

# ENGINEERING **NATO'S** NORTHERN FLANK

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Aligning bilateral capabilities for collective Arctic deterrence and defence

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### **NATO Youth Canada**

NATO Youth Canada is the official youth wing of the NATO Association of Canada, operating as part of the Youth Atlantic Treaty Association (YATA). NATO Youth Canada is a non-partisan organization dedicated to engaging young Canadians in transatlantic security dialogue, defence policy, and international relations. Members of the organization include university students, graduate researchers, young professionals, and early-career academics, from coast to coast to coast. Its mandate is to ensure the next generation of Canadian leaders are informed, engaged, and ready to contribute to the security and prosperity of the transatlantic community. Through policy briefs, events, conferences, and international exchanges, NATO Youth Canada enables platforms for young Canadians to develop expertise, build networks, and make their voices heard on the issues that define our times—from defence modernization and cybersecurity to climate-related security risks and democratic resilience.



### **YATA Sweden**

The Young Atlantic Treaty Association of Sweden (Sveriges Unga Atlantister, SUA) is a non-profit and non-politically aligned association dedicated to promoting the transatlantic partnership, a proactive Swedish NATO membership, and a strong national defence among young people. Founded in 2000, YATA Sweden has established itself as Sweden's leading youth organisation in security, defence, and foreign policy, providing a platform for the next generation of leaders, professionals, and engaged citizens. Through accessible educational programmes, high-level discussions, and practical networking opportunities, the association seeks to bridge the gap between students, young professionals, decision-makers, the armed forces, academia, civil society, and industry. By empowering young voices and creating meaningful opportunities for dialogue and professional development, YATA Sweden strives to inspire the next generation to actively contribute to a safer, stronger, and more resilient democratic world.

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# Executive Summary

*Anthony Saiters*

In recent years, the Canada-Sweden relationship has rapidly evolved into an essential, strategic middle-power alliance. Catalyzed by Sweden's 2024 accession into the North Atlantic Treaty Organization (NATO), the bilateral cooperation between the two countries continues to diversify across multiple sectors and industries. This policy brief serves as a blueprint for decision-makers and stakeholders across public and private sectors, analyzing current initiatives and charting the trajectory of this developing partnership through five core pillars:

- 1. Strategic Context & Bilateral Overview:** Canada-Sweden cooperation in politics and defence.
- 2. Air Domain & Procurement Sovereignty:** Exploring a Canadian mixed-fleet model, life-cycle fiscal strategies, and economic targets.
- 3. Arctic Natural Resource Governance:** Legal implications, capitalizing on Canada's vast reserves and Sweden's mining expertise, and Indigenous rights co-governance models.
- 4. Institutionalization of Defence Finance:** Anchoring Canada's new Defence, Security and Resilience Bank (DSRB) as a hub to accelerate NATO's transition toward a 5% spending target by 2035, SME supply chain stabilization, and long-term dual-use Arctic resilience infrastructure.
- 5. Space and High-Latitude Low Earth Orbit (LEO) Infrastructure:** Maintaining persistent tracking capabilities over Arctic ground assets and spearheading an allied space architecture.

Ultimately, the Canada-Sweden alliance serves as an increasingly effective transatlantic as well as transarctic bridge for sourcing high-yield, complementary capabilities. From modernizing air defences and optimizing airborne assets to pioneering space infrastructure and operationalizing the finance and resource governance models of tomorrow, this bilateral cooperation forms the strategic foundation required to lead and secure the emerging polar century.

# Strategic Context & Bilateral Overview

*Aron Roosberg*

It is no exaggeration to state that the Canadian-Swedish relationship has, in only a few years, evolved from a relatively modest bilateral association into one of the most promising transatlantic middle-power partnerships in contemporary geopolitics. Building on the momentum of Sweden's NATO membership—largely catalyzed by the war in Ukraine and the increasing destabilization of European security—the two allies have come to view one another as natural strategic partners. This new chapter of bilateral relations was further encouraged by Canada's swift ratification of Sweden's 2024 NATO accession, even more so than Sweden's Scandinavian neighbours, which signalled an early commitment to Sweden's integration into European-Atlantic security architecture.<sup>1</sup>

## The Political Aspect

Beyond their shared commitment to liberal democracy and climate governance, both countries also share a strategic focus in the Arctic. This region is increasingly central to both countries' defence planning and is expected to remain a defining theatre of cooperation, both within and outside of NATO. These alignments were recently formalized in a joint Strategic Partnership signed during the state visit by King Carl XVI Gustaf and Queen Silvia to Canada in November of 2025.<sup>2</sup> While the partnership spans many different policy domains; from green energy to science and research, it is clearly anchored in a shared assessment of emerging security challenges in the Arctic and beyond. This growing cross-sector alignment may be encouraged by the geopolitical circumstances they were conceived in, but they are made possible by a shared set of strong underpinning values, one that is mutual to other Nordic countries.<sup>3</sup>

