⁵¹ In a literature review conducted by TNO, we traced the concept of control points back to strategic management. Initially, this field focused on firms achieving an advantageous position (*firm perspective*) in relation to their direct competitors by developing and exploiting strategic resources and capabilities (i.e. competitive advantage). In our literature review, we argued that the concept evolved to encompass key positions within value chains or ecosystems, not only in relation to competitors but also to other (private) actors such as suppliers or clients (*network perspective*). Finally, in light of recent geopolitical and geo-economic developments, we argue that control points should also recognize the influences and dependencies that key positions in global value chains have on public interests and states’ functioning (*geopolitical and geoeconomic perspective*).

Strategic intelligence to identify control points

Control points are linked to OSA as they enable states’ ability to stimulate economic earning power, safeguard national security and meet broader societal needs. It does not matter whether these control points are occupied by a single firm or a

50 Jakob Edler, Technology Sovereignty of the EU: Needs, Concepts, Pitfalls and Ways Forward (Karlsruhe: Fraunhofer Institute for Systems and Innovation Research ISI, 2023).

51 Daan Pisa, Joris Vierhout, Amber Geurts, and Thijmen van Bree, *Getting a grip on Control Points: an exploration of the Literature* (The Hague: TNO, 2024).

geographically concentrated group of firms. Identifying control points via strategic intelligence is therefore crucial. To enable this, a more recent TNO study has operationalized control points by arguing that control points need to meet three criteria:⁵²

- Control points provide **value** (*i.e. they provide geopolitical, economic, democratic and societal value, which includes public needs, like earning capacity or healthcare*),
- Control points are **unique** (*i.e. they are difficult to imitate or replicate*),
- Control points create **dependencies** (*i.e. they are difficult to substitute, or access can be denied or disrupted*).

A business activity needs to meet all three criteria to be a control point. Take the example of cloud computing explained by Pisa, Zuurdeeg and Geurts (2025). The **value** of cloud computing stems from the fact that 90% of companies and public services (e.g., healthcare, education, and government administration) use cloud services for secure data storage and processing. However, there is strong *dependence*, as just three American hyperscalers (Amazon, Microsoft, and Google) together control nearly 70% of the global market. The *uniqueness* stems from the depth and breadth of the functionality of the well-integrated platforms provided by US cloud providers. The recent case of ICC prosecutor Karim Khan, who allegedly lost access to his email and bank account due to U.S. sanctions over the Court's investigation of Netanyahu, illustrates the risks of foreign control over digital infrastructure.⁵³ The consensus is that only a combination of regulation, investment in European cloud alternatives, and an active role for open source can truly ensure greater control over the cloud as the digital backbone of our society.⁵⁴

52 Daan Pisa, Amber Geurts, Joris Vierhout, Veerle Zuurdeeg and Maïke Conijn. Eyes on control points: an operationalization and methodological framework. TNO 2025 R11318.

53 Molly Quell, "Trump's Sanctions on ICC Prosecutor Have Halted Tribunal's Work," *AP News*, May 15, 2025.

54 Daan Pisa, Veerle Zuurdeeg and Amber Geurts (2025). From containers to the cloud: how control points turn into chokepoints. (The Hague: TNO).

Box 1: Policymakers focus on control in value chains

In its Framework Act on Supply Chain Stabilization Support for Economic Security, the Korean government defined economic security as follows: “The term “economic security” refers to a state in which items, services, technology, etc. essential for the overall economic activities of the State and its citizens, such as domestic production, consumption, and distribution, are smoothly introduced and prevented from being inappropriately leaked overseas, regardless of changes in economic, trade, political, or diplomatic circumstances or natural disasters, etc. that have occurred or are likely to occur at home and abroad, thereby maintaining national security and causing no obstacles to the economic activities of the State and its citizens”.

