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Strengthening Supply Chain Resilience

DEVELOPING CANADA-REPUBLIC OF KOREA EARLY WARNING SYSTEM CO-OPERATION

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Strengthening Supply Chain Resilience

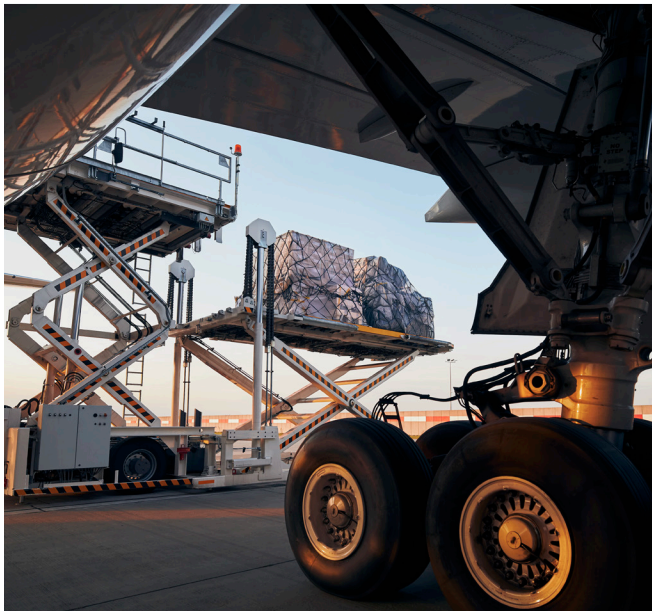
Developing Canada-Republic of Korea Early Warning System Co-operation

EXECUTIVE SUMMARY

Global supply chains, once celebrated for driving efficiency and growth, are increasingly recognized as a source of strategic vulnerability. Geopolitical shocks, the COVID-19 pandemic, climate-related disasters, and tariff volatility have exposed the potential fragility of cross-border production networks, particularly in critical sectors such as energy, semiconductors, and medical supplies. For Canada, these disruptions have underscored the need to transition from fragmented, reactive responses to supply chain shocks toward a comprehensive strategy for supply chain resilience.

Canada has in recent years made progress in its development of a national supply chain strategy, through initiatives such as the National Supply Chain Office, the Critical Minerals Strategy, and new investment screening rules. However, these efforts remain siloed. Current policies emphasize product-specific chokepoints (e.g. transport, health products, minerals) but lack an integration system across sectors, foresight in anticipating emerging risks, and strong international partnerships. Without a coherent framework, Canada remains ill-prepared to manage external shocks and coercive pressures.

Supply Chain Early Warning Systems (EWS) represent a promising tool to shift governance from crisis management to proactive resilience. By combining advanced



data collection, predictive analytics, and interagency co-ordination, EWS can identify vulnerabilities in real time, trigger preventive action, and mitigate systemic risks before they escalate.

A partnership with the Republic of Korea (or Korea for short) may help Canada to develop an EWS. Korea has emerged as a global leader in this domain, developing a whole-of-government EWS framework that integrates ministry-level monitoring, artificial intelligence-enabled (AI) risk analysis, public-private collaboration, and international engagement. The Canada-Korea Comprehensive Strategic Partnership (2022) and Canada's Indo-Pacific Strategy both highlight supply chain resilience as a priority. Partnering with Korea offers Canada not only a blueprint for designing its own EWS but also a platform for strengthening bilateral and regional resilience in critical sectors such as critical minerals, clean energy, and advanced manufacturing. By combining Canada's resource-based strongpoints with Korea's technology-driven manufacturing networks, both countries can generate complementary capabilities, enhance competitiveness, and reinforce their roles as trusted Indo-Pacific partners.

This paper recommends a phased approach to Canada-Korea supply chain co-operation in the development of an EWS. This includes:

1. **Structured Dialogue and Shared Diagnostic**
    a. Establish a bilateral platform to map goals, vulnerabilities, and critical nodes in key sectors.
    b. Launch best-practice exchanges on early warning systems, logistics digitalization, and chokepoint mitigation.
2. **Pilot Early Warning Systems**
    a. Implement joint pilot projects in strategic industries.
    b. Align methodologies, share data, and develop joint monitoring tools.
3. **Institutionalize Co-operation**
    a. Elevate supply chain resilience as a core element of summit diplomacy.
    b. Create a Track 1.5 dialogue involving officials, experts, and practitioners to generate evidence-based recommendations and build trust.
4. **Broaden to Plurilateral Partnerships**
    a. Extend bilateral co-operation to like-minded partners.
    b. Position Canada and Korea as co-leaders in shaping international standards, interoperability protocols, and joint investment mechanisms.

Developing a Canadian EWS in partnership with Korea offers a pragmatic and forward-looking path to strengthen resilience, enhance competitiveness, and secure Canada's role as a trusted Indo-Pacific partner. By moving

from diagnostic rigour to multilateral leadership, Canada and Korea can together help set the rules and standards for transparent, sustainable, and resilient global supply chains in an era of geopolitical volatility.

1. INTRODUCTION

Once celebrated as engines of efficiency and prosperity, global supply chains have in recent years come to be recognized as critical sources of strategic vulnerability. A succession of geopolitical shocks and systemic disruptions, including the U.S.-China trade war, the COVID-19 pandemic, escalating climate-related disasters, and ongoing U.S.-led tariff volatility have exposed the fragility of the cross-border production networks that serve the Canadian market. These episodes have drawn attention to the extent to which national security, economic growth, and societal well-being are now inseparably tied to the stability of global supply chains. For Canada, supply chain vulnerabilities in sectors as diverse as energy, semiconductors, medical supplies, and food systems are no longer considered to be abstract risks but rather pressing policy challenges with direct implications for national prosperity and economic security.

In this evolving context, supply chain resilience has become a central pillar of industrial and economic security strategies worldwide. Governments are increasingly supplementing traditional policy instruments such as investment screening and strategic stockpiling with forward-looking approaches that emphasize anticipation and proactive supply chain governance. Among these, Supply Chain Early Warning Systems (EWS) represent a particularly promising policy direction. By combining enhanced data collection, predictive analytics, and inter-agency coordination, EWS offers governments the capacity to detect potential supply chain risks in real time, identify sectoral vulnerabilities, and intervene before localized shocks escalate into systemic crises.

Conceptually, a Supply Chain EWS can be understood as an integrated mechanism for monitoring, collecting, analyzing, interpreting, and communicating data on emerging supply chain pressures. Its objective is to generate timely, decision-relevant insights that extend the lead time available for responding to unforeseen deviations and disruptions. Functioning as both a control and risk-management instrument, a Supply Chain EWS emphasizes the early identification, analysis, and assessment of risks across the supply chain. In doing so, it serves a proactive role, helping governments adapt to rapidly evolving market conditions and mitigating the likelihood that unexpected events will escalate into major supply chain disruptions.

The emergence of EWS reflects a broader paradigm shift in the economic governance of strategic supply chains: from a reactive posture focused on mitigating crises after they occur, to a preventive orientation that prioritizes anticipation, preparedness, and co-ordinated response. EWS should therefore be understood not simply as a technical monitoring tool, but as an institutional mechanism capable of reshaping how countries manage the nexus between economic interdependence and national security. Their design, implementation, and integration into national policy frameworks are important for determining whether countries can protect strategic industries, reduce exposure to external shocks, and maintain competitiveness in an era defined by geopolitical volatility.

Against this backdrop, Canada has a strategic opportunity to learn from and deepen its partnership with the Republic of Korea (or Korea in short), a country

that has been at the forefront of proactively embedding comprehensive supply chain EWS into its national security and industrial policy agenda. For Canada, partnering with Korea offers both a blueprint and a pathway for building its own system, while strengthening bilateral and regional resilience.

Recent institutional frameworks adopted by Canada reinforce this opportunity. The Canada-Korea Comprehensive Strategic Partnership (CSP), signed in September 2022, explicitly identifies supply chain resilience as a shared priority. The CSP set five pillars — values and human rights; security and defence; economic prosperity and security; climate, environment, and sustainability; and health and culture — and explicitly advances co-operation on supply chains and economic security. Building on this, the two countries launched the CSP Action Plan in July 2024, which ties the CSP to both countries' Indo-Pacific strategies and catalogs concrete deliverables, including an MOU on Cooperation in Critical-Mineral Supply Chains, the Clean Energy Transition and Energy Security, the start of negotiations on a classified information-protection agreement, the High-Level Economic Security Dialogue (2+2), Defence Materiel and R&D MOUs, the first Climate Change Dialogue and Climate MOU, and foreign-policy development. Moreover, Canada's Indo-Pacific Strategy explicitly recognizes that "emerging security challenges and supply chain disruptions highlight the need to collaborate on enhancing economic security." Mapping avenues for collaboration with Korea's established EWS directly supports this strategic objective.

