

ON TRACK

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ON TRACK is the official journal of the CDA Institute. Through its pages, the CDA Institute promotes informed public debate on security and defence issues and the vital role played by the Canadian Armed Forces in society. ON TRACK facilitates this educational mandate by featuring a range of articles that explore security, defence, and strategic issues that may have an impact on the Canadian strategic interests and on the safety of its citizens. The views expressed in ON TRACK are those of the authors and do not necessarily represent those of the CDA Institute.

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On The Cover

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[“Operation HORIZON”](#)

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Foreword

On behalf of the Royal Canadian Military Institute (RCMI), it is my honour and pleasure to submit this foreword to the Conference of Defence Associations (CDA) Institute's latest edition of *On Track*.

The RCMI has been a member of CDA since the early 1970s and has participated in all CDA Institute graduate student conferences. In 2013, the RCMI began offering a prize for the best student paper that focuses specifically on a Canadian defence and security issue. In order to do that, the RCMI provides one or more judges to participate in the conference, and I had the pleasure of once again acting in that capacity for the 2026 conference.

The prize is named after Colonel Peter Hunter. Col. Hunter had a distinguished record of service in the military, corporate, and volunteer sectors. He was a member of the Board of Directors of the RCMI and Chairman of the Long-Range Planning Committee. In that latter role, Col. Hunter was instrumental in the visioning and planning for the new RCMI facility, which opened in 2014, six years following his passing. In addition to offering a cash prize, the Peter Hunter Award winner is offered the opportunity to publish the winning paper in *SITREP*, the RCMI's in-house journal, and have the winner's name inscribed on a plaque which resides in the Peter Hunter Lounge.

The 2026 winner of the Peter Hunter Award is Soha Sarfraz for her paper "The Commercial Reconstitution Gap: Restoration Lag in Canada's North". Soha is a Master of Arts graduate in Political Science from Western University, where she specialized in international relations. She previously earned an Honours Bachelor of Arts in Political Science from York University, along with a Certificate in Public Administration and Law. Her academic and professional interests focus on geopolitics, international security, defence policy, and emerging strategic risks.

As you will see by the quality and diversity of the papers selected for publication herein, the task of identifying one winner was difficult indeed. This year, it was not only the quality of the writing, the detailed research, or the ability to present and speak effectively that was notable in all participants but also the immediate relevance of the subject matter itself. The students clearly understand that the global geostrategic environment has been significantly altered, and that Canada can no longer assume that our relationship with the U.S., our geographic location surrounded by three oceans, or our 'soft power' is sufficient to guarantee our security. So, subjects such as developing Canadian drone capabilities, protecting our undersea infrastructure, and improving Canadian defence-industrial capacity are waypoints towards real policy choices that must be made, and made quickly.

Organizations such as the CDA Institute and the RCMI remain committed to voicing the need for a strong Canadian defence and security capability and capacity. That places us on the 'demand side' of the equation. But it is government and the private sector, working collaboratively, that must fulfill the 'supply side'.

The works contained in this publication demonstrate the intellectual capacity to analyze and synthesize the extremely complex issues Canada now faces. We will continue to support the bright minds that Canada needs for today and tomorrow.

Congratulations to all,

Dr. Daniel Derek Eustace, CD, PhD
Director
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The Commercial Reconstitution Gap: Restoration Lag in Canada's North

Soha Sarfraz

Soha Sarfraz is a Master of Arts graduate in Political Science from Western University, where she specialized in international relations. She previously earned an Honours Bachelor of Arts in Political Science from York University, along with a Certificate in Public Administration and Law. Her graduate research examined democratic backsliding in comparative perspective, analyzing whether the United States under a second Trump administration reflects patterns of institutional erosion seen in Hungary and Turkey. Professionally, Soha works in the public affairs and strategic analysis space as a Research Analyst at the Plakhov Group and a Compliance Analyst with the G7 Research Group. She previously served as an Event Coordinator at the NATO Association of Canada, where she also held the role of Junior Research Fellow. Her published work includes analysis of cyber threats to Canadian energy infrastructure and Arctic sovereignty, alongside earlier public commentary on policing reform. Her academic and professional interests focus on geopolitics, international security, defence policy, and emerging strategic risks.

Abstract

Canada's Arctic defence debate misidentifies where strategic fragility lies. Current policy emphasizes surveillance, forward basing, and command-and-control investment, while understating a more fundamental vulnerability: the capacity to restore critical communications. As the Department of National Defence expands Northern command-and-control ambitions through NORAD modernization and the 2026 Defence Industrial Strategy, the operational question of who restores disrupted Arctic communications, under what authority, from which nodes, and within what defence-relevant timeline remains publicly undefined. Empirical patterns from Ukraine, the 2026 Iran-U.S. conflict, and the Baltic and Taiwan Strait cable severances show adversaries exploiting restoration lag as a strategic instrument. This paper introduces the commercial reconstitution gap: a structural mismatch between sovereign defence requirements and the commercial logic governing Arctic communications repair. Three constraints sustain this gap: contractual fragmentation, geographic thinness, and regulatory incompleteness. While the 2026 Defence Industrial Strategy marks a shift toward sovereign industrial capability, establishing a Build-Partner-Buy framework and committing \$6.6 billion to the domestic defence industrial base, it remains oriented toward acquisition rather than restoration. Drawing on Michel Bruneau et al.'s 4R resilience framework and Barry Buzan's sectoral security theory, this paper argues restoration speed must be treated as a strategic variable in Arctic defence planning. The proposed response is a three-intervention sovereign reconstitution framework integrating defence-priority contracting, Northern repair pre-positioning with Indigenous and Northern communities, and emergency regulatory authority, closing the gap between industrial sovereignty and operational reconstitution.

Introduction

Canada's defence policy has oriented itself towards mastering the art of detection, by prioritizing surveillance and domain awareness across the North. By contrast, considerably less attention has been devoted to how Canada restores critical communications infrastructure after disruption—such as the severing of a subsea fibre-optic cable, as seen in the Baltic Sea — leaving the transition from detection to recovery inadequately addressed.¹ This gap produces a persistent vulnerability, in which command-and-control is degraded and operational control is constrained, consequently allowing adversaries to retain a window of opportunity of exploitation. In recent years, Canada has centred its defence policy on strengthening Northern sovereignty, supported by substantial investments in military modernization and industrial capability.² Though the 2026 Defence Industrial Strategy deepens strategic autonomy, Canada still lacks the capacity to restore essential communication infrastructure at the speed Arctic defence requires and this failure constitutes a strategic liability.

The commercial reconstitution gap lies at the centre of this analysis. Particularly, it describes the structural disconnect between Canada's requirement for rapid restoration of Arctic communications and the commercial logic governing the repair ecosystem on which that restoration depends.³ Where communications infrastructure is compromised, Canada lacks the sovereign capacity to reconstitute it within defence-relevant timelines.⁴ The result is the absence of an Arctic communications restoration regime capable of translating industrial sovereignty into operational reconstitution.⁵

The analysis proceeds by demonstrating how recent conflicts reveal restoration lag as an increasingly salient instrument of strategic competition. It then identifies the commercial reconstitution gap as the product of three critical structural constraints: contractual fragmentation, geographic thinness, and regulatory incompleteness

before drawing on resilience and security theory to establish restoration speed as a strategic variable. Building on this analysis, the paper develops a sovereign reconstitution framework that maps three corresponding interventions onto each constraint and concludes by arguing that restoration capacity has emerged as a defining attribute of Arctic sovereignty.

The Strategic Exploitation of Restoration Lag

Restoration speed has become a strategic variable: the longer critical communications remain down after an attack, the greater the disruption an adversary achieves at a low cost. Slow recovery, in effect, increases a nation's attractiveness as a target. For Canada, delays in reconstituting Arctic communications infrastructure directly prolongs military vulnerability, with implications for the effective employment of its hard power and the credibility as an Arctic security actor capable of exercising sovereignty across the North. John Mearsheimer locates state survival within a self-help system, where states must ultimately provide for their own security under conditions of anarchy.⁶ From this perspective, military capability retains strategic value only insofar as states can preserve it and restore it when disrupted, making reconstitution an essential component of national security, as opposed to a purely logistical concern. By extension, that logic extends beyond the acquisition of capability to its preservation following disruption. The ability to rapidly restore critical communications infrastructure therefore becomes a strategic requirement. Without timely reconstitution, a state loses the capacity to preserve operational coherence, sustain NORAD integration and ultimately, undermine credible deterrence.⁷

Recent Arctic assessments identify Russia and China as exploiting grey-zone vulnerabilities in Canada's North below the threshold of open war.⁸ Current defence policy reflects this strategic reality by identifying the Arctic as an increasingly contested strategic theatre central to Canada's national security.⁹ The Arctic is integral to Canada, supporting

an estimated total of 150,000 residents, including generations of Indigenous communities, whose prosperity and well-being are intrinsically linked to the security of the Arctic region.¹⁰

Russia remains committed to strengthening its Arctic operational posture. Its priority is an enlarged military footprint, supported by modern infrastructure and expanded air, maritime and missile capabilities. This posture is anchored by an unparalleled fleet of icebreakers, a substantial submarine force, and surface naval combatants.¹¹ At the same time, China, while geographically removed from the Arctic coastline, is in pursuit of “polar great power” status by 2030.¹² Beijing seeks to realize this through leveraging its modernizing naval presence, including both nuclear and traditionally powered submarines, while simultaneously allocating greater investments across the Arctic, where new infrastructure projects and scientific research continue to reinforce its own geopolitical foothold.¹³

Within the Ukrainian context, the sustained targeting of energy and telecommunications infrastructure has emerged as the most strategically durable component of Russia’s military campaign.¹⁴ By mid-2024, Russian strikes had destroyed over nine gigawatts of power generation capacity and damaged 4,300 mobile base stations and 30,000 kilometres of fibre-optic cable.¹⁵ The targeting shifted deliberately from transmission nodes to generation facilities, where replacement timelines are longest.¹⁶ The strategy aimed to exhaust reconstitution capacity through restoration lag, degrading Ukraine’s operational coherence.¹⁷ For Canada, the enduring lesson from Ukraine is that communications resilience on its own cannot meet this challenge. The Ukrainian experience demonstrates that the strategic consequences of attacks on interconnected energy and communications infrastructure are shaped by the speed of reconstitution, essentially illustrating the urgency for why Arctic communications must be restored before temporary degradation can be exploited to produce a sustained operational disadvantage.

A similar pattern is evident in the 2026 Iran-U.S. conflict, where at the outset of hostilities, strikes on communications and sensor systems degraded operational coherence.¹⁸ More broadly, this pattern extends to maritime infrastructure, as the 2022 Nord Stream pipeline sabotage demonstrated a willingness among state and state-proximate actors to target critical undersea systems.¹⁹ Chinese-linked vessels severed undersea cables connecting the Matsu Islands to Taiwan’s main island on at least eleven occasions since 2023, leaving 13,000 residents reliant on microwave transmissions for up to 50 days.²⁰

Taken together, these cases demonstrate that contemporary strategic competition increasingly derives strategic advantage from exploiting restoration lag following attacks on communication systems. For Canada, the implication is equally clear: these developments redefine the security environment confronting the country, placing renewed strategic emphasis on the resilience and timely reconstitution of the critical communications infrastructure upon which Arctic defence depends, while exposing the limitations of a defence framework that cannot efficiently restore those capabilities following disruption.²¹ In such an environment, the effectiveness of Arctic defence depends not merely on the ability to detect and respond to hostile threats, but instead, it hinges on the capacity to promptly reconstitute the communications networks that underpin military operations and command authority. Without that essential capability, disruptions to strategic communications infrastructure create avenues for adversaries to undermine Canada’s presence and operational reach across the Arctic.

The Commercial Reconstitution Gap

The commercial reconstitution gap is the contradiction between Canada’s need for rapid Arctic communications restoration and the commercial logic governing the repair ecosystem. Recognizing that industrial capacity underpins national security, Canada’s latest Defence Industrial Strategy aims to bolster the domestic defence industrial base through its Build-Partner-Buy framework and a \$6.6 billion

investment in sovereign industrial capability. Yet these numbers remain principally directed towards expanding Canada's long-term capacity to develop and procure, rather than ensuring the operational reconstitution of critical communications infrastructure immediately following destabilization.²² Consequently, while the strategy strengthens the industrial foundations of Canadian defence, it leaves unresolved the commercial and institutional constraints that determine whether Arctic communications networks can be restored at the speed that military operations require. It therefore deepens sovereign industrial capability without resolving the commercial reconstitution gap itself.²³

The first constraint is contractual. Although Canada's Defence Industrial Strategy strengthens long-term industrial capacity through demand signalling, streamlined procurement, industry partnerships, and the Defence Investment Agency, these measures do not establish contractual obligations requiring commercial providers to sufficiently deliver Arctic communications restoration during a crisis.²⁴ Commercial service agreements become a critical point of vulnerability if Arctic communications infrastructure is disrupted: no publicly defined requirement obliges Arctic-capable firms to maintain pre-authorized repair teams, pre-positioned parts inventories, or dedicated surge capacity for Northern communications emergencies.²⁵ These contracts are structured around peacetime service-level agreements, with scheduled maintenance windows, response benchmarks calibrated to commercial downtime costs, and liability frameworks aligned with market logic.²⁶ Absent from these contracts are defence-priority activation clauses, surge capacity obligations, and requirements to maintain Arctic-ready repair teams on standby.²⁷ Where these contractual mechanisms do not exist, restoration timelines remain governed by commercial availability instead of operational necessity.

During a crisis, repair resources may be allocated according to existing contractual obligations or commercial priorities instead of defence

requirements, in turn delaying the restoration of Arctic communications at the moment it is most strategically consequential. The result is a contractual framework that leaves Canada's operational resilience contingent upon incentives in lieu of national security imperatives, creating opportunities for adversaries to in essence, capitalize on restoration lag following infrastructure compromise. This disconnect transforms commercial contracting from an administrative concern into a defence planning vulnerability as it leaves the continuity of the Arctic operations dependent on market behaviour that neither anticipates nor is designed to support contested security environments.

Second, geographic thinness constitutes the core structural constraint. Canada's repair ecosystem remains overwhelmingly concentrated in the South; where the technicians, specialized equipment, parts inventories, and logistics staging required to restore Arctic communications infrastructure are based in major urban centres and only mobilized when disruption occurs.²⁸ The Defence Industrial Strategy's \$2.67 billion Northern Operational Support Hubs (NOSH) program frames Northern engagement through industrial opportunity rather than a standing communications repair force.²⁹ Industrial capacity must still be converted into Northern repair capacity, and no mechanism currently ensures that conversion occurs at sovereign speed.

A clear illustration of this geographic constraint is the North Warning System, which spans forty-seven remote radar sites across Canada's North but hinges on contracted operations rather than a publicly defined sovereign reconstitution force.³⁰ Additionally, many Inuit communities lack fibre-optic cables, power lines, and road access; a baseline infrastructure deficit that directly constrains repair capacity.³¹ For Inuit communities, this deficit is concrete: communications disruption severs telemedicine and emergency coordination.³² Under commercial triage logic, Arctic locations shaped by extreme logistical demands and limited commercial user bases are systematically deprioritized.

The third constraint centres on regulatory incompleteness. While Canada's Defence Industrial Strategy advances strategic autonomy by expanding domestic defence production and reinforcing industrial capacity; it does not establish the statutory authorities necessary to direct commercial repair resources during a communications crisis.³³ Consequently, Canada is developing a more capable defence industrial base without the legal mechanisms required to compel or coordinate its deployment when restoration speed becomes an operational imperative. By contrast, the United States Defense Production Act provides a model through Title III, authorizing priority-rated contracts and voluntary agreements that expand industrial production capacity for national defence while enabling the state to override commercial triage when needed.³⁴ Canada's emerging framework narrows the sovereignty gap without closing the reconstitution gap: although it identifies integrated command and-control communications and satellite communications as key sovereign capabilities and adopts a Build-Partner-Buy procurement model; it remains fundamentally oriented toward acquisition and production rather than expeditious reconstitution of existing infrastructure following adversarial degradation.³⁵

Robustness Without Rapidity

Canada invested heavily in making Arctic communications more robust and redundant, but rapidity remains structurally underdeveloped. Michel Bruneau and Andrei Reinhorn's 4R resilience framework – robustness, redundancy, resourcefulness, and rapidity – provides an analytical lens through which this vulnerability can be understood.³⁶ Applied to Arctic defence, it allows resilience to be evaluated across each of the four constituent dimensions.³⁷

Robustness has been strengthened through NORAD modernization investments spanning surveillance and command-and-control infrastructure.³⁸ Redundancy, meanwhile, has advanced with the expansion of Low Earth Orbit constellations, complemented by the Joint Arctic

Experiment's multi-satellite tracking capability.³⁹ The 2026 Defence Industrial Strategy reinforces both dimensions by identifying integrated command-and-control and satellite communications as key sovereign capabilities prioritized under its Build-Partner-Buy framework.⁴⁰

By contrast, the resourcefulness and rapidity dimensions remain structurally underdeveloped.⁴¹ Neither the NORAD modernization commitment nor the Defence Industrial Strategy establishes a mechanism for mobilizing commercial repair capacity, pre-positioning Arctic-ready technical personnel, or restoring degraded Northern communications within a sovereign-defined timeline. The asymmetrical imbalance is therefore conceptual as much as operational – current defence planning privileges capability development while leaving the governance of capability regeneration comparatively underdeveloped.

Rapidity defines the strategic window between disruption and restoration – the interval during which command and control is compromised, NORAD coordination degrades, and adversary states retain the initiative.⁴² The strategic significance of this interval lies in its capacity to transform a temporary infrastructure failure, into an enduring operational advantage for an adversarial state. Restoration speed therefore determines how quickly communication is recovered and how long strategic initiative remains contested. Bruneau et al. identify rapidity as a defining dimension of resilience because recovery time shapes the restoration of essential functions.⁴³ When applied to the context of Arctic defence, rapidity assumes a distinctly strategic character, functioning as a determinant of military effectiveness where even limited delays alter the balance between operational control and an adversary's ability to exploit disruption.

The commercial reconstitution gap cannot be understood as a purely military vulnerability because its consequences extend across the interconnected dimensions of national security. Arctic command and control depend on a commercially operated

communications system whose resilience is conditioned as much by economic governance and market incentives as it is by defence planning. This interdependence is what Barry Buzan identifies through his sectoral security framework; security dynamics in one sector propagate through others rather than remaining contained within a single domain, specifically he identifies five sectors: military, economic, societal, political, and environmental.⁴⁴ The military security of Arctic command and control is inseparable from the economic security of the commercial communications ecosystem responsible for maintaining and restoring it.⁴⁵ Canada has rightly securitized the military dimension through surveillance and basing, yet the economic foundations that sustain and reconstitute those capabilities have not been securitized to the same degree.⁴⁶ The result is a defence architecture whose operational effectiveness rests on commercial systems that are neither organized nor governed in accordance with defence requirements.

The \$38.6 billion NORAD modernization commitment spans surveillance modernization, command and control upgrades, air weapons systems, Northern basing infrastructure, and science and technology investment.⁴⁷ In essence, NORAD funding prioritizes surveillance and infrastructure, with no provision for reconstitution: The 2026 Defence Industrial Strategy adds \$6.6 billion toward sovereign industrial capability, complemented by the \$2.67 billion NOSH program establishing dispersed logistics nodes across the territorial North.⁴⁸ For all their scale, these investments leave the commercial reconstitution gap unaddressed: \$6.9 billion targets surveillance modernization and \$4.13 billion towards command-and-control upgrades, while Arctic satellite communications will not reach full capability until 2040.⁴⁹ Across NORAD modernization categories, with reconstitution absent, the investment profile is financially substantial but structurally directed toward detection, coordination, deterrence, infrastructure, and future capability development.⁵⁰

NORAD Modernization Investment Breakdown⁵¹

Areas	Investment
Surveillance systems	\$6.96B
Command, control, and communications	\$4.13B
Air weapons systems	\$6.38B
Infrastructure and support capabilities	\$15.68B
Science and technology	\$4.23B
Internal services	\$1.18B

From Gap to Framework

Closing the commercial reconstitution gap requires three sovereign interventions aligned with Canada's Defence Industrial Strategy. The commercial reconstitution gap cannot be closed through additional investment alone because each of its underlying constraints reflects a distinct institutional failure. Sovereign Reconstitution Contracts address contractual fragmentation by embedding defence obligations within commercial service agreements. Northern Repair Positioning responds to geographic thinness by relocating restoration capacity closer to the infrastructure upon which Arctic operations depend, and Emergency Regulatory Authority resolves regulatory incompleteness by establishing the legal authorities required to prioritize and coordinate communications restored during declared Northern emergencies. Collectively, these interventions reposition restoration from a commercially governed activity to an operational function of Canadian sovereignty.

The first intervention, Sovereign Reconstitution Contracts, advances the strategy's first pillar, "*Renewing Our Relationship with Industry*", by establishing defence-priority agreements between the Department of National Defence, Public Safety Canada, the Communications Security Establishment,

and Arctic-capable firms such as the recent MILSATCOM (Military Satellite Communications) program.⁵² Participating firms would maintain pre-qualified Arctic repair teams, pre-positioned parts inventories at Northern nodes, and surge mobilization capacity, in exchange for preferred procurement status and subsidized readiness costs.⁵³ By incorporating defence-priority obligations into commercial agreements before disruption occurs, this intervention removes the contractual ambiguity that plagues restoration timelines. Restoration ceases to depend upon commercial availability or individual contractual arrangements and instead becomes an operational requirement embedded within the repair ecosystem itself. In doing so, the intervention directly resolves the contractual constraint identified earlier by aligning commercial incentives with Canada's Arctic defence requirements.