Aside from bilateral commercial trade notably having increased by 135% from 2016 to 2025, and which was valued at \$6.2 billion last year,<sup>4</sup> Canada and Sweden are also strengthening their military partnership. Historically through agreements such as the EU-Canadian Security and Defence Partnership, PESCO-related projects on military mobility and the EU's CSDP, and most recently through NATO. Canada also possesses unique access to the European defence-industrial market as the sole non-European member of the EU SAFE initiative. In other words, the institutional architecture for increased cooperation has been, and is being, strengthened considerably.<sup>5</sup>

## The Military Aspect

At the operational level, Sweden is now also contributing to the NATO Forward Land Forces in Latvia after joining NATO in 2024, which Canada leads as a framework nation.<sup>6</sup> Both countries are also contributing to NATO's enhanced Vigilance Activity (eVA) Arctic Sentry and collaborating on proliferating Sweden's concept of "Total Defence" to strengthen Canadian societal resilience.<sup>7</sup>

Sweden also continues to develop NATO's Forward Land Forces (FLF) battlegroup in Finland, which also creates opportunities for more Arctic cooperation with Canada. Especially seeing as FLF Finland aims to provide NATO with large-scale conditions for testing new technologies and tactics in Arctic environments.<sup>8</sup>

With Sweden having renewed its Arctic focus through its new Arctic Strategy, the two countries also continue to work together on Arctic security and governance through both the Arctic Council, where the two will collaborate closely during the handoff of chairmanship in 2029, as well as in the recently dubbed "NATO Arctic Seven" (or simply "A7").<sup>9</sup> During the ministerial meeting taking place in the Swedish city of Helsingborg, the latter agreed to further deepen their cooperation on security challenges in the region.<sup>10</sup>

In conclusion, the Canadian-Swedish relationship can best be understood as a strategically timely and continuously successful alignment between two highly compatible middle-powers. It is its inherent combination of trust, capability and values that makes it deserving of particular attention, not only as an example to the rest of NATO, but towards any nation seeking new allies in a geopolitical era of great-power rivalries, a weakened U.N. and a heating climate.

## Section I – Airborne Sovereignty: Capitalizing on the Mixed-Fleet Gripen Model

*Şerif Sav*

Canada should assess the potential integration of Saab's JAS 39 Gripen E as a complementary capability within a mixed fighter-fleet model, rather than as a direct substitute for Lockheed Martin's fifth-generation F-35 Lightning II multirole fighter. A joint Gripen E/F-35 structure would preserve fifth-generation interoperability with the United States—through the North American Aerospace Defence Command (NORAD)—while strengthening Canadian procurement sovereignty, reducing single-supplier risk, expanding domestic aerospace participation, and deepening Canada-Sweden and Canada-EU defence-industrial ties.

Canada's Future Fighter Capability Project (FFCP) is officially structured around the acquisition of 88 advanced fighter aircraft to defend Canadian sovereignty, meet international obligations, and contribute to NORAD and NATO commitments.<sup>11</sup> The procurement decision is therefore not only about platform performance but it is also central to fleet availability, Maintenance/Repair/Overhaul (MRO) hubs, Arctic readiness, intelligence-sharing capabilities, and long-term economic return.

### A Strategic Imperative

A mixed Gripen/F-35 fleet would lower Canada's reliance/dependence on a single foreign fighter ecosystem while preserving the F-35's operational value. Functions such as stealth, sensor fusion, and layered interoperability with U.S.-led NORAD and NATO structures maintain the F-35 as an essential aerial asset. However, a single-type F-35 inventory would limit Canada's FFCP scope to a single supplier, sustainment system, software architecture, weapons-integration pathway, and upgrade schedule.<sup>12</sup> Relying only on Lockheed Martin's F-35 presents a strategic and operational risk, should Canada–U.S. relations further worsen.

The financial structure of the F-35 program reinforces this concern. The Parliamentary Budget Officer estimated the total life-cycle cost of Canada's F-35 program at \$73.9 billion over a period of 45 years, including \$19.8 billion for acquisition and \$53.8 billion for operations and sustainment.<sup>13</sup> This means that approximately 73 percent of the estimated lifetime cost is tied to operations and sustainment rather than the initial purchase. Spread across 88 aircraft, the full life-cycle cost is roughly \$840 million per aircraft over 45 years, with sustainment alone equal to approximately \$611 million per aircraft.<sup>14</sup> These figures show that Canada's fighter decision is fundamentally a life-cycle governance decision, not merely an aircraft-selection decision.

A solution to this procurement bottleneck can position Canada to deploy the F-35 for its fifth-generation stealth capabilities and deep U.S. interoperability, while preserving Gripen for rapid air policing and interdiction, Arctic

sovereignty, and routine deterrent with a mixed fleet. This procurement decision will likely reduce F-35 fleet wear and split operational load between two platforms.

## Technology Transfer and Procurement Sovereignty

The open and modular architecture of the Gripen E serves as its main technical advantage. Saab promotes the JAS 39 as a platform for quick updates with independent software and hardware modernization.<sup>15</sup> This matters strategically since fighter aircraft can last up to 30-45 years, whereas sensors, datalinks, electronic warfare systems, cyber threats, and weaponry require frequent review and upgrades, directly affecting Canadian procurement sovereignty. With reduced control over upgrade cycles, mission-data adaption, software integration, or domestic sustainment, Canada cannot fully control its fighter fleet's operational relevance.