This paper examines how developing a Canadian Supply Chain EWS and integrating it with Korea's established system could enhance Canada's economic security, strengthen its Indo-Pacific presence, and advance its strategic interests in critical sectors such as critical minerals, clean energy, and advanced manufacturing. The analysis identifies opportunities and mechanisms for bilateral and regional co-operation, offering concrete

Table 1: The Five Pillars of a Comprehensive Supply Chain Strategy

Pillar	Objective	Tools
Pursuing trade integration	Keep supply chains open to boost productivity, increase prosperity, and develop 'flexicurity.'	Invest in transportation infrastructure and digitalization; reduce regulatory red tape; pursue trade agreements and internal-trade reforms.
Protecting against chokepoints	Reduce exposure to natural and geopolitical chokepoints in strategic sectors and secure essential supplies.	Diversify supplier bases; incentivize domestic or nearby production; develop strategic stockpiles; create Early Warning Systems (EWS); targeted industrial measures; investment screening/national-security reviews.
Promoting strongpoints	Identify and reinforce Canada's indispensable niches in the global supply chains of critical goods to increase leverage and resilience.	Map strategic niches; invest in domestic production, processing, and innovation; value-added upgrading; targeted tax credits and infrastructure funds.
Partnering internationally	Build international alliances to coordinate risks, pool resources, and set interoperable, responsible standards.	Bilateral/plurilateral compacts; summit diplomacy and track 1.5 dialogues; joint investment mechanisms; shared data platforms and standards for traceability.
Pinpointing emerging risks	Anticipate disruptions and opportunities through data-driven foresight and rapid response.	National data infrastructure; EWS integration; stress tests with industry; supply-chain mapping and scenario modeling; AI/big-data analytics; public–private observatory and real-time information sharing.

Source: Authors' own development.

policy and project recommendations to strengthen Canada's position as a reliable partner in the Indo-Pacific.

The paper proceeds as follows. Section 2 discusses the importance for Canada to develop a comprehensive supply chain strategy and the key pillars that such a strategy should include. Section 3 then discusses the steps Canada has taken to develop such a strategy. Section 4 provides a comparative overview of Korea's supply chain EWS. Section 5 examines avenues for bilateral co-operation between Canada and Korea, highlighting potential complementarities and institutional mechanisms. Section 6 outlines policy recommendations for Canada, with a focus on operationalizing an EWS in collaboration with Korea and other Indo-Pacific partners. Section 7 concludes by reflecting on the broader implications for Canada's role as a trusted and resilient partner in the Indo-Pacific region.

2. WHY CANADA NEEDS A COMPREHENSIVE SUPPLY CHAIN STRATEGY

In recent years, the COVID-19 pandemic and geopolitical turbulence have elevated supply chain resilience to a matter of national priority. For Canada, the stakes are high: the country's prosperity is intrinsically linked to the reliable functioning of global supply chains, which underpin affordability, productivity, competitiveness, and security. Safeguarding the efficiency and resilience of these production networks is therefore not merely a business concern but a core public policy objective, directly affecting Canadians' standards of living and national security.

Despite this growing recognition, Canada remains one of the few advanced economies without a com-

prehensive national supply chain strategy, even though clear advances have recently been made. Peer economies such as the United States, Australia, Korea, and the United Kingdom have already developed dedicated frameworks to identify vulnerabilities, protect critical sectors, and guide long-term investment. By contrast, Canada currently approaches supply chain challenges in a fragmented and reactive manner. This lack of strategic coherence may leave the country disproportionately exposed to external shocks and undermine its ability to position supply chains as engines of competitiveness, innovation, and resilience.

The importance of such a strategy is high. In an era characterized by pandemics, climate-related disruptions, and intensifying geopolitical rivalry, governments must navigate a delicate trade-off: preserving the efficiency of supply chains that sustain affordability and growth, while simultaneously safeguarding national security against systemic risks. An excessive emphasis on efficiency may increase vulnerability to external shocks, whereas an overcorrection toward security may erode productivity and long-term competitiveness. Therefore, a forward-looking Canadian strategy must integrate both dimensions, ensuring that the benefits of open and reliable global supply chains are preserved without compromising resilience in the face of disruption.

To address this gap, we propose that Canada articulate a comprehensive '5P' strategy structured around five mutually reinforcing policy pillars that aim to balance between efficiency and resiliency: pursuing trade integration, protecting against chokepoints, promoting 'strongpoints,' partnering internationally, and pinpointing emerging risks (see Table 1). The remainder of this section examines each of these pillars in turn.

Pillar I: Pursuing trade integration

Generally speaking, trade is good for growth, and the commitment to strengthen and defend open, diverse, reliable, and socially responsible international supply chains should therefore be at the centre of Canada's supply chain strategy. For most goods, globalized production is a powerful driver of prosperity and economic security. By fragmenting production across borders, supply chains enable countries to specialize according to comparative advantage, thereby lowering input costs and keeping consumer prices affordable. Global supply chains can also generate dynamic efficiency gains and innovation by fostering knowledge connectedness across borders. For these reasons, integration into global supply chains is critical to providing access to cost-efficient and technologically advanced inputs, while also transforming national comparative advantages into higher productivity and rising living standards.

Moreover, and often underappreciated, global supply chains can in many cases strengthen the resilience of production processes. A desirable feature of globalized production is that it provides companies with broad access to outside supplier options that can be used to generate what some have called "flexicurity"; that is, a combination of flexibility and security. For example, the option to switch suppliers from one country to another has been found to reduce large corporations' exchange-rate risks and labour-cost risks.

Sustaining and increasing these benefits of trade integration for both prosperity and economic security requires proactive policy action. Canada must invest in facilitating trade both within and across its borders, modernize aging transportation infrastructure, reduce regulatory red tape, pursue new trade agreements, and

establish robust traceability standards that strengthen firms' capacity to map, monitor, and mitigate risks across global supply chains.

Pillar II: Protecting against chokepoints

While modern supply chains generally offer efficiency and resilience through globalized sourcing, their very interdependence also occasionally creates vulnerabilities that may endanger national security. Because supply chains span multiple jurisdictions, their functioning often hinges on factors beyond the control of national governments and firms. If this occurs in the supply chains of strategic products that are essential for Canada's national security, there is a need for the Canadian government to ensure the resilience of its supply chains.

Disruptions may stem from natural shocks such as floods or earthquakes. In 2021 and 2022, for example, wildfires and floods hit Western Canada hard, causing major supply chain disruptions. Fires forced entire sections of railways to shut down, while key highways (such as the Trans-Canada Highway) had sections completely washed away by floods. With critical routes blocked, goods couldn't move as they usually did, and businesses across the country felt the impact almost immediately.

However, supply chain disruptions are increasingly policy-induced through sanctions, export restrictions, or tariffs, with cascading effects across entire economies. Geopolitical chokepoints are particularly concerning in this regard: stages of production are concentrated in a single country or dominated by a handful of firms in strategic industries, with few viable substitutes elsewhere. Geopolitical chokepoints are especially prone to politicization. The weaponization of interdependence has become a defining feature of the contemporary international political economy, as states increasingly leverage their control over critical supply chain segments as instruments of coercion. Japan's 2019 restrictions on high-tech chemical exports to Korea, the U.S. curtailment of China's access to advanced semiconductor designs in 2020, and China's restrictions on the export of critical minerals are all examples of such dynamics. Even U.S. President Donald Trump's tariff threats against Canada demonstrate how supply chain dependence can be wielded as a blunt tool of geopolitical coercion.

For Canada, the risk that such events can disrupt the supply of strategic or essential supplies highlights the importance of a supply chain framework that can identify strategic sectors essential to national interests, map geopolitical chokepoints within the supply chains of these strategic sectors, and determine the most appropriate mitigation strategies. Policy tools could include diversifying supplier bases, incentivizing domestic production capabilities, building resilient international partnerships, and developing Early Warning Systems. Canada would strengthen its economic security by reducing exposure to chokepoints and coercive tactics in strategic industries.

Pillar III: Promoting strongpoints

Canada is not merely vulnerable to foreign chokepoints; it also possesses leverage through its specialization in production stages that are critical to the strategic supply chains of other countries. In this sense, Canada controls supply chain strongpoints — for example, in critical minerals, energy resources, medical technologies, and automotive components — that other economies depend upon to ensure their own resilience and prosperity. These assets are not only economically valuable but also strategically significant, serving as bargaining chips in Canada's international economic diplomacy.

Maximizing the benefits of these strongpoints requires a deliberate strategy to identify where Canada's industries occupy indispensable positions within global supply chains that serve foreign markets and to use industrial policy to strengthen them. By reinforcing these strategic niches through investments in production, innovation, and value-added processing, Canada can enhance its bargaining power in trade and other negotiations and shield itself against unilateral tariff threats or other coercive measures. In doing so, Canada would not only strengthen its domestic resilience but also elevate its international standing as a reliable and indispensable partner in global supply chains.

