





Public-Private Partnerships for Arctic Domain Awareness

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JCSP 48

Exercise Solo Flight

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SOLO FLIGHT – Public-Private Partnerships for Arctic Domain Awareness

Introduction

Canadian interests in the Arctic cross multiple government agencies as well as social and economic factors. Foreign activity in trans-arctic shipping is on the rise, as is the interest in regional economic development, whereas inhabitants in the region have diverse cultural and development objectives. The resulting security concerns are therefore not just military in nature and the modern highly connected world has come to expect good situational awareness to respond to these matters. Canada faces the issue of modernization of NORAD and is starting to address this concern, however NORAD is only a small element of multiple domain awareness in the Arctic. Given the complex environment conditions, growing social factors, and disastrous procurement system establishing a means to be aware of activity is a daunting task for the government alone. However, a growing number of projects across the globe are amalgamating the private sector into a risk sharing arrangement to furnish the knowledge and resources needed for development, especially infrastructure. These Public-Private Partnerships (PPP or P3) blend the strengths of private sector knowledge and specialties with government requirements of service delivery.

This paper is organized into two sections with the first exploring the nature and implications of P3 arrangements including consideration of the risks and mitigation strategies. Following that, it will review the modernization of NORAD and identify areas that do not meet Canadian governmental interests. Ultimately, the paper will show that a P3 arrangement brings the benefits needed to build and sustain Arctic multi-domain awareness requirements to enhance security in Canada's North.

What are P3s?

A P3 arrangement attempts to leverage the production knowledge of the private sector to meet the needs of a public sector requirement. P3s are intended to be cooperative arrangements that deliver better designed products and maintain them over an extended contractual agreement.¹ One area in particular that is garnishing attention for P3s is in infrastructure, specifically for transportation, where the demand for construction is outpacing government ability to provide.² Part of the argument in support of P3s comes from the notion that projects which are purely financed and overseen by public agencies are too slow on delivery and lack professionals in project design and management.³ Government bureaucracy must consult extensively and engage in substantial competitive bidding processes prior to project commencement. This creates delays and contributes to rising costs or cancellation which is considered public failure. A case in point is the reliance on Public Service and Procurement Canada (PSPC) to oversee the Canadian government's procurement; an agency staffed with procurement specialists but not necessarily architects or project managers. In contrast to government procurement, private sector construction firms will hire specialists in the fields of design, project managers, and operations staff in an environment where time is money. However, the motivation behind a private firm is not necessarily to fulfill a societal need and the

¹ Canadian Council for Public-Private Partnerships "What are Public-Private Partnerships (P3s)?" Last Accessed 12 April 2022.

https://www.pppcouncil.ca/web/Knowledge_Centre/What_are_P3s_/web/P3_Knowledge_Centre/What_are P3s.aspx?hkey=2c6597c6-53bf-4a9d-adf0-86e108d003bb

² Jianfeng Zhao, David Greenwood, Niraj Thurairajah, Henry J. Liu, and Richard Haigh, "Vaue for money in transport infrastructure investment: An enhanced model for better procurement decisions." *Transport Policy* 118 (2022): 68

³ Young Hoon Kwak, YingYi Chih, and C. William Ibbs. "Towards a Comprehensive Understanding of Public Private Partnerships for Infrastructure Development." *California Management Review* 51, no. 2 (January 2009): 51-53

resultant effort may miss a government's desired outcome. When a strictly private endeavour pursues profit to the exclusion of the government and societal requirements it leads to market failure.⁴

The previous discussion regarding public service procurement is not an indictment against the Public Service. The nature of public administration is to deal with accountability and scrutiny of expenditures.⁵ According to the Project Management Institute, a project manager uses "…specific knowledge, skills, tools and techniques to deliver something of value to people"⁶ This definition is expanded by Horvath who compares the project management models of many authors. This work demonstrates that technical expertise in all or most relevant domains of a project is a key component of project management.⁷ In the case of DND, projects are managed within the ADM(Mat) and PSPC is the delegated authority by Treasury Board to perform the acquisition function to meet the requirements of public scrutiny. As a result, it is not guaranteed to have the same degree of experience in the Public Service on projects such as infrastructure or technology that is found in the private sector.

Returning to the conversation regarding public or market failure, one must consider the inherent question posed by any organization looking to develop a project or capability; the deliberation over "Make" or "Buy." The decision to "make" often includes incorporating the overhead administrative costs by vertically integrating this new

⁴ Ibid.