Canada may have additional freedom to combine NORAD-specific communications, Arctic surveillance, electronic warfare libraries, and future weapons or sensor packages with Saab's electronics suite. The Swedish manufacturer proposes upgrading and supporting production in Canada through a Canada-wide industrial team, and a Quebec Gripen Centre.<sup>16</sup> Gripen cooperation would help promote procurement sovereignty over traditional dependence on a single contractor. This further enables Canada to build domestic capability to maintain, upgrade, adapt, and operationally control part of its upcoming fighter fleet.

## Arctic and Northern Operational Relevance

Gripen procurement would also bridge the gap between fighter acquisition and measurable Canadian industrial capacity. Canada already has a major aerospace sector capable of absorbing higher-value defence-industrial work. In 2024, Canada's aerospace industry contributed approximately \$34.2 billion to Canada's GDP and supported around 225,000 jobs.<sup>17</sup> It also maintained its top ranking in research and development (R&D) among Canadian manufacturing industries, invested more than \$1.2 billion into R&D, and was 2.8 times more R&D-intensive than the broader Canadian manufacturing sector.<sup>18</sup>

Saab's proposal for the Government of Canada is structured around industrial participation—a central pillar to Canada's first official Defence Industrial Strategy (DIS).<sup>19</sup> The Gripen for Canada Team identifies IMP Aerospace & Defence for domestic production and in-service support, CAE—for training and mission systems, Peraton Canada—for avionics, test equipment, component maintenance, repair and overhaul, and material management, and GE Aviation—for engine sustainment in Canada.<sup>20</sup>

Saab's bid on the Gripen has a stronger industrial-policy case than a job-creation claim. Localizing higher-value work in fighter programs' biggest spending areas including MRO cycles, software and avionics updates, flight training simulators, engine support, electronic warfare adaptation, weapons integration, and mission-systems modernization would have the greatest economic impact.

## Industrial Capacity and Domestic Economic Benefits

Given that Sweden is both a member of NATO as well as the EU, successful Gripen acquisition would strengthen the link between Canada and European defence industry through the recent Security Action For Europe (SAFE) agreement.<sup>21</sup> SAFE is a platform that is instrumental for Canada to continue expanding its defence partnerships while maintaining NORAD and NATO interoperability.

This strategy follows the June 2025 Canada-EU Security and Defence Partnership and Canada's new role in SAFE. EU member states can borrow €150 billion from the European Commission's SAFE instrument to boost defence purchases.<sup>22</sup> It is part of the EU's €800 billion financial-industrial Readiness 2030 Plan to improve defence readiness by 2030. SAFE grants Canadian manufacturers preferential access to instrument-financed defence procurements. The Agreement enables Canadian content to accumulate up to 80% of the value of a SAFE purchase, up from 35% for other third countries. Canada will donate €10 million, €7.5 million of which will be a down payment and credited against future participation fees.<sup>23</sup>

In practice, acquiring the Gripen may enable Canadian enterprises to join European aerospace and defence supply chains. Canadian industries may assist their domestic fighter fleet and position themselves for European defence-industrial collaboration by participating in the Gripen's MRO lifecycle simulation and pilot training. This would be meaningful to meeting NATO's procurement objectives; notably Arctic security, air defence, cyber resilience, space-based intelligence, unmanned systems, and AI-enabled dual-use technology.

Overall, the increased cooperation should be viewed through the Canadian lens as a means of balancing interoperability with sovereignty by maintaining the F-35 as Canada's fifth-generation link to U.S.-led continental defence, while using the Gripen and Canada–EU defence-industrial cooperation to reduce supplier dependence, increase domestic aerospace participation, and anchor Canada more firmly within allied European defence supply chains.

From a Swedish perspective, the Canada-Sweden relationship represents exactly the type of rapid engagement that it sought after joining NATO. By combining proliferation of its Total Defence doctrine, marketing of its domestic military industry and strengthening its Arctic expertise, Sweden has positioned itself as the most recent member to have joined NATO—both vis a vis Canada, but also towards the rest of the Alliance.

## **Section II – Safeguarding the Sovereignty of Natural Resources in the Arctic Circle**

*Antalya Popatia*

In January 2025, a national poll found that 42 percent of Canadians strongly agreed that securing the Arctic is a matter of national importance.<sup>24</sup> That number reflects something real: a creeping unease about who controls the High North, and on what terms. As sea ice retreats and new shipping corridors open, the region has become a focal point for competing national interests, resource extraction ambitions, and strategic posturing. For Canada and Sweden, both of which hold deep stakes in Arctic affairs, the challenge is not simply to claim resources but to defend the conditions under which they can be governed responsibly and in accordance with international law. Doing so requires coordinated policy, shared legal frameworks, and meaningful engagement with Indigenous peoples whose territories sit at the centre of these questions.