Pillar IV: Partnering internationally

International partnerships are critical in Canada's quest to make global supply chains work for its society's prosperity. Given the inherently transnational nature of modern production networks, a successful Canadian strategy must rest on building and deepening international collaboration on supply chain matters. Peer economies are already investing heavily in cross-border collaboration, whether through the U.S.'s Indo-Pacific Economic Framework, the European Union's Global Gateway initiative, or Korea's regional supply chain compacts, to strengthen resilience, diversify sourcing, and set global standards. As a middle-power country, Canada should develop a supply chain strategy that also actively participates in these emerging architectures.

For Canada, international partnerships in the development of a supply chain strategy serves three purposes: first, to co-ordinate risk monitoring and early-warning mechanisms across allied countries; second, to pool resources for critical infrastructure, innovation, and supply chain mapping; and third, to align on standards for sustainability, transparency, and responsible sourcing that reinforce both market access and consumer trust. Priority should be placed on working closely with traditional allies such as the U.S., the EU, and key

Indo-Pacific partners to reduce overreliance on adversarial states and ensure secure access to critical minerals, advanced technologies, and essential goods. By embedding its strategy within broader alliances, Canada can amplify its influence, safeguard its economic security, and ensure its supply chains remain both competitive and resilient in an era of mounting geopolitical turbulence.

Pillar V: Pinpointing emerging risks

The fifth pillar of a Canadian supply chain strategy is the systematic development of data-driven capabilities to anticipate emerging risks and seize nascent opportunities in global supply chains. Global supply chains are increasingly vulnerable to complex and fast-moving disruptions — from geopolitical tensions and climate shocks to cyberattacks and regulatory changes — that cannot be addressed reactively. Instead, Canada needs the capacity to monitor, predict, and adapt in real time.

During the COVID-19 pandemic, some researchers advanced an interesting proposal in this regard: similar to bank stress tests that were imposed after the Great Recession of 2008–09, governments should work together with industries that provide essential goods to establish stress tests that capture a country's ability to deal with supply chain shocks. These stress tests should consider the government's own stockpiling strategy, the speed with which both local production and imports can be ramped up, the diversification of import sources, and the impact of potential export restrictions by other countries. They would encourage both governments and businesses to collaborate on designing more resilient supply chains in essential goods.

This requires investment in national-level data infrastructures that integrate trade, logistics, financial, and environmental datasets into actionable intelligence. Furthermore, it entails careful reflection on how to structure engagement with industry stakeholders, which has often proven to be challenging. By building advanced supply chain mapping systems, early warning mechanisms, scenario-based forecasting tools, and effective private sector engagement mechanisms, policymakers can better anticipate bottlenecks, identify alternative sourcing options, and simulate the impact of different shocks. Such foresight not only improves resilience but also enables Canada to identify and capitalize on emerging opportunities, such as shifts in demand for critical minerals, new technological frontiers, or green supply chains.

In practice, this pillar could involve establishing a dedicated national observatory for supply chains, promoting public-private partnerships to share data and analytics, and aligning with international allies to harmonize monitoring systems. By embedding foresight and analytics into its supply chain governance, Canada would move from reactive crisis management toward proactive strategic positioning, ensuring that Canadian supply chains are not just shielded against future disruptions but positioned to thrive in the next wave of global economic transformations.

3. CANADA'S SUPPLY CHAIN POLICY LANDSCAPE

Canada has yet to articulate a comprehensive supply chain strategy that fully aligns with the five pillars of pursuing trade integration, protecting against chokepoints, promoting strongpoints, partnering internationally, and pinpointing emerging risks. Nevertheless, in recent years, the federal government has introduced several targeted initiatives and pilot programs that ad-

dress key components of this broader agenda. These initiatives, however, remain largely fragmented and reactive, leaving important opportunities for further development and integration.

Transportation Infrastructure

Canada's most significant supply chain initiatives have been spearheaded by Transport Canada, which has had to respond to repeated shocks to the country's transport infrastructure in recent years. The nation's supply chains rely on a dense and interdependent network of railways, ports, and trucking routes, all arteries essential to economic stability. The COVID-19 pandemic put this system under severe stress. The lockdowns triggered a shift in demand away from services such as entertainment and travel toward manufacturing goods, often manufactured in Asia. As a result, both international and domestic shipping became overloaded, leading to unprecedented congestion at ports, rail and highway blockages, and acute labour shortages. Severe weather events and labour strikes further highlighted systemic weaknesses in the transportation system. In response, a central priority for the federal government has been to alleviate bottlenecks at critical nodes of the transportation network to ensure that Canada's supply chains can become more fluid, efficient, resilient, and reliable across all transport modes and in every region of the country.

To advance this agenda of pursuing trade integration through the improvement of the transportation infrastructure and protecting against chokepoints (see Table 2), the federal government established the National Supply Chain Office within Transport Canada in December 2023. Building on the recommendations of the 2022 Supply Chain Task Force, the Office has been entrusted with a dual mandate: to lead the development of a national supply chain strategy for Canada's transport infrastructure and to provide practical support in managing domestic and cross-border disruptions. While its primary focus remains on the efficiency, reliability, and resilience of Canada's internal transport corridors — from ports and railways to trucking and warehousing — the Office also indirectly addresses geopolitical vulnerabilities insofar as international events may affect shipping routes, port congestion, or access to key trading gateways. By promoting data sharing, facilitating co-ordination

Table 2: Canada's Initiatives to Develop Supply Chain Resilience

	Pursue trade integration	Protect against chokepoints	Promote strongpoints	Partner internationally	Pinpoint emerging risks
National Supply Chain Office and Strategy	X	X			
Health Emergency Readiness Canada		X			
Critical Minerals Strategy		X	X	X	
Strategic Innovation Fund		X	X	X	
Investment Canada Act		X			

Source: Authors' own elaboration.

across public and private actors, and supporting evidence-based regulatory and investment decisions, the Office has become a central platform for advancing a coherent, domestically anchored yet globally aware supply chain vision for Canada.

This mission builds on earlier initiatives. In July 2017, Transport Canada launched the National Trade Corridors Fund (NTCF), a federal infrastructure investment program designed to enhance the performance of Canada's transport system and thereby improve supply chain competitiveness. Initially focused on traditional infrastructure projects, the fund has since expanded its scope to include digitalization, inland logistics hubs, climate-resilient infrastructure, and northern connectivity. With an initial allocation of C$1.9 billion, the NTCF has been repeatedly reinforced through successive budgets: C$400 million in 2019 for northern infrastructure, C$1.9 billion in 2021 for resilience and digitalization, and C$450 million in 2022 for supply chain modernization. Funded projects have ranged from congestion relief at major ports to the adoption of digital tools for real-time supply chain monitoring.

In parallel, Transport Canada launched the Ports Modernization Review (PMR) in March 2018 to strengthen the resilience and efficiency of Canada's port system. Through extensive stakeholder consultations, the PMR sought to update the governance and operational frameworks governing Canada's Port Authorities. In 2022, the Minister of Transport announced forthcoming legislative amendments informed by this review. These reforms target five key policy outcomes: (1) enhancing the fluidity of traffic flows by reducing congestion and wait times; (2) fostering reconciliation by positioning CPAs as economic partners of Indigenous Peoples; (3) advancing environmental sustainability by requiring ports to adopt climate accountability frameworks such as the Task Force on Climate-Related Financial Disclosures; (4) modernizing safety and security programs to protect federal port assets and ensure efficient goods movement, and; (5) strengthening governance and financial management by improving accountability, transparency, and alignment with international best practices.

Recognizing that regulatory barriers continue to stymie transportation and trade across provinces, the federal government has also prioritized internal trade integration and labour mobility. Since 2022, it has pursued reforms to reduce interprovincial trade frictions, including the streamlining and elimination of unnecessary federal requirements. The 2024-2027 Internal Trade Action Plan consolidates this agenda around four pillars: reducing regulatory burdens, promoting Canada's internal trade advantages, strengthening stakeholder engagement, and enhancing labour mobility.

Health Products

Canada's supply chain strategy has not only focused on improving the efficiency and resilience of the transportation system. The COVID-19 pandemic similarly unveiled the problem of shortages of health products such as drugs and medical devices. Problems in manufacturing and logistics disrupted the supply of many health products, while the demand for key products like personal protective equipment and certain key medicines and medical devices used to treat COVID-19 symptoms skyrocketed to a level that far exceeded production capacity.

In response, the federal government has in recent years introduced several protecting-against-chokepoints measures to be better prepared for future health emergencies and build a stronger life sciences ecosystem in Canada (see Table 1). In 2024, it launched Health

Emergency Readiness Canada (HERC), a new federal organization within Innovation, Science and Economic Development (ISED) Canada dedicated to protecting Canadians against future pandemics and delivering on Canada's life sciences and medical countermeasures readiness objectives. Serving as the Canadian authority for industrial policy for health emergency preparedness and response, HERC is being tasked with boosting Canada's life-sciences sector and ensuring Canadians get faster access to vaccines, medical therapies, and diagnostics by accelerating the transition from research to commercialization. It also provides leadership in market intelligence and network formation with emerging companies, industry, contract development and manufacturing organizations, and academia to foster innovation and capabilities.