The second intervention, Northern Repair Positioning, would stage repair equipment and qualified technical personnel at strategically located Northern nodes across Canada's Arctic and sub-Arctic territories.⁵⁴ Inuvik, Iqaluit, Yellowknife, and Resolute Bay offer logical staging locations based on existing Canadian Armed Forces infrastructure.⁵⁵ Indigenous and Northern communities must be central partners in this positioning program, consistent with the Defence Industrial Strategy's fifth pillar, "*Working with Key Domestic Partners, Including in Canada's North and Arctic*", which commits to co-developing Northern infrastructure with Indigenous rights holders.⁵⁶ Forward-positioning repair personnel and equipment fundamentally changes the geography of reconstitution. Instead of mobilizing capacity from Southern Canada after infrastructure has already been degraded, restoration capacity would exist within the operational environment from the outset. This intervention therefore resolves the geographic constraint by reducing the time penalties imposed by distance and limited Northern infrastructure, compressing the restoration window available for adversarial exploitation.

The third intervention, Emergency Regulatory Authority, would amend the *Emergencies Act* or establish a standalone communications resilience framework, creating emergency powers for declared Northern communications crises: binding reconstitution directives to private communications firms that override commercial contract priorities, expedite the import of specialized parts and equipment outside standard procurement timelines; and establish an inter-agency Northern Communications Reconstitution Committee with clearly defined command relationships and decision authority.⁵⁷ This intervention essentially transforms restoration from an administrative process into a sovereign function, exercised through statutory authority. Contractual obligations and forward-positioned repair capacity have limited operational value if governments lack the legal authority to direct them during a crisis. Emergency Regulatory Authority therefore resolves the regulatory constraint by ensuring that restoration decisions are governed by national security requirements rather than commercial discretion when restoration speed becomes strategically decisive.

In tandem, the framework is designed to eliminate the institutional conditions that permit restoration lag to emerge as a strategic vulnerability. The three interventions operate as mutually reinforcing components: contractual reform establishes defence obligations before disruption, forward positioning reduces restoration timelines once disruption occurs, and emergency authority ensures coordinated execution throughout a crisis. Closing the commercial reconstitution gap therefore requires institutional integration across all three rather than mere isolated policy reforms.

Conclusion

At stake, in an era of infrastructure warfare, is a redefinition of sovereignty measured by what a state can restore. Until the commercial reconstitution gap is closed, Canada's Arctic strategy will project presence without preserving operational control following destabilization. This vulnerability is inherent to

Canada's existing defence posture; in Mearsheimer's formulation, the logic of self-help applies equally to restoration capacity.⁵⁸ The sovereign reconstitution framework advanced in this paper reconceptualizes restoration as a function of sovereignty under conditions of sustained strategic competition rather than a by-product of commercial service provision. More fundamentally, the commercial reconstitution gap raises a broader question for contemporary defence policy: can sovereignty remain credible when the recovery of defence-critical infrastructure is governed primarily by commercial rather than strategic priorities? As states increasingly compete by exploiting restoration delay rather than simply destroying infrastructure, the answer to that question will shape how defence readiness is conceptualized well beyond the Canadian Arctic.

The framework advanced in this paper establishes a conceptual foundation. Building on this foundation, subsequent research should develop evaluative metrics capable to assess restoration performance across diverse categories of critical infrastructure. Future avenues include embedding restoration capacity within defence planning, identifying the thresholds at which restoration delay becomes strategically consequential under varying threat environments, and determine the resource and policy trade-offs among competing restoration priorities during crisis.

The commercial reconstitution gap invites a broader reconsideration of military preparedness in the twenty-first century. The growing dependence of national defence on commercially governed infrastructure elevates restoration capacity from an operational concern to a strategic measure of preparedness. In essence, Canada's capacity to restore critical communications infrastructure will effectively dictate whether its Arctic sovereignty can be exercised in practice when challenged, making restoration the defining test of credible Arctic defence. Canada's North may be one of the first places where this shift will become unavoidable, but is unlikely to be the last.

Endnotes

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The Missing Link: Addressing the Rare Earths Gap in Canada's Defence Industrial Strategy

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Abstract

This paper argues that the critical minerals provisions in Canada's recently unveiled 2026 Defence Industrial Strategy (DIS) fails to articulate a rare earth elements (REE) component, a significant omission given their vital role in defence industrial production, including in areas of Canadian strength such as sensors, flight simulation, and avionics. The paper maps out opportunities for Canada to take leadership by leveraging its extensive yet largely untapped REE deposits, estimated to be the third largest in the world, to develop in-country supply chains for its defence industrial ecosystem and to anchor that of its allies. Through a detailed analysis of domestic deposits and projects, this paper argues that a more robust REE strategy would combine defence spending momentum with multilateral mechanisms – such as the Canada-led G7 Critical Minerals Production Alliance – to build out Canadian REE mining and processing capacity. In doing so, Canada stands to make a strong contribution towards counterbalancing Chinese dominance in REEs and begin to reclaim economic sovereignty over a key defence industrial input.

Introduction: A Rare Earths Gap in the Defence Industrial Strategy

On February 26, 2026, the Government of Canada unveiled the Defence Industrial Strategy (DIS), marking a bold new direction in defence procurement, technological innovation, and industrial development. Under Pillar IV, “Securing Supply Chains for Key Inputs and Goods,” the DIS commits to strengthening domestic production of steel, aluminum, and 10 out of 12 NATO-designated “defence-critical” critical minerals.¹ However, there is a significant omission that forms the impetus of this paper: the DIS fails to articulate a rare earth elements (REE) strategy, despite their indispensability as components in defence technologies and systems, including in areas of Canadian strength such as sensors and radars, simulation modules, avionics, and aerospace.

This rare earths gap is particularly salient because the past year has demonstrated the depth of global dependence on REE supply chains based overwhelmingly in China. In response to the Trump administration's 2025 tariff offensive, China retaliated by restricting exports of key REEs to the global market. Resulting supply shortages reverberated across defence and manufacturing industries in the United States (U.S.), Europe, and Japan, with instances of automakers forced to temporarily shut down production lines.² By late 2025, China had succeeded in inducing a remarkable climbdown, paving the way for a Trump-Xi truce agreed on the sidelines of the APEC summit, where the headline item was a one-year pause in REE export controls in return for a rollback of U.S. tariffs. Yet even after rare earth trade rebounded, prices remained elevated, demonstrating the long-term risks of global reliance on a single supplier.³ For countries like Canada, there is thus a significant national security risk of having its access to rare earths supplies curtailed in a future conflict, which would undermine both its ability to repair and maintain defence equipment as well as produce its own armaments and weaponry.

This paper argues that without a clear REE strategy, Canada, despite possessing superior endowments with one of the largest deposits in the world, risks falling behind Western peers like the U.S. and Australia who are moving rapidly to invest in domestic supply. Beyond revising the DIS to include a REE focus, Canada should pursue a multilateral approach anchored in the G7. Public-private partnerships built on that framework will bring much-needed capital and expertise. Doing so has the potential to position Canada as an anchor for joint efforts to de-risk away from concentrated Chinese supply. By examining Canada's rare earth potential through a defence-industrial and economic security lens, this paper demonstrates how a robust Canadian REE strategy must account for the sector's unique blend of challenges stemming from high capital and environmental costs and long development times that can only be effectively addressed by combining defence spending momentum and multilateral cooperation.

Rare Earth Elements

Rare earth elements refer to 17 metals occupying their own row near the bottom of the periodic table owing to their unique atomic properties. Light REEs are easier to extract and relatively more abundant; heavy REEs are rarer and more difficult to mine. Contrary to their name, REEs are in fact quite abundant in the Earth's crust. However, there are only a few locations where they are present in high enough concentrations to make extraction economically viable. The subsequent refining and separation of the mined ores into oxides and then into individual REEs is complex, cost-intensive, and produces large amounts of chemical and radioactive waste products.⁴

Future demand for REEs is expected to increase dramatically, fuelled by their incorporation in transformational current and emerging technologies such as semiconductors, data centres to power AI, and clean tech (wind turbines, EV motors and batteries).⁵ The International Energy Agency estimates demand will increase three- to sevenfold by 2040,⁶ while the

European Union (E.U.) projects bloc-wide demand across all sectors to increase 26 times by 2050.⁷

Defence Applications of REEs

In defence equipment and technologies, rare earths are most commonly manufactured into “permanent magnets”, valued for their unparalleled magnetic strength relative to their compact size, for which there are no substitutes (See [Table 1](#)).⁸ Aircraft and land vehicles’ on-board computers and disk drives use REE magnets because of their ability to withstand vibration, high g-forces, and impact.⁹ In precision-guided munitions, REE magnets stabilize sensors and facilitate maneuverability and course correction, while in air defence systems they help concentrate radar beams to identify targets.¹⁰ In the industrial marine sector, warships and submarines’ diesel engines, gas turbines, thrusters, gearboxes, shafts, and propellers all contain REEs.¹¹ Lastly, REEs have unique energy amplification and storage capabilities, leading to their use in the fiber optics that power satellite and ground-based communication systems.¹²

In general, the more advanced the defence system, the greater amount of REEs required. For instance, a fighter jet like the F-35 contains over 400kg of REEs housed in its electronic flight controls, pumps, sensors, and engine.¹³ Similarly, for the Canadian shipbuilding sector constructing the upcoming River-class destroyers, each ship can expect to require around 2,000kg of REEs, all of which is traditionally imported from China.¹⁴ However, in line with developments in the U.S. and in Europe, a consensus is emerging in Ottawa that continued dependence on a single-country supplier for defence-critical REEs represents an untenable security risk. As countries seek to reduce their reliance on Chinese rare earths and search for alternative sources, Canada’s rich reserves present a strategic opportunity to fill that gap.

The 2026 DIS designates an initial list of ten “Key Sovereign Capabilities” to be prioritized under its “Build-in-Canada” initiative, which includes domains such as aerospace, sensors, and uncrewed

and autonomous systems.¹⁵ When evaluating the list, REEs serve as crucial components in 8 out of the 10 domains. With the future threat landscape and technological development trending towards greater emphasis on uncrewed and autonomous warfare, the deeper incorporation of artificial intelligence into operational systems, and space-domain capabilities, the importance of REEs in defence applications both at home in Canada and abroad is expected to increase dramatically.

Chinese REE Dominance and Supply Chain Risks

China holds a strong position in REEs mining owing to its world-leading deposits, but its real dominance is in midstream processing and refining. Most NATO countries, including Canada, import around 95% of their rare earths from China for defence and manufacturing needs.¹⁶ Even the U.S. and Australia, despite having modest REE mining operations, exported almost all of their domestic production to China for separation and refining until very recently.¹⁷ Lastly, where refining capabilities exist outside of China, they are “small-scale, underutilized, or lack consistent feedstock” in comparison to their Chinese counterparts.¹⁸

China Dominates the Supply of Rare Earths

Share of 2024 global mined and refined production of magnet rare earths — neodymium, praseodymium, dysprosium and terbium

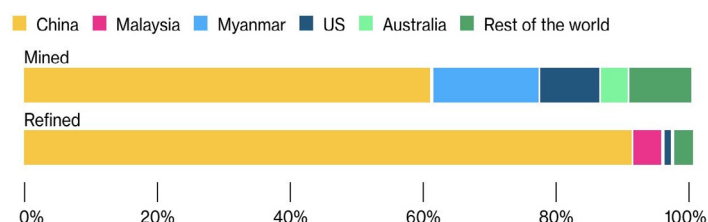


Figure 1. Source: Deaux, 2025¹⁹

China’s dominance can be traced back to the 1980s, when state economic planners identified the future strategic value of the sector and set about aggressively building out domestic extraction and refining capacity by leveraging ultra-low interest state funding and keeping worker and environmental

protections lax to encourage production.²⁰ In 1987, former leader Deng Xiaoping famously remarked, “The Middle East has its oil; China has rare earths.”²¹ By the early 2000s, the Mountain Pass rare earth mine in California, which had dominated global production from 1965 to 1995, was forced to shut down as it could no longer compete with low-cost Chinese producers.²²

China's weak environmental laws and regulations played a major role in enabling it to capture the global market. Rare earth ores are often infused with radioactive substances such as thorium, and the separation stage involves the use of toxic sulphates, ammonia, and hydrochloric acid, leading to large amounts of chemical and radioactive waste products. It is estimated that processing one ton of rare earths generates 2,000 tons of toxic waste.²³ The result is that long-standing REE refining facilities outside of China have traditionally been located in jurisdictions with similarly poor environmental protections such as in Malaysia.²⁴ Fortunately for Canada's nascent industry, recent innovations and technological advances in REE mining and processing techniques developed outside of China have reduced the environmental footprint of producing REEs, reducing waste management and cleanup costs.²⁵ As a result, going forward Canadian companies seeking to enter the market will face less prohibitive upfront costs and will find sustaining long-term operations more economically feasible. Canada is thus advantageously positioned to capture a surge in global demand and investor interest congregating around rare earths as countries seek to diversify away from Chinese sources.

The conventional practice of grouping rare earths under the broad umbrella of critical minerals is no longer adequate from a policy perspective. Until now, this practice was predicated on the reality that China's dominance over REE production mirrored its hold over most critical minerals. Indeed, China is the leading world supplier for 10 out of the 12 “defence-critical raw materials” designated by NATO as “integral to the manufacture of advanced defence

systems and equipment”.²⁶ One could argue that for another mineral on the list, gallium, China's 94% share of global production between 2016–2020 even exceeds its dominance of the REE market.²⁷

However, the International Energy Agency notes that rare earths deposits are the “least geographically diversified among all critical minerals” and that China's monopoly over midstream processing is particularly difficult to disrupt.²⁸ More than any other raw material, REEs have been the strategic dependency that Beijing has been most willing to instrumentalize in geopolitical disputes over the past 20 years. Before the 2025 trade stand-off, the first major REE supply shock came in 2010, when Beijing imposed restricted exports to Japan in response to a territorial dispute in the East China Sea. At the time, Japan imported 90% of its rare earths from China. The resulting shortages caused panic among Japanese industry leaders, described as “like falling off a cliff”.²⁹ Even after the diplomatic spat cooled off, China maintained curtailed REE supply restrictions, leading to sustained high prices until 2015, when the World Trade Organization ruled against Beijing for unfair trade practices.³⁰ These past incidents demonstrate how, more so than any other critical mineral or strategic raw material, China's willingness to instrumentalize its control over REEs as a coercive geopolitical tool means that countries like Canada will continue to be vulnerable as long as supply chains remain overconcentrated in China.

Canada's Rare Earths Opportunity

Canada's REE deposits are estimated to be 15.2 million tonnes, the third largest in the world.³¹ Canada currently has no operational mines but 14 active projects, including eight at advanced stages. Two are at the final feasibility study stage: Nechalacho (Northwest Territories) and Kipawa (Quebec). Five are conducting economic assessments: four in Quebec (Eldor, Strange Lake, Crater Lake, and Kwyjibo), and one in B.C. (Wicheeda).

[Table 2](#) addresses a key gap in the literature on Canadian critical minerals and the broader public domain: the absence of an up-to-date resource providing an overview of the domestic rare earths sector. It compiles data from publicly available scoping studies, feasibility reports, and resource estimates, enabling direct comparison of active Canadian projects along key metrics such as deposit size, deposit quality, and overall value proposition, and situating them in an international context to evaluate the sector’s strategic potential.

When comparing Canada’s rare earth deposits to the best that major players like Australia and the U.S. have to offer (See [Table 3](#)), Canadian reserves are, on balance, large in size, abundant in sought-after heavy rare earths, and offer strong value propositions. In addition to mining, strong domestic inroads are being made in the crucial midstream processing segment. A stand-out is the Rare Earth Processing Facility operated by the Saskatchewan Research Council (SRC). A first-of-its-kind facility in North America, it uses cutting-edge proprietary separation and metal smelting technology with the capacity to eventually process all 17 REEs. Fully operational, it currently processes materials shipped in from overseas mines but aims to take on orders directly from Canadian mines in the future.³² With this facility, the SRC has taken a trailblazing first step in positioning Saskatoon as a future leading rare earths R&D and processing hub not only domestically, but in North America at large.³³ As Canada’s allies strive to diversify their REE supply chains away from China, Canada can demonstrate its ability to meet that demand through not only its abundant deposits but its active efforts to build the necessary midstream processing infrastructure for a more comprehensive, vertically integrated REE industry.

Policy Recommendations

Canada’s world-class REE reserves are being developed at a vital geopolitical moment when the overdependency of global advanced manufacturing and defence industrial supply chains on China is

coming into sharp focus. This presents an unprecedented strategic opportunity for Canada to position itself as a future REE powerhouse and a provider of politically stable and environmentally responsible supply. To achieve this goal, this paper makes four main policy recommendations: First, the government should revise the DIS to make clear commitments to investing in domestic REE mining and refining capacity; second, heightened global demand for non-Chinese REE sources should be leveraged to attract international partnerships and investment; third, momentum on regulatory and red-tape reform needs to be maintained; and fourth, Canada must work within the G7 framework to institute a buyer’s alliance to protect against market price shocks.

Revise Pillar IV of the Defence Industrial Strategy in favour of a clear commitment to investing in building out Canadian REE supply chains

The DIS’ ability to contribute towards meeting the 1.5% of GDP spending target intended for defence-related infrastructure and industrial development represents a major opportunity to address the REE sector’s unique blend of challenges: high costs, long development times, and heightened need for guaranteed buyers to temper risk.³⁴ Bold investments and offtake agreements—guaranteed purchase of a portion of future production—will secure supplies for Canada’s domestic defence production needs while boosting Canadian competitiveness.

In collaboration with Industry, Science, and Economic Development Canada, the DIS is scheduled to invest \$443 million over the next five years into critical minerals processing and stockpiling.³⁵ The shortlist of targets must draw both from the 8 advanced REE mining projects identified as well as processing operations like the SRC facility in Saskatoon. REEs’ dual-use nature mean that they anchor not only future Canadian defence production priorities as identified in the DIS’ Key Sovereign Capabilities, but also underpin civilian advanced manufacturing sectors such as automobiles and clean

technologies. As a result, investing in the domestic rare earths sector strengths will bolster both long-term national and economic security.

Build on the momentum of the G7 Critical Minerals Production Alliance to attract global investment into Canadian rare earths

The Canada-led G7 Critical Minerals Production Alliance launched at the 2025 Kananaskis Summit has so far mobilized \$12.1 billion in public-private investment into Canadian critical minerals projects through its first two rounds of fundraising. This includes \$36.3 million into Ucore Rare Metals Inc.'s processing facility and \$34 million into Cyclic Materials Inc.'s REE recycling centre in Kingston, Ontario. Additionally, an offtake and technology collaboration agreement was established between REE refiner Carester (France) and Torngat Metals' Strange Lake project in Quebec.³⁶

While this is a promising start, it only scratches the surface of Canada's rare earths potential. Importantly, the international geopolitical context is one in which there is a surging demand for non-Chinese rare earth sources. A spate of new and updated critical minerals strategies unveiled by the U.S., E.U., and the UK governments over the past year are notable for including REE-specific investment and diversification targets that reflect a clear recognition of their unique strategic importance and vulnerability to supply disruptions. These constitute a clear signal that the moment is ripe. Countries are on the hunt for non-Chinese rare earth sources, and Canada has what the world wants.³⁷

Referral of leading REE projects to the Major Projects Office (MPO) for fast-tracking while pushing forward industry-wide red-tape reform

Long permitting and approval processes remain the most significant barrier to the timely completion of mining projects within budget, with Canada averaging upwards of 18 years for new mines.³⁸ Addressing this challenge will require a

whole-of-government approach. By tapping leading rare earths projects through the MPO, the Government can show its long-term commitment to the sector and highlight the strategic importance of REEs on par with other critical minerals and oil and gas. However, focus cannot be limited to helping a few big players. Industry leaders lament that excessive regulatory burdens undermine Canadian competitiveness and drive away investment.³⁹ The long timelines associated with obtaining hundreds of different provincial and federal permits adds an estimated 12-14% to the cost of opening a new mine.⁴⁰ Signals from industry leaders indicate concerns that the Treasury Board's red tape reforms are stalling; reviving momentum must be a top policy priority.

Torngat Metals' Strange Lake Project, Quebec

Strange Lake is a leading candidate for referral to the MPO because it boasts a large deposit rich in heavy REEs, a strong net present value proposition, and robust existing public-private funding. The dual-proposal of an open pit mine in Nunavik, Québec, with an accompanying processing plant at Sept-Îles is precisely the kind of vertically integrated project that the federal government should champion because it simultaneously contributes to both domestic mining and processing capacity.⁴¹ However, some questions over Indigenous engagement remain unanswered. The project requires building seasonal roads that encroach on migration routes of the George River caribou herd which is culturally significant to the local Labrador Inuit, who have indicated that unless their concerns are addressed, road construction cannot proceed.⁴² Finding a workable solution through careful consultation and a clearer articulation of how the Strange Lake project will benefit the six Indigenous nations in the area is essential for the project's future.

Defense Metals' Wicheeda Project in B.C.

The Wicheeda Project hosts high-purity deposits that rival world-class mines in Australia, the U.S., and even China. The site is served directly by paved highways and is situated near hydroelectric

power lines, railways, and only 80km away from the major mining hub of Prince George.⁴³ Importantly, the project enjoys local Indigenous support, chiefly from the McLeod Lake Indian Band, who has been consistently consulted throughout the development process and considers itself a partner in advancing the project.⁴⁴ The main challenges ahead for the project are the permitting process, which Defense Metals CEO Mark Tory hopes to finish in two years, as well as raising the \$50 million in capital needed to complete the feasibility study.⁴⁵ Referral to the MPO would directly address this concern by instituting aggressive timelines to deliver federal decisions within two years through the implementation of red-tape-cutting measures such as greater harmonization with provincial processes through joint review panels and unified Indigenous consultation frameworks.⁴⁶

At the next G7 summit, Canada must work with allies to formalize a rare earths buyers alliance to protect investments and guard against supply shocks

First proposed by Canada during the 2025 Kananaskis summit, a buyer's alliance is a multilateral framework that pools governments' purchasing power to guarantee multi-year offtake for trusted suppliers. France, who holds the rotating presidency for 2026, has signaled its keenness to take up the initiative and advance discussions at the June summit.⁴⁷ G7 members must recognize that de-risking rare earth supply chains from China will require a sober acceptance that higher costs will be unavoidable as projects face more stringent environmental regulations, longer permitting and approval timelines, and more expensive labour than in China.⁴⁸

Without guaranteed customers, REE projects face persistent hurdles in getting off the ground due to investor risk and long-term uncertainty over economic feasibility. This risk will remain as long as China, with its six state-owned conglomerates that monopolize domestic production and its massive strategic stockpile comprising 40% of global REE reserves, retains the capacity to flood the world market with excess supply to sink prices and disrupt attempts by countries to

invest in alternative sources.⁴⁹ A multilateral buyer's alliance would address this challenge by pairing REE-scarce but capital-rich European and Japanese partners with Canadian projects, enhancing mutual economic security by insulating concerted diversification efforts from the risk of artificial market supply shocks.