⁵ Paul Barker, Paul. And Tim A. Mau. "What is Public Administration?" Chap. 1 in *Public Administration in Canda.* 2nd ed. (Toronto: Nelson Education Ltd. 2017): 4

⁶ Project Management Institute. "What is Project Management" Last accessed 3 May 2022. https://www.pmi.org/about/learn-about-pmi/what-is-project-management

⁷ Viktória Horváth, "Project Management Competence – Definitions, Models, Standards and Practical Implications." *Vezetéstudomány* 50, no. 11 (2019): 4-10

capability within the organization. Conversely, in buying something the organization seeks to shed the cost of overhead by leveraging another firm's specialities who can make use of economies of scale to reduce overall costs.⁸ For Canada, one result of government's decision to "make" is reflected in the creation of crown corporations at the federal and provincial governments. These crown corporations are tasked to fill market gaps and deliver a service more efficiently and operate at somewhat of an arms-length from the government.⁹ Crown corporations legally employ this separation from government procedures to operate as a business, can make faster decisions, and almost always have a requirement to be revenue generating. In contrast, the Canadian government's decision to "buy" automatically entails the inclusion of PSPC and the requirement to follow Treasury Board directives for procurement. As a result, there are transaction costs and timelines that must be included in the overall Buy design.¹⁰ Ultimately, the adoption of a P3 project framework seeks to blend the advantages of both options to offset the disadvantages.

The work of Zhang *et al* compares a range of Canadian infrastructure projects that use the P3 model against the traditional procurement method. Their work notes the nature of P3 project management is not significantly different except for the procurement implementation phase. They noted that P3s require less time to develop the Bidding Documents because the project is inherently less prescriptive up front. The implication is that this imposes a new Design phase which leverages the specialties of the commercial

⁸ North Atlantic Treaty Organization. *TR-SAS-112 Public Private Partnership in a NATO Context*. Neuilly-sur-seine: Science and Technology Organization (2019): 4-1

⁹ Philippe Bergevin, and Finn Poschmann. *Reining in the Risks: Rethinking the Role of Crown Financial Corporations in Canada* C.D. Howe Institute (2013): 3-5

¹⁰ NATO, Public Private Partnership..., p. 4-2

players.¹¹ This is commensurate with other works in that the initial start-up costs and time will be extended.¹² In terms of financial performance, the Canadian experience has shown the majority of P3s experience budget adjustments between 0-20% of project value, whereas most traditional counterparts experienced budget adjustments between 20-40%.¹³ Part of the authors' attribution to this phenomenon stems from the public process of conducting repeated reviews to validate the proposed scope of the P3 activity, budget, schedule, and the retention of lump-sum payments. The private agency must demonstrate their competencies by providing accurate estimates that vary little as these will be tied to establishing the lump sum payment.¹⁴ Poor estimates will likely result in losses to the private agency, reduction in trust, and dissolution of the P3 arrangement.

The structure of a P3 that involves infrastructure is typically done under a longterm contract, which is unsurprising given the cost of construction and operation.¹⁵ Under these arrangements, neither party can fully anticipate the future implications as demands shift, governments change, or significant events transpire. This uncertainty in the future has been identified by one researcher as system risk, thus making relational contracts a more viable option than traditional contracts.¹⁶ Under a relational contract there is recognition that not all eventualities can be specified in advance and the parties are united in achieving a specific goal.¹⁷ These contracts are notably more difficult to achieve

¹¹ Jing Zhang, Fangjian Chen & X.-X. Yuan. "Comparison of cost and schedule performance of large public projects under P3 and traditional delivery models: a Canadian study," *Construction Management and Economics*, 38 no. 8, (2020): 743-744

¹² Kwak. Towards a Comprehensive..., p. 62

¹³ Zhang. Comparison of cost..., p. 746

¹⁴ Ibid., p. 749

¹⁵ Demi Chung. "Risks, Challenges and Value for Money of Public-Private Partnershiops: Risks, Vlaue for Money of Public-Private Partnerships" *Financial Accountability & Management* 32, no 4 (2016): 448 ¹⁶ Ibid., 450.

¹⁷ Gibbons, Robert, and Rebecca Henderson. "Relational Contracts and Organizational Capabilities." in *Organization Science*, 23 no. 5 (2012): 1350

because they are based on a relationship of trust which cannot always be established ahead of time.¹⁸ As a result, relational contracts need to be built on clarity of outcomes, meaning both parties share a similar understanding of what they will provide. They also rely on credibility in that each party will continue to behave as expected for the duration of the relationship.¹⁹ The challenge here is forming the conditions where both participants will continue to behave for the duration of a long-term contract that may likely see turnover of project management staff.