Health Canada has also developed its own protecting-against-chokepoints initiative to address health product shortages (see Table 1). Following engagement with various stakeholders, in 2024, it published a plan called "Building Resilience: Health Canada's Plan to Address Health Product Shortages" that proposes a set of actions the department will take from 2024–28 to help reduce, mitigate, and better prevent shortages of health products and their associated harms. Actions that are already implemented include requiring manufacturers of prescription drugs and certain medical devices to report shortages; prohibiting the distribution outside of Canada of drugs that are made for the Canadian market when it could cause or worsen a shortage; working with supply chain actors to identify alternative supply and explore opportunities they may have to increase production or fast-track re-supplies; authorizing the importation of foreign-authorized products that are not authorized for sale in Canada but are manufactured to similar standards; and working with supply chain actors and health care systems and providers to conserve available supply.

Critical Minerals

The COVID-19 pandemic revealed how swiftly global supply chains and transportation infrastructure can unravel when a single chokepoint is disrupted, prompting governments around the globe to broaden their resilience agenda beyond health-related products. While early policy responses concentrated on masks, vaccines, and other essential medical goods, the crisis underscored the dangers of over-reliance on a limited set of suppliers for any critical input. This recognition has pushed many countries to scrutinize vulnerabilities in other strategic sectors, with critical minerals rising to the forefront. Essential for clean energy technologies, defence systems, and advanced manufacturing, these minerals are heavily concentrated in a small number of geographies, leaving supply lines highly exposed to geopolitical tensions and external shocks.

For Canada, critical minerals represent an opportunity to both reduce the country's dependence on foreign-mined and foreign-processed critical raw materials (protecting against chokepoints) and increase its importance as a strategic trading partner with like-minded economies due to its large amounts of mineral deposits (promoting strongpoints). The federal government has developed a list of 34 minerals it considers to be "critical" based on the criteria that they are both rare and essential to Canada's economic security, they are required for the clean energy transition, and they are strategically important for its partners and allies.

In December 2022, Natural Resources Canada officially released Canada's Critical Minerals Strategy, which primarily focused on six critical minerals: lithium, graphite, nickel, cobalt, copper, and rare earth elements. The strategy articulates a full-value chain vision: expand responsible extraction, scale domestic processing, anchor advanced manufacturing (especially batteries), and close loops through recycling and circularity.

The strategy's logic is twofold. First, sustained access to the six prioritized critical minerals is indispensable to decarbonization technologies and advanced electronics. Second, supply chain concentration — particularly in refining — creates systemic vulnerabilities that Canada seeks to mitigate through diversification with trusted partners and by building resilient domestic capabilities. These aims are operationalized through nearly C$4 billion in federal programming across Budgets 2021–24, including the C$1.5-billion Critical Minerals Infrastructure Fund for clean energy and transportation links to remote deposits, and the C$192.1-million Critical Minerals Research, Development and Demonstration Program to accelerate processing technologies and commercialization. Targeted tax instruments — the 30 per cent Critical Mineral Exploration Tax Credit, the Clean Technology and Clean Technology Manufacturing credits, and the Mineral Exploration Tax Credit — further de-risk early-stage projects and mid-stream investments.

Internationally, the strategy is outward-facing and alliance-driven. Canada has codified co-operation with the U.S. (with which it shares deeply integrated value chains), the EU, the U.K., Germany, France, Japan, Australia, Korea, Chile, and others, and co-leads normative work through the Sustainable Critical Minerals Alliance. Within multilateral fora — the International Energy Agency (including the new Critical Minerals Security Programme), G7 (with Canada's 2025 presidency), and World Bank platforms — Canada advances data transparency, ESG standards, traceability, and joint financing of strategic projects. These efforts explicitly confront supply-chain concentration risks and non-market practices by promoting diversification and responsible sourcing across partner economies.

Semiconductors

The semiconductor sector represents a quintessential dual-use industry where chokepoint vulnerabilities have become increasingly salient. In response to mounting geopolitical frictions, intensifying technological competition, and systemic fragilities in semiconductor production networks, Canada has relied heavily on its Strategic Innovation Fund (SIF) to lay the foundations of a more resilient semiconductor industry. The SIF, run by ISED, is designed to drive investment in research and development (R&D), scale up leading Canadian firms, and improve economic resilience by strengthening critical industrial capabilities. These goals have been applied directly to the semiconductor sector by supporting large-scale semiconductor projects such as the upgrading of an IBM semiconductor packaging plant in Bromont, Quebec, and the commercialization of CMC Microsystems hardware; and stimulating R&D in cutting-edge technologies such as microelectronics and photonics in which Canada has existing research strengths.

The federal government has also developed international partnerships in the quest to develop resilient semiconductor supply chains through interactions with its G7 partners. The G7 established the Semiconductor Point of Contact (PoC) Group at the March 2024 Industry, Technology and Digital Ministers' Meeting in Italy. Conceived as a permanent information-sharing and co-ordination platform, the PoC is designed to deliver early warnings of disruptions, align crisis responses, and strengthen collective resilience in a sector that is vital to both economic prosperity and national security.

Foreign Investment

The Investment Canada Act (ICA) can also be considered a central part of Canada's framework for reviewing foreign direct investment. It ensures that significant inbound investments deliver a net benefit to Canada's economy, while also granting the federal government authority to review any foreign investment, regardless of size, if it poses potential risks to national security, for example, by creating chokepoints. The ICA is designed to balance two objectives: maintaining an open and predictable investment climate that attracts foreign capital and innovation, while protecting Canada from foreign actors who may attempt to gain control over sensitive technologies, infrastructure, personal data, or critical supply chains in ways that could harm Canadian interests.

Canada has modernized the ICA to keep pace with supply chain concerns in recent years. On March 22, 2024, Bill C-34, an Act to amend the Investment Canada Act, received Royal Assent, representing the most significant update to the legislation since 2009. Provisions that came into force in September 2024 gave the Minister of Innovation, Science and Industry stronger authorities, such as the ability to extend national security reviews, impose interim conditions during reviews, and conclude reviews based on undertakings provided by investors. These changes also enhanced co-operation with international partners, strengthened protections for government-funded intellectual property and Canadians' personal information, and improved transparency and accountability in how reviews are conducted and reported.

On March 5, 2025, the Government of Canada announced significant updates to the Guidelines on the National Security Review of Investments, explicitly expanding their scope to address economic security. The updated guidelines recognize that foreign investments can threaten Canada not only through traditional security risks but also by undermining the country's economic resilience. As such, the government will now consider whether an investment could increase the integration of a Canadian business into the economy of a foreign state in ways that jeopardize Canada's long-term security. In making such assessments, officials will evaluate the size of the Canadian business, its role in the innovation ecosystem, and its impact on domestic supply chains. The Guidelines also take into account risks posed by opportunistic or predatory investment behaviour in the current economic environment.

Canada officially introduced its Sensitive Technology List (STL) on February 6, 2025, as a proactive tool to shield the country's most critical and innovative technologies from adversarial exploitation. The STL is intended to reinforce Canada's national security architecture across three domains: foreign investment screening, export controls, and the protection of research and innovation.

Within foreign investment policy, the STL has been integrated into the national security review process under the ICA, providing regulators with a clearer framework to scrutinize and, if necessary, block transactions that risk transferring sensitive know-how or creating undue strategic dependencies. While the STL is not itself an export control list, it complements existing export control regimes by flagging technologies of concern that may require tighter licensing or restrictions. The STL also plays a central role in safeguarding Canada's research ecosystem. By identifying high-risk areas such as quantum science and artificial intelligence, it supports efforts to prevent foreign interference, intellectual property theft, and the unintended transfer of cutting-edge knowledge.

Overall Assessment

Taken together, the federal government has made notable progress toward developing a national supply chain strategy anchored around the '5Ps.' Yet the overall approach remains fragmented, with limited co-ordination across the initiatives led by different ministries. Furthermore, it remains reactive, focusing on well-established bottlenecks and chokepoints but leaving Canada without the foresight needed to anticipate and prepare for disruptions before they escalate.

On pursuing trade integration, federal efforts have thus far centred on alleviating domestic transportation bottlenecks and easing domestic regulatory hurdles, which are both critically important for the smooth functioning of global supply chains. However, this narrow focus leaves aside other critical dimensions of trade integration that are equally important for competitiveness and resilience, including trade policy stability and communications infrastructure.

With respect to protecting against chokepoints, actions have been confined to a small set of strategic sectors, particularly health products, critical minerals, and semiconductors. Recent disruptions, however, have exposed vulnerabilities across a much wider range of sectors that are deemed critical for economic security, including military equipment, suggesting the need for a more comprehensive reflection on where protective measures are warranted to protect against chokepoints.