Conclusion

The 2026 DIS represents an unprecedented opportunity to mobilize fiscal resources and invest in securing long-term REE supply chains for domestic defence procurement needs and enhancing Canadian economic security. This paper addressed the DIS' 'rare earths gap', arguing that the omission of REE-specific provisions fails to account for the sector's uniquely long, complex development timelines and high capital needs. This oversight misses out on a significant opportunity to leverage the prevailing political and fiscal momentum towards meeting the NATO 1.5% target on defence-infrastructure in order to unlock Canada's REE potential as informed by its world-class deposits and array of promising projects. Through revisions to the DIS, working closely with G7 allies to implement a buyer's alliance to protect against supply shocks, and advancing government reform on cutting down on inefficient red tape, Canada has the strategic opportunity to take a leadership role in a multilateral effort to secure and diversify global REE supply chains away from overreliance on China.

Appendix

Table 1: Defence-specific uses of REEs.

Category	Associated REE technology	REEs used	Example application
Guidance and control systems	Compact, powerful, heat resistant permanent magnets	Neodymium, Samarium, Dysprosium, Terbium	• Unmanned drones • Guided missiles • Smart bombs • Air defence interceptors
Targeting and weapons systems	Amplification of Energy	Yttrium, Europium, Terbium	• Laser-based targeting systems on ships, fighter jets, and land vehicles • Night-vision capabilities • Range-finding systems
Electric drive motors	Compact, powerful, heat resistant permanent magnets	Neodymium, Samarium, Dysprosium, Terbium	• Armoured land vehicles and tanks • Naval vessels and aircraft • Artillery and turrets
Communication	Energy storage and amplification of signal resolution	Neodymium, Yttrium, Lanthanum, Lutetium, Europium	• Radar systems • Sonar systems • Satellite communication systems • Electronic warfare systems (jammers, signal-boosting equipment)

Source: Grasso, 2011

Table 2: List of advanced Canadian REE mining projects.

Project Name	Ownership	Project state ^a	Deposit size, Mt	Total Rare Earth Oxides (TREO) %	Heavy REE % (est)	Projected net present value after taxes, millions \$C ^b
Nechalacho, Northwest Territories ⁴⁹	Avalon Advanced Materials (CA)	Feasibility Study (active)	320	1.7%	28%	613
Strange Lake, Quebec-Labrador ^a	Torngat Metals (CA)	Preliminary economic assessment (active)	300	0.93%	38%	1,800
Crater Lake, Quebec ⁴⁹	Scandium Canada (CA)	Preliminary economic assessment (active)	20.9	1.4%	20%	1,700
Foxtrot, Labrador ⁴⁹	Search Minerals Inc. (CA)	Preliminary economic assessment (active)	10	1.1	20%	1310
Kipawa-Zeus, Quebec ^a	Fury Gold Mines (CA) – 68% Government of Quebec – 32%	Feasibility study (suspended)	16	0.51%	37%	128
Wicheeda, B.C. ⁴⁹	Defence Metals (CA)	Preliminary economic assessment (active)	29.2	2.3%	11%	1000
Kwyjibo, Quebec ⁴⁹	Focus Graphite (CA)	Preliminary economic assessment (active)	6.92	2.72	1.18%	373
Ashram (Eldor), Quebec ⁴⁹	Mont Royal (CA)	Preliminary economic assessment (active)	131.1	1.91%	N/A	2300 ^c

^a (Standing Committee on Natural Resources 2014)^b 10% discount rate assumed unless otherwise indicated^c Pre-tax value, 8% discount rate

Table 3: Selection of non-Chinese REE mining projects.

Country	Project Name	Ownership	Project state	Deposit size, Mt	Total rare earth oxides (TREO) %	Heavy REE % (est)	Projected NPV after taxes, millions
Australia	Nolans ⁴⁹	Arafura Rare Earths Ltd. (AUS)	Operational	56	2.6%	Light REE only (NdPr)	N/A
Australia	Browns Range ⁴⁹	Northern Minerals (AUS)	Pilot plant. Pending final investment decision	7.3	0.96	89%	A\$187-A\$705
Australia	Mt Weld ⁴⁹	Lynas Rare Earths Ltd (AUS)	Operational	106.6	4.12%	N/A	N/A

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Autistic Cognition as a Force Multiplier: A Defence Framework for the Canadian Armed Forces

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Abstract

As Western militaries race to harness artificial intelligence, they are overlooking a cognitive asset already in their ranks: autistic personnel. In AI-augmented defence environments, autism spectrum disorder (ASD) constitutes a strategic force multiplier that current policy forfeits. Neurologically, autistic cognition is characterized by superior pattern recognition, sustained hyperfocus, enhanced fluid intelligence, and elevated precision in visually oriented analytical tasks, precisely the capacities that AI-driven intelligence environments demand. Israel's Defence Forces (IDF) Unit 9900 and the Ro'im Rachok program have operationalized these traits by deploying autistic analysts in geospatial-intelligence roles, where they outperform neurotypical peers in satellite imagery interpretation. The U.S. National Geospatial-Intelligence Agency is also adopting this model. So far, Canada has not. Where AI accelerates the volume and complexity of data requiring human adjudication, autistic cognition closes the gap between machine output and actionable intelligence. Rather than rendering human analysis obsolete, AI amplifies the comparative advantage autistic analysts already hold. This paper calls on Canada to abolish the structural denial of defence services to autistic individuals under its 'universality of service' policy, and to establish a dedicated neurodivergent intelligence stream modelled on allied precedent, framing neurodiversity not as accommodation, but as operational capability.¹

Introduction

As Western militaries race to harness artificial intelligence, they are overlooking a cognitive asset already in their ranks: autistic personnel. Canada's continued exclusion of autistic individuals from military service, through structural compounding of medical factor evaluation, represents a compounding national security liability. Neurologically, autistic cognition is characterized by superior pattern recognition, sustained hyperfocus, enhanced fluid intelligence, and elevated precision in visually oriented analytical tasks, precisely the capacities that AI-driven intelligence environments demand. When paired with AI-augmented defence environments, autism spectrum disorder (ASD) constitutes a strategic force multiplier.

Autistic service members can be a specialized manpower asset that is currently structurally denied under the combined medical requirements model within the universality of service policy.² This paper argues that certain autistic individuals possess specialized cognitive strengths in pattern recognition, visual analysis, rule-based reasoning, and sustained attention. These traits position them well for intelligence, signals, topographical analysis, image interpretation, and other second- or third-line analytical roles. When properly supported, these personnel can increase analytical capacity while freeing combat-capable members currently occupying intelligence or support billets for frontline or operational roles. The question, therefore, is not whether autistic people should be included because inclusion is morally desirable, but whether the Canadian Armed Forces can afford to continue to structurally deny a cognitively specialized and underutilized population from roles where their abilities have already demonstrated military utility.³

To frame this argument, several points must be acknowledged. First, autistic individuals are not a pejorative category, nor should they be treated as a monolithic group. Their neurological and cognitive architecture differs from that of neurotypical personnel,

but in this context, that difference can be an advantage. Existing examples, particularly from the Israeli Defence Forces' (IDF) Unit 9900, suggest that autistic personnel can provide measurable value in intelligence roles requiring visual discrimination, pattern recognition, and sustained analytical focus. Rather than ranking autistic and non-autistic cognition, this paper examines where deficit-framing fails to capture demonstrated strengths in pattern recognition and sustained attention that could assist the military when matched to appropriate military tasks and supported by a suitable command structure. The result can produce force multiplication within the existing defence apparatus. NATO armies face growing workforce and combat force shortfalls that must be addressed. One established response, dating back to the Second World War, is moving second-line personnel into first-line roles.

Allied militaries have already crossed this threshold. Israel's Unit 9900 and its Ro'im Rachok program deploy autistic analysts in geospatial-intelligence roles where they outperform neurotypical peers in satellite imagery interpretation, and the U.S. National Geospatial-Intelligence Agency has begun adopting the same model. Canada has not. A capability that allied forces treat as an operational advantage remains, in the Canadian context, untapped and structurally denied or underutilized.

The paper argues for autistic individuals' expanded role in second- or third-line positions under the Department of National Defence (DND) or the Canadian Armed Forces (CAF) directly, within a non-traditional rank and working environment structure.⁴ The argument proceeds in four steps. First, it establishes the cognitive and operational basis for autistic utility in defence intelligence roles. Second, it examines the Israeli Unit 9900/Ro'im Rachok model as the clearest allied precedent for autistic intelligence integration. Third, it explains why autistic pattern recognition and rule-based reasoning are especially valuable in AI-augmented intelligence environments, where human adjudication remains necessary. Finally, it applies this framework to the Canadian Armed

Forces' manpower crisis and argues for a dedicated neurodivergent intelligence stream within DND or the CAF.

Background: Autistic Cognition and Defence Utility

The autistic mind does not operate within the traditional framework of the neurotypical. In neurotypical cognition, social dynamics that engender social survival are prioritized. In autism, the pattern is the focus. The goal is not to produce a socially acceptable result but to detect a pattern within the data and create a coherent understanding. This stems from the absence of instinctual social reasoning that neurotypicals rely upon. The autistic does not possess the same inherited social assumptions and must therefore categorize and systematize data until a consistent outcome is reached. The clearest expression of this cognitive loop is the autistic special interest, in which all available data on a topic is accumulated to provide a coherent framework of understanding, the achievement of which provides a form of cognitive relief to a brain that is, by its nature, highly intolerant of incoherence and error.⁵

This cognitive architecture has been empirically studied in the context of visual and pattern processing. The Enhanced Perceptual Functioning (EPF) hypothesis, developed by Laurent Mottron et al., proposes that autistic brains allocate significantly more resources to lower-level perceptual processes, resulting in a measurably enhanced ability to detect subtle patterns across visual, auditory, and tactile stimuli.⁶ Separate spatial intelligence research has shown that individuals with high-functioning autism demonstrate superior accuracy in graphic cued recall of paths and shorter map learning times compared to neurotypical controls, attributing this advantage to enhanced detection, matching, and reproduction of visually simple elements that compose geographic and topographical data.⁷

Beyond the capacity to raise concerns without regard for social cost, this cognitive architecture also

enables the detection of micro-changes in patterns. This pattern sensitivity is the primary mechanism behind autistic intelligence, as the inability to discard ostensibly irrelevant data ensures greater observational acuity and a higher sustained cognitive load. This same quality is expressed in the differing sensory processing of autistics, in which stimulus is frequently overwhelming due to the brain's inability to filter input by immediate relevance, creating the perception of heightened sensory sensitivity where no underlying biological difference in sensory apparatus exists.⁸

Canada disqualifies no one by naming autism. The exclusion is functional: an ASD diagnosis generates Medical Employment Limitations, those yield a sub-threshold Occupational (O) factor against the Generic Task Statement, and that breaches Universality of Service under DAOD 5023-1. No clause defines the condition or sets a threshold; the applicant is screened out by the cumulative operation of the medical-category system rather than any rule addressed to autism. The logic rests on one assumption, that all forces must be fully combat-capable at every level, which has merit but flattens the apparatus. Support, intelligence, analytical, technical, cyber, and oversight roles, where cognitive specialization outweighs combat-arm suitability, are precisely where this paper locates neurodivergent utility. The target is not a statute to repeal but a default to replace with a defined standard.

The mechanism exists. CAF medical policy permits enrolment below the common standard, but not below V4 CV3 H4 G4 O4 A5, with employment limitations, provided service will not aggravate the condition. Canadian Forces Recruiting Group Headquarters further holds standing authority to waive standards for an applicant with special qualifications relevant to an occupation. That waiver is the codified route by which the CAF already admits below-standard applicants whose occupation-specific value justifies the limitation. A neurodivergent intelligence stream would not suspend Universality of Service, it would apply existing waiver authority to a documented, operationally justified capability.

A medical formalization of Autism under the IDF model would eliminate this barrier.

The Allied Precedent: Israel's Unit 9900 and Ro'im Rachok

The primary precedent for implementing an autistic intelligence unit is the Israeli Defence Forces model under Unit 9900/Ro'im Rachok, a program structured around autistic cognitive strengths and supported by personnel trained to manage autistic sensory, communication, and workflow needs. Founded in 2013 through a collaboration between former IDF and Mossad officials and Ono Academic College, the program was explicitly designed to match the specialized cognitive capabilities of autistic individuals with documented operational needs within Israel's Military Intelligence Directorate.⁹ Israel's motivation was as much practical as strategic: with a conscript-based military and a population of under ten million, it could not afford to exempt an entire cognitive demographic from contributing to national defence.

The results validated the premise quickly. Before the 2014 Operation Protective Edge in Gaza, autistic soldiers assigned to Unit 9900 were tasked with analyzing tens of thousands of aerial photographs to identify evidence of Hamas and Palestinian Islamic Jihad activity, including tunnels, minefields, weapons caches, and concealed launching positions. The analysts completed the full analytical task in approximately three months, work that had been projected to take up to eighteen months using conventional personnel.¹⁰ Their contributions directly shaped targeting precision and operational planning for one of the most complex urban combat environments in recent history. By the program's fifth year, over 100 autistic volunteers had served in the unit across roles, including satellite image interpretation, open-source intelligence, software quality assurance, and topographical mapping.¹¹ Of approximately 100 applicants processed annually, roughly 80% are accepted following a rigorous multi-phase selection and training course.¹²

The unit commander of 9900 had, before the program's founding, described his chronic shortage of trained image decipherers as a persistent operational gap.¹³ Neurotypical high-performing recruits selected for their spatial intelligence routinely sought advancement into integrated intelligence positions rather than remaining in the analytical role, creating a structural deficit that autistic personnel, less motivated by career advancement and highly suited to the sustained attention demands of the role, were uniquely positioned to fill.¹⁴ Research found that autistic individuals approach complex visual images with objective processing, focused on raw data rather than on narrative assumptions the brain has pre-formed about what the image should contain, exactly the cognitive disposition required to detect concealed infrastructure, irregularities in ground cover, and non-traditional patterns of enemy movement.¹⁵

An underutilized role in which Canada could invest heavily is operational clarity and coherence. One of the defining characteristics of autistic cognition is a strong pattern recognition framework and a rules-based mindset in which the integrity of the process matters more than the convenience of the outcome. If a system does not make sense under the provided rules, or if an objective contradicts available information, an autistic analyst will not endorse it, regardless of social or institutional pressure. This is often misinterpreted as an inability to work within a group. In the defence context, however, this is not a detriment but a critical capability that must be cultivated within the defence apparatus.¹⁶

The Intelligence Application

The inability to parse data in the neurotypical sense does not mean that a clear objective or analytical direction cannot be formed. Rather, the pattern is not shaped by preconceived assumptions, and data is not discarded in service of a preferred conclusion. If something does not make sense, the autistic person defaults to the assumption that the picture is incomplete or wrong. In an intelligence capacity, micro-changes define the battlefield. A skilled

insurgent or operator trained in concealment may evade both AI systems trained on patterns of difference and operators who experience rapid cognitive fatigue while remaining functional on paper. The autistic, due to the need to assess pattern coherence across datasets, does not view each data point in total isolation or as continuous. The pattern must hold across data sets, or it collapses.¹⁷

In short, the autistic analyst is not necessarily scanning for a clear indicator of X, but is looking for the negative space that should not exist. The best way to describe this is by looking at the negative of a film camera rather than the fully developed photograph: the data lies as much in what is absent as in what is present. This inversion is the reason for the success of the autistic intelligence analyst, and simultaneously why AI fails to replicate it. One of the few to directly test this application assessed autistic adults on aerial photograph decoding tasks and found statistically significant advantages in visual detection and decoding skills compared to neurotypical controls, specifically in tasks requiring detection of embedded or anomalous elements within complex visual scenes.¹⁸

Probabilistic Matching and Its Blind Spot

AI systems operate within a probabilistic framework, with patterns reinforced by positive token recognition. This translates to a clear capacity to identify results that reinforce themselves through continued confirmation of a “correct” answer. This does provide clear and often accurate predictions in well-defined scenarios where probabilities are mathematically within the range of existing knowledge. The problem arises when creative, novel solutions are introduced that are specifically designed to break the established pattern. Such novel solutions have been the backbone of both counterinsurgency and insurgency warfare throughout history. The point is as much to deceive the enemy as to destroy them.

In these cases, unlike looking for a tank, which has a clearly defined data set, or a fixed installation such as a dugout, the AI is looking for micro-changes

it cannot reliably detect. A movement in a branch, a fallen tree, or natural cover may register as a false positive in the same way as a concealed hide might. This is precisely the problem AI faces in image recognition compared to the autistic analyst. The autistic knows what to look for, but more importantly, the ability to discern natural from unnatural is an ingrained human instinct. Combined with the autistic’s capacity to process data at a much larger rate and their inability to discard data sets, this becomes the defining factor in their advantage over AI systems.¹⁹

Error Compounding vs. Coherence

AI does not think. It automates probability matrices until an outcome becomes mathematically certain or likely on the balance of probabilities. AI works best on clearly defined metrics. The autistic person works best on pattern coherence. If something does not fit, an AI is further trained to produce a result regardless. Errors can occur, and in large language models, these are specifically trained against due to low-cost output incentives; the outcome is favoured even when the result is erroneous, which generates the hallucination problem found across all major AI systems. Errors, if uncorrected, multiply. The nature of intelligence analytics ensures that operators managing large data sets cannot review every input and must verify only when clear errors surface. This causes micro-errors to compound into major failures downstream. The autistic analyst, as stated previously, operates on a continuously evolving data set within a parametric framework that must maintain coherence across all data points, or the framework collapses. That collapse generates a cognitive error response in the brain that, once trained, can be channelled as a problem to be solved rather than one that breaks the analyst.²⁰

The Operational Framework

The autistic type described in this paper is not suited to combat. By its very nature, the autistic cognitive profile is incompatible with the

inherently chaotic, overwhelming, and data-saturated environment of direct combat, which is severely detrimental to those who cannot filter sensory input, let alone those who are hypersensitive to it.²¹ For precisely these same reasons, they are highly suited to intelligence analytics. In this framing, the autistic cannot be placed within a traditional command structure in which hierarchical deference and military regimentation are the de facto standard.

The technology sector and the Israeli model have both demonstrated that non-traditional work environments and flexible operational hours lead to higher sustained effectiveness. Autistics can enter hyper-focused states on problems, with burnout a persistent risk and recovery operationally critical. A traditional 9-to-5 or operationally regimented schedule will not sustain long-term effectiveness and will cause rapid burnout and capability loss.²²

The Israeli model addresses this by employing those with special needs training, or autistics with lower support needs, to manage other autistics, as they can understand needs directly and provide accommodations. Support personnel with appropriate clearances provide the necessary rest periods to ensure continued operational effectiveness. The sheer scale of autistic personnel in the unit allows for a continuous operational cycle, with many examples showing that individuals work more or less depending on their current capacity, decreasing burnout and maintaining overall output by cycling hyper-focused analysts in as others recover.²³ In the same way that troops rotate on the front lines, the autistic intelligence unit operates on a recovery cycle; applied correctly, this is a means of force maximization.

The Canadian Context

The case for this model in Canada is acute. The CAF is still rebuilding from a personnel crisis that the Minister of National Defence himself described in March 2024 as a “death spiral”. As of March 31, 2026, the CAF Regular Force stood at 67,827 personnel against an authorized strength of 71,500, leaving it

3,673 short. The Primary Reserve stood at 32,444 members by headcount, but only 25,054 by Average Paid Strength (APS), against an authorized APS target of 30,000. Measured against the defence-policy goal of 71,500 Regular Force members and 30,000 Reserve APS, the CAF therefore stood at approximately 92,881 effective personnel, about 8,619 short of the 101,500-person target.²⁴

Recruitment has improved sharply. Regular Force enrolments rose from 3,927 in 2022-23 to 7,310 in 2025-26 – the highest in over 30 years.²⁵ Yet the structural problem remains: of the nearly 192,000 people who applied to the CAF between April 2022 and March 2025, only 14,946 were recruited, roughly one successful recruit for every thirteen applicants.²⁶ Of the 14,946 recruited, only 14,046 began basic training during the audit period. Of that group, only 11,124 graduated basic training and moved on to occupational training.²⁷

Moreover, completion of basic training does not mean a member is operationally trained. The Auditor General is explicit that basic training only renders a recruit “ready for occupational training”. A CAF member becomes occupationally useful only after completing both basic and occupational training and reaching the Occupational Functional Point – though how many actually do so remains unclear.²⁸

Retention, therefore, remains the central constraint. The Auditor General found that the CAF’s intake planning did not fully account for trained and effective members leaving through voluntary release, medical release, and other forms of attrition. Even as recruitment improved, the CAF “did not bring in enough new recruits to replace the people who left”.²⁹ The issue is therefore not simply public disinterest. Canada can still attract applicants. The deeper failure is conversion: the CAF struggles to process applicants, move them through basic training, carry them through occupational training, retain trained personnel, and turn recruitment interest into sustained operational strength.