### **Anchoring Claims in International Law**

In 2021, Russia submitted addenda to its continental shelf claim to the Commission on the Limits of the Continental Shelf (CLCS), covering areas that overlap with Canadian and Danish positions in the High North.<sup>25</sup> That move was not primarily driven by militaristic objectives. Rather, it was a legal move, a reminder that the sharpest tools in Arctic competition are often procedural ones, and that any credible strategy for protecting northern resources must begin with a commitment to the United Nations Convention on the Law of the Sea (UNCLOS). Canada and Sweden have both ratified UNCLOS, and both stand to benefit from consistently defending its authority as the primary legal instrument governing maritime resource rights in the Arctic.<sup>26</sup> Canada has submitted its own continental shelf claim to the CLCS, seeking to extend sovereign resource rights beyond its standard 200-nautical-mile Exclusive Economic Zone (EEZ). Sweden, as a non-coastal Arctic state under UNCLOS, does not hold the same seabed claims, yet it brings significant weight to the enforcement of the rules-based order through its active role in the Arctic Council and, since 2024, as a NATO member.<sup>27</sup>

The legal architecture matters because this kind of stewardship is ultimately only as durable as the governance structures upholding it. Closer policy alignment between Canada and Sweden on UNCLOS compliance, on rejecting unilateral resource grabs, and on strengthening the CLCS process would reinforce the norms both countries depend upon. This is not abstract diplomacy. China's growing interest in Arctic shipping and seabed resources compounds the pressure, and Western Arctic states cannot afford to treat legal coherence as a secondary concern.<sup>28</sup>

### **Coordinating on Critical Minerals**

Canada's 2024 Arctic Foreign Policy identifies critical minerals as central to both its domestic economic priorities and its international security partnerships.<sup>29</sup> Already, Canada leads the Sustainable Critical Minerals Alliance

(SCMA), which Sweden participates in alongside Australia, France, Germany, Japan, the United Kingdom, and the United States.<sup>30</sup> The policy explicitly commits to increasing cooperation with Nordic states on natural resource development, Arctic science, and supply chain resilience. That commitment has not yet translated into a dedicated Canada-Sweden bilateral track on minerals. It should. One practical avenue would be to formalize this cooperation through a joint working group focused specifically on the management of Arctic extractive industries. Sweden brings considerable expertise in sustainable mining, AI-enabled logistics, and Arctic innovation, while Canada controls vast underdeveloped northern deposits and existing co-investment frameworks with allied governments.<sup>31</sup> Together, they could set standards for responsible extraction that other Arctic actors would find difficult to ignore. Whether that kind of coordination is politically feasible depends in part on how quickly both governments are willing to move beyond generalist partnership declarations toward sector-specific commitments. The June 2024 commitment by Canada of up to \$20 million for a joint Arctic sustainability research initiative through NordForsk is a constructive start, but it needs a dedicated minerals cooperation track of its own.<sup>32</sup>

The Swedish government has outlined plans to support the extraction of rare earths and critical raw materials within its territory, as explicitly stated in its recent Arctic Strategy (2026). The document also highlights that sovereign access to raw materials is intrinsically linked to a credible security policy.<sup>33</sup>

In the Arctic and subarctic regions of Sweden, vast deposits of these valuable resources remain unexploited. A significant development for both Canada and Sweden is the EU's initiative to reduce dependency on raw materials from external actors through the Critical Raw Materials Act (CRM Act).<sup>34</sup> This initiative reflects a broader trend among Western economies to bolster economic sovereignty and challenge China's dominance in the global value chain. Sweden and Canada, as states possessing deposits highlighted in the CRM Act, have economic opportunities for states seeking to diversify their supply chains and account for geopolitical risk.

Ultimately, a sustainable and reliable supply of critical raw materials will prove vital for future economic development and the achievement of climate, defense, and digitalization goals.

## **Grounding Sovereignty in Indigenous Rights**

Both Canada and Sweden present themselves as committed to Indigenous rights in the Arctic. The record is more complicated. In Canada, Inuit, Dene, Cree, and many other nations hold territorial rights that directly intersect with the northern resource base. In Sweden, the Sámi people hold constitutionally recognized rights over traditional lands that overlap substantially with areas of resource interest.<sup>35</sup> The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) requires free, prior, and informed consent (FPIC) for any development affecting Indigenous lands. Both countries have endorsed UNDRIP, but implementation in practice has lagged well behind the principle.<sup>36</sup> Development pursued without genuine FPIC is not only ethically indefensible, it tends to backfire. Legal challenges can delay or halt extraction projects for years, and the reputational damage to allied countries seen as violating Indigenous rights undermines the soft power arguments Canada and Sweden use to distinguish themselves from extractive actors like Russia or China.<sup>37</sup> A logical next step may be a joint commitment

to Indigenous co-governance models, shared best practices on consultation processes, and advocacy within international forums for elevating FPIC as a binding standard in Arctic resource law.<sup>38</sup> This would also address a credibility gap: it is difficult to argue for rules-based governance in the Arctic while sidestepping the rights of the people who live there. Ignoring that reality weakens future cooperation.