The pillar of promoting strongpoints has also been concentrated on critical minerals, where Canada enjoys a natural advantage. While this focus is understandable, it risks neglecting other sectors where Canada could cultivate enduring strengths and expand its role in the global supply chains of critical products for other markets.

Efforts toward partnering internationally to bolster supply chain resilience have gained momentum but remain uneven and sector-specific. Canada has joined several multilateral initiatives aimed at strengthening supply chain security, most notably through its participation in the G7 Critical Minerals Production Alliance, the Minerals Security Partnership (MSP), and collaborative frameworks under the International Energy Agency (IEA). These initiatives signal a growing recognition of the need for trusted international partnerships, particularly in critical minerals and clean energy supply chains. However, beyond these strategic sectors, concrete mechanisms to deepen international

co-ordination and operationalize friend-shoring principles across the broader economy remain limited and fragmented.

Finally, pinpointing emerging risks is perhaps the least developed pillar. Current monitoring systems are fragmented and reactive, concentrating mostly on known bottlenecks and vulnerabilities rather than providing the forward-looking intelligence needed to anticipate and mitigate disruptions before they escalate. There has been some work using international trade data to measure the vulnerability of Canadian industries to disruptions in both upstream and downstream international supply chains, but it is not clear if this is currently used systematically to identify emerging vulnerabilities or dependencies in the global supply chains of strategic industries.

4. KOREA'S SUPPLY CHAIN STRATEGY AND EARLY WARNING SYSTEM

Canada can draw important lessons from Korea's experience in strengthening its supply chain strategy. Few countries have faced economic coercion as acutely as Korea. In July 2016, when Seoul decided to deploy the Terminal High Altitude Area Defense (THAAD) system, Beijing retaliated with de facto sanctions targeting critical sectors such as wholesale and retail trade, tourism, and entertainment. The fallout was severe: once indirect impacts were included, losses were estimated at up to US$20 billion, according to the Korea Development Bank Industrial Technology Research Center. The episode highlighted Korea's dependence on China — its largest trading partner — and the risks of weaponized supply chain and economic interdependencies. This vulnerability surfaced again in August 2019, when a dispute with Japan regarding compensation for victims of forced labour during the colonial period escalated. In response, Tokyo imposed export controls on hydrogen fluoride, photoresist, and fluorinated polyimide — inputs essential for semiconductor and display production — severely disrupting Korea's high-tech supply chains. Finally, the "urea solution crisis" of December 2021 proved decisive in pushing Korea to accelerate its supply chain strategy and early warning systems (EWS). Although not a typical case of direct economic coercion, the crisis revealed the global spillover effects of trade disputes. After banning Australian coal imports in 2020, China restricted exports of urea, a coal byproduct essential for diesel vehicles. The result was near paralysis of Korea's logistics sector, exposing once more the fragility of supply chain dependencies.

In reaction to these different forms of economic coercion, Korea has actively pursued a forward-looking, integrated, and adaptive strategy that is moving towards alignment with the 5Ps. Furthermore, it has collaborated with other countries in the development of their supply chain strategy. The Korean experience illustrates how states can move from ministry-specific reactive crisis management to more proactive, system-wide, and collaborative resilience building, an approach Canada needs.

Korea's Economic Security Strategy and Supply Chain Resilience

Korea's economic security strategy places a strong emphasis on strengthening supply chain resilience and enhancing cybersecurity. Reflecting its long-standing reliance on industrial policy, its strategy reinforces state-led industrial development as a central pillar of its economic security framework. However, despite having directly experienced economic coercion, the Korean

government has adopted a notably cautious approach toward advancing counter-coercion measures, particularly those aimed at protecting against chokepoints and promoting domestic strongpoints, reflecting its preference for balancing resilience with pragmatic diplomacy

The Korean government's efforts to stabilize supply chains date back to 2019. Immediately following Japan's export controls, the Korean government introduced measures to enhance the competitiveness and self-sufficiency rate of materials, parts, and equipment essential for supply chain stability.[1] In October 2019, the Korean government established the "Materials, Parts, and Equipment Competitiveness Enhancement Committee," chaired by the Minister of Economy and Finance. This committee aims to contribute to national security and sustained economic growth by strengthening the competitiveness of the materials, parts, and equipment industries while building a sound ecosystem. To provide legal backing for the committee's activities, the Korean government enacted the "Special Act on Strengthening the Competitiveness of the Materials, Parts, and Equipment Industry and Stabilizing the Supply Chain." Subsequently, in 2023, the Korean government introduced a pilot project for comprehensive support to stabilize the supply chains of materials, parts, and equipment to help small and medium-sized enterprises (SMEs), which faced difficulties in independently responding to supply chain disruptions, and secure supply chain stabilization capabilities.

In its "Supply Chain Stabilization Strategy" announced in June 2024, the Korean government aims to further elaborate this forward-looking framework by establishing "four major policy directions and eight key policy tasks." The four major policy directions are: (1) stabilizing the supply and demand of core items and services, (2) enhancing supply chain resilience and crisis response capabilities, (3) strengthening core technology competitiveness and protective measures, and (4) enhancing global supply chain leadership.

1 This point was raised by Dr. Seungjoo Lee in at the July 2025 Convention of the International Political Science Association, in a presentation titled "Reverse Asymmetry and the Perils of Weaponized Interdependence: The Case of Japan's Export Controls on South Korea."

First, to stabilize the supply and demand of core items and services, the Korean government will expand the list of economic security items to 300, provide concentrated support for high-risk items, and increase the stockpile of core materials from the current 0–30 days to 60–180 days. The Korean government will also activate a C$952-million (5-trillion won) supply chain fund to prioritize support for businesses contributing to the stability of economic security items and services. At the Supply Chain Stabilization Committee meeting in August 2025, the Korean government announced plans to provide financial support tailored to each phase of the supply chain, from resource acquisition to distribution and production. This approach considers the interconnected nature of supply chains.

Second, regarding enhancing supply chain resilience and crisis response capabilities, the Korean government plans to build a "self-contained" supply chain by strengthening domestic production bases and localizing core raw materials. Specifically, the Korean government decided to establish a comprehensive supply chain strategy that covers the entire lifecycle, from securing the raw materials and intermediate goods necessary for producing core items to conducting R&D, managing logistics, and delivering the final product. The government also announced plans to establish an integrated government-wide EWS through public-private-international collaboration to upgrade the government-wide crisis response system. This is expected to address the problem of insufficient information linkage caused by the existing, fragmented EWS.

Third, to strengthen core technological competitiveness and protection systems, the Korean government will increase budgetary support for R&D in advanced strategic industries and key items, providing tailored support, including investment tax credits based on the characteristics of each technology.

Fourth, to secure global supply chain leadership, the Korean government aims to establish industry-specific and issue-specific response strategies domestically while leading the formation of global norms internationally.

The Evolution of Korea's EWS

The Korean government has long assigned high policy priority to the development of a supply chain management framework. In recent years, this framework has been in the process of shifting from separate, ministry-specific supply chain management and EWS to an integrated, whole-of-government approach. In the initial stages, and similar to Canada's current situation, the Korean government focused on building supply chain policies and EWS systems at the level of individual ministries, such as the Ministry of Economy and Finance (MOEF), the Ministry of Trade, Industry and Energy (MOTIE), the Korea Customs Service, and the Ministry of Foreign Affairs. As a result, each ministry independently strengthened its own supply chain monitoring capabilities; however, with limited integration between systems.

In June 2024, the Korean government, based on the "Enforcement Decree of the Framework Act on Supply Chain Stabilization Support for Economic Security," sought two changes to address these issues. First, it subdivided supply chain crisis stages into three phases — risk detection, risk prevention, and crisis response — and established corresponding response measures for each phase. Second, the Korean government maintained the existing system where individual ministries manage their own EWS during normal times but strengthened the leading role of the MOEF when a crisis is detected. The crisis is assessed by comprehensively considering supply and demand as well as price fluctuations. Specifically, upon crisis detection, the MOEF convenes a meeting of relevant ministries to share situational awareness and review joint response measures.

The Development of Ministry-Level Supply Chain Policies and EWS

The Ministry of Economy and Finance (MOEF)

Drawing on the experience of several supply chain disruptions, the Korean government in November 2021 established the "Economic Security Core Items Task Force," which is housed within MOEF, to develop stabilization measures for the supply and demand of key security items, as well as to designate and review those items under management. It has since expanded the list of economic security items from 200 to 300, which is reviewed annually. Economic security items are categorized into three tiers, with Tier 1 items being of the highest economic security concern. These are items where dependence on specific countries is absolute, domestic production or alternative imports are difficult, and they hold high industrial importance. For Tier 1 items, the Korean government has set up performance targets to reduce dependence on specific countries and prepare supply stabilization measures at the government-wide level. The review cycles for Tiers 1, 2, and 3 items are quarterly, semi-annual, and annual, respectively.