Within the national security framework of the Netherlands, economic security is defined more abstractly as “the undisrupted functioning of the Kingdom of the Netherlands as an effective and efficient economy”. Specifically it states impact criteria for economic security being “costs” that are “affecting the vitality of the economy of the Kingdom of the Netherlands”. The Dutch government has also been focusing on reducing high-risk strategic dependencies. It examines supply chains, intensifies investment screening, and has set up an inter-ministerial taskforce.

The most direct way in which control points can be valuable to policymakers is their use as a means of diplomatic (de-)escalation. That is, control points are needed to have ‘mutually asymmetric dependencies’ that deter adversaries from using their own control points.⁵⁵ This can be valuable in the relationship with the dependent country itself, but also in the diplomatic relations with a third country seeking to exert influence on the dependent country. Control points are therefore one of the primary ways to influence the incentives of other geopolitical actors.⁵⁶ This makes them a potentially logical policy lever.

55 Tobias Gehrke, *Brussels Hold'em: European Cards Against Trumpian Coercion*, Policy Brief (European Council on Foreign Relations, March 20, 2025).

56 Olivier Kooi, *Overheid Moet Voortouw Nemen bij Organiseren Weerbaarheid* (ESB, 2025).

Identifying categories of control points for OSA

The discussion so far has highlighted that control points can be held domestically (i.e. *own control points*) or by a foreign country, creating strategic dependencies (i.e. *chokepoints*). Current control points are positions other countries rely on to meet their societal needs, while current chokepoints are the economic dependencies a country faces, like critical raw materials from China or Cloud computing from the US. Policymakers can focus on understanding their strengths and expanding the preconditions for the international competitiveness of these control points, while balancing their dependencies that can undermine competitiveness. Once policymakers identify which risks they wish to mitigate, their main policy focus will be on diversification or substitution, for instance through friend-shoring or near-shoring or by investing in substitutes.⁵⁷

Importantly, we acknowledge that economic dynamism is essential for a future-proof economy and technological leadership. Current control points are no guarantee for the future - especially since technologies are developing rapidly with large international investments. This is why it is important to look into future control points (i.e. *potential control points*) and risks for dependencies (i.e. *potential chokepoints*). One way to identify potential control points is by looking at the knowledge or technological position of a country, which provides a strong foundation for a potential competitive edge in the future. A comparative position assessment thereby provides an indication of potential future dependencies. With these insights policymakers can focus on promoting innovation in fields with potential positions of control. Similarly, promoting innovation in niches of fields where they risk dependence can help to stay relevant. Japan for example promotes its firms' 'strategic indispensability' as suppliers in strategic stages of supply chains. Another policy option is to act early and restrict import or export of foreign technology. For instance, in the Republic of Korea, foreign location service providers (i.e. Google Maps) are restricted from offering full location services, both due to national security concerns but also to protect domestic navigation capacities.⁵⁸

These four categories are illustrated in Figure 1.

57 Cinzia Alcidi, Tamas Kiss-Gálfalvi, Doina Postica, Edoardo Righetti, Vasileios Rizos, and Farzaneh Shamsfakh. *What Ways and Means for a Real Strategic Autonomy of the EU in the Economic Field?* Brussels: European Economic and Social Committee, November 10, 2023.

58 Raphael Rashid, "South Korea Postpones Decision to Let Google Maps Work Properly – Again," *The Guardian*, August 8, 2025.

Figure 1 Identifying control points and chokepoints

	Now	Future
Own	Control point	Potential Control point
Foreign	Strategic dependency (chokepoint)	Risk on dependency (chokepoint)

OSA and the capacity to respond

With strategic intelligence on (potential) control points as well as chokepoints, policymakers can thus draft policies to support OSA. This requires new knowledge, data, strategies and policy ideas. Importantly, policymakers’ *responses* to identified positions of control versus dependencies should consider competitiveness implications. The debate on OSA has mainly emphasized the comparative dimensions of OSA, highlighting strategic positioning against rival firms and countries and protectionist policies like reshoring and friend-shoring initiatives that deteriorate multilateralism. These policies are unlikely to lead to favorable economic outcomes. In the most extreme case, pursuing such strategic autonomy goals would contradict Ricardo’s logic of trade between specialized nations along their comparative advantages and bring inefficiencies that reduce living standards and might undermine competitiveness in the long term due to a lack of international competition and knowledge spillovers. This means that new initiatives are needed to turn the tide and strengthen multilateralism in times of OSA.