## **Building Institutional Mechanisms for the Long Term**

Bilateral goodwill alone is insufficient. Governments change. Priorities shift. Canada and Sweden need durable institutional mechanisms to coordinate on Arctic natural resource governance across changing political cycles. The Canada-Nordic Strategic Dialogue, inaugurated in Iqaluit in September 2024, offers a foundation, but it remains a multilateral forum rather than a dedicated bilateral channel.<sup>39</sup> The 2025 strategic partnership between Canada and Sweden, which covered defence cooperation, space research, critical minerals, and clean energy, is a more targeted instrument, though its implementation in Arctic resource governance still lacks specificity.<sup>40</sup> Three areas are worth prioritizing, though the sequencing will matter as much as the substance. First, Canada and Sweden could establish a joint technical working group on Arctic extractive industries, with a mandate to align regulatory standards, share geological data, and develop joint positions for multilateral forums such as the Arctic Council. Second, both governments might jointly invest in digital research infrastructure, including AI-enabled environmental monitoring and supply chain tracking systems, building on frameworks Sweden has already developed domestically.<sup>41</sup> Third, the two countries should coordinate their positions within NATO's emerging Arctic security architecture to ensure that these concerns are reflected in alliance planning alongside traditional defence considerations.<sup>42</sup> None of these steps are technically difficult. The primary obstacle remains political will, and the window for building it may be narrower than it appears.

## **Conclusion**

Safeguarding Arctic northern resource rights is not a matter of planting flags. It requires sustained legal engagement, multilateral coordination, domestic credibility with Indigenous peoples, and the institutional depth to maintain coherent policy across years and governments. Canada and Sweden are well-positioned to lead on this agenda. What they have not yet demonstrated is the capacity to move from convergence to commitment. Sovereign control over the Arctic's resources will establish a geopolitical trajectory, for decades ahead. How Canada and Sweden manage their piece of that question will say a great deal about the kind of international order both countries are building.<sup>43</sup>

## **Section III – Defence, Security and Resilience Bank (DSRB)**

*Kaya Dupuis*

### **Introduction: Establishing a New Era in NATO Defence Finance**

The establishment of the Defence, Security and Resilience Bank (DSRB) as a new multilateral financial institution represents a shift in how NATO finances its collective security and industrial readiness. Following the unanimous selection of Canada to host the bank's future headquarters,<sup>44</sup> the DSRB is set to become a defence finance<sup>45</sup> hub that integrates North American and European industrial strategies. This institutional framework is designed to move NATO toward the 2035 spending benchmark of 5% of Gross Domestic Product (GDP),<sup>46</sup> comprising 3.5% for core military requirements and 1.5% for resilience, by providing long-term, low-interest financing.

### **Canada as a Host Nation for the DSRB**

The selection of Canada to host the DSRB headquarters serves as a structural catalyst that deepens the bilateral relationship between Canada and Sweden by anchoring Swedish industrial investment in North America. For Canada, hosting the headquarters in a major city like Toronto or Montréal is expected to create up to 4,000<sup>47</sup> specialized jobs in defence finance and diplomacy. This financial proximity directly supports Sweden's industrial presence, such as through Saab's commitment to establish a Canadian hub to build the GlobalEye Airborne Early Warning and Control (AEW&C)<sup>48</sup> aircraft in partnership with Bombardier. NATO benefits from a more synchronized transatlantic defence strategy where Sweden and Canada act as anchor nations for the security of the northern flank.

### **The DSRB as an Agent for CAN-SWE Cooperation: Unlocking Capital and Cross-Border Supply Chains**

A primary mission of the DSRB is to resolve the credit problem for small-and-medium-sized enterprises (SMEs), which is currently a significant barrier to Canada-Sweden industrial cooperation. In Canada, where 90% of defence firms are SMEs,<sup>49</sup> the DSRB will approve risks for commercial lenders, enabling the "Big Six" Canadian banks (Bank of Montréal; Royal Bank of Canada; Canadian Imperial Bank of Commerce; Bank of Nova Scotia; Toronto Dominion and National Bank)<sup>50</sup> to extend credit that is otherwise restricted by stringent "Environmental, Social, and Governance (ESG)" mandates.<sup>51</sup> Swedish sub-tier suppliers who are essential to the production of assets like Saab's JAS 39 Gripen gain access to the "patient" capital required to survive long-cycle procurement environments.<sup>52</sup> By stabilizing these supply chains, NATO ensures that critical industrial capacity is maintained regardless of broader market volatility or restrictive compliance mandates of traditional commercial banks.

### **Advanced Financial Tools to Scale Defence Export Capacity**

The DSRB introduces forward financial tools, such as lease financing and currency hedging, which are specifically tailored to scale Sweden's defence export capacity.<sup>53</sup> Canada can utilize these tools to acquire Swedish

technology, such as the Gripen or GlobalEye, without the immediate fiscal strain of multi-billion dollar upfront payments, thereby diversifying its fleet beyond U.S. platforms. For Sweden, the DSRB effectively lowers the cost of capital for exports, allowing its firms to compete more on the world stage from their Canadian manufacturing hubs. This expanded export capacity directly reinforces NATO's collective deterrence where Sweden can serve as a framework nation.

## **From Reactive Budgeting to Long-Term Capital Investment**

The implementation of the DSRB shifts NATO's defence spending from reactive annual budgeting toward a model of long-term capitalized investment. Canadian policy now aims for a proactive 10-year investment path that avoids the "chokepoints"<sup>54</sup> of sudden demand spikes that traditionally consume defence budgets. Similarly, Sweden benefits from the predictability of Defence, Security and Resilience (DSR)<sup>55</sup> bonds which can span multiple decades to fund advanced research and development in dual-use technologies. At the NATO level, the DSRB acts as a "counter-cyclical financial instrument,"<sup>56</sup> ensuring that collective security commitments remain stable even during regional economic downturns or fiscal contractions.