The MOEF serves as the chair of the "Supply Chain Stabilization Committee," acting as the control tower for Korea's supply chain policy. The committee consists of 25 members: the MOEF, 18 government officials (including the Director of the National Intelligence Service; the Ministers of Science and ICT, Foreign Affairs, Interior and Safety, National Defense, Agriculture, Industry, Health and Welfare, Environment, Land, Oceans and Fisheries, and SMEs and Startups; the Chief of the Office for Government Policy Coordination; the Chair of the Financial Services Commission; the Commissioners of the Korea Customs Service and Public Procurement Service; the Senior Presidential Secretary for Economic Affairs; and the Third Deputy Director of the National Security Office), as well as six civilian members. As the lead ministry of the "Economic Security Core Items Task Force," the MOEF oversees the review of the EWS. For example, in the case of risk detection, the MOEF co-ordinates monitoring and reviewing the results of EWS operated by individual ministries. The development of stabilization measures for the supply and demand of individual items, the restructuring of economic security core items, and the promotion of establishing an institutional foundation.

The Ministry of Trade, Industry, and Energy (MOTIE)

The MOTIE traditionally plays a key role in shaping Korea's industrial policy, from nurturing high-tech industries to developing the materials-parts-equipment ecosystem and strengthening the country's export competitiveness. A significant milestone related to supply chain resilience came in May 2023 with the amendment of the "Special Act on Materials, Parts, and Equipment" into the broader "Special Act on Materials, Parts, Equipment, and Supply Chains." This legislative upgrade empowered MOTIE to launch the "Materials, Parts, and Equipment Industry Supply Chain Center," a dedicated body tasked with supporting supply chain stabilization.

The center's mandate includes: (1) collecting, analyzing, and disseminating supply chain information in strategic industries, (2) establishing and operating an EWS, and (3) implementing projects to support supply chain stabilization. Korea's Trade-Investment Promotion Agency (KOTRA), which falls under MOTIE's jurisdiction and policy guidance, serves as the lead agency for the center. Through its overseas trade offices, it comprehensively carries out functions related to monitoring trade trends and analyzing supply chain

information in the trade sector. The center also partners with both the Korea International Trade Association's (KITA) Institute for International Trade and Commerce and the Korea Machinery Industry Promotion Association in these efforts. To facilitate co-ordination, the centre regularly convenes an Industrial Supply Chain Council meeting with MOTIE, while also providing diverse support measures to Korean companies, including import source diversification, production facility establishment, and financial and tax assistance.

The Korea Customs Service

The Korea Customs Service plays a key role in enhancing the analytical capabilities of its Supply Chain Early Warning System (C-EWS) to enable swift responses — such as identifying alternative trading partners — when global supply chains falter due to measures such as emergency tariffs or import/export quotas imposed to dismantle protectionist trade barriers. The Korea Customs Service analyzes abnormal signals in real-time import and export data to identify signs of supply chain risks and issue alerts. The items managed by the Customs Service for the EWS total 291, including core materials, parts, equipment, and items closely related to people's livelihoods. When detecting risk signals in these items, it provides the information to relevant ministries for use in establishing supply chain management policies.

The Ministry of Foreign Affairs (MOFA)

The 2021 urea shortage crisis served as an opportunity to develop supply stabilization measures for general-purpose goods. The government activated an EWS targeting approximately 4,000 imported items where dependency on specific countries exceeds 50 per cent or where monitoring is otherwise highly necessary.

The MOFA operates the EWS through 37 overseas missions and monitors its operation via meetings of economic security officers. The MOFA continuously monitors supply chain information through its overseas missions to identify early signs of supply chain disruptions. Overseas missions promptly share collected local intelligence with the Ministry of Foreign Affairs and relevant ministries to fulfill their duty of supporting Korean companies during supply chain disruptions. Key missions, including the Embassy in Beijing, conduct tabletop exercises (TTX) to detect early signs of supply chain disruptions for core economic security items and respond swiftly in the event of a crisis.

Toward the Integration of EWS

Governance Change

The Korean government has taken a variety of measures to enhance and integrate the operation of these

ministry-specific supply chain actions and EWS. In line with the revision of its three major supply chain laws, the Korean government created two whole-of-government governance bodies: the "Supply Chain Stabilization Committee" and the "Materials, Parts, and Equipment Competitiveness Enhancement Committee." At the core of the supply chain management and EWS was to establish a policy implementation and operational framework centered on MOEF and MOTIE, and in designating supply chain management items under three categories: (1) economic security items and services, (2) supply chain stability items, and (3) critical resources.

Enhanced Risk Analysis

The Korean government introduced a new risk analysis system using AI and big data, followed by qualitative trend assessments. The Korean government will issue alerts depending on risk levels: "Concern → Caution → Alert → Critical." Each alert level will trigger a corresponding response: "Monitoring → In-depth Analysis → Industry Review Meeting and Pre-emptive Response → Interministerial Joint Response."

Collaboration with the Private Sector

Collaboration with the private sector is a central part of Korea's integrated EWS. The Industrial Supply Chain Council regularly holds meetings between MOTIE and industry representatives to mutually share supply chain information, including EWS analysis data and supply/demand issues by item. Furthermore, a crisis response manual for supply chain crises has been established. The aim is to activate a rapid supply chain response system in the near future, including conducting joint simulation exercises with relevant agencies based on hypothetical supply chain crisis scenarios.

Designation of Supply Chain Stabilization Items

In December 2023, the Korean government designated the 185 supply chain stabilization items under the "Industrial Supply Chain 3050 Strategy." Comprehensive management cards are being created and reviewed for all 185 items. MOEF's sector-specific officials, the Materials and Components Supply Response Center, and KOTRA are in charge of these tasks.

Computerization of EWS

In July 2025, the Korean government took its first step toward computerizing an EWS, the initial phase of supply chain risk management. At that time, MOEF held a kickoff meeting for the Supply Chain Early Warning System Construction Project. The Korean government has been operating an EWS since November 2021 to identify potential crises early. However, the existing manual-based system is vulnerable to information security breaches and has limits in achieving real-time information sharing and analysis. To overcome these limitations and leverage IT advancements, the newly introduced computerized supply chain early warning network will link supply chain information scattered across different ministries and integrate management of information related to private companies and foreign policy trends.

Once the computerized supply chain early warning network is established, access will be expanded to allow not only government officials but also relevant agencies, leading businesses, and other related companies to utilize it. Furthermore, a public-private consultative body will be formed to supplement the limitations of government-led monitoring. If system construction proceeds as planned, the Korean government plans to conduct a pilot operation, starting full-scale operation in early 2026.

5. POLICY RECOMMENDATIONS

In light of intensifying geopolitical competition, mounting supply chain vulnerabilities, and accelerating technological transformations, Canada and Korea both face the dual challenge of protecting their economic security while sustaining open and rules-based trade. Both countries have begun to craft comprehensive economic security strategies. Yet, as we have seen, their approaches reflect distinct national circumstances, levels of dependence on major powers, and industrial structures. Against this backdrop, bilateral co-operation holds significant potential: not only to mitigate vulnerabilities in critical supply chains, but also to leverage complementarities in industrial capabilities, resource endowments, and technological expertise. The following policy recommendations outline a phased and pragmatic roadmap for deepening Canada-Korea collaboration on supply chain resilience and EWS, while situating their bilateral efforts within a broader network of like-minded partners.

3.1 Toward Strategic Co-operation

Identify the Diversity of Canada and Korea's Economic Strategies

As a foundational step to explore the potential for strategic complementarity between countries such

Table 3. Major Countries' Economic Security Strategies

	U.S.	China	EU	U.K.	Japan	Australia	Korea	Canada
Inbound investment screening	Strong	Strong	Moderate	Moderate	Moderate	Moderate	Moderate	Strong
Outbound investment screening	Under discussion	Moderate	Under discussion	Under discussion	Weak	None	Weak	Under discussion
Export control	Strong	Moderate	Strong	Strong	Strong	Moderate	Strong	Strong
Procurement restrictions	Strong	Strong	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Sanctions	Strong	Strong	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Anti-coercion policy	Under discussion	None	Under discussion	None	None	None	None	None
Supply chain resilience policies	Strong	Moderate	Moderate	Moderate	Strong	Moderate	Strong	Moderate
Data protection and cybersecurity	Moderate	Moderate	Strong	Strong	Strong	Moderate	Strong	Moderate
Institutionalization	None	None	None	Weak	Strong	None	Moderate	None
Industrial strategy	Strong	Strong	Moderate	Weak	Strong	Weak	Strong	Moderate

Sources: Lee, "Economic Security and South Korea's International Cooperation Strategy." Trade & Security 9, pp. 82-101, 2025 (in Korean); Updated from Ghiretti, "From opportunity to risk: The changing economic security policies vis-a-vis China," Merics, February 22, 2023.