The available autistic population is substantial. Approximately 1 in 50 (2%) of Canadian children and adolescents are diagnosed with autism spectrum disorder,³⁰ a rate reflecting a tenfold increase in newly identified cases since 2000.³¹ The employment rate for autistic Canadian adults stands at approximately 14.3%, compared to 92.7% for the general population.^{32 33} Nearly nine in ten higher-functioning autistic individuals possess deep capabilities in STEM fields,³⁴ and approximately 50,000 autistic youth enter adulthood in Canada each year, the vast majority facing structural unemployment.³⁵

NATO currently lacks the workforce to meet its regional defence plans as EU demographic contraction accelerates, with births below 4 million for the first time since 1960, with only 32% of EU citizens willing to fight, compounding Canada's own recruitment failures and making a domestic, cognitively specialized, structurally underemployed intelligence capability not an inclusion initiative, but an operational necessity.

Conclusion

Autistic individuals represent an underutilized talent pool that could fill intelligence analyst roles, freeing combat-capable personnel from intelligence roles they are not the best-matched profile to fill, returning them to the front.³⁶ Analysts currently occupying intelligence billets who could be fighting, and personnel held in logistics or other manpower-critical functions, represent combat power the CAF is failing to generate. This is a misallocation the force can no longer afford as NATO's manpower crisis deepens, and its own structural shortfall persists. Matched correctly, this yields a maximization of forces without a recruiting drive that may disturb social order or undermine military culture.

If the Canadian Armed Forces or the Department of National Defence were to implement an IDF-adjacent model, they would apply the same apparatus to a group that is both desperately in need of employment and capable of providing a capability

the CAF currently lacks. Rather than offering humanitarian elevation as the primary goal, Autism integration prioritizes capability maximization, producing humanitarian benefit as a secondary outcome. The Israelis proved it in three months against an eighteen-month problem.³⁷ Canada should not need a war to learn the same lesson.

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Mobilizing the Market: Making SAFE Work for Canada

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Abstract

The accession of Canada to the Security Action for Europe (SAFE) financing scheme represents its largest defence-industrial pivot attempt since the end of the Cold War. Alongside wide-ranging industrial and procurement reforms, the Carney government touts SAFE as the core tool permitting diversification from U.S. defence contractors and growing industry access to European markets. However, despite the warm reception of Ottawa into this initiative, structural and political constraints presently limit its benefits to Canada's industry and military. Geographic isolation from Europe, differing threat profiles, and fragmented defence-industrial interests pose significant challenges. Thus, the central question is how Ottawa can best leverage the SAFE agreement to grow Canada's defence exports and strengthen links to NATO's operational core. First, Canada should seek financing of joint ventures through SAFE to develop local variants of its successful products, ultimately benefitting both its own deployments and the export market. Second, Canada should prioritize co-location of SAFE projects with its deployments to boost interoperability, namely through Operation REASSURANCE in Eastern Europe. Through assessment of shared stakeholder interests in specific military capabilities, this analysis concludes that Canada could earn superior returns from SAFE contributions that promote acquisition and sustainment of national and collective military capabilities.

Disclaimer:

The views expressed in this essay are exclusively those of the author, and do not necessarily represent those of the Government of Canada.

Introduction

As the Trump administration's abrupt shift towards an insular foreign policy caused political whiplash among United States (U.S.) allies, Canada's visceral reaction has drawn significant attention. Amid the economic fallout of new tariffs and annexation overtures, Ottawa began to doubt Washington's reliability and moved to address structural vulnerabilities in the relationship. Specifically, as Canada's defence industry consolidated around a joint North American demand signal over many decades, policymakers began to question its self-sufficiency in a heightened threat environment. As part of his pledge for a "new economic and security relationship with the United States", Prime Minister Mark Carney announced policy changes to enhance Canada's defence-industrial autonomy.¹ Most notably, Carney declared that Canada's extensive patronage of U.S. defence contractors—often reaching seventy cents on the dollar—was "over", endorsing diversification.² Since then, the Carney government has unveiled increasingly ambitious proposals to enhance Canadian military autonomy.

In lieu of cooperation with Washington, Carney's government has pivoted towards the European Union (EU). Facing similar geopolitical pressure from the War in Ukraine and the Trump administration's demands of greater burden-sharing in NATO, the partnership appeared natural. By February 2026, the government negotiated Canada's entry into the Security Action for Europe (SAFE) instrument, which offers EU members and certain third countries access to €150 billion in defence loans.³ Further, given Canada's small industrial footprint on the continent, Brussels agreed to soften the program's restrictions. Namely, Canada's third-country content cap on joint procurement was elevated from 35% to 80%, which facilitates Canadian participation and cooperation with European firms.⁴ Ottawa has hailed this agreement as a landmark step towards asserting Canada's security autonomy, emphasizing its importance in subsequent policies such as its recent Defence Industrial Strategy.⁵

That said, while the SAFE deal is politically significant, the Carney government's expectations of clear-cut industrial development warrant closer scrutiny. For one, SAFE is but a single piece of the EU's expansive Readiness 2030 (previously ReArm Europe) initiative, which aims to unlock €800 billion in defence financing by loosening EU-level restrictions.⁶ Considering the bulk of these funds are explicitly focused on regional security priorities such as aid to Ukraine, Canada's participation will require careful consideration to ensure benefits for its industrial and military stakeholders.⁷ Thus, given SAFE's grounding in EU-level institutions, Canada must draw sufficient benefits as a non-member through carefully calculated bids rather than default inclusion. Ottawa's SAFE bidding strategy should prioritize projects that promote Canada's insertion into European value chains and co-locate production capacity with existing Canadian deployments. As a result, Canadians may expect greater long-term defence-industrial opportunities that deliver tangible economic and security benefits.

Canada's Defence Industrial Legacy

In examining purveyors of military equipment worldwide, Canada is often overlooked as a key supplier. Though it could not rival the "Arsenal of Democracy" south of its border, Canada's industrial base during the Second World War was well-respected.⁸ After the war, many firms consolidated their defence operations under larger firms. Some folded into major players, while others became crown corporations like Canadair or Telesat. Additional sectors of defence production were gradually spun off, sold to foreign buyers, or refocused their efforts towards civilian sectors with greater potential profitability.⁹ Today, while the majority of individual firms in Canada remain Canadian-owned, most industry sales are accrued to American or other foreign-owned firms.¹⁰ Meanwhile, Canadian defence production became increasingly specialized and dominated by a small handful of firms.

Concurrently, symmetry and market development with Washington became a priority for Canadian policymakers. The 1958 establishment of North American Aerospace Defence Command (NORAD) was a watershed moment, as it created the need for an integrated continental industrial base. Through instruments such as the 1959 Defence Production Sharing Agreement (DPSA), Canadian firms earned the exclusive advantage of being treated as domestic firms within the United States.¹¹ That said, while the DPSA enhanced market opportunities, it also reduced incentives for full-spectrum production within Canadian borders. Given its status as the largest global buyer of military hardware, business opportunities with the Pentagon provided a stable lifeline, eclipsing sporadic Canadian procurement cycles.¹² Controls imposed through the International Traffic in Arms Regulations (ITAR) also disincentivized non-U.S. exports.¹³ Thus, Canadian supply chains gradually integrated themselves within the U.S. defence industry, becoming key supply nodes for firms such as General Dynamics, among others.¹⁴

Outside of market incentives, military doctrine also played a major role in the industrial shift. While the Second World War necessitated consolidated industrial might, the Cold War required a greater degree of flexibility and cooperation with NATO members. Given its geographic separation from Europe, Canada adopted an expeditionary posture, colloquially referred to as “plug-and-play”.¹⁵ This doctrine promoted the supplementation of allied operations, a more cost-effective and flexible alternative to sustaining independent Canadian deployments,¹⁶ a philosophy notably visible in Canada’s peacekeeping activities, which relied on frequent deployments abroad. Without robust homeland defence on the agenda, military production took on a similarly supplemental role, reducing full-spectrum production capabilities. Rather, Canadian investment into high-value niches such as signals intelligence was reinforced, facilitating monitoring of Soviet activities for the Five Eyes.¹⁷

In recent years, the Canadian defence sector has become fragmented, hosting an eclectic mix of niche domestic enterprises, foreign subsidiaries, and tenacious start-ups. While large, Canadian-owned conglomerates exist, their portfolios are focused on commercial production with specific defence niches.¹⁸ For instance, CAE focuses largely on aircraft training simulations, while Bombardier’s aircraft is largely designed for reconnaissance and logistics.¹⁹ For its part, Canada’s traditional arms and military vehicle manufacturing is primarily undertaken by foreign subsidiaries including Colt Canada (Czechoslovak Group), General Dynamics, Pratt & Whitney, and others.²⁰ To avoid duplication or cannibalization of their parent operations, such subsidiaries have established themselves in key subsectors including rifle production, armoured vehicles, and more. Small-scale start-ups have also begun gaining prominence in Canada in recent months, with Arctic sensing firm Dominion Dynamics raising \$21 million in seed capital.²¹ While this industry structure has delivered economic benefits, its ability to supply the CAF remains questionable for the foreseeable future, especially in the event of American retrenchment from military cooperation. This is because Canada inherently lacks a sovereign industrial base to fulfil its immediate capability gaps across multiple domains of warfare. Given that encroaching rivals maintain robust full-spectrum production, this adds a layer of complexity to a Canadian response, which would presently depend on U.S. support. In the theoretical worst-case scenario of a military operation against Canada, an ailing CAF would be susceptible to a form of military assistance that undermines its sovereignty.²² Therefore, building a dedicated defence sector to assure security of supply to the CAF becomes an imperative.

In February 2026, the Carney government released its first-ever Defence Industrial Strategy, which laid out a long-term vision for rebuilding the sector in Canada. At its core lies the iterative “Build-Partner-Buy” framework, which aims to safeguard procurement flexibility alongside industrial development.²³ Under the plan, foreign equipment

purchases are effectively designated as a last resort, prioritizing both Canadian-made products and alternatives jointly developed with allies. Released two months following the conclusion of SAFE negotiations with the European Union, alignment of the two will prove increasingly important. Moreover, leveraging SAFE to promote Canada's defence-industrial growth should avoid kneecapping existing opportunities in the United States. Should the Trump administration continue targeting Canadian manufacturing as it has in the auto industry, provocative use of SAFE could further endanger growth prospects, perhaps even the DPSA.²⁴ Therefore, ensuring a robust and carefully considered strategy informed by SAFE's limitations is essential for Canada. Though the Trump administration often waters down the reprisals implied by its rhetoric, defence contracts play an important role in U.S. congressional culture.²⁵ Given they often prop up the ailing U.S. manufacturing heartland beset by economic anxieties, legislators may be more inclined to entertain demands of reshoring Canada's piece of the defence supply chain.²⁶ Contractors themselves also have limited ability to resist monopsonic pressure wielded by the U.S. government and may accept such demands to preserve their market position.²⁷ As a result, attempting to use Canada's defence procurement as a bargaining chip in trade negotiations may present a greater risk than anticipated.

Understanding Readiness 2030 & SAFE

Since 2022, the security environment in Europe has deteriorated significantly due to Russia's invasion of Ukraine. Viewing Moscow's territorial expansionism as an existential threat, members of NATO began to prioritize military readiness and sharply increased their defence spending. From 2022 to 2025, the number of NATO members complying with the Wales Pledge commitment to spend 2% GDP on defence had sharply increased from 7 to 31.²⁸ For its part, Canada officially reached this milestone in March 2026, and pledged to meet the revised 5% commitment²⁹ established at the Hague Summit.³⁰ However, with the return of Donald Trump to the

White House and the suspension of U.S. aid to Ukraine, European leaders faced even greater pressure to contribute, straining their fiscal capacity.³¹ As a result, the European Union expanded its activities beyond its traditional role of funding dual-use projects and adjudicating market competition.

In May 2025, the European Commission launched ReArm Europe (now renamed to Readiness 2030), an initiative to foster continental defence capacity and deterrence against the emerging Russian threat. In short, the project provides greater financing capacity to EU member states by loosening restrictions imposed by the Stability and Growth Pact, the bloc's core fiscal legislation. Relevant examples include an exemption of military spending from EU debt limits and the allowance of cohesion funds (i.e. economic assistance payments) for military purposes.³² Further, the EU has begun investing directly into defence projects, with the European Investment Bank tripling its holdings in the sector to €3 billion.³³

However, among the various components of Readiness 2030, the SAFE instrument emerged as the primary benefit available to members.³⁴ Funding joint procurement loans for up to 45 years, the system directly funds the acquisition and sustainment of key military capabilities determined by the European Commission.³⁵ Moreover, SAFE loans fund not only traditional capabilities including missile defence or ammunition stockpiling but also emerging domains. According to the instrument's factsheet, loans may also cover drones, infrastructure protection, artificial intelligence, and electronic warfare.³⁶ As of 2026, 18 member states' investment plans have been endorsed by the European Commission.³⁷ Poland currently has the largest allocation, which is valued at €43 billion and plans to purchase infantry fighting vehicles, mortars, howitzers, and more.³⁸

Most crucially for Canada, SAFE bidding is open to third countries who sign Security and Defence Partnerships (SDPs) with the EU, which Ottawa had done in June 2025. As a result, capital access for joint procurement expands outside the bloc on

a limited basis. As of May 2026, other signatories to SDPs include the United Kingdom, Japan, South Korea, and Norway.³⁹ Though these countries are not eligible to receive their own dedicated loans, they may actively partner with those that do, creating substantial procurement and business opportunities on the European continent.

Constraints to Canadian Benefits from SAFE

On paper, entry into the SAFE framework should offer a substantial benefit to Canada, as it permits rare access to European value chains and business opportunities outside the United States. In practice, however, there exist three key constraints to Canada's participation that will hinder benefits without proper consideration: the instrument's inherent bias towards European needs, Canada's distinct threat profile, and the prevalence of American-owned subsidiaries in its defence sector. Should the government fail to take account, diversifying Canada's defence-industrial prospects will prove exceptionally difficult and undermine hard-won political capital. Accordingly, these constraints inform the recommendations that follow.

Inherent Bias Towards Europe

First, the SAFE instrument has an inherent focus on Europe's own defence and economic resilience. In fact, though members are permitted to apply for individual loans, only EU member states are currently eligible.⁴⁰ As a result, Canada's role in any given SAFE procurement bid will be that of a junior partner, which may create difficulty in reaching the stipulated 80% limit on its inputs.⁴¹ Given the fiscal *carte blanche* afforded to EU member states, it follows logically that SAFE loans will predominantly finance projects and contractors based in Europe.⁴² As a result, Ottawa should not expect direct investment of the funds into employing Canadians, but rather treat the instrument as a captive market for bidding. Prematurely overselling the role of SAFE as a major driver of business for Canada's defence industry

would undermine both public confidence and investor sentiment in Canada.

Canada's Threat Environment

Second, though Canada and the EU have found kinship in their desire to avoid reprisals by the Trump administration, their threat environments differ significantly. On the European side, Russia's presence along the Eastern Flank continues to threaten the Baltic states, Poland, and Finland among others.⁴³ This necessitates strong investment in land-based capabilities including missile defence, ammunition stockpiles, armoured vehicles and more.⁴⁴ Deterrence of potential drone strikes is also a key priority for Europe, as their use in Ukraine has demonstrated the potential risks to member states.⁴⁵

For Canada, the current defence priority is the Arctic, where its Northern Flank remains at substantial risk of interference or encroachment.⁴⁶ While Russia is the common threat, capability investment in the Arctic domain involves far greater prioritization of intelligence, surveillance, and reconnaissance (ISR), as well as maritime asset deployment and all-weather infrastructure.⁴⁷ Simply put, SAFE projects will not naturally align with Canada's security needs, and Ottawa should not seek bids expecting fulfilment of its immediate capability gaps. Instead, Canada should approach its SAFE bidding strategically and focus on emerging domains in which it has a strong advantage, in a similar fashion to its "Build-Partner-Buy" framework.

Subsidiary Troubles

Lastly, though the SAFE agreement with the EU was designed to promote Canada's participation, it was also written to disincentivize U.S. defence contractor participation. According to the terms of eligibility for contractors, a lack of EU design authority would disqualify them from joint procurement opportunities.⁴⁸ Tailored to favour the participation of national champions (i.e. EU member-backed conglomerates) in European countries, this

blocks foreign interference. In other words, firms whose ultimate beneficial owners of intellectual property are based in the U.S., UK, or elsewhere outside Europe will face substantial difficulties in participating. For leading firms like General Dynamics or Lockheed Martin, this will require precarious commitments they may not be able to uphold in the face of possible pressure from the Trump administration.⁴⁹ As a result, the most promising job creators from SAFE procurement will be less enthusiastic about involving themselves to the full extent of Canada's allowance.

First Recommendation: Seek a Joint Venture Model for SAFE Bids

If Canadian defence contractors wish to participate in SAFE loans for joint procurement, a healthy degree of market access will be desirable. In previous years, the European Union would have facilitated such activities, as its primary concern until 2022 was the state of competition within its single market.⁵⁰ That said, as the bloc begins to assert itself in security matters, ensuring the economic performance of member states' national champions will emerge as a priority. Facing dual pressures of domestic stockpiling and supporting the Ukrainian war effort, unnecessary competition may be met with protectionism by both European and national leadership.⁵¹ Further, Canada's inability to apply unilaterally for a SAFE loan and its effective restriction to junior partner status will require some government intervention if businesses expect a return.

To support market development for Canadian defence contractors, it is recommended that Ottawa establish a joint-venture strategy for the European market. Under this plan, Canadian defence companies would seek equal or majority partners in the European Union to bid on SAFE procurement loan opportunities. Though contractual terms would vary, the goal would be to ensure a clear Canadian equity stake within the new entity in question, which would then undertake the project if selected. After completion of the SAFE project, it is expected the Canadian company would

gain considerable business contacts in Europe and at minimum partial ownership of new intellectual property (IP). Further, by developing a coherent strategy, existing commercial assistance infrastructure could be leveraged between the Trade Commissioner Service, Invest in Canada, and more.⁵² Notably, the federal government is already applying this thinking with Chinese electric vehicles.⁵³ If Ottawa can strike such a deal with China, doing so in defence production with a European ally merits strong consideration. Finland, for example, recently released a joint statement with Canada committing to deepening industrial cooperation, and signed a statement of intent alongside the U.S. to jointly develop icebreaker capabilities.⁵⁴

Moreover, a joint-venture policy would be particularly helpful for SMEs. Given they are not as established as prime contractor subsidiaries, a greater need for capital access would be required. Though the Defence Industrial Strategy does intend to target smaller firms with its \$244 million funding package, the goal should be to ensure it is used to build domestic production capacity that SAFE cannot fund.⁵⁵ Thus, if a European firm takes interest in a small player's technology, product or relevant business capabilities, a clear SAFE-JV framework could ensure they have the resources to negotiate equitable entry into the value chain. Simply put, they would be applying the operational "plug-and-play" logic to the commercial side of the defence sector, retaining flexibility while maximizing use of their scarce resources.

Second Recommendation: Make Industrial Synergies Work for the CAF

Though the Carney government has committed to "rebuild, rearm, and reinvest" in the Canadian Armed Forces, a common criticism of its defence policy has been a perceived focus on job creation.⁵⁶ For one, the long-awaited Defence Industrial Strategy was explicitly described as a "jobs strategy" by the Prime Minister's Office, and emerging firms focusing on Canadian defence issues have generated

significant media attention.⁵⁷ The same has been true of Ottawa's attention towards SAFE and the EU, as commercial stakeholders tend to dominate public visibility.⁵⁸ Between lagging procurement, rival encroachment on the Arctic, and organizational turmoil, public confidence in fulfilment of defence priorities has proven lukewarm in recent years.⁵⁹ As a result, Canada's approach towards SAFE should also directly supplement CAF operations, starting with those in Europe. Though job creation will be essential to developing long-term support of military spending increases, it cannot overshadow the capability gaps and lagging effectiveness that created the urgency to spend more in the first place.

Accordingly, it is recommended that Canada pursue SAFE bids that leverage European industrial synergies to the benefit of its deployments on the continent, namely in Latvia. Under Operation REASSURANCE, the CAF currently has 3,000 soldiers deployed in the country to support the NATO Multinational Brigade.⁶⁰ This deployment forms the largest conventional force outside of Canada, and was recently expanded by NATO to require additional resources.⁶¹ More importantly for SAFE, it is also the most active of Canada's deployments in training exercises and direct military cooperation with EU member states. However, Canada's forces in Latvia are also often acknowledged as lacking equipment, often to the point of soldiers having to self-finance their gear.⁶² By leveraging SAFE to ensure that this critical deployment is equipped, Canada can secure goodwill with defence stakeholders and create a valuable demonstration opportunity for its products. As Canada already builds its products to NATO specifications, it should also be relatively straightforward to create interoperable variants tailored to European needs and market demand.

Though the European Union and its member states are not command economies, a key characteristic of the continent's defence sector is a prevalence of state ownership and influence of national champions. According to the SIPRI database, three of the top four EU-based defence contractors

have at minimum a 30% ownership stake from their home governments.⁶³ In some cases, the sector may be almost entirely state-owned, as is the case in Poland with PGZ, a national holding company directing the arms industry.⁶⁴ Should Canada partner with a country with growing influence over its defence industry, such as Latvia, it could redirect some of the benefit towards CAF deployments.⁶⁵ In fact, should the product quality increase from Canadian input and design inclusion, it would deliver reputational benefits for the industry. A good analogue would be Finland's Patria, whose Rosomak is seeing increased marketability after its performance in Ukraine.⁶⁶ Thus, by aligning its SAFE bids with the needs of CAF deployments, Canada can extend benefits from industrial stakeholders to military end-users.

Conclusion

In short, while Canadian participation in SAFE offers a substantial opportunity for diversification from U.S. defence contractors, it should not be taken as a silver bullet. Constraints including restrictions on subsidiary participation, Canada's differing threat environment, and the instrument's tailored design for European gains all pose challenges for Ottawa. That said, if engaged strategically, domestic firms set to grow under the Defence Industrial Strategy and concurrent efforts to rebuild the Canadian Armed Forces can draw key commercial and strategic benefits.

On the one hand, by leveraging joint ventures as the primary vehicle, Canadian firms can "plug-and-play" into European value chains. Using this tactic, they can derive tangible benefits from IP ownership to market development, creating long-lasting business opportunities beyond the initial SAFE loan. On the other hand, direct focus on co-location with Canada's deployments in Europe can build goodwill for the CAF on the continent while enhancing the reputation of its products. In other words, targeted and cooperative engagement under SAFE will turn a politically astute project into enduring economic benefits and military rejuvenation.