Trying to maintain the other partner's behaviour over the long term is most likely a greater concern for the public agency given they are dealing with the transparency requirements of public funds. Chung (2016) has found two forms of incentives in Australian P3 projects to encourage that behaviour: Regulatory Inspections during the partnership, and Conditions of Termination.²⁰ The regulatory inspections provide evidence to a public audience of compliance with the contract. Conditions of termination can serve two purposes by allowing the public agency to leave the arrangement if noncompliance becomes too much of a problem. They can also stipulate that no substantial work is needed for a defined period of time after the completion of the contract. The finding suggests these measures encourage good performance until the end of the agreement as the private company will not want to become embroiled in financial deliberations after the contract is complete.

At this point, it would be prudent to examine the private partner role in the P3 arrangement. Ph.D. researcher James Dunn has found that most private firms that form a

¹⁸ Holger, H., Schmutzler, A, and Volk, A. "Cooperation and Mistrust in Relational Contracts," *Journal of Economic Behavior and Organization*, 166, (2019): 367

¹⁹ Ibid., 370

²⁰ Demi Chung, Risks, Challenges and Value..., p 451-455

P3 relationship are actually a consortium of specialists from various companies.²¹ This creates a purpose-built agency with the combination of required skillsets to accomplish the project requirements. It becomes a powerful motivator for the private agency to build strong relationships at the outset when this is so key to the success of the project, given its sole reason for existence.²² However, the private organizations which contributed to the consortium in the first place also find it useful to shed some of the risk inherent with the project since there often is a legal separation to a new consortium.²³ Finally, if the consortium is dissolved after the completion of the project, it may pose difficulties to enforce end-of-term responsibilities or liability for contract terms after the handover back to public agency.

Risk and Mitigation

This paper has already made multiple references to risk, but the actual definition of risk is not being discussed as there are libraries available on that topic. It will be sufficient to identify that risk in this sense refers to the a probability of an occurrence which imposes a negative effect that is born of uncertainty or the unknown.²⁴ Risk also means there is a degree to which some factors are outside the control of project participants and can include classifications such as: Political, Legal, Commercial, Financial, Operating and Environmental.²⁵ It is therefore logical to develop risk mitigation measures to deal with the effects of a risk should it come to pass.

²¹ James Dunn. "Project Risk Management in Public-Private Partnerships: An Equitable Risk Allocation Decision Model Based on Psychometrics." Ph.D. thesis, University of Windsor, (2017): 12-14

²² Demi Chung, Risks, Challenges and Value..., p 460

²³ James Dunn, Project Risk Management..., p 14

²⁴ Klaus Rasborg. "What is Risk?" In *Ulrich Beck*, 13-25. (Cham: Springer International Publishing, 2021): 14

²⁵ Kwak, et al. Towards a Comprehensive..., p 66.

The extended timelines of P3 infrastructure projects impose a degree of risk. Humanity does not have strong performance results in predicting the future thus making the ability to forecast all risk over a 20-year contract impossible (an operating risk). Also, certain risks cannot be transferred. Examples of this include political risk on behalf of public agencies such as a change in government, or operational risk in the specific case of a military.²⁶ Despite these facts, establishing an understanding of the risks involved and a strategy to balance between partners is identified as key to building successful P3 relationships.²⁷ This discussion on risk serves to reinforce the requirement for relational contracting as a tool to address the inherently unknown, yet remain committed to the long-term success through mutual cooperation.

Risk assignment in the P3 is not sufficient alone and most risk assessment strategies follow a basic pattern of identification, probability, impact, and mitigation measures. Applying the P3 concept to Arctic development in the next section of this paper means considering environmental and social factors as well as the economic factors in risk analysis and mitigation. These three factors of risk analysis have been considered the sustainability factors.²⁸ The Canadian government is very aware of the factors at play and has imposed requirements on development in the Arctic that consider sustainability.

Businesses may find it challenging to succeed when structuring themselves around a framework of sustainability; and even more so when the aforementioned factors evolve over time.²⁹ Because the P3 arrangement means balancing the risk with the public,

²⁶ NATO. Public Private Partnership..., p 2-1

²⁷ Kwak, et al. Towards a Comprehensive..., p 72.