Strong Moderate Weak Under discussion None

as Canada and Korea, it is necessary to examine the characteristics of major countries' economic security strategies. As shown in Table 3, while major countries, including Canada and Korea, have important parallels, there are also key differences in national priorities. In terms of similarities, most countries utilize export controls as a core instrument of their economic security strategy. Data protection, cybersecurity, supply chain resilience policies, and inbound investment screening also feature as high priorities in many countries' strategies. Conversely, outbound investment screening and anti-coercion policies show distinct differences among nations. As major countries' economic security strategies continuously evolve, periodic updates for review and analysis are essential.

The diversity in major countries' economic security strategies stems from differences in perceived economic security threats. These divergent threat perceptions arise as common challenges, such as supply chain disruptions, emerge, while individual nations adopt differing stances regarding the impact of U.S.-China strategic competition, their level of dependence on China and the U.S., or the potential for economic coercion. Facing an era of extreme uncertainty, major countries are simultaneously establishing and advancing economic security strategies. However, they face the challenge of integrating these strategies with existing policies in individual domains such as security, trade, investment, and technology.

Examining the diversity of economic security strategies can help identify elements for international co-operation in this field. Depending on how it is utilized, diversity can sometimes act as an obstacle to co-operation, and other times as a catalyst for it. In terms of hindrance, since individual nations face distinct circumstances and economic security threats, their demands for co-operation differ. For example, differences in economic dependence on China and the U.S. and experiences with Chinese and American economic coercion are fundamental causes of diversity in economic security strategies.

In terms of a catalyst, again, the diversity of economic security strategies can act as a factor promoting policy co-ordination. Most countries today are actively working to strengthen supply chain resilience, albeit with varying degrees of intensity. Since improving supply chain resilience is difficult to achieve fundamentally through individual efforts alone (see our discussion about partnering internationally), it can promote policy co-ordination by aligning the level of supply chain strategies. Thus, issues where a consensus on policy co-ordination is formed based on common interests can be set as priority co-operation agendas.

Turn Differences into Complementarities

Canada and Korea need to begin identifying the complementarity of their economic security strategies as a first step toward supply chain co-operation. Both governments are designing and implementing economic security strategies that reflect the intensifying U.S.-China strategic competition, the dual dynamics of competition and co-operation in advanced technology sectors, and the impact of geopolitical risks such as the Russia-Ukraine war. The Canadian and Korean governments need to nurture the basis for a joint response to economic security challenges and, furthermore, conduct an analysis of the complementarity of their economic security strategies to transform various challenges into opportunities.

Significant differences exist between both countries'

economic security strategies. In Korea, which has been significantly impacted by supply chain disruptions in key high-tech industries, protecting against chokepoints in these sectors has taken centre stage in its economic security strategy. Despite experiencing economic coercion from major trading partners such as China and Japan, Korea has been cautious about adopting an anti-coercion policy that retaliates in a similar manner. Instead, it has integrated industrial policies into its economic security strategy to proactively address supply chain disruptions and economic coercion. These policies focus on enhancing self-sufficiency in key high-tech industries and supporting technological innovation.

By contrast, Canada's supply chain strategy remains broader in scope but less industrial-policy-driven. While Canada has made important strides, such as strengthening investment screening mechanisms, developing a Sensitive Technology List, and adopting measures for critical minerals and health products, its approach emphasizes the elimination of internal trade barriers and incremental diversification rather than targeted industrial upgrading. Canada has been more active in promoting anti-coercion frameworks with like-minded partners (for example, through G7 and OECD discussions), but has yet to deeply integrate industrial policy into the heart of its supply chain resilience strategy. A notable exception is critical minerals, which Canada considers as a key sector in which it can develop strengths.

The differences in Canadian and Korean economic security strategies stem from variations in their structural dependence on the U.S. and China, their positions within advanced industrial value chains, and the impact of geopolitical risks, as mentioned above. However, these differences can be seen not as obstacles to co-operation but as catalysts for it, depending on the efforts of both governments.

First, while Canada and Korea share the common challenge of reducing structural dependence amid intensifying U.S.–China strategic competition, they exhibit significant differences in the extent of this reduction. Canada relies on the U.S. for 76 per cent of its merchandise exports, whereas Korea, despite lowering its export dependence on China in recent years, still faces a 19.5 per cent dependence on China for merchandise exports in 2024. Considering the core objective of economic security strategy — mitigating structural dependence — the two countries can pursue mutually complementary cooperation in the realm of diversification.

Second, differences in economic security strategies among countries with similar positions can be leveraged as a means to use one nation's strengths to compensate for another's weaknesses. Canada possesses abundant critical minerals such as cobalt, lithium, and rare-earth elements that Korea seeks to access to reduce its dependence on China. Conversely, Korea's advanced expertise in low-emission technologies and high-end manufacturing offers Canada an opportunity to diversify its own industrial base and lessen reliance on Chinese supply chains. Furthermore, Korea's experience in striving to integrate industrial policy into its economic security strategy, focusing on improving self-sufficiency in high-tech industries and strengthening supply chain resilience, can serve as a reference point for expanding Canada's economic security strategy.

Third, in terms of jointly responding to economic coercion, the two countries can establish a multidimensional response strategy based on a systematic analysis of economic coercion by sharing their distinct experiences.

Table 4: Phased Roadmap for Canada-Korea Supply Chain Cooperation

Stage	Objective	Key Actions	Expected Outcomes
Stage 1: Establish a Platform for Co-operation	Build mutual understanding and share best practices	• Regular information and best practice exchange on supply chain strategies, governance, and EWS design • Share international co-operation experiences • Create a structured bilateral dialogue platform	• Enhanced transparency and alignment of supply chain strategies • Shared diagnostic of vulnerabilities, dependencies, and critical nodes • Complementary knowledge building (resources vs. manufacturing strengths)
Stage 2: Pilot Early Warning Systems	Operationalize cooperation in priority industries	• Combine strategic and economic/industrial complementarities • Launch pilot EWS programs in critical sectors • Align methodologies, data-sharing, and monitoring tools	• Tangible co-operation outcomes in priority sectors • Tested frameworks for interoperable EWS • Develop institutional and technical foundations for scaling
Stage 3: Elevate Political Commitment and Institutionalize Co-operation	Secure political traction and embed co-operation	• Leverage summit diplomacy to highlight supply chain resilience • Use multilateral fora (G7, G20, APEC, UN) for joint declarations • Establish cross-ministerial dialogues (e.g. 3+3 or 4+4 format) • Build public-private partnerships and track 1.5 dialogues	• Strong political momentum and policy continuity • Institutionalized economic security dialogue • Hybrid PPP model bridging governments, experts, and firms • Evidence-based recommendations and trust-building
Stage 4: Broaden Collaboration to Like-Minded Partners	Scale bilateral co-operation into minilateral and multilateral frameworks	• Link bilateral co-operation with U.S., Japan, EU, Australia • Take leadership roles in multilateral initiatives (e.g. MSP) • Position Canada and Korea as co-leaders of middle-power coalitions	• Amplified impact through plurilateral and multilateral action • Influence on global standards and investment mechanisms • Strengthened rules-based economic security architecture

3.2 Integrated and Phased Approach

Canada and Korea need to solidify supply chain co-operation by combining the complementarity of their economic security strategies with economic/industrial complementarity. If the complementarity of economic security strategies is a necessary condition for supply chain co-operation between the two countries, then identifying economic/industrial complementarity is a sufficient condition. To strengthen bilateral resilience and competitiveness, Canada and Korea should adopt a phased approach that moves from building mutual understanding to shaping broader coalitions of trusted partners (see Table 4).

Stage 1: Establish a Platform for Co-operation

Enhance Mutual Understanding and Share Best Practices

Enhancing mutual understanding is the first step toward deepening and expanding supply chain co-operation. By regularly exchanging and sharing information on the objectives, means, and international

co-operation measures of their supply chain strategies — while creating safeguards to ensure that knowledge sharing does not create economic security concerns elsewhere — both countries can achieve the effect of clarifying points of co-operation between them. The scope of regular information exchange includes the design and operation of supply chain strategies, including supply chain management governance and the designation of supply chain management items, as well as the establishment and operation of EWS. Regular information sharing is expected to enhance understanding of each other's supply chain strategies and identify specific areas for co-operation. The governments of Canada and Korea can also assist in upgrading each other's supply chain strategies by actively sharing best practices in supply chain management.

Utilize International Co-operation Experiences

The two countries can expand the scope of information sharing to include experiences and key cases from past international co-operation in the supply chain and EWS. Korea possesses experience in bilateral and trilateral cooperation in supply chain and EWS fields, such as Korea–U.S.–Japan, Korea–Japan, and Korea–Netherlands. Korea also played a leading role in reaching an agreement on the supply chain pillar of the Indo-Pacific Economic Framework (IPEF). Canada also agreed with Germany in August 2025 to strengthen and diversify co-operation in critical minerals and energy sectors. The experience of international co-operation between Canada and Korea will clarify the objectives, nature, and approach of Canada-Korea bilateral co-operation, serving as a stepping stone for deepening and expanding co-operation in the medium-to-long term.