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Credibility Through Capability: Canada's Defence Ambitions and Limitations in the Indo-Pacific

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Abstract

In 2022, the Government of Canada released its first-ever Indo-Pacific Strategy (IPS), framing the region as a 'new horizon of opportunity' central to Canada's long-term prosperity. In spite of these commitments, Canada's defence credibility is met with mixed reception by a number of Indo-Pacific countries. Ottawa's relative geographic proximity to Europe and its previous military history on the continent have long anchored its alliance priorities in the Euro-Atlantic, hampering its commitments to expand elsewhere. This paper addresses how the dispersed application of Canada's defence capabilities undermines its credibility across the Indo-Pacific and the differing degrees to which it is viewed as a reliable security partner. Canada's operational behaviour is limited, dispersed, and is interpreted through distinct security priorities with respect to derisking and escalation management, consistency and coalition-building, and the utility of defence capabilities. DND/CAF's dispersed capabilities in the region are assessed by Indo-Pacific partners across three security logics: escalation aversion preferences within the ASEAN bloc, conditional tolerance limiting Canada's reputation as a reliable partner, and lastly, the Philippines' emphasis on having operational capabilities that address heightened security challenges which offset dispersion.

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Introduction

In 2022, the Government of Canada released its first-ever Indo-Pacific Strategy (IPS), framing the region as a 'new horizon of opportunity' central to Canada's long-term prosperity. The return of great power competition, China's assertiveness in disputed seas, and the need to diversify and expand trade, investment, and supply chain resilience underpin Canada's trajectory to be an active and engaged partner in the Indo-Pacific. Within the first five years of the mandate, Ottawa allocated \$2.3 billion to fund new initiatives and priorities across 17 federal departments and agencies with the next update for the Strategy to be announced in the 2026-2027 year. Of that allotment, \$492.9 million was set aside to enhance the operational capabilities of the Department of National Defence and the Canadian Armed Forces (DND/CAF).¹

In spite of these commitments, Canada's defence credibility is met with mixed reception by a number of Indo-Pacific countries. Ottawa's long history of prioritizing alliances in the Euro-Atlantic, given its relative proximity and previous military history on the continent, has hampered its commitments to expand elsewhere. In contrast to Europe, the Indo-Pacific region lacks comparable defence and security arrangements and institutional continuity. Some partners have welcomed Canada's increased defence engagement and participation in military exercises as a reflection of its commitment to regional stability. However, several comparatively smaller countries in the Association of Southeast Asian Nations (ASEAN) bloc are indifferent, or cautious of Canada's IPS and hard capability in the Indo-Pacific. For these states, the presence of extra-regional forces risks exacerbating major power rivalry and undermining region-led efforts to manage escalation.² To others, Canada represents a safe partner whose rhetoric and ideas on the preservation of the rules-based international order aligns with their efforts to push back on unilateralist actions, but it remains operationally limited in the Indo-Pacific theatre.

This paper argues that the dispersed application of Canada's defence capabilities undermines its credibility across the region by Indo-Pacific partners and their respective security priorities related to derisking and escalation management, consistency and coalition-building, and operational utility. It begins with a brief historical overview of Canada's defence and security commitments in the Indo-Pacific—formerly referred to as the Asia-Pacific—to illustrate the restructuring in Ottawa's priorities toward the region from values-based engagements on key issues towards economic pragmatism. The defence credibility-capability gap is conceptualized as a structural constraint on Canada's ability to meaningfully "show up" and sustain its deployments in the Indo-Pacific. The paper concludes that Canada should leverage its niche defence specialties to enhance credibility while avoiding the overextension of DND/CAF's current capacities.

Off Track: Canada's Struggle to Deliver on Defence and Security in the Indo-Pacific

Canada's historical approach to the Indo-Pacific region is marked by a tension between its foreign policy ambitions, constrained diplomatic resources and a need to balance hard security measures with soft power. One of the key factors limiting Ottawa's sustained engagement in the Indo-Pacific was then—as it is now—due to the Government's dwindling financial support for Track 1.5 and 2 dialogues and security dialogues starting in the mid-1990s under Prime Minister Jean Chrétien and continuing through tenures of Paul Martin and Stephen Harper.³ Canada retrenched from a values-based foreign policy and approach in the region towards the economic pragmatism currently pursued by Mark Carney's government. Ottawa's engagement in the Indo-Pacific continues to prioritize economic policy and trade partnerships at the expense of developing a deeper understanding of key regional issue areas including infrastructure and security.⁴ On the military side, over 1,000 CAF personnel were deployed as part of the United Nations Transitional Authority in Cambodia (UNTAC) under Operation MARQUIS

from 1992-1993 to assist with state reconstruction, maintenance of law and order, ensuring free and fair elections, resettling Cambodian refugees and displaced persons.

Canadian defence analysts question Canada's capacity to influence regional dynamics through hard capability measures in the Indo-Pacific, namely its inability to take on a more muscular role in supporting freedom of navigation in disputed waterways such as the South China Sea. The idea that Ottawa could help balance the scales in this strategic environment is viewed by some as "absurd" especially when considering the low number of Canadian warships in the Indo-Pacific that is "an inconsequential force as to be largely meaningless".⁵ Others suggest that Canada has no real strategic interests or "clout" to influence regional realities in the Indo-Pacific and that its approaches in the context of various territorial and maritime disputes are "relatively muted" and "confusing".⁶ These reactions are driven by the CAF's infrequent presence in the region, mixed messaging on strategic transits in disputed waterways, and incidents in which Canadian forces have been intimidated by Chinese aircraft highlighting the difficulty to overcome historic episodic engagement in a heightened security environment.

Canada also maintains longstanding participation in joint endeavours such as the Rim of the Pacific Exercise (RIMPAC), as a founding member of the world's largest international maritime warfare exercise, held biennially in the Western Pacific.⁷ RIMPAC represents Canada's longest and most extensive military contribution to the Indo-Pacific region and the 2024 iteration saw 700 CAF personnel consisting of sailors, soldiers, and aviators. The CAF also continues to operate under flagship contributions such as Operation NEON and PROJECTION with the latter of the two representing the Royal Canadian Navy's (RCN) forward presence mission to promote regional peace and stability in support of the rules-based international order, and the former overseeing the implementation of United Nations Security Council sanctions on North Korea.⁸ Canada's Indo-

Pacific presence began to pick up between 2017 and 2025 by air and sea in the South China Sea region and other locations. Official messaging surrounding these missions from the military lack clarity and consistency in the intent of these naval deployments in contested maritime spaces. Despite an emphasized position upholding international law, Canada avoids alignment with more assertive interpretations of maritime rights—especially in the Arctic—an avoidance that creates ambiguity regarding Canada's operational behaviour.⁹ For example, in September 2019, the HMCS *Ottawa* transited through the Taiwan Strait into the South China Sea. When asked about the nature of the mission, Canadian Joint Operations Command (CJOC) stated that the RCN "does not conduct so-called freedom of navigation operations aimed at challenging the territorial claims of other states".¹⁰ The ambiguity surrounding this—among other missions—demonstrates the tensions evident in Canada's Indo-Pacific engagement floating between increased presence and avoiding escalation. This dilutes the value of Canada's naval deployments, undermining the signal of strategic resolve to regional partners and rivals, and contributes to an overall uneven perception of its credibility-capability in the Indo-Pacific.

Furthermore, there are several known incidents in which Chinese forces under the People's Liberation Army Navy (PLAN) and Air Force (PLAAF) intercepted Canadian aircraft and came dangerously close to hitting another ship over the course of a particular mission. During a rare U.S.-Canada naval exercise, a Chinese warship came within proximity to colliding with the American destroyer USS *Chung-Hoon* when transiting the Taiwan Strait in June of that year.¹¹ In October, the CAF's *Aurora* aircraft was intercepted by Chinese forces flying in international airspace off the coast of China during an eight-hour long mission in which it launched multiple flares, one of which occurred near the front of the Canadian plane.¹² The dangerous maneuver against Canadian aircraft highlights the operational risks inherent in an environment where Canada is simultaneously attempting to expand its presence. However, Ottawa currently lacks both a fully realized strategic

framework and a clear, actionable pathway for enhancing its military capabilities to respond effectively to such escalations. Even as Canada increases its presence in the Indo-Pacific, its efforts are typically viewed as erratic rather than completely absent. However, dire results lack a clear operationalization of IPS priorities and strategic discipline.¹³ These considerations provide a snapshot of East and Southeast Asian perceptions of Ottawa's regional involvement and the 2022 IPS, explaining Canada's defence credibility-capability gap in operational terms.

Escalation-Aversion, Conditional Tolerance and Operational Utility

Against the backdrop of security issues in the Indo-Pacific, it is imperative to address China's role in shaping the strategic environment in which these states operate. Prior to the recalibration of Canada's relationship with China following the trade negotiations between Carney and President Xi Jinping in January 2026, Chinese officials routinely labelled Ottawa's rhetoric and actions in the Indo-Pacific as destabilizing and "attempts to stir up trouble".¹⁴ The 2022 IPS characterised Beijing as an "increasingly disruptive global power" that seeks to shape the international order into a more permissive environment for interests and values that appear, "increasingly different from ours".¹⁵ This drew Beijing's ire, which was reflected during Zhao Lijian of China's Ministry of Foreign Affairs (MOFA) regular press conference following the release of the IPS: "Canada's strategy concerning China is riddled with ideological bias, hypes up the so-called 'China threat' and launches unwarranted accusations and attacks against China."¹⁶ For the ASEAN bloc, distrust of China as a regional hegemon notwithstanding its challenges in responding to the variety of territorial, maritime, and border disputes between its members—remains the most potent factor conditioning ASEAN's responses to external influence and military presence in the Indo-Pacific.

The ASEAN bloc remains divided on escalation-aversion when it comes to addressing the region's noted flashpoints such as the multiparty South China Sea disputes. This is largely due to ASEAN members' hesitancy to view the world through what Kai Ostwald calls an "ideologically-infused-democracy-versus-autocracy-lens"¹⁷, preferring instead to avoid language that would otherwise force states to choose between China or U.S.-aligned security initiatives. The 2023 Joint Declaration of the ASEAN Defence Ministers' Meeting (ADMM) for Peace, Prosperity and Security underpins these sentiments as the statement warned against external forces creating, "major power rivalry that could threaten stability and peace in the Southeast Asia region and beyond".¹⁸ Malaysia and Singapore have carried a degree of skepticism towards Canada's involvement in the region since the early 1990s as so-called "cooperative security" dialogues were considered potential trojan horses for liberal democratic ideas and norms.¹⁹

In attempts to counter China's increasingly assertive posturing and extensive claims in the South and East China Seas, Canada positioned itself as a champion of the rules-based international order and stepped up its regional engagement, but not all ASEAN states embrace it. Malaysian foreign policy analyst Azmi Hassan suggests that Canada's entry into the South China Sea disputes vis-à-vis joint naval and air force drills with Australia impacts ASEAN's ability to achieve a unified stance on the issue, stating that if the goal is to safeguard international order, "then bolstering Canada's presence in the Arctic region makes more sense".²⁰ While Ottawa views its increased naval activity as a necessary defence of the rules-based international order, not all ASEAN actors perceive it as potential disruption to a delicate political environment.

Canada's influence in the Indo-Pacific is further constrained by ASEAN states' rejection of Ottawa's membership bids to the East Asia Summit (EAS) and ADMM. According to a 2025 Ipsos public opinion research study commissioned for Global Affairs Canada (GAC), regional experts from

Indonesia and the Philippines stressed that ASEAN's centrality plays a significant role in navigating regional security issues. While an increase in mechanisms and platforms where ASEAN countries can engage with different states is seen as a positive, such experts also noted that internal divisions and pressures from these frameworks may undermine "ASEAN's effectiveness as a forum for multilateral cooperation".²¹ Such reflections are broad, but are indicative of regional states' hesitation towards the inclusion of external military forces in the Indo-Pacific environment.

Canada's dispersed military capabilities are tolerated by Japan and Australia insofar as values and diplomatic approaches are aligned. However, this does not immediately translate to being considered a reliable security partner. Japan actively welcomes Canada's defence engagement and support of Tokyo's Free and Open Indo-Pacific (FOIP) strategy through participation in joint naval and air exercises. However, there are areas where Canada continues to struggle, particularly as it relates to the periodic deployments to the Indo-Pacific, given its primary Arctic and Atlantic-based operations.²² By comparison, Japan is enmeshed in the region's various defence and security issues given that it routinely deals with provocations from China and grey-zone threats.²³ Additionally, Tokyo has not fully embraced Canada's economic and security partnership diversifications away from the United States. The recent election of Japanese Prime Minister Sanae Takaichi presents another hurdle for Canada, given her affinity for U.S. presence in the region and her mentorship under the late Shinzo Abe, a close ally of President Donald Trump.²⁴ As Takaichi continues to hold Trump in high regard, diversification away from American initiatives is likely to find no resonance with Japan.²⁵ The two countries are increasing their ability to jointly develop military systems and share technology that—in turn—permits Tokyo to export defence hardware to Ottawa.²⁶ Yet, many of these strategic agreements are in the early negotiating stages with likely months or years of work still to come in finalizing them.²⁷ What Stephen Nagy terms the "progressive elements" of the IPS, including Canada's

engagement on Indigenous issues, have received little praise in the region – nor has the Strategy as a whole.²⁸

Australia, meanwhile, has publicly aired grievances over Canada's attempts at deeper Indo-Pacific involvement. In 2017, Canberra joined several ASEAN member states in blocking Ottawa's bid for EAS membership after then-Prime Minister Justin Trudeau's last-minute withdrawal from the Trans-Pacific Partnership (TPP) negotiations at the Asia Pacific Economic Cooperation (APEC) Summit.²⁹ The EAS, a strategic dialogue convening on issues of regional defence and security issues, remains closed off to Canada to the present day. Canada has also been caught off guard by its exclusion from AUKUS. At the time, this was seen as putting DND/CAF at risk of being left behind from developing new military capabilities.³⁰ Even when the RCN increased its presence through maritime patrol and supporting long-term deployments, Australians still consider Canada as playing a supporting role.³¹ There are signs of change, however, as Canberra has welcomed Ottawa's increased defence presence throughout the Indo-Pacific region related to its participation in Exercises KAKADU and TALISMAN SABRE designed to provide logistics support and other joint military operations.³² Through the lens of conditional tolerance, Canada's defence involvement in the Indo-Pacific is appreciated when it shows up through joint military exercises or a stated commitment to increase its presence. However, Canada's contributions to regional peace and stability remain inconsistent, leaving it excluded from some of the more high-level security arrangements among likeminded partners. This is where Canada's credibility-capability gap hurts the most.

The Philippines, by contrast, prioritizes concentrated capability. Canada's specialization in maritime domain awareness (MDA) and the Dark Vessel Detection (DVD) program align closely with Manila's security needs, offsetting DND/CAF's otherwise dispersed regional presence. Manila evaluates Ottawa's growing commitments to the region's defence and security through formal

participation in wargames, joint exercises, strategic transits, and advancing military cooperation vis-à-vis bilateral agreements the most positively. In November 2023, the Department of Fisheries and Oceans (DFO), in collaboration with Defence Research and Development Canada (DRDC), launched the DVD program in the Philippines that utilizes advanced satellite technology to track vessels that disable their navigational positioning and “go dark”.³³ This precedes the 2025 conclusion regarding the Status of Visiting Forces Agreement (SOVFA) that enables the CAF to legally deploy equipment, easily transit through Philippine waters, and conduct large-scale joint exercises.³⁴ Just recently, CAF members took part in the annual military exercise Balikatan hosted by Manila where Canada has previously participated as an observer.³⁵ Here, Canada's defence credibility is assessed on practical usefulness of the capabilities and technologies DND/CAF can offer Philippine forces rather than the consistency of its deployments to the Indo-Pacific region.

Indo-Pacific countries broadly view Canada's engagement as episodic and its capabilities as dispersed. Canada is generally seen as a diplomatically congenial partner to a number of ASEAN states, Japan, and Australia. However, the ASEAN community typically stresses against extra-regional powers taking perceived provocative or escalatory actions while the other seeks consistency and intentionality in deployments over their scale. Based on its operational needs and what DND/CAF has to offer, the Philippines is Canada's most enthusiastic security interlocutor, and thus the credibility-capability gap least matters here. As a middle power with a limited military history in the region, Canada can nonetheless take concrete steps to embed itself into existing security architectures and enhance its credibility with skeptical partners.

What can Canada do to Address its Credibility-Capability Gap?

Building on insights from the region, what practical measures can Canada take to strengthen its

defence and security posture in the Indo-Pacific? The answer depends fundamentally on the security logic Canada seeks to advance. Whatever Ottawa decides, a uniform expansion of DND/CAF's presence across the Indo-Pacific is unlikely. Instead, Canada should tailor its actions to the distinct security preferences of regional states. ASEAN states prioritize predictability, centrality, and the deescalation of great power rivalry in the Indo-Pacific region, meaning that strategic transits and formal alliance-building inherently complicate this agenda. Canada would be better served by pursuing defence policy and security dialogues with ASEAN member states tailored to account for variations among states in the bloc. However, should Canada decide to increase its air and naval presence in the region through participation in operations resembling those like the U.S. Navy's Freedom of Navigation Operations (FONOPs), ASEAN states are likely to recoil and be even more wary of Canada's regional involvement. Where possible, Canada may derive most benefit from pursuing activities and initiatives in maritime governance, expanding capabilities such as the DVD program that assists coastal states tackling security threats, such as illegal fishing, shadow fleets, and other grey-zone operations, in or off the coast of their waters. When possible—Canada ought to look for ways in which it can bridge its defence capabilities to satisfy those that are escalation-averse and are inclined towards operational utility.

There is also a question of how Canada can support Taiwan's resilience against grey-zone threats. The Government's position on the “One China” principle, Canada not only has a unique opportunity to learn from Taiwan's own distinct security logics but also to contribute to them. Given Taipei's exclusion from many international institutions and state-to-state relations especially on defence and security matters, creative diplomacy and maneuvering in a world where it has limited state recognition has become an imperative for the island.³⁶ Taiwan demonstrates a level of skill through its attempts to join international and regional forums under a pseudo-name or entity that does not make mention of its statehood. In trying

to exert influence and generate outcomes that other actors may not anticipate, Taiwan demonstrates a sophisticated ability to understand and engage in the processes through which international rules are created, interpreted and negotiated. Therefore, Taipei leverages this expertise as a source of political power.³⁷ Learning from Taipei's ability to navigate between a rock and a hard place without crossing political red lines could yield unexpected insights and praise from those around the region that are becoming increasingly committed to Taiwan's security, such as Japan. This could also address Canada's credibility-capability gap, which is most pronounced among likeminded partners who welcome Ottawa's increased commitments but remain hesitant to rely on them.

Such endeavours are beginning to take shape. In August 2025, Canada's Trade Office in Taipei and Taiwan's MOFA signed a Memorandum of Understanding (MoU) to share data regarding illegal fishing vessels and ships conducting other grey-zone or illicit activity through the DVD program.³⁸ While such developments were quietly reported on Canada's end, major Taiwanese outlets such as *Focus Taiwan* and *Taipei Times* covered the agreement in detail, highlighting the benefits that this technology provides for Taiwan's Coast Guard operations.³⁹ Beijing typically reacts and escalates its military drills in the Taiwan Strait following activities from which it perceived an implication of Taiwanese sovereignty, involving the transfer of weapons or defence systems, or reflect closer ties and formal alliances.⁴⁰ In framing support for Taiwan's resilience as defence-oriented rather than being on the offence, Canada can pre-empt potential criticisms from Beijing's side and avoid self-censorship.

Conclusion

Canada's defence credibility-capability gap in the Indo-Pacific stems from a fundamental misalignment between how Ottawa engages the region and what neighbouring actors want in terms of external security involvement. It is not a question of scale – the challenge for DND/CAF is one of

strategic fit. Japan and Australia prioritize consistency and high-visibility deployments while ASEAN states prefer restraint and a deeper understanding of the region's security cultures. The Philippines—by contrast—remains open to states seeking to increase their Indo-Pacific presence and exporting defence and security capabilities that its forces can operationalize. Canada does not (and should not) need to compete with major powers in the region, but should instead position itself as a reliable, low-escalatory security partner that complements regional states' preferences without disrupting existing dynamics. In navigating these three dominant security logics and accounting for potential others in the region, Canada has a real opportunity to distinguish itself in aligning its defence capabilities and known specializations to meet regional priorities. Canada's defence credibility-capability gap cannot be closed by treating the Indo-Pacific as a homogeneous security environment. It demands a nuanced engagement with each state's distinct security concerns. Canada does not need to reinvent the wheel when it comes to the execution of its defence and security objectives in the IPS. It needs to modulate the output of DND/CAF by focusing on areas where its efforts can account for ASEAN centrality and cautious culture, while also contributing towards maritime security and capacity-building that can be framed as low-escalation tools intended to curb illicit activities at sea.

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Threats From Below the Surface: What Canada Can Learn About Critical Undersea Infrastructure from the Baltic Sea and Taiwan Strait

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Abstract

Incidents on critical undersea infrastructure (CUI) have emerged as a significant and growing security challenge. Yet Canada has not clearly articulated how it should respond to interference targeting CUI, an issue of increasing importance as Arctic connectivity expands. This paper addresses that gap by comparing responses to suspected attacks on CUI in two theatres: the Baltic Sea and the Taiwan Strait. Although both regions have experienced cable disruptions, they differ in their institutional contexts and response models. In the Baltic Sea, responses are shaped by alliance-based coordination through NATO, whereas in the Taiwan Strait, Taiwan has relied more heavily on national resilience, technological adaptation, and infrastructure redundancy. Using a comparative case study, this paper assesses the ability of both approaches to mitigate disruption and deter recurrence. It argues that while NATO's approach offers important advantages in coordination and deterrence, Taiwan's emphasis on resilience and redundancy provides equally valuable lessons for states determined to protect their national security. These insights carry important implications for Canada, which has yet to articulate a comprehensive strategy for protecting such infrastructure from hybrid threats. As Arctic connectivity expands, new submarine cable projects emerge, and the North assumes greater strategic importance, this gap is becoming increasingly consequential. By examining the Estonian and Taiwanese approaches, this paper identifies lessons that help inform the development of a Canadian framework for CUI protection. It highlights the need for greater domestic investment in infrastructure redundancy, rapid repair capabilities, and enhanced detection and monitoring systems, alongside strengthened diplomatic engagement and outreach with trusted partners.