²⁸ Semih Coşkun and Elif Akgül. "Sustainability Management Model Based on Risk Analysis and Implementation of the Model." *Sustainability* 14, no. 8 (2022): 5

²⁹ Coşkun and Akgül. Sustainability Management Model..., p. 12

the involvement of the Canadian government as a partner enables creation of policies and ensuring they are implemented at the start of the partnership to create the sustainability required.³⁰ In response to the evolving nature of social risks over time, the government serves to absorb some of that risk and then work within the framework of the partnership to make adjustments, however difficult.³¹ The private agency is not excused from the risk mitigation since it was brought in for expertise in finance and construction, among the other reasons already discussed. Managing the risk within a sustainable framework was one of the topics of research for Bakhtawar *et al* who have produced a framework for analysis using the Triple Bottom Line to look for indicators of risk as seen in Figure 1. In their model, they propose that risk is assessed using the traditional models of Probability-Impact, Triple Bottom Line, and Stakeholder Analysis to corollate how the participants engage with the risk factors. Finally, they demonstrate that by integrating the final assessments it is possible to develop a balanced approach to risk mitigation that relies less on risk acceptance.³²

Sustainability Area	Code	Indicators
Financial Sustainability (FS)	11	Initial cost
	12	Life-cycle cost
Social Sustainability (SS)	13	Socio-economic repercussions
	14	Health and safety
	15	Cultural heritage
	16	Governance
	17	Human rights
Environmental Sustainability (ES)	18	Resource damage
	19	Ecosystem damage
	I10	Human health

Figure 1 – Triple Bottom Line Sustainability Indicators³³

³⁰ Beenish Bakhtawar *et al* "A Sustainability-Based Risk Assessment for P3 Projects using a Simulation Approach." *Sustainability* 14, no. 1 (2022): 3

³¹ Demi Chung, Risks, Challenges and Value..., p 450

³² Bakhtwawar, A Sustainability-Based Risk Assessment..., p 18

³³ Ibid., p. 6

Arctic Multi-Domain Awareness

NORAD was created to focused on aerospace warning. Following the events of 9/11 this function has evolved to incorporate maritime approaches as well. The equipment for which NORAD relied on was updated in the 1980s but it is once again approaching obsolescence. The aircraft it must detect are becoming stealthier, but also the introduction of hyper-sonic missiles introduce the fact that maintaining the *status quo* is not possible. The hypersonic missile, nuclear or conventionally armed, drastically reduces response times and will likely defeat current and future missile defenses; possibly even second-strike assets.³⁴ If one of the foundations of nuclear deterrence theory rests on the ability to respond, the early detection of imminent missile attack remains crucial if a response is to be even possible.³⁵ The latest technological developments are therefore rendering NORAD's ability to conduct its primary function obsolete.

The melting sea in the Northwest Passage opens new avenues of commercial shipping that were undreamed of only decades ago.³⁶ In 2013 there were 112 unique vessels sailing the passage and that number has grown to 160 in 2019. These ships either traverse the entire passage, or are destinational meaning they deliver materials to ports along the Arctic Coast.³⁷ Although not likely to traverse Canadian waters, there are Russian and Chinese strategic interests in the north that stem from economic desires. As

³⁴ Eben Coetzee. "Hypersonic Weapons and the Future of Nuclear Deterrence." *Scientia Militaria : South African Journal of Military Studies* 49, no. 1 (2021): 39

³⁵ Lieber, Keir A. and Daryl G. Press. "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence." *International Security* 41, no. 4 (2017): 13

³⁶ Larissa Pizzolato, Stephen EL Howell, Jackie Dawson, Frédéric Laliberté, and Luke Copland. "The influence of declining sea ice on shipping activity in the Canadian Arctic." *Geophysical Research Letters* 43, no. 23 (2016): 147

³⁷ Yareth Rosen. "More ships are travelling longer distances in Canada's Northwest Passage." *Arctic Today*, last modified 3 May 2021.

well they have political desires to challenge the United States.³⁸ For Canada, who has a Search and Rescue function in the Arctic, this creates the need to be able to detect and respond to an incident in the air and at sea. Indeed, the Russians have challenged Canadian Arctic interests and criticized the lack of Canadian agency to respond.³⁹ NORAD has provided aerospace and now included maritime domain awareness to the region for over a decade, however there is no command relationship over Canadian assets to respond to incidents that are not of an aerospace nature. The details of how this is currently managed extends beyond the scope of this paper. What remains relevant is the need to maintain or enhance abilities to monitor movement in Canadian air routes and sea lanes, extend communications to the region, and be able to deliver a response to a growing number of actors who may not always be benign.