## **Bridging the Arctic Resilience Infrastructure Gap**

The DSRB provides NATO with its first ever dedicated financing layer for Arctic resilience infrastructure, filling a structural gap left by existing multilateral financial institutions.<sup>57</sup> While institutions like the World Bank or European Investment Bank are often barred by ESG mandates or non-defence charters from funding military related projects,<sup>58</sup> the DSRB is specifically mandated to finance ports, undersea cable protection and airfields. Canada requires this resilience financing to secure its sovereign Arctic waters against increased adversarial strategic interest.

## **Conclusion: The Path to Ratification**

The Defence, Security and Resilience Bank thus represents a structural realignment of how NATO underwrites collective security in an era of sustained great-power competition. For Canada, it anchors a defence finance hub that attracts allied industrial investment and accelerates Arctic capability. For Sweden, it provides the capitalized foundation from which its world-class defence industry can export to and within NATO. Together, both member states are uniquely positioned to co-champion the DSRB as the primary financing vehicle for NATO's northern flank. As the Arctic emerges as a site of active strategic contestation, the DSRB fills the institutional void that no existing multilateral financier was mandated or designed to address. The DSRB's establishment marks the beginning of a new chapter in allied deterrence, one in which industrial capacity and collective security are treated as mutually reinforcing pillars of a coherent and enduring alliance strategy.

## Section IV – Polar Orbits

*Hugo Hedén*

### Our Fascination of the Firmament

Canada and Sweden share a lot of things: values, a similar nature, being Arctic states and, maybe not as commonly known, an important role in space. The countries might not be top of mind when space is considered, but the fascination of the firmament and the aurora go beyond our cultural heritage.

With the launch of Alouette-I in September 1962, Canada became the third nation, after the Soviet and American superpowers, to design and build its own artificial Earth satellite. It was a success by any measure as its one-year design life turned into an unprecedented decade-long mission. A legacy that has been preserved and developed over decades, most visibly through the RADARSAT synthetic aperture radar (SAR) programme.<sup>59</sup>

Similarly, Sweden started pursuing its endeavours in space just 81 days after Kennedy's proclamation of putting a man on the Moon—marked by the launch of a sounding rocket to an altitude of 80 km to study the meteorological phenomenon of noctilucent clouds. After Esrange replaced the temporary launch site at the abandoned Kronogård farmstead near the village of Kåbdalis in 1966, it has since served as a biotope for the international scientific community, launching sounding rockets for microgravity, atmospheric research, high-altitude balloons for astronomy as well as drop tests of space and aerial vehicles.<sup>60</sup>

### Extending the Battlefield to Space

Going on its fifth year, Russia's full-scale war of aggression against Ukraine has made one thing clear. Space-based services, and the disruption of them, have played a pivotal role in the conflict. Communications (SATCOM); positioning, navigation and timing (PNT); intelligence, surveillance and reconnaissance (ISR), whether imagery or radar, all depend on satellites and are an essential part of modern warfare's targeting processes, both offensive and defensive.<sup>61</sup>

Disrupting government communications and military command and control is a prime target in the opening salvos of an attack. The war opened with a cyberattack on the commercial service provider Viasat, which disabled tens of thousands of satellite modems across Central and Eastern Europe, with collateral effects on energy infrastructure (including wind turbines) and on internet access well beyond Ukraine. Satellite internet, usually facilitated via Starlink, has since proven essential to both armies. The precise effects are difficult to assess, but in February 2026 a Ukrainian-led effort with SpaceX to enforce terminal whitelisting cut off unauthorized Russian access, degrading Russian command-and-control and battlefield coordination. Unconfirmed estimates from troops on the ground reported Russia lost up to 50% of their offensive capacity—highlighting the operational dependencies modern armed forces grapple with.<sup>62</sup>

The war in Ukraine has provided a window into how space is now a natural part of the battlefield. Demonstrating the power of commercial systems, the impact of persistent surveillance on force posture and movement, and the

growing risks of counterspace threats. One should never fight the last war, but some lessons are here to stay, and they are urgent. First, the space domain will be a natural operational theatre in future conflicts, not merely a support function, but a contested arena. Leaders and policymakers should be brave: update doctrine, enhance resilience and deepen public-private integration as these dual-use systems proliferate and become accessible to all. The growing sophistication of both Russian and Chinese counterspace capabilities only increases the likelihood that Canada and Sweden, alongside their allies, will face similar disruptions in a potential future conflict. And, for all we know, so-called proximity and rendezvous operations against geostationary satellites may already have compromised communications from European satellites.<sup>63</sup>

Second, time and scale are essential. As it stands, most European countries are heavily reliant on US capabilities and commercial actors. As President von der Leyen put it, "we Europeans must defend ourselves. And we must depend on ourselves." No single European state has the resources to match Russia and close the gap alone, in time.<sup>64</sup>