Introduction

Critical Undersea Infrastructure (CUI) forms the largely invisible “backbone” of global connectivity.¹ These systems carry the majority of international data traffic and underpin essential services ranging from financial transactions and government communications to everyday digital interactions.² Despite their centrality, CUI remains physically fragile, difficult to monitor, and insufficiently governed, making it an attractive target in an era of intensifying geopolitical competition. As dependence on these networks deepens, their damage can have cascading effects across states’ national security. A disruption in these networks would not merely slow systems but could cause them to “snap to a halt”.³ For Canada, the issue is particularly salient. The country’s connectivity depends heavily on infrastructure routed through its Southern neighbour and a limited number of cables linking it to the rest of the world, creating vulnerabilities that could become consequential.⁴ At the same time, expanding CUI presents significant opportunities for Northern connectivity and development. In its 2023 report *A Secure and Sovereign Arctic*, the House of Commons Standing Committee on National Defence recommended that Canada work with partners to support the construction of additional subsea cables in order to improve connectivity across the Arctic.⁵ As new cable projects move from concept to implementation, ensuring their security and resilience will become an increasingly important national security consideration.

In this context, hybrid threats have emerged as a challenge. Broadly defined, they encompass actions conducted below the threshold of armed conflict, often combining military, civilian, technological, and informational tools while maintaining plausible deniability.⁶ The maritime domain, characterized by legal ambiguity and limited visibility, is especially conducive to such operations.⁷ Undersea cables, in turn, represent ideal targets: they are high-value, low-visibility assets that can be disrupted with relatively limited means, complicating attribution and response. Damage is often caused by civilian vessels engaging

in typical activities like anchoring, making it difficult to distinguish between accidental and deliberate sabotage.⁸

Recent global developments underscore this growing risk. In April 2026, an Iranian state-linked media outlet published detailed mappings of submarine cables transiting the Strait of Hormuz, implicitly signalling their vulnerability as potential targets.⁹ Around the same time, the United Kingdom and Norway concluded an operation tracking Russian submarines suspected of surveilling CUI in the North Atlantic.¹⁰ These dynamics are further rendered evident in the Baltic Sea and the Taiwan Strait.¹¹ Since 2022, the Baltic region has experienced multiple incidents involving damaged cables, often linked to vessels associated with Russia.¹² Similarly, Taiwan has faced repeated disruptions to its CUI network by Chinese vessels.¹³ These cases illustrate how CUI has become embedded within broader patterns of grey zone threats (see [Table 1](#) for a detailed timeline).

Despite these developments, Canada has yet to articulate a strategy for protecting CUI, potentially exposing its infrastructure. Accordingly, this paper argues that Canada should adopt a layered approach to CUI protection that combines collective security with national resilience measures. Alliance-based action, or “collective security”, as exemplified by NATO and the European Union’s (EU) role in protecting Baltic and Estonian CUI, and resilience-based mitigation, as pursued by Taiwan, should be understood as complementary approaches. Neither is sufficient on its own: collective security can strengthen deterrence through coordinated surveillance, information sharing, and allied action, while resilience reduces the vulnerabilities and mitigates the consequences of attacks – a deterrent in its own right. Drawing on the experiences of Estonia in the Baltic Sea and Taiwan in the Taiwan Strait, this paper suggests recommendations for strengthening Canada’s approach to CUI.

Understanding the Threat to Critical Undersea Infrastructure

CUI refers to the systems located on or beneath the seabed that enable essential economic, societal, and security functions. Foremost among them are submarine communications cables – though the category also encompasses undersea energy infrastructure, including pipelines and power cables. These cables carry approximately 99 per cent of intercontinental data traffic, facilitating everything from financial transactions, military communications, and everyday digital interactions such as emails and text messages.¹⁴ Far from abstract “cloud” systems, global connectivity relies on a dense network of cables laid across the ocean floor, connecting states through landing stations. Their strategic importance is reflected not only in their economic role but also in their function as critical national security assets.¹⁵ Disruption to these systems can generate negative cascading effects across financial systems, emergency services, and government operations.

CUI’s Vulnerabilities

CUI systems are inherently vulnerable. Submarine cables are often only a few centimetres in diameter and, in deep-sea environments, laid directly on the seabed. Moreover, information about their routes and locations is publicly available through open-source databases such as TeleGeography’s Submarine Cable Map.¹⁶ This exposure makes them susceptible to both accidental damage and deliberate interference.

Monitoring these systems remains a challenge. The maritime domain is vast, remote, and difficult to surveil, with more than 550 active or planned submarine communications cables spanning approximately 1.4 million kilometres of seabed.¹⁷ This scale limits states’ ability to detect and respond to suspicious activity in real time. Even when suspicious vessels are identified, responding effectively remains difficult due to jurisdictional constraints. Existing frameworks such as the 1884 Convention for the

Protection of Submarine Telegraph Cables and the United Nations Convention on the Law of the Sea (UNCLOS) provide only partial protection and are poorly adapted to contemporary hybrid threats, particularly outside territorial waters.¹⁸ As a result, European authorities have struggled to intervene or conduct thorough investigations in the Baltic Sea. Finland’s handling of the 2024 Estlink 2 cable incident illustrates this challenge: although the vessel was intercepted, the damage occurred in its Exclusive Economic Zone (EEZ), limiting the state’s ability to prosecute.¹⁹

These operational constraints are further exacerbated by fragmented governance: cables are largely privately owned and operated, while legal protections are dispersed across international conventions, domestic regulations, and commercial agreements. Repair capacity compounds this vulnerability. Cable restoration is complex, costly, and dependent on a limited number of specialized vessels. Without significant expansion of dedicated repair ships, capacity is likely to lag behind growing demand, pushing restoration times beyond the current forty-day benchmark.²⁰ Moreover, repairs are expensive – typically ranging from \$1-3 million – and require highly specialized vessels and crews.²¹

Case Study 1: Baltic Sea

Pattern of Incidents

Since 2022, the Baltic Sea has experienced a sustained pattern of disruptions affecting CUI, marking a shift from isolated incidents to a more persistent and concerning trend.²² The 2022 sabotage of the Nord Stream pipelines served as a catalyst, demonstrating the vulnerability of seabed infrastructure to deliberate targeting, and prompting a broader reassessment of maritime security.²³

Between 2022 and 2024, multiple incidents involving damaged telecommunications cables and energy infrastructure were recorded across the region. These disruptions frequently occurred outside territorial waters and involved civilian vessels.²⁴

In 2023 and 2024, damage to the Balticconnector (Finland-Estonia) pipeline and the C-Lion1 cable (Finland-Germany) reinforced concerns about a pattern of interference from vessels linked to Russia and China.²⁵ The situation intensified in early 2025, with a notable surge in incidents near Finland, Sweden, and Estonia. Although some events were later attributed as accidents, the broader pattern – vessels departing from Russian ports or associated with Russia’s so-called shadow fleet – raised suspicions of threatening activity.²⁶ Disruptions continued later into 2025, and by early 2026, the Baltic Sea had become a focal point of concern for threats targeting CUI. While attribution remains uncertain in most cases, the recurrence, geographic clustering, and involvement of suspicious vessels suggest a deliberate strategy of disruption.

Estonia’s National Response

At the state-level, Estonia’s response has combined operational, legal, and institutional measures. Operationally, Estonia has taken a more assertive stance in protecting CUI. Following the December 2024 Estlink 2 incident, the Estonian navy deployed assets to protect the remaining Estlink 1 cable, signalling a willingness to use military capabilities in safeguarding CUI. This was accompanied by a broader centralization of responsibility for CUI protection under the navy.²⁷ Surveillance and monitoring have also been expanded, both nationally and in coordination with regional partners such as Finland.²⁸

At the legal level, Estonia has pursued domestic and international avenues. Domestically, legislative reforms seek to expand criminal liability for damage to CUI and strengthen enforcement mechanisms.²⁹ Internationally, Estonian officials have begun exploring the application of existing legal frameworks, including provisions under UNCLOS Article 101 – piracy, to address threats.³⁰ However, these efforts face significant constraints: reinterpretation or expansion of UNCLOS provisions is politically contested, and key perpetrators are

unlikely to support or adhere to such efforts. As a result, meaningful legal change remains improbable.

Alliance-Based Layer

A defining feature of Baltic Sea-adjacent states’ response is their integration within broader alliance frameworks, particularly NATO and the EU, which significantly amplify any state’s capabilities. Following increased incidents, NATO expanded maritime patrols and surveillance activities across the Baltic Sea. The most significant development was the launch of Baltic Sentry in 2025, a multi-domain operation involving naval vessels, patrol aircraft, and unmanned systems aimed at enhancing maritime situational awareness and deterrence.³¹ These efforts have been reinforced by NATO’s broader initiatives on CUI, including the establishment of a dedicated coordination cell and the Maritime Centre for the Security of CUI.³²

At the EU level, the focus has been more regulatory and resilience-oriented. Key frameworks such as the NIS2 Directive and the Critical Entities Resilience Directive require member states to broadly strengthen the security and resilience of critical infrastructure.³³ These have been complemented by more targeted initiatives, including the 2025 EU Action Plan on Cable Security, as well as a portfolio of 13 “Cable Projects of European Interest” to be developed over the next 15 years – two of which aim to “establish a connection through the West Arctic passage and the Arctic Ocean”.³⁴ For a detailed list of actions in response to CUI incidents by Estonia, NATO, and the EU, see [Table 2](#) in the appendix.

Case Study 2: Taiwan Strait

Pattern of Incidents

The Taiwan Strait has experienced a sustained pattern of disruptions affecting CUI, with recent incidents increasing in frequency. While cable damage is not new, the clustering and characteristics of disruptions suggest a shift toward persistent grey-zone pressure by China. Between 2019 and 2023, Taiwan

recorded 36 instances of cable damage, with a noticeable spike in 2023, including repeated disruptions around the Matsu Islands.³⁵ One of the most significant incidents occurred in February 2023, when two submarine cables connecting Taiwan to the Matsu Islands were severed by Chinese vessels, leaving thousands of residents without internet for weeks.³⁶ These events exposed the vulnerability of Taiwan's peripheral regions to Chinese interference.

The pattern continued into 2025, with incidents involving vessels operating under flags of convenience and exhibiting suspicious behaviour, such as anchor dragging along cable routes.³⁷ At least one additional incident has been reported in 2026 involving suspected damage near the Matsu Islands linked to Chinese vessel activity, though the precise nature of the incident remains unclear.³⁸ These incidents suggest a pattern of sustained grey-zone pressure, in which Chinese state-linked actors exploit ambiguity to damage Taiwanese infrastructure while avoiding escalation.

Taiwan's Response Model

Unlike Estonia, Taiwan operates without the benefit of formal alliance structures. As a result, its response to threats is largely domestically driven and shaped by structural constraints, including limited diplomatic recognition and restricted access to collective security mechanisms. These extend to CUI: Taiwan's operational resources remain comparatively limited in scale, restricting its ability to monitor and protect maritime infrastructure in real time.³⁹

While Taiwan has strengthened its domestic legislative framework and enhanced maritime monitoring, its strategy has primarily centred on resilience rather than deterrence.⁴⁰ This is reflected in a strong emphasis on redundancy, including the expansion of its CUI networks.⁴¹ To put this in perspective, Taiwan's network remains concentrated, made up of roughly 15 submarine cables, creating significant vulnerabilities if multiple lines are simultaneously disrupted.⁴² In response, Taiwan has

pursued partnerships with providers to integrate low-Earth orbit satellite connectivity into its communications architecture, providing an alternative means of maintaining connectivity in the event of cable disruption.⁴³ While these systems cannot fully replace fibre-optic capacity, they are sufficient to sustain essential services and mitigate the societal impact of disruptions. Rapid repair capacity has also been prioritized. Taiwan has joined international cable maintenance agreements to improve access to repair vessels and reduce restoration times, while investing in domestic coordination mechanisms to accelerate response and recovery.⁴⁴ For a detailed list of actions in response to CUI incidents by Taiwan consult [Table 3](#) in the appendix.

Implications for Canada

Canada faces growing plausible vulnerabilities as CUI expands, particularly in the Arctic. Planned and proposed projects – including Polar Connect and Far North Fibre – will increase reliance on undersea connectivity across Northern waters.⁴⁵ At the same time, the Arctic remains vast, remote, and sparsely monitored, limiting the ability to detect and respond to disruptions in real time.⁴⁶ These risks are compounded by limited repair capacity and heavy reliance on privately owned infrastructure.⁴⁷

While Canada has taken some steps, primarily through international cooperation and incremental domestic investment, important gaps remain. It has endorsed multilateral initiatives such as the G7 Joint Statement on Cable Connectivity (2024), the United Nations (UN) Joint Statement on Undersea Cable Security (2024), and the G7 Foreign Ministers Declaration on Maritime Security and Prosperity (2025), committing to enhancing cooperation, risk mitigation, and repair capacity to strengthen the resilience of CUI.⁴⁸ Recent defence policy investments in maritime surveillance, satellite communications, and Arctic operational hubs signal growing recognition of the threat.⁴⁹ However, Canada still lacks a dedicated national strategy for CUI, and existing frameworks, such as the 2021-2023 Action

Plan for Critical Infrastructure, only address the issue indirectly.⁵⁰ Furthermore, Canada has no sovereign cable repair capabilities able to withstand the Arctic's icy environment.⁵¹

The experiences of Estonia and Taiwan suggest that neither collective security nor national resilience alone is sufficient to address contemporary threats to CUI. Estonia's experience demonstrates the value of collective security. Through NATO-led initiatives, allied surveillance and coordination have improved, enabling faster detection and response.⁵² While incidents did not immediately decline, the absence of disruptions since January 2026 may indicate an emerging deterrent effect. Nevertheless, attribution challenges and legal constraints continue to limit enforcement. More broadly, Estonia illustrates how smaller states can leverage collective security arrangements to achieve levels of maritime domain awareness (MDA), coordination, and deterrence that would be difficult to sustain independently.⁵³ For Canada, this underscores the importance of deepening cooperation with NATO and like-minded partners to strengthen MDA, intelligence sharing, and coordinated responses to potential CUI incidents.

By contrast, Taiwan's response highlights the importance of national resilience when preventive measures are insufficient. The island has invested heavily in cable redundancy, alternative communications systems, and rapid repair capabilities. Greater cable density and route diversification allow traffic to be rerouted when cables are damaged, helping limit the impact of disruptions.⁵⁴ However, the effectiveness of these measures in the event of coordinated or large-scale attacks remains uncertain, given Taiwan's relatively small number of cable connections and constrained naval capacity.⁵⁵ Canada faces similar challenges in the Arctic, where vast distances, harsh environmental conditions, and limited infrastructure complicate rapid response and recovery.

Together, these cases suggest that Canada should pursue a layered approach to CUI protection that combines collective security with national

resilience. Strengthening cooperation with allies can improve prevention, detection, attribution, and coordinated response, while investments in redundancy, repair capacity, and alternative communications can reduce the consequences of disruptions that cannot be prevented. Rather than viewing these approaches as alternatives, Canada should integrate them into a comprehensive strategy that enhances both the security and resilience of its CUI.

Beyond those measures, both Estonia and Taiwan have sought to strengthen CUI security through international cooperation and norm-building. Estonia has worked through NATO, the EU, and regional frameworks such as the Joint Expeditionary Force to elevate CUI protection on allied agendas, contributing to initiatives like Baltic Sentry and Nordic Warden. Taiwan has pursued its own diplomatic strategy. In 2025, it launched the "Risk Mitigation, Information Sharing, Systemic Reform, and Knowledge Building" (RISK) initiative on international undersea cables, and convened the 2025 Taiwan-Europe Undersea Cable Security Forum, seeking to build international cooperation on CUI.⁵⁶ For Canada, these efforts highlight the opportunity of complementing national action with international engagements. As Northern connectivity projects begin to expand, Canada has the timely opportunity to play a more active role in shaping emerging international frameworks, norms, and cooperative mechanisms for CUI security, in view of these developments.

Recommendations for Canada

In an era of heightened geopolitical tensions and hybrid threats, Canada's approach to CUI should move beyond incremental improvements toward a more integrated and forward-looking strategy. The experiences of Estonia and Taiwan demonstrate that CUI protection – and deterrence against threats – involves both collective security and resilience measures. For Canada the priority should be to develop a layered model that combines domestic preparedness, allied coordination, technological

monitoring, infrastructure redundancy, and international norm-building.

First, Canada should *develop a dedicated national strategy for CUI protection*. The Interdepartmental Maritime Security Working Group should establish an ad hoc working group to conceptualize a strategy which defines departmental responsibilities and formalizes coordination with private-sector operators, who own and maintain much of the infrastructure.⁵⁷ It should also consult Northern and Indigenous communities, which will be impacted by the development, operation, and protection of such infrastructure. Without a clear governance framework, Canada's response will remain reactive, fragmented, and overly dependent on unstructured coordination during crises.

Second, Canada should *prioritize persistent, layered MDA* in the Arctic. This requires moving beyond periodic patrols toward continuous monitoring through satellites, seabed sensors, autonomous platforms, patrol aircraft, and AI-enabled threat detection. The Baltic experience demonstrates that detection speed is central to deterrence. What matters most is not simply presence, but the ability to identify suspicious activity, attribute patterns of behaviour, and respond quickly enough to impose costs or prevent further damage. For Canada, this means integrating CUI monitoring into broader Arctic surveillance investments under *Our North, Strong and Free* (2024), North American Aerospace Defense Command (NORAD) modernization, and future maritime security planning.

Third, Canada should *deliberately leverage alliance frameworks* as force multipliers. Rather than treating CUI Arctic initiatives as peripheral, Canada should frame it as a collective security challenge, particularly through NATO, the G7, and cooperation with the EU. Canada should actively shape emerging Arctic initiatives by ensuring that operations such as Arctic Sentry incorporate CUI monitoring, hybrid-threat scenarios, and coordinated response mechanisms.

Canada should also deepen collaboration with European and Indo-Pacific partners that have accumulated significant operational experience protecting CUI. One practical step would be to adopt the “Guiding Principles for Underwater Infrastructure Defence Exchanges” (GUIDE), a voluntary framework for CUI protection recently endorsed by 17 countries – including Estonia, France and the United Kingdom.⁵⁸ Doing so would strengthen information sharing, facilitate the adoption of emerging best practices, and further integrate Canada into a growing network of middle-power states focused on safeguarding CUI.

Fourth, Canada should *treat resilience as a national security imperative*, not a technical afterthought. Taiwan's experience shows that continuity of service is crucial in national security. For Canada, this means incentivizing redundancy in cable routes, expanding satellite backup capacity, and developing access to dedicated repair capabilities. New Arctic cable projects should be assessed for their commercial value and for their contribution to national resilience.

Fifth, Canada should *invest in repair preparedness*. Global cable repair capacity is limited, and Arctic conditions make repair operations especially complex. Notably, Canada's Arctic is not covered by any of the six major international cable maintenance agreements that provide coordinated repair services for submarine cables. While portions of Canada's Atlantic connectivity benefit from private arrangements such as the Atlantic Private Maintenance Agreement (APMA), no comparable mechanism exists for much of the Arctic. As Northern cable development begins, Canada must explore options for guaranteed access to repair vessels, participation in regional maintenance agreements, and public-private contingency planning. This does not necessarily require Canada to operate its own dedicated cable repair fleet, but it does require a clear strategy for how damaged infrastructure can be restored under crisis conditions, in the icy conditions of Canada's North. Regular exercises involving federal departments, operators, Indigenous and Northern governments,

allies, and emergency management actors would help identify gaps before a disruption occurs.

Finally, Canada should play a more active role in advancing legal and normative frameworks for CUI protection. While reforming or reinterpreting UNCLOS remains difficult, coordinated state practice and diplomatic pressure can gradually shape expectations around responsible behaviour, due diligence, and enforcement. Canada should work with like-minded partners through NATO, the G7, the UN, and other multilateral forums to clarify norms against deliberate interference with CUI. Domestically, Canada should also review whether existing legislation sufficiently protects CUI in its territorial waters.

Conclusion

To conclude, CUI has become central to modern economic and national security, yet remains highly vulnerable to hybrid threats. Responses in the Baltic Sea and Taiwan Strait offer potential ways forward: Estonia's alliance-based approach strengthens deterrence, coordination, and detection, while Taiwan's resilience-based strategy ensures continuity under disruption.

For Canada, the key takeaway is clear. Protecting CUI requires integrating both approaches – combining deterrence through allied coordination with robust domestic resilience. As Arctic connectivity expands, so too will Canada's exposure to threats from below the surface, making proactive, layered responses necessary to national security.