OSA can be addressed more effectively via cooperative efforts, as in many cases the capacities and expertise available to individual companies or states are not sufficient.⁵⁹ This approach strikes a balance between preventing excessive dependencies and avoiding a decline in living standards or competitiveness. Cooperation is

59 Amber Geurts, Thijs Broekhuizen, Wilfred Dolfsma and Katharina Cepa, Tensions in multilateral cooperation: Findings from the disrupted music industry. *Industrial Marketing Management*, 105.

especially important when considering future control points, whereby science and technology positions are crucial for achieving future OSA goals. What is more, technological developments in areas such as AI, semiconductors and quantum technologies benefit from knowledge integration, long-term investments and collaboration among experts and institutions. In those instances, isolation and competition can pose a significant barrier to technological advancements long before the value created can be captured by those advancing it. Protectionist efforts thus risk reduced exposure to international competition and knowledge spillovers, which can stall progress and reduce international competitiveness – especially when protectionism leads to isolation from well-positioned countries. In the context of open strategic autonomy, the question therefore is not just *how to innovate*, but also *how to collaborate with partners to reap the benefits of innovation* at different policy levels (regional, national and international).

International cooperation gains in importance

In this sense collaboration and cooperative efforts are crucial strategies for managing the tensions between competition and cooperation in a context of growing geopolitical and geo-economic tensions for achieving OSA. Coopetition can be defined as a strategy capable of simultaneously combining cooperative and competitive dynamics between two or more entities to achieve mutual and significant advantages, thereby increasing the ability to effectively respond to complex challenges.

Control points play a pivotal role in devising such strategies, as they imply the pursuit of stronger domestic capacities while collaborating internationally with strategic partners to leverage complementary knowledge and resources. Countries like the Netherlands and the Republic of Korea are too small to build many control points independently, as this would result in the dilution of resources. It is therefore important to put resources to the most effective use (i.e. *directional initiatives*) and cooperate as closely as possible with trusted partners along the full innovation chain. As such, the ability to strategically manage long-term RD&I relationships at the international level becomes a fundamental element of OSA policies, via which states compete for technological leadership while deliberately collaborating, in an informed way, with partner countries with complementary knowledge and resources. The appropriate countries for cooperation therefore need to be selected based upon strategic intelligence regarding control points.

Conclusions & Recommendations

In the face of growing geopolitical risks and uncertainties, countries are looking to safeguard their OSA. These concepts are often too broad for specific policymaking. Therefore, we propose the more concrete concept of ‘control points’, connected to the need for strategic intelligence in order to identify these control points. This meets the criterion that an in-depth understanding of value chains and the positions of control therein is needed for policymaking on OSA. Policy recommendations connected to this are:

- 1. Invest in strategic intelligence to be able to identify and prioritize current control points;*
- 2. Utilize strategic intelligence to strengthen efforts towards new control points.*

The international dimension is an important consideration when thinking about current and future control points for OSA. As tensions increase with (former) partners in trade and innovation, increased attention towards cooperation with partner countries will be important. Addressing the challenges surrounding OSA and economic resilience will require knowledge from the fields of international affairs, technology and innovation sciences, and economics, when balancing competition and collaboration. The following policy recommendations are connected to this:

- 1. Invest in new, multilateral directional initiatives that enable international competition and knowledge spillovers.*
- 2. Consider a level playing field considerations at regional, national and international levels.*

These investments in strategic intelligence for control points and international partnerships will help countries increase their OSA amid geopolitical and geo-economic challenges.

Acknowledgements

This paper draws extensively on the knowledge shared by experts in the fields of policymaking, foreign affairs and research, who were consulted during the writing of this paper. The authors thank these experts for their valuable insights.