## **The High Ground Lies North**

From an operational perspective, the future of satellite services, military and civilian alike, is abbreviated LEO, and here is why. Satellites are grouped by orbital range, from Geostationary Earth Orbit (GEO) to Medium Earth Orbit (MEO) and Low Earth Orbit (LEO). A LEO system has three main components: the satellite constellation, user terminals and ground stations. Operating closest to Earth, between 300 and 2,000 km, LEO satellites allow near-real-time communications and more efficient transmission, and are smaller and cheaper to develop and deploy. The trade-offs are smaller coverage footprints, a constant need for motion to offset gravity (which also makes them less prone to interception compared to GEO satellites), and a lifespan of 7–10 years rather than the 15–20 of geostationary satellites. When placed in polar orbits they become especially valuable for global coverage: as the satellite travels pole to pole, the planet rotates beneath it, bringing the entire surface within view over successive orbits while passing over roughly the same area at the poles each lap. It is no surprise, then, that Ukraine's nascent military space effort focuses on LEO, to counter on-orbit threats, provide early warning of missile and airborne threats, and deliver ISR, while experimenting with responsive and on-demand launch.<sup>65</sup>

But the operational case for LEO carries a geographic corollary that is easy to miss. The satellites that matter most for ISR, Earth observation and climate fly polar or sun-synchronous orbits, passing close to the poles on every revolution. This makes high-latitude ground stations disproportionately valuable: where a mid-latitude station catches a given satellite a handful of times a day, an Arctic station can make contact on almost every orbit. The same geography favours launch, since a high-latitude site can place a satellite directly into polar orbit over empty Arctic terrain. The decisive advantage in the LEO era therefore belongs less to whoever launches first than to whoever holds the literal high ground, and that ground is the Arctic.<sup>66</sup>

And this is precisely where Canadian and Swedish space cooperation makes the most sense. Both are Arctic states with the launch sites, ground stations and industrial base to transform geography into capability. As the Arctic becomes a strategic resource in space, access to it rests as much on ground communications as on launch capability and satellite design. As a fast-growing commercial market expands operational services in

communications, Earth observation, navigation and security, led by Low Earth Orbit, and operators scale from single-mission satellites to constellations, the ground segment becomes decisive: its coverage, throughput, latency, security and integration govern how fast space data churns into operational value.<sup>67</sup>

## Proper Motion

Both Sweden and Canada are making bold moves in space. Canada introduced the Canadian Space Launch Act in April 2026 to deliver sovereign launch capabilities, a notable step, given that Canada is the only G7 nation without its own means to orbit. It also committed a further C\$2.4 million in June 2026 to ground-segment concept studies for its next-generation Earth-observation system, within the Government of Canada's C\$1.012 billion 15-year Earth-observation investment, and has recently renewed the agreement for Canadian participation in ESA programmes. Likewise, in May 2026 the Swedish Armed Forces launched their first operational ISR satellite, a Planet Labs-built imager in LEO, declaring Sweden operational in the space domain, with Arctic surveillance named as a primary benefit and feature of interest (FOI) among the contributors. Esrange had already been inaugurated by European Commission President Ursula von der Leyen as the EU's first mainland orbital launch complex back in 2023. And the little-known Stella study, investigating the Gripen fighter as a platform for responsive launch, inspired by Ukraine's wartime experience, clearly signals Sweden's intent. Meanwhile the Swedish Space Corporation (SSC) manages one of the world's most advanced commercial ground-station networks, with stations including Inuvik in Canada. Taken together, the two nations' combined capabilities in space should not be underestimated.<sup>68</sup>

Having established the strategic role of the ground-based network, the case for Europe to include and engage allies beyond the continent becomes a logical one. Leveraging the EU's accelerating defence agenda, particularly SAFE and the Commission's Readiness 2030 (previously known as ReArm Europe), to help finance IRIS<sup>2</sup>—a federated satellite network—and rapidly build a space-based ISR capacity, is a reasonable way forward. But with time running short and resources limited, the priority must be to strengthen the ecosystems that already exist.<sup>69</sup>

This gives Canada and Sweden the opportunity to spearhead the alliance's future space capabilities. Canada continues to advance synthetic aperture radar through the RADARSAT Constellation, while Sweden offers an operational spaceport on continental Europe, ensuring responsive and launch-on-demand access for NATO and the EU.<sup>68</sup> The GlobalEye and Gripen question now carries even more weight than a simple equipment choice. At the NATO Summit Defence Industry Forum in Ankara in July 2026, the Alliance announced the joint procurement of Saab's GlobalEye as its new airborne early-warning and control platform, replacing an aging AWACS fleet approaching half a century in service.<sup>69</sup> GlobalEye is therefore no longer a Nordic asset alone but an emerging NATO standard, and that changes the calculus for Ottawa.

Were Canada to pair its F-35s with the Gripen E and GlobalEye, it would not merely be buying airframes; it would be plugging into the same command-and-surveillance backbone the Alliance is now building around. And that backbone need not stop there. GlobalEye's airborne early warning, Nordic Air Power's shared command, RADARSAT and a future Arctic constellation could be integrated as tiers of a single system: sensing and cueing that covers surface from air into orbit, supported by the shared ground network Canada and Sweden already

host. The aircraft decision is therefore also a key for space, and in choosing GlobalEye the Alliance has chosen an architecture that Canada and Sweden are uniquely placed to build. Because this could be built into an already existing framework.