Appendix

Table 1: Working Summary of Major Reported CUI Incidents Since 2022 in the Baltic Sea and Taiwan Strait (as of April 2026)

Month/Year	Area	Incident/CUI affected	Impact on which countries	Alleged/suspected actor
September 2022	Baltic Sea	Nord Stream 1 and 2 pipeline explosion	Germany, Russia, broader European energy security	Ukraine
February 2023	Taiwan Strait	Two submarine internet cables cut	Taiwan (Matsu Islands)	China
October 2023	Baltic Sea	Baltic connector gas pipeline and telecom cables damaged	Finland, Estonia, Sweden	Russia and China (possible coordination)
November 2024	Baltic Sea	C-Lion1 and BCS East-West telecom cables severed	Finland, Germany, Lithuania, Sweden	China
December 2024	Baltic Sea	Estlink 2 electricity cable and 4 communication cables damaged	Finland, Estonia, Sweden	Russia
January 2025	Taiwan Strait	Submarine cables northeast of Taiwan damaged	Taiwan	China
January 2025	Baltic Sea	Submarine cable damaged	Latvia, Sweden	Bulgaria (accidental)
February 2025	Baltic Sea	Additional damage to C-Lion1 cable near Gotland	Finland, Germany	Cause unclear
February 2025	Taiwan Strait	Submarine cable severed	Taiwan (Penghu Islands)	China (captain charged)
December 2025	Baltic Sea	One submarine cable damaged, possible second cable damaged	Finland, Estonia	Russia
January 2026	Baltic Sea	Sventoji-Liepāja submarine cable damaged	Latvia, Lithuania	Cause unclear
April 2026	Taiwan Strait	Submarine cable damaged	Taiwan (Matsu Islands)	China

Provides an overview of major reported CUI incidents since 2022 in the Baltic Sea and Taiwan Strait, illustrating patterns in frequency, geographic distribution, and suspected actors.

Note: Additional incidents have been recorded beyond the Baltic Sea, including cable disruptions near Svalbard (January 2022) and the Shetland Islands (October 2022), as well as reported malign Russian submarine activity in the Atlantic (April 2026).

Table 2: Overview of Responses to CUI Incidents: Estonia, the EU, NATO (as of April 2026)

Year/Date	Actor	Measure/Action	Dimension
2022	NATO	Increased naval + air patrols post-Nord Stream attacks	Military / Operational
2022	EU	NIS2 Directive adopted	Legal / Diplomatic (Regulatory)
2022	EU	CER Directive	Legal / Diplomatic (Regulatory)
2022	NATO	Strategic Concept updated	Military / Operational
March 2023	EU + NATO	Joint Task Force on Critical Infrastructure Resilience	Legal / Diplomatic; Operational
February 2023	NATO	CUI Coordination Cell	Military / Operational
October 2023	Estonia	Increased regional coordination post-Baltic connector	Military / Operational; Legal / Diplomatic
2023	NATO	Exercises (Dynamic Mongoose, Steadfast Defender)	Military / Operational
September 2024	Estonia	MoU on underwater infrastructure protection	Military / Operational; Legal / Diplomatic
2024	NATO	Maritime Centre for Security of CUI established	Military / Operational (Institutional)
2024	EU	Recommendation on Submarine Cable Security	Legal / Diplomatic; Technological / Resilience
December 2024	Estonia	Naval deployment to protect Estlink 1	Military / Operational
January 2025	NATO	Baltic Sentry operation launched	Military / Operational
2025	Estonia	Operation Nordic Warden (JEF, UK-led)	Military / Operational
2025	NATO	Task Force X-Baltic	Military / Operational; Technological / Resilience
2025	EU	Action Plan on Cable Security	Military / Operational; Legal / Diplomatic; Technological / Resilience
2026	EU	Cable Security Toolbox and Priority Projects	Technological / Resilience
2026	EU	Bill 656 (Penal Code amendments)	Legal / Diplomatic (Regulatory)
2025	NATO	Task Force X-Baltic Phase II (experimental integration + wargame + regional operations centre)	Military / Operational; Technological / Resilience

Outlines the range of responses by Estonia, NATO, and the EU, highlighting the multidimensional nature of alliance-based approaches across operational, legal, and resilience domains.

Note: This table includes only publicly announced, agreed, and verifiable measures. Unconfirmed or merely proposed actions (such as reported Baltic State coordination on UNCLOS or the EU's proposed reserve cable repair fleet) are not included.

Table 3: Overview of Responses to CUI Incidents: Taiwan (as of April 2026)

Year/Date	Measure/Action	Dimension
2023	Amendment to Telecommunications Management Act to include submarine cables and increase penalties	Legal/Diplomatic (Regulatory)
2023	Expansion of microwave radio backup communications capacity	Technological/Resilience
2023	Deployment of Submarine Cable Automatic Warning System (SAWS) using AIS tracking	Military/Operational; Technological/Resilience
February 2023	Response to Matsu cable cuts (monitoring, repair coordination, increased awareness)	Military/Operational
2024	Launch of “three-dimensional” resilience strategy (cables + satellites + terrestrial systems)	Technological/Resilience
2024	Partnerships with LEO satellite providers (Eutelsat OneWeb, SES)	Technological/Resilience
2024	Subsidy program for new cable construction and landing station resilience	Technological/Resilience
June 2025	Sentencing of Hong Tai 58 captain (first cable sabotage conviction)	Legal/Diplomatic
2025	Increased coordination between navy and coast guard for CUI protection	Military/Operational
2025	Blacklisting and monitoring of suspicious vessels (flags of convenience)	Military/Operational
September – December 2025	Comprehensive legal amendments strengthening penalties, AIS requirements, vessel confiscation	Legal/Diplomatic (Regulatory)
October 2025	Launch of RISK Initiative	Legal/Diplomatic
December 2025	Announcement of 5 new undersea cables (2 international, 3 domestic)	Technological/Resilience
2025-2026	Construction of new cables with reinforced (“armour-like”) protection	Technological/Resilience
2026	Joining international cable repair regions (Yokohama & SE Asia–Indian Ocean)	Technological/Resilience
2026	Expansion of maritime surveillance, radar, and rapid-response patrols	Military/Operational
2026	Increased investment (~\$2B) in early-warning and maritime security systems	Military/Operational; Technological/Resilience

Summarizes Taiwan’s response measures, demonstrating its predominantly resilience-focused strategy combining legal, technological, and operational adaptations to repeated disruptions.

Note: This table includes only publicly announced, agreed, and verifiable measures. Unconfirmed or merely proposed actions are not included.

Table 4: Comparative Overview of CUI Response Models in the Baltic Sea and Taiwan Strait

Dimension	Estonia (Baltic Sea)	Taiwan (Taiwan Strait)
Institutional context	Embedded in NATO and the EU	Largely unilateral, no formal alliance backing
Strategy	Deterrence, surveillance, and monitoring	Resilience, redundancy, and continuity
Strength	Coordination, collective signalling, enhanced detection	Ability to maintain functionality under disruption
Weakness	Attribution challenges, limited legal enforcement outside territorial waters	Limited deterrence, redundancy takes time

Summarizes the key differences between Estonia and Taiwan’s models, highlighting how institutional context influences their respective strengths and limitations in responding to hybrid threats against CUI.

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Guardians, Allies, and Rangers: Reimagining Canada's Arctic Defence Policy Through Indigenous Partnership

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Abstract

As an Arctic nation navigating middle powerhood, Canada can no longer rely on geography for protection. This paper explores the nexus of Canada's Arctic security policy and engagement with Indigenous partners, arguing that Canadian defence policy stands to gain significantly from collaborative, Indigenous-led approaches to Arctic security. As defence policy practitioners shift their analytical attention toward the Arctic, community-level capacity is increasingly overlooked—a gap that this paper addresses through an examination of how Canadian defence policy can be reimagined through meaningful Indigenous partnership. Drawing on a review of existing literature, this article identifies three areas for Arctic defence policy development: land guardianship programming through organizations like the Indigenous Leadership Initiative (ILI); a renewed commitment to increased multilateral cooperation among Indigenous peoples of the circumpolar North; and increased strategic investment in the Canadian Rangers to enhance Indigenous force constitution. Together, these findings challenge Canada's traditional approach to defence policy, framing Indigenous partnership as a necessary prerequisite to a secure, sovereign, and prosperous Arctic.

Introduction

As an Arctic nation navigating middle powerhood, Canada can no longer rely on geography for protection. Domestic and foreign threats have begun to challenge the narrative of nationhood in Canada's northernmost regions, and despite the robustness of its current Arctic foreign and defence policy frameworks, many questions remain about securing the Arctic region and promoting Canada's sovereignty there. To this end, this paper examines how federal stakeholders can expand Indigenous partnership to enhance the effectiveness of Canada's defence policies in the Arctic.

Together, Canada's current defence policy frameworks form a patchwork approach to the Arctic, making clear that Canada must adapt to a rapidly changing threat environment. However, the policies presently lack an actionable, scalable, and nuanced agenda that reconciles the development of a sustained military presence in the North and meaningful engagement with Indigenous Northerners. To echo the words of Mary Simon, Canadian sovereignty begins at home, with a body politic of Indigenous Northerners who are recognized as active participants and critical assets in the Canadian defence infrastructure.¹ In Canada's pursuit of reaffirming its sovereignty in the Arctic, made-in-Ottawa policies tend to narrowly define security in a military sense, whereas the focus must lie in ensuring adequate infrastructure—social and otherwise—for healthy communities. This is the necessary prerequisite for a sovereign and secure Arctic.

This paper proceeds in three parts. First, it briefly maps Canada's principal adversaries to establish the threat environment against which Canadian policy must be measured. Second, it turns to Canada's existing policy frameworks, showing how they define Arctic security narrowly and where the definition falls short. Third, it argues for three key policy opportunities rooted in partnership with northern Indigenous communities—opportunities that broaden and deepen Canada's conceptions of security

to secure lasting sovereignty and prosperity in its northernmost regions.

This paper argues that a sovereign and secure Arctic depends on prosperous Northern communities, not the other way around. The following discussion explores three policy opportunities and reassesses Canada's posture toward the Arctic and its people. First, Canada can expand guardianship-style land stewardship initiatives in its northern communities. Second, Canada can deepen its multilateral ties to deepen engagement with Indigenous peoples of fellow Arctic nations, fortifying communities across the circumpolar North. Third, Canada can reinvest in the Canadian Rangers, whose role fulfills critical operational requirements across the region.

External Threats

Future Arctic policy must account for external threats in the circumpolar North. Most notably, the People's Republic of China (PRC) and the Russian Federation (Russia) are Canada's two principal adversaries, shaping much of its foreign policy today. They have entered into a strategic collaborative effort to increase their presence in the circumpolar North and, in so doing, increasingly encroach on Canadian territory.² In light of Russia's proximity to the pole and China's aim to become a polar power, they often collaborate on military exercises and scientific research in the region. Moreover, the two states seek to expand their spheres of influence and gain access to critical mineral reserves and other natural resources, which are highly sought-after commodities in the Arctic region.³

Increased presence of Canada's adversaries in the Arctic is cause for great concern. With proliferating tensions between Russia and NATO-aligned Arctic states, the former is increasingly exploring alternative partnerships with like-minded states such as the PRC, to continue asserting itself in the Arctic.⁴ Moreover, the growing rift in the group of Arctic nations has caused academics and policymakers to consider the possibilities of conflictual interactions

in the region.⁵ Although kinetic warfare in the region is very unlikely, geopolitical tensions, great power rivalry, and the rise of hybrid warfare tactics, mean that Canada cannot afford to lose its grip on its territorial sovereignty in the Arctic.⁶

The Current Policy Landscape

The Arctic has become a flashpoint of geopolitical and academic interest, where persistent threats to Canada's security and prosperity have placed mounting pressure on existing policy frameworks. Canada's Arctic stance is built on three central documents—the Arctic and Northern Foreign Policy Framework,⁷ *Our North, Strong and Free* (ONSAF),⁸ and the Arctic National Strategy⁹ – yet each, as the following section shows, falls short of translating stated ambition into operational reality.

Co-developed alongside Indigenous peoples in Canada, the Arctic and Northern Foreign Policy Framework (2019) outlines goals for industrial development, scientific research, climate change resilience, and advancing Truth and Reconciliation.¹⁰ This framework is oriented toward the proliferation of threats originating from state actors, emphasizing how Canada can pursue its national interests while upholding its national values through pragmatic diplomacy.¹¹ The strategy is fairly comprehensive and diverges slightly from the conceptual rigidity often found in defence policy, which tends to favour the state as the primary actor and recognizes military force as the primary measure of security. However, although the Arctic and Northern Policy Framework emphasizes its co-development with Indigenous partners, it falls short in effectively demonstrating precisely how Indigenous partners can play a role in the defence of the Arctic.

ONSAF (2024), a more recent publication, brings concerns for the state of Arctic security for Canada to the foreground of defence policy, and proposes a comprehensive plan to enhance Canadian military presence in the North. This includes a concrete investment schedule spanning twenty

years, citing the recent commitment to reach NATO defence spending targets. ONSAF dedicates part of its analytical attention to furthering collaboration with Indigenous communities in the North, but remains largely centered on building Canada's military capabilities.¹² Applying an analytical lens to the Canadian industrial base, ONSAF emphasizes competitiveness, advancing procurement reform, and digital transformation. These areas have seen rapid change and development since the ONSAF framework was originally published in 2024, and the Defence Policy Update (DPU) represents a paradigmatic shift in Canadian defence policy—reflecting the inflection point at which Canada finds itself, particularly in the Arctic region. However, ONSAF remains entrenched in traditional conceptions of security, leaving little room for alternative ways for Canada to practice security in its northernmost regions. As such, its framework will serve as a starting point for the following analysis of how Indigenous partners can contribute to Arctic defence.

The Arctic National Strategy (2023) expands on the goals and objectives of the Arctic and Northern Policy Framework, and was developed alongside Hunter and Trapper Organizations (HTOs), elder committees, and other community organizations in Nunavut and the Northwest Territories.¹³ Part of a larger web of interlocking policy frameworks, Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) highlights how the aforementioned Arctic and Northern Policy Framework represents a “profound change of direction” for Canada in its posture toward the Arctic.¹⁴ The commitment to honouring Truth and Reconciliation and fulfilling objectives under the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) comprises a sizable part of the Arctic National Strategy. Contrariwise to the two above-noted policy frameworks, the Arctic National Strategy brings Indigenous Northerners closer to the centre of its policy considerations.

Looking Ahead: Future Policy Options and Opportunities

Amid the rise of the multipolar moment in the Arctic,¹⁵ Canada has an opportunity to reconcile its commitment to Indigenous peoples with its growing defence spending—particularly its investment in Intelligence, Surveillance, and Reconnaissance (ISR) capabilities. Indigenous-led guardianship programs offer one way to do this: they honour Canada's Truth and Reconciliation commitments while strengthening the domain awareness essential to Arctic security. Orienting itself outward and to enhance its credibility as an ally in the Arctic, Canada can also re-invest in its multilateral ties with Indigenous partners in friendly Arctic states. Finally, the Canadian Rangers, specifically the 1st Canadian Rangers Patrol Group (CRPG), are under-resourced relative to their operational and strategic value—something that Canada needs to consider as it re-invests in Canadian Armed Forces (CAF) presence in the Arctic.

In short, Canada's fiduciary obligation to First Nations and Inuit peoples and its pursuit of positive security outcomes are not separate goals—they converge in an integrated defence policy framework built on genuine partnership with Indigenous peoples. By way of investment in Indigenous-led guardianship programs, as modeled by the Indigenous Leadership Initiative (ILI), increased multilateral cooperation among Indigenous partners in friendly Arctic states, and enhanced organizational capacity for the Canadian Rangers, Canada's choice will determine its role in the security outcomes of the Arctic region.

Land Guardianship Programs

The ILI dedicates itself to strengthening Indigenous nationhood by responsibly caring for lands and waters, and is a profoundly underutilized policy design that reconciles Indigenous-Crown partnership and security concerns.¹⁶ The aforementioned guardianship-style programming involves trained experts who care for lands and waters on behalf of their home First Nation, based on their own laws and

traditional knowledge systems.¹⁷ These initiatives have begun to gain momentum in Canada and beyond, and have produced undeniable benefits—social, economic, and cultural in nature. For the Canadian Arctic, specifically how investment into community-level programming produces material economic benefits, these programs have profound implications on the way security is conceptualized and practiced amid a rupturing world order and increasing great-power rivalry in the Arctic.

In 2016, the ILI contributed to a report on the value and projected outcomes of Indigenous-led guardianship programs in the Northwest Territories. At a high level, the report's findings show that these programs deliver remarkable value, including a high Social Return on Investment (SROI) that grows over time. Initial investments into guardianship programs can facilitate labour force attachment, the installation of climate monitoring systems, and the oversight of economic development projects and defence infrastructure, delivering an estimated return ratio of 2.5:1.¹⁸

This SROI metric has implications for Canada in a multiplicity of priority areas. First, economic development of the northern territories and the Arctic region have been identified under the Canadian Northern Economic Development Agency as a major driver of policy action. Whether these guardianship programs are concerned with wildlife monitoring, land and resource management, or climate change oversight, the SROI metric demonstrates how investment into community-led initiatives yield benefits economic, social, environmental, and cultural in nature—all of which are key components of asserting sovereignty in the Canadian Arctic.

Concerning the SROI metric, for every \$1 invested, stakeholders saw social, economic, cultural, and environmental benefits valued at approximately \$2.50.¹⁹ A closer partnership between Indigenous peoples and the CAF will provide short- and medium-term returns on investment, generating both tangible and intangible benefits for beneficiaries and Canada.

In order for Canada's defence architecture in the Arctic to generate sustainable, multigenerational effects, its defence policy posture must be one that recognizes and honours the value of community-based programming for Indigenous peoples.

Ultimately, these initiatives could serve as a bridge between cultural connectedness for Indigenous Northerners and enhancements to Canada's ISR capabilities, a key instrument of asserting statehood and affirming sovereignty.²⁰ The social infrastructure that these programs provide to Indigenous Northerners complement conventional security measures outlined in Canada's current Arctic policy frameworks. In the spirit of Truth and Reconciliation, this policy option is economically viable with a demonstrated SROI of 2.5:1, which could produce positive material outputs for communities and generate pecuniary benefits for Canada. The report, in partnership with the ILI, demonstrates how healthy and prosperous northern communities can contribute to Canada's vision of a secure and prosperous Arctic, and that moving forward, this vision can only be realized through meaningful investment in and cooperation with Indigenous communities.

Multilateralism and Indigenous Peoples of the Circumpolar North

Canada's position in the international community has long been shaped by its commitment to multilateral diplomacy. In light of the changing international order, Canada ought to renew its commitment to increased multilateral cooperation among Indigenous peoples of the circumpolar North, which is particularly important in a time where state-level diplomatic ties with Russia, a fellow Arctic state, are strained. As a middle power, Canada's strategic culture is one built on cooperation, which has proven to be an effective way to manage risk, share burdens, and navigate rifts in the international security environment. The historical preference of multilateralism has contributed to Canada's image on the world stage, and is becoming increasingly pragmatic in an era of proliferating great power rivalry

on Canada's northern flank.

The majority of people residing in the northernmost regions of Canada²¹ and Greenland²² identify as Indigenous. Advocates and policymakers alike increasingly recognize that Truth and Reconciliation—pursued as a moral obligation in its own right—also strengthens Canada's prosperity and security in the Arctic. James Morton suggests that there is great merit to be found in, first, “securing the homeland”, emphasizing that this can only be done by exploring meaningful, sustainable collaboration with Indigenous people of friendly Arctic nations.²³ There is a direct connection between investment in economic development in underserved communities and positive security outcomes, where these “multifaceted aspects of security” transcend the traditional conceptions of security defined in military terms.²⁴ In the spirit of multilateralism, Canada can, under the broader umbrella of its current defence policy, commit to revitalizing international cooperation with Indigenous peoples of friendly Arctic states.

Such organizational frameworks already exist. For example, the Inuit Circumpolar Council (ICC) represents Inuit across Alaska, Northern Canada, Greenland, and Chukotka in Russia.²⁵ With a primary mission of advocating for the rights and titles of Indigenous Northerners, the ICC possesses expansive influence among the individuals and communities that it represents and acts as a cohesive body through which these rights and titles are defended. To this end, international institutions like the ICC could form a basis upon which further discussions of Arctic security can take place, in conjunction with existing Arctic governance institutions. To do so, however, policy practitioners, advocates, and scholars alike ought to contribute to illuminating the conceptual linkages between Indigenous engagement in the North and international security outcomes—acknowledging that a commitment to honouring Indigenous traditions and intimate knowledge of the Arctic will help to realize an integrated defence policy framework that utilizes a non-military lexicon to approach security.

With Canada-Russia state diplomacy largely halted, Indigenous cooperation through the ICC—including Russian Indigenous peoples of Chukotka—now represents some of the only remaining people-to-people contact between the two countries. Broadly speaking, the current state of diplomatic ties between Russia and NATO-aligned Arctic states has further damaged the relationships between Indigenous peoples whose traditional territories extend beyond state boundaries. These tensions, therefore, present a limitation to multilateral cooperation under the ICC, warranting a closer analysis of how these collaborative relationships can be renewed as a policy lever.

Presently, the ICC ethos is built upon pillars of holistic security, sovereignty, and Indigenous self-determination to maintain a “zone of peace” in the Arctic Circle (ICC).²⁶ Amid a shifting international security environment, the ICC possesses a wealth of knowledge, reach, and influence that would make it a valuable partner in facilitating security and defence dialogue taking place among Arctic nations. Therefore, the ICC, as one of several institutions taking part in Arctic governance, has the potential to not only integrate Indigenous perspectives of security into traditional approaches to defence, but fundamentally determine security outcomes in the region by promoting dialogue among Indigenous peoples of the Arctic.

Increasing the Capacity of the Canadian Rangers and Expanding Indigenous Engagement

With recent reinvestment in the CAF, the Canadian Rangers are undoubtedly a force multiplier of the organization, particularly in the Arctic region. As an organization that champions freedom, equality, justice, and equality of opportunity, the CAF and its various sub-components strive to be representative of the society they serve.²⁷ In the spirit of promoting Canadian sovereignty in the Arctic and complementing increased military infrastructure in the North, the Rangers need to reevaluate Indigenous force reconstitution to increase organizational capacity, specifically in the 1st Canadian Rangers

Patrol Group (CRPG), to enhance Arctic security.

It would be misplaced to state that in order to increase the capacity of the organization, the Rangers need only increase recruitment, and this is true for two reasons: it limits the longevity and quality of recruits, and is generally inefficient. Opening up recruitment is actually a poor response to high turnover and attrition within the armed forces—the level of investment needed to train and fully develop personnel is an avoidable trap.²⁸ For Indigenous peoples in particular, existing programs aimed at promoting service are broad in nature, and do not necessarily reflect the urgency of the security environment in the Arctic. Instead, the Rangers, specifically the 1st CRPG, require an expanded funding envelope to reflect the strategic importance of the region, and to match the growing investments in CAF presence.