Create a Structured Dialogue

To facilitate bilateral co-operation, the starting point should be the creation of a structured dialogue platform dedicated to enhancing mutual understanding of the current state of both countries' supply chain systems. First of all, both countries need to design a platform that facilitates a shared understanding of the diagnostic of common goals, vulnerabilities, dependencies, and critical nodes across these key sectors. Regular joint reviews — supported by transparent data sharing and harmonized indicators — would allow both governments to align assessments, identify blind spots, and co-ordinate responses. This also entails developing a shared understanding of products and sectors deemed strategic or critical.

Specifically, collaborative exchanges of best practices should be launched on priority issues such as early warning systems, logistics digitalization, and chokepoint risk management. By drawing on Canada's expertise in resource-based supply chains and Korea's strengths in technology-driven manufacturing networks, the two countries can build complementary knowledge, generate innovative policy toolkits, and reinforce their positions in global supply chains in ways that advance both economic security and sustainability.

Stage 2: Pilot Early Warning Systems in Strategic Sectors

Combine Strategic and Economic/ Industrial Complementarities

When strategic complementarity and economic/ industrial complementarity are systematically combined, EWS co-operation can lead to tangible outcomes. For EWS, strategic complementarity begins

with jointly establishing awareness and response strategies for threats to supply chain disruptions, particularly arising from geopolitical risks. Identifying strategic complementarity forms the foundation for both governments to identify economic/industrial complementarity for EWS co-operation. EWS co-operation between Canada and Korea can be pursued across various advanced industries, including semiconductors, batteries, and clean energy technology. Prioritizing co-operation in these sectors is not only economically and strategically vital but also leverages their complementary strengths within the value chain. Canada possesses strengths in upstream core minerals and fundamental science within major advanced industry value chains, while Korea excels in midstream manufacturing capabilities. This naturally leads Canada and Korea to pursue co-operation rather than competition. Furthermore, by accumulating experience in co-operation based on economic/industrial complementarity, Canada and Korea can expand this into downstream co-operation over the medium-to-long term, generating synergies.

Launch Pilot Programs

Once a shared diagnostic is established, the next step should be to operationalize joint EWS. Canada and Korea should begin with pilot programs in strategically significant industries such as critical minerals, semiconductors, and clean energy technologies, where vulnerabilities are acute and mutual interests are high. These pilots would provide a testing ground to align methodologies, share data, and develop interoperable monitoring tools capable of detecting emerging risks before they escalate into disruptions. Lessons learned from these pilots would create the technical and institutional foundations for scaling EWS to additional sectors.

Stage 3: Elevate Political Commitment and Institutionalize Co-operation

Utilize Summit Diplomacy

Given increasing geopolitical risks, sustained attention from the leaders of both countries on the necessity of supply chain and EWS co-operation is essential. To secure political traction and ensure continuity, summit diplomacy should be leveraged to frame supply chain resilience initiatives as a core element of the Canada–Korea strategic partnership.

To this end, Canadian and Korean leaders must leverage bilateral summits as well as multilateral fora such as the G20, APEC, and the UN to consistently reaffirm broad support for economic security co-operation and identify specific areas for collaboration. A declaration of co-operation intent at the summit level will serve as a catalyst to promote co-operation not only at the governmental level but also in the private sector. In June 2025, Canada, as chair of the G7 Summit, spearheaded the "G7 Critical Minerals Action Plan," with Korea participating. This demonstrates that Canada and Korea have already accumulated experience in practising bilateral co-operation within multilateral fora. This Action Plan focuses on securing resilient critical mineral supply chains for clean energy and economic security through diversifying production, responsible production, and innovation. It represents an effort to enhance effectiveness by multilateralizing supply chain co-operation.

Create Cross-Ministerial Dialogues

Given the multifaceted nature of supply chains and EWS, both countries need to institutionalize an economic security dialogue involving relevant ministries responsible for industry, science and technology, and foreign affairs. While the two governments have main-

tained relatively smooth co-operation at the individual ministry level, intergovernmental dialogue reflecting the multifaceted nature of economic security has been comparatively lacking. To address this limitation, the two governments should consider launching and regularizing a 3+3 or 4+4 dialogue involving ministries of foreign affairs, science and technology, industry, and trade.

Facilitate Public-Private Partnership

It is well known that public-private partnerships (PPP) are essential for EWS co-operation at the domestic level. International co-operation is no exception. To achieve tangible results and ensure sustainability in EWS co-operation, Canada and Korea need to establish a PPP model encompassing private companies and experts from both countries. Durable progress will depend on the establishment of a Track 1.5 dialogue that brings together government officials, technical experts, and policy practitioners. Such a hybrid forum would bridge the gap between high-level political commitments and on-the-ground implementation, generate evidence-based recommendations, and build trust across stakeholder groups. Institutional learning fostered in this setting would be essential for broadening and deepening early warning co-operation.

Stage 4: Broaden Collaboration to Like-Minded Partners

Link Bilateral to Minilateral/ Multilateral Co-operation

In the longer term, Canada and Korea should expand their bilateral co-operation by linking it to a broader network of trusted supply chain partners. In this regard, as evidenced by the exchange of views in August 2025 between the Director-General for Economic Coordination of the Republic of Korea's Ministry of Foreign Affairs and the Senior Assistant Deputy Minister of Canada's Ministry of Natural Resources on measures to stabilize critical mineral supply chains, both sides are making multifaceted efforts to strengthen bilateral co-operation. Moving beyond a purely bilateral framework would amplify impact, reduce duplication of efforts, and provide scale in addressing systemic vulnerabilities. This could take the form of trilateral or plurilateral arrangements with strategic partners such as the U.S., Japan, the EU, and Australia, focusing on industries where co-ordinated action is essential — including critical minerals, semiconductors, pharmaceuticals, and clean energy technologies.

Take Initiative in Existing Multilateral Co-operation

Canada and Korea should also explore ways to exercise leadership within existing multilateral co-operation mechanisms in the supply chain sector. The Minerals Security Partnership (MSP), launched in 2022 with the goal of establishing stable supply chains for critical minerals essential to advanced industry development and the clean energy transition, is one multilateral consultative body where Canada and Korea can exercise leadership based on their bilateral co-operation. Korea assumed the MSP chairmanship in July 2024 and led international collaboration. Building on their bilateral cooperation, Canada and Korea need to share information and enhance collaboration within multilateral consultative bodies such as the MSP on key issues affecting the global supply chain for critical minerals — smelting, recycling, trade, and investment.

Reinvigorate Middle Power Co-operation

By reinvigorating middle power co-operation, Canada and Korea could position themselves as co-leaders in

shaping international standards, interoperability protocols, and joint investment mechanisms, helping to institutionalize transparency, sustainability, and resilience in global value chains. Such an expansion would not only enhance economic security but send a clear geopolitical signal that democracies can safeguard open, rules-based trade through collective action.

Together, these four stages offer a pragmatic and forward-looking roadmap for Canada and Korea. By combining diagnostic rigour, technological innovation, political commitment, and multilateral outreach, the two countries can reinforce their supply chain resilience while advancing broader objectives of sustainability, transparency, and economic security.

CONCLUSION

We have argued that Canada must move toward a comprehensive supply chain strategy anchored in five mutually reinforcing pillars: pursuing trade integration, protecting against chokepoints, promoting strongpoints, partnering internationally, and pinpointing emerging risks.

The development of such a strategy is necessary for Canada to balance efficiency with resilience and position itself as a credible and indispensable partner in global supply chains.

The partnership with Korea offers a timely and strategic pathway forward to develop such a strategy. Korea's experience in embedding Supply Chain EWS into its broader economic security architecture provides both a blueprint and a partner for Canada to build its own capacity. By pursuing a phased approach, beginning with shared diagnostics, piloting early warning systems, institutionalizing co-operation, and ultimately broadening to like-minded partners, Canada and Korea can jointly enhance resilience in critical sectors while contributing to the development of global standards for transparency, sustainability, and preparedness.

In an era of intensifying geopolitical rivalry and recurring systemic shocks, Canada must embrace this shift from reactive crisis management to proactive resilience building. Doing so will not only protect Canadian industries and consumers from future disruptions but will also elevate Canada's role as a trusted partner in the Indo-Pacific and a co-architect of the emerging rules and institutions that will govern 21st-century supply chains.

ABOUT

About the Asia Pacific Foundation of Canada

The Asia Pacific Foundation of Canada (APF Canada) is an independent not for-profit organization focused on Canada's relations with Asia. Our mission is to be Canada's catalyst for engagement with Asia and Asia's bridge to Canada. APF Canada is dedicated to strengthening ties between Canada and Asia through its research, education, and convening activities, such as the Canada in Asia Conferences series, our Women's Business Missions to Asia, and the APEC-Canada Growing Business Partnership project. APF Canada serves as Canada's Secretariat for several APEC networks, including the APEC Business Advisory Council, Pacific Economic Cooperation Council, and serves as one of Canada's designated APEC Study Centres.

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