Nordic Air Power, run through the Nordic Division at NATO's Combined Air Operations Centre in Bodø, above the Arctic Circle, already joins the five Nordic air forces into a single C2 structure able to act across the region before Article V is invoked. Each nation brings a distinct strength, and Sweden's is advanced C2 and surveillance. A shared Arctic constellation is simply that concept carried upward, the same nations and the same principle of pooling complementary strengths, from airspace to orbit.<sup>70</sup> And these partners are already looking north. Norway's Arctic Satellite Broadband Mission is purpose-built for the high-latitude coverage such an architecture depends on; Finland has turned small-satellite radar into a national priority with ICEYE; and Denmark brings a surveillance pedigree of its own. A joint venture built on ground and airspace they already share shouldn't need much persuasion.

Canada and Sweden unavoidably share responsibility for the terrestrial infrastructure these systems depend on, along with a shared interest in safeguarding an Arctic that faces challenges far beyond the military, from emerging trade routes to environmental change. Here the old maxim "two is one, and one is none", rings especially true. By sharing the workload and deepening each side's expertise, they build strategic resilience across two continents, multiplying output and compressing the timeline for national, NATO and EU investment alike, without creating lock-out effects.

## Aligning the Stars

The building blocks of a genuine Nordic–Canadian space architecture already exist; what is missing is the decision to integrate them. The infrastructure is in place, the industrial bases are complementary, and the strategic rationale has sharpened with the war in Ukraine. For Sweden and Canada the task ahead is therefore one of integration rather than invention: to treat Arctic space infrastructure as the shared allied asset it already is, and to build on it deliberately. A standing bilateral space partnership, anchored on the ground segment the two already host, widened to involve the other Nordic states, and financed through the emerging NATO and EU frameworks without ceding sovereignty or creating lock-out effects, would convert a set of national strengths into a shared capability for the Alliance. It would do so faster and more cheaply than any nation acting alone, and it would place the resulting resilience where the next contest could be decided: on top of the world.

### The proposal, in brief:

- **Formalise "Kinuvik":** Turn the existing Esrange–Inuvik ground-station pairing into a standing bilateral arrangement, and offer it to NATO as the Arctic ground segment HALO will require.
- **Divide the build by strength.** Sweden leads assured access to orbit (Esrange, plus responsive launch via the Gripen/Stella track); Canada leads sensing (RADARSAT SAR and next-generation Earth observation). Together, Esrange and Spaceport Nova Scotia become STARLIFT's polar-orbit launch anchors, and both nations co-own the ground segment.

- **Establish a joint Arctic space cell** to coordinate ISR tasking, data-sharing and requirements, bilaterally first, then as the northern node of HALO's networked constellation.
- **Expand to the Nordics on their existing strengths:** Norway (ASBM communications), Finland (ICEYE SAR), Denmark (ISR).
- **Finance through existing frameworks:** Defence, Security and Resilience Bank (DSRB), SAFE, IRIS<sup>2</sup> and NATO instruments, without ceding sovereignty or creating lock-out effects, and develop a technology-transfer programme.

Let the Kinuvik concept be the northern light of the next space race: a chance to keep building on our shared fascination with the firmament and the aurora, and to safeguard the values we hold in common.

## Conclusion

*Anthony Saiters*

The Arctic is no longer a distant frontier; it is on the verge of becoming the next contested frontline. At such an inflection point in our respective countries' history, our intent must be backed by immediate, deployable operational capabilities. Sweden's integration into NATO marked a fundamental shift in the trajectory of the Canada-Sweden relationship, evidently shaping it into an increasingly critical transarctic bridge capable of securing the Alliance's northern flank. By combining mixed-fleet airborne sovereignty strategies with stable supply chains, Canada is able to reduce single-supplier vulnerabilities, while preserving the reliable interoperability mechanisms our Canadian Armed Forces require to prevail. Such kinetic capabilities would be anchored by leveraging international legal frameworks while securing domestic supply chains to unlock collaborative critical mineral deposits locked in the High North. As Canada pioneers a revolution in defence finance, the new Defence, Security and Resilience Bank (DSRB) will enable Canada to bypass traditional, restrictive commercial capital mandates to re-direct long-term funding into dual-use defence technologies and polar infrastructure through modern banking models. Finally, merging advanced orbiting remote sensing technologies with modern launch capabilities is only one of many steps towards building a unified Nordic-Canadian space architecture, bridging existential and closing future intelligence gaps above the 70<sup>th</sup> parallel, before adversaries and proxies can present a risk to our borders.

Deterrence and sovereignty cannot be founded on our diplomatic laurels and reactive expenditures; it demands a revolutionary, bold, and enduring, institutional architecture. At this very historic moment, we witness transition Canada and Sweden from Arctic allies into the definitive architects of an emerging, secure, and sovereign polar century.

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*Engineering NATO's Northern Flank* explores how Canada and Sweden can deepen strategic cooperation across Arctic security, defence procurement, industrial capacity, critical minerals, finance, and emerging technologies. The paper presents pragmatic recommendations for strengthening NATO's northern flank while advancing long-term resilience and bilateral partnership.

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