Additionally, increasing recruitment to the Rangers would be an insufficient policy decision on its own because of the limited pool of individuals from which it can draw. The 1st CRPG, which is composed of Nunavut, Yukon Territory, and Northwest Territories, draws from much smaller, dispersed populations. In order to be eligible for service, prospective Rangers must “be intimately familiar with the local population, terrain, weather, and other conditions” in the area in which they serve.²⁹ As such, there are inherent limitations as to who is eligible for service, generally those who live in-community possess the required experience and skillset. The 1st CRPG is staffed predominantly by Indigenous personnel with intimate knowledge of the land, local population, climate, and local languages. In Nunavut, for example, Inuit hunters and trappers are uniquely positioned to contribute valuable knowledge and situational awareness in the most isolated parts of the Arctic.³⁰ In this case, additional resources aimed at training, development, and leadership of Indigenous personnel in the Rangers, specifically the 1st CRPG, would be highly beneficial for the sustainability, longevity, and depth of the organization.

Reinforcing Canada's sovereignty in the Arctic cannot be done without meaningful partnership with Indigenous Northerners. With an increased funding envelope, the Rangers can fundamentally transform Arctic defence while contributing to Canada's commitment to Truth and Reconciliation, where increased employment, participation in democratic institutions, and opportunities for leadership will fundamentally enhance the organization's capacity. Therefore, the CAF and the Rangers should prioritize supporting the growth of resilient Indigenous communities in the North, recognizing them as foundational to a secure and prosperous Arctic.

Conclusion

As Canada stands at an inflection point in the Arctic amid a rapidly shifting and rupturing world order, it has a unique opportunity to demonstrate that sovereignty is practiced through meaningful engagement with Indigenous partners, not simply spoken into existence through rhetoric. This paper has identified several paths forward that will define Canada's Arctic defence posture, but only if policymakers recognize that reconciling Arctic security with meaningful Indigenous collaboration can improve defence policy outcomes. Reinvigorating concern for the security of the Canadian Arctic is coterminous with positive security outcomes in the region where conventional forces fall short.

From this argument, three primary policy opportunities have emerged. First, Indigenous-led guardianship initiatives need to be treated as core pillars of Canada's Arctic security architecture, not just an ancillary. Engagement with Northern Indigenous partners is proven to directly strengthen security outcomes, and Canada's policy landscape needs to reflect this.

Second, Canada must re-invest in multilateralism as a tool to promote collaboration among Indigenous peoples of the circumpolar North through communication channels of the ICC. High-level geopolitical tensions between Russia and

NATO-aligned Arctic states have strained multinational dialogue among circumpolar Indigenous peoples, but conversely, this is precisely the moment where Canada cannot afford to let these channels of communication atrophy. It must honour the knowledge, influence, and reach of organizations like the ICC, strategic instruments that are vastly underutilized in the security of the Canadian Arctic. To better safeguard against the further breakdown of formal diplomatic communication among Arctic nations, Canada must place a renewed emphasis on informal dialogues stewarded by Indigenous partners.

Third and finally, the Canadian Rangers—specifically the 1st CRPG—are profoundly under-resourced relative to their strategic value in the Arctic. Given their unique position, both geographically and within the CAF, the Rangers are a force multiplier whose community-based outreach simply cannot be replicated by conventional forces. Aligning the Rangers funding envelope to reflect concerns about Arctic security is a matter of efficiency and strategy.

Together, these opportunities point to a single conclusion: Indigenous partnership in Canada's Arctic security architecture is not just an ancillary component, it is the mechanism through which sovereignty in the Arctic will be reaffirmed or squandered. Despite their nuance, these policy options are not isolated—they converge under the ethos that Canada's sovereignty is not just spoken into existence through rhetoric but demonstrated through meaningful engagement with Indigenous partners. At this critical juncture, policy practitioners must decide how Canada needs to act, and whether the future of Arctic security and defence policy will be built alongside Indigenous partners or without them.

Looking ahead, Canada's credibility as an Arctic nation and trustworthy ally will not be measured exclusively by the quantity of its military assets in the region. Rather, its posturing in the Arctic will be measured by the depth of its partnership with the individuals and communities who keep Canadian sovereignty intact.

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From “Gold Rush” to “Gold Standard”: Building Canada’s Drone Champions

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Abstract

The geopolitical and industrial landscape has fundamentally changed. For decades, Canada benefited from globalized supply chains and inexpensive offshore electronics, reducing the need to cultivate domestic manufacturing capacity. Today, the growing importance of advanced defence technologies has exposed the limitations of this approach, particularly in critical capabilities such as Uncrewed Aerial Systems (UAS), commonly referred to as drones. UAS have become a central component of modern military operations, reshaping how armed forces generate combat power, gather intelligence, and conduct missions. For the Canadian Armed Forces (CAF), developing sovereign drone capability is no longer simply a matter of acquiring platforms, it requires a domestic industrial base capable of designing, manufacturing, scaling, and sustaining reliable, field-ready systems when operational needs require them. The rapid growth in Canada’s drone ecosystem is driving significant innovation while also fuelling a “gold rush” of companies whose technological promise is not always matched by demonstrated industrial capability.¹ This paper argues that Canada’s challenge is not a shortage of innovative ideas, but identifying which companies possess the industrial foundations necessary to scale and contribute to a resilient domestic UAS industrial base. The author proposes a “Gold Standard Framework” that evaluates firms not only on technological innovation, but on the characteristics that determine their ability to contribute to long-term defence capability, including workforce expertise, manufacturing capacity, engineering maturity, supply chain resilience, operational performance, and the ability to scale and sustain production. By directing investment toward companies that demonstrate these foundations, Canada can move beyond supporting individual technologies alone toward developing sustainable defence suppliers capable of delivering trusted UAS to the CAF while strengthening defence readiness, economic competitiveness, and technological sovereignty. In doing so, the framework provides a practical approach for transforming Canada’s drone ecosystem from a “gold rush” of innovation into a “gold standard” of sovereign industrial capability.

Introduction

For decades, Canada relied on global supply chains to provide reliable access to advanced technologies.² This approach allowed government and industry to prioritize efficiency, reduce costs, and acquire commercially available solutions from international markets.³ As manufacturing increasingly moved offshore, Canada became more reliant on foreign suppliers.⁴ This approach reflected the economic realities and strategic assumptions of a highly globalized market, where maintaining domestic production capacity across every technology sector was neither practical nor cost-effective.⁵

However, the strategic environment has changed. Recent conflicts have demonstrated the need for rapid access to technology and, critically, the ability to produce, refine, and sustain it as operational demands evolve.⁶ Supply chain disruptions, geopolitical competition and tensions, as well as growing demand for defence technology, have exposed the risks associated with excessive dependence on external sources for critical capabilities.⁷ Modern conflicts have shown that nations need more than the ability to procure systems; they must also possess the industrial capacity to design, manufacture, scale, and maintain them in response to battlefield needs.⁸

Drones, or Uncrewed Aerial Systems (UAS), provide a clear example of how modern warfare is creating greater demands for speed, scale, flexibility, and sovereign capacity from defence industries. Unlike traditional platforms designed for decades-long service lives and periodic modernization, drones operate within a faster technology cycle that demands rapid adaptation, iteration, and production.⁹ Beyond successful prototypes or limited procurement, effective UAS capability depends on an industrial base that can manufacture at scale, quickly replace losses, and iterate systems over time without relying on vulnerable external supply chains or uncertain access to foreign production.¹⁰ This reality has been demonstrated in Ukraine, where the rapid consumption of drones has shown that battlefield advantage depends on reliable access to the industrial capacity behind

the technology.¹¹ A drone is only as capable as the manufacturing capacity that sustains it.¹²

The Canadian drone sector has therefore become both a strategic opportunity and a significant challenge for the Department of National Defence (DND) and the Canadian Armed Forces (CAF).¹³ It has also emerged as the subject of a major “gold rush” of investment, attention, and industrial activity. Driven by urgent operational demand from the CAF, expanding government funding opportunities, and the strategic importance of UAS technologies, a growing number of companies are seeking to develop and scale drone capabilities.¹⁴ As with any gold rush, opportunity attracts ambition – bringing together experienced innovators, new market entrants, and companies seeking to position themselves within an expanding market.

However, a booming ecosystem does not automatically translate into increased capability. The central challenge facing Canada is no longer simply generating drone innovation or attracting more companies into the defence market; it is distinguishing demonstrated capability from projected potential.¹⁵ Companies may present compelling technologies, ambitious growth plans, and successful demonstrations, yet still lack the workforce, manufacturing capacity, supply-chain resilience, or operational experience required to deliver sustained drone capability.¹⁶

This paper argues that Canada’s drone champions are not waiting to be created – many already exist and have spent years building the foundations required to deliver. The transition from “gold rush” to “gold standard” requires identifying these companies and evaluating them against the factors that determine long-term strategic value: skilled workforce, manufacturing capacity, technical maturity, supply-chain resilience, operational performance, and the ability to scale and sustain production. Rather than investing solely in promising technologies, DND/CAF must establish a framework to identify which companies possess the industrial foundations and demonstrated capability required to

advance sovereign drone capability.

The paper examines the current state of Canada's drone ecosystem and the gap between technological promise and proven capability. It then develops a "Gold Standard Framework" based on these factors and applies it to Canadian drone companies. The paper concludes by analyzing how the findings can inform DND/CAF investment and procurement decisions and support the development of Canada's sovereign UAS capability.

From Vaporware to Hardware: Claims vs. Capability

The rapid expansion of the drone sector has created a new challenge: separating technological ambition from demonstrated capability.¹⁷ The term "vaporware", commonly used in the technology sector, describes systems that generate significant attention through ambitious promises, projections, or future potential, but have not yet matured into reliable, deliverable solutions.¹⁸ While bold visions can accelerate innovation and investment, defence capability cannot be built on potential alone – it must be supported by hard evidence of what can actually be done.

The distinction is crucial for drones because they are physical systems that must move beyond design and prototype testing into repeatable production. A successful prototype shows that a system can work, often under controlled or ideal demonstration conditions; it does not necessarily prove that the company can manufacture it consistently, manage its critical inputs, maintain quality, or increase output when demand rises.¹⁹ For the CAF, the difference between potential and capability directly affects operational planning, procurement decisions, training, and the ability to rely on systems when required.²⁰

Canada's drone sector has attracted a growing number of companies seeking to develop and commercialize UAS, creating a "gold rush" of

industrial activity.²¹ This has given Canada a broad pipeline of technologies and potential industrial partners for defence needs. However, as with any gold rush, increased activity also creates a challenge: companies entering this ecosystem vary significantly in their level of industrial maturity.²² Some possess experienced engineering teams, established manufacturing processes, dedicated production facilities, and resilient supply chains, while others remain reliant on future projections, limited validation, or lack the equipment, facilities, and production infrastructure required to manufacture their systems.

This challenge is becoming increasingly salient as Canada creates new pathways to accelerate domestic drone development. The recently announced Defence Drone Initiative (DDI), for example, aims to strengthen Canada's sovereign defence capabilities by connecting CAF and Canadian Coast Guard operational requirements with Canadian expertise in areas such as robotics, artificial intelligence, advanced manufacturing, sensors, communications, propulsion, and autonomous systems.²³ By supporting testing, operational feedback, and prototype development, DDI can help identify and advance promising technologies. However, these activities do not necessarily indicate whether companies have the underlying capacity to produce those systems at scale.

The DDI leverages a supply arrangement as its main procurement mechanism, creating a pool of hundreds of pre-qualified companies that government can access for future requirements.²⁴ This provides a broad pipeline of potential suppliers and creates more efficient pathways for industry engagement and government procurement. Qualification offers a starting point for assessing potential suppliers, but the size of the supplier pool says little about the industrial depth of the companies within it. Pre-qualification does not, on its own, establish whether companies can transition from developing and testing technologies to producing and sustaining systems at the scale required for defence needs. The relevant challenge is therefore to distinguish the breadth of Canada's emerging drone ecosystem from the depth of the industrial capability

within it.

The risk is that Canada collapses two distinct gaps into a single judgment of whether it has drone capability: an industrial capability gap and a sovereignty gap. On the industrial side, a company with a compelling vision, successful demonstration, or strong market presence may be viewed as a defence supplier before it has the workforce, manufacturing capacity, quality systems, or supply chain maturity required to deliver at scale. On the sovereignty side, a company may have a proven product and commercial success but still lack the domestic industrial depth required for Canada to control, adapt, and sustain the capability over the long term.

A resilient defence industrial base requires attention to both. The objective is not simply to identify companies that can demonstrate a system today or those with the most ambitious future projections, but to identify organizations that have built the foundations necessary to become enduring strategic partners and transform innovation into sustained Canadian defence capability.

This calls for a more structured approach to assessing Canadian drone companies. The following framework evaluates the industrial foundations that determine whether a company can move beyond promise and deliver lasting defence capability.

The “Gold Standard Framework”: Evaluating the Industrial Foundations of Canadian Drone Capability

Moving from a “gold rush” to a “gold standard” requires a consistent approach to evaluating what separates a promising company from a future reliable defence supplier for DND/CAF. The purpose of this framework is not to rank companies, but to assess the underlying foundations that determine whether an organization can deliver, scale, and sustain drone capabilities over time. A mature defence supplier is built through the combination of technical expertise, industrial capacity, operational

validation, and long-term commitment to sustaining capability.²⁵ These elements develop over time and cannot be measured through a single demonstration, announcement, or contract alone. The framework evaluates Canadian drone companies across five interconnected pillars: people, process, platform, proof, and permanence. Together, they provide a practical method for assessing whether a company has moved beyond innovation activity and established the industrial foundations necessary to contribute to Canada’s sovereign defence capability.²⁶

The People: The Expertise Behind Drone Technology

Defence capability begins with the people who design, build, test, and improve the technology. Advanced defence systems are not created through ideas alone; they depend on specialized expertise developed through years of engineering experience, technical problem-solving, and operational understanding. Canada’s strongest defence companies have historically been built around deep technical expertise developed over years or decades, particularly in areas where Canada has established industrial strengths such as optics and electro-optics, photonics, sensors, aerospace engineering, advanced manufacturing, communications, and complex systems integration.²⁷ This expertise cannot be created overnight or replicated through simple access to external technologies. It represents accumulated knowledge within an organization: the engineers who understand system design, the technicians who know how to manufacture and maintain complex platforms, and the specialists who can adapt technologies as operational requirements change.

Assessing the strength of a company’s workforce requires looking beyond employee numbers and examining whether an organization possesses the internal expertise required to independently develop, improve, manufacture, and sustain defence systems. The key question is not simply how many people a company employs, but whether those people represent the technical depth required to transform innovation into a reliable operational capability. A capable

defence supplier requires engineers, technicians, manufacturing specialists, software developers, systems integrators, and operational experts who can collectively move a system from concept through production and into sustained use. This expertise determines whether a company can evolve its technology, respond to changing operational needs, and maintain capability over the long term.

The minimum bar for this pillar is evidence that a company has the internal expertise required to develop, improve, and support its systems. This does not mean that larger companies are necessarily more capable; a smaller company with a highly specialized and experienced technical team may have greater capability than a larger company that relies heavily on external expertise or third-party technologies. The focus is therefore on whether a company's workforce possesses the technical foundation needed to develop and sustain its systems.

The Process: The Industrial System Behind Delivery

A capable drone company is defined not only by what it designs, but by its ability to repeatedly manufacture, deliver, and sustain what it builds. Moving from prototype to operational capability requires mature industrial processes, including manufacturing systems, quality control, production planning, and supply chain management.²⁸ A company may demonstrate a successful prototype, but without the processes required to produce systems consistently, maintain quality, and scale output when demand increases, it cannot provide the reliable defence capability required by the CAF.

The ability to scale production is particularly important in modern conflicts, where the rapid consumption of systems, replacement requirements, and evolving operational needs can quickly outpace initial production assumptions. Companies that contribute to sovereign capability must show not only that they can build a system, but that they can build it repeatedly, maintain performance standards, and sustain production over time.

For strong process, a company must demonstrate capability to repeatedly produce its systems while maintaining quality and managing the critical inputs required for production. A company does not need to already operate at the scale required for a major CAF procurement, but it should have a credible ability to increase production when demand requires it. Companies that rely heavily on ad hoc manufacturing, untested suppliers, or production processes that cannot be consistently replicated would not meet this standard.

The Platform: The Capability Being Delivered

At the centre of any drone company is the system itself. However, evaluating a platform requires looking beyond specifications, marketing claims, or individual performance demonstrations. A capable drone must provide operational value, meet user requirements, and demonstrate reliable performance in conditions relevant to its intended mission. A technically advanced system does not automatically translate into defence capability.²⁹ The key question is whether the platform can deliver the required operational effects, integrate with CAF systems and processes, and adapt as mission requirements evolve.

For a platform to meet this standard, there must be evidence that it can reliably perform its intended mission under conditions relevant to that mission and meet the core requirements of its intended users. A platform does not need to satisfy every future requirement or represent the most advanced technology available, but it must exhibit sufficient technical maturity, performance, and operational relevance to provide a credible capability. Platforms that rely primarily on specifications, controlled demonstrations in ideal environments, or claims of future performance without sufficient testing and validation would not meet this standard.

The Proof: Concrete Evidence Behind the Promise

The gap between what a company can claim and what it can evidence is wide. Prototypes,

demonstrations, and future roadmaps represent different stages of maturity. A successful demonstration shows progress, but it does not alone prove a company can reliably deliver, produce, and sustain a capability. Credible defence suppliers must demonstrate measurable evidence through testing, operational experience, production history, and reliable performance under relevant conditions with the CAF.³⁰

For emerging companies, evidence may instead come from independently validated testing, repeatable demonstrations, performance data, successful trials with other users, or documented production and testing results. The strength of the evidence depends on its relevance, reliability, and ability to demonstrate repeatable performance rather than simply the number of trials or contracts a company has received.

For a company to meet this standard, there must be credible evidence supporting its claims of technical and operational performance. The absence of CAF-specific experience should not by itself disqualify a company; rather, the assessment should consider whether the company has generated sufficient evidence through other relevant testing, users, production experience, or validated performance to establish a credible basis for its claims.

The Permanence: Sustaining Canadian Capability Over Time

The long-term value of a drone company depends on whether it contributes to a durable domestic industrial base – one with Canadian intellectual property (IP), skilled employment, lifecycle support, and the ability to design, manufacture, test, and improve drone systems in Canada. A company that can deliver a system today but lacks the ability to support, modify, or sustain that capability over time provides limited strategic value. The objective is not only to acquire drones, but to build the industrial foundations required for Canada to fully control this critical capability.³¹

The standard therefore requires evidence that a company can maintain, support, and continue developing its systems in Canada over the long term. This does not require a company to have an established decades-long history or complete control over every element of its supply chain. Emerging companies may demonstrate this potential through Canadian control of key IP, domestic technical and manufacturing capabilities, credible plans for lifecycle support, and a viable path to continued production and development. Companies that remain heavily dependent on external ownership, foreign-controlled IP, or suppliers for critical aspects of their capability may present greater strategic risk, particularly where those dependencies could limit Canada’s ability to sustain or modify the system when required.

Together, these five pillars separate companies that are building capability from those that offer only potential. The framework assesses foundations rather than track record: which firms have the engineering depth, manufacturing capacity, quality systems, and supply chain resilience in place that make them capable of becoming reliable contributors to Canada’s sovereign UAS capability.

Building the Champions: Creating Conditions for Scale

Identifying companies with the foundation to deliver capability is only the first step. The more difficult challenge is creating the conditions that allow those companies to grow from promising innovators into sustained defence suppliers.

Defence companies do not scale through funding alone.³² Building production capacity, expanding technical teams, strengthening supply chains, and investing in manufacturing infrastructure requires confidence that there will be a sustained pathway from development to adoption. Without predictable demand, companies face limited incentives to make the long-term investments required to build domestic industrial capacity.³³ For innovative technologies such as drones, government plays a

unique role as both a customer and a market shaper. The CAF cannot wait indefinitely for every Canadian capability to mature before meeting operational requirements; however, short-term acquisitions must be balanced with deliberate efforts to develop the industrial capacity Canada will require in the future.³⁴ Building Canadian drone champions requires a stronger connection between innovation, testing, and procurement. This includes clearer pathways from prototype development to operational evaluation, opportunities for companies to produce at meaningful volumes, and procurement approaches that provide sufficient market certainty for industry to invest in long-term capability. The objective is not for government to select winners based solely on potential. Rather, it is to create an environment where companies that demonstrate the right combination of technical capability, industrial capacity, and operational relevance receive a clear signal from DND/CAF, framed through contracts, to scale production and deliver volume. After all, if the ambition is to “flood the CAF with drones”, Canada must first build the industrial pipes needed to deliver the flow.³⁵

Conclusion: From “Gold Rush” to “Gold Standard”

Canada’s drone ecosystem has reached a defining moment. The country does not lack ambition, innovation, or companies willing to take on the challenge. The question is whether Canada can turn this wave of activity into lasting industrial strength – because every gold rush creates excitement, but only those who build the infrastructure behind it strike gold.

Moving from “gold rush” to “gold standard” requires more than celebrating ideas or counting demonstrations. It requires separating visibility from capability, potential from performance, and access to technology from true sovereign control. Canada’s future drone champions will not be the companies with the flashiest demonstrations, the boldest claims, or the most impressive slides. They will be defined by less visible factors: the engineers who build the

systems, the factories that produce them, the tests that prove them, the supply chains that sustain them, and the ability to deliver when the requirement is no longer theoretical.³⁶

The value of Canada’s drone ecosystem will depend on how many companies can translate UAS innovation into sustained production, not on how many enter the market. The “Gold Standard” is therefore not defined by technological promise alone, but by the demonstrated foundations that enable Canadian companies to deliver capability when and where it is required.

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