American interests in NORAD renewal will likely continue to include ballistic missile defence. Given the development of hyper-sonic missiles and the evolution of threats, it is possible missile defence will become a concern for Canada and usher the return of missile defence to future public discussion. Until then, Canada has interests in Arctic region SAR response as well as maritime sovereignty protection that may not align or outright clash with American interests. Canada will have to develop capabilities for national interests that were not a concern in the 1980's renewal projects. Examples of specific activities include Humanitarian Relief, Disaster Response, Search and Rescue, Major Air or Maritime Disasters, and generic sovereignty related activities through the

³⁸ Sergey Sukhankin, "Section 3: Foreign Actors," in *Russian and the Arctic in an Era of Strategic Competition; Selected Writing*, (Peterborough: Trent University 2021): 54

Northwest Passage.⁴⁰ These are in addition to concerns regarding the economic development of the region.⁴¹ Domain awareness of the Arctic will therefore include more than just aerospace and maritime approaches. Finally, monitoring the situation and responding to these incidents is not the sole responsibility of the CAF.

Canada has recognized the inter-organizational nature of Arctic security. The CAF has a role to defend Canada's sovereignty over the region and elements of the RCAF are closely intertwined to support NORAD for that purpose.⁴² However, enforcing Canada's laws or regulations on matters such as shipping awareness, pollution control, fishing, and infrastructure development involves at least seven other government departments and agencies.⁴³ In this regard, the role of NORAD assists with domain awareness but is not the only source of information, nor is it directly tasked with such enforcement.⁴⁴ Given the Canadian-specific nature of the various rules and regulation, is it in Canada's best interest to incorporate such a domestic response into NORAD? And would NORAD even want to include such responsibility? For the purposes of this paper, it will be assumed Canada will retain NORAD in the current functions and instead should continue to develop and refine such organizations as the Maritime Security Operations Centres.⁴⁵ Importantly, this aspect of Canadian security introduces many more clients

⁴⁰ Department of National Defence, B-GL-007-000/JP-003, *Northern Approaches: the Army Arctic Concept 2021* (Ottawa: DND Canada, 2021), 24

⁴¹ CIRNAC, Arctic and Northern Policy...

 ⁴² Andrea Charron and James Fergusson. NORAD in Perpetuity? Challenges and Opportunities for Canada. (Winnipeg: Centre for Defence and Security Studies, University of Manitoba 31 March 2014): 20-24

⁴³ Crown-Indigenous Relations and Northern Affairs Canada, *Arctic and Northern Policy Framework: Safety, Security and Defense Chapter.* (Ottawa: Canada Communications Group, 2019)

⁴⁴ Charron, NORAD in Perpetuity?... p. 22-23

⁴⁵ CIRNAC. Arctic and Northern Policy Framework...

than just the CAF for Arctic multi-domain awareness. The expanded clientele makes investment in a P3 more profitable and therefore more viable for consideration.

The physical geography of NORAD imposes challenges that must be addressed in the modernization process. In addition, the social-economic situation has shifted and now includes new factors that must be considered. The establishment of Nunavut as a territory has established a new governmental organization with jurisdiction over parts of the region. Development must be done in consultation with the Nunavut Planning Commission and must also include plans for hazardous waste clean-up.⁴⁶

Modernizing NORAD will eventually mean employing the Canadian procurement processes. In developing a modernization plan for NORAD, Canada has committed to working with the USA on a new over-the-horizon radar system.⁴⁷ The implication is Canada and the USA will adopt the same systems that are connected at C2 nodes in order to execute the other NORAD functions that involve integrated command over bi-national forces in response to contingency plans.⁴⁸ Canadian-specific procurement of defense equipment such as the Cyclone procurement has been marred by delays, over runs, and extended bureaucratic procedures that extend project length for delivery past the life span of the items they were intended to replace. Instead of independent acquisition programs, a similar structure to the cooperative development of the F-35 is more likely. Development of the F-35 involved nine countries whose industries were able to bid on the sub-contract developments. This was intended to spread economic benefits while delivering a product

⁴⁶ Agreement Between the Inuit of The Nunavut Settlement Area And Her Majesty The Queen In Right Of Canada. (Iqualuit; 25 May 1993): 91-99

⁴⁷ Olivia Stefanovich, "Canada looks to reinforce Arctic sovereignty through diplomacy, military, says minister" *CBC News*, 14 March 2022.

⁴⁸ Charron, Andrea and James Fergusson. NORAD: Beyond Modernization. Winnipeg: Centre for Defence and Security Studies, University of Manitoba, 31 January 2019: 20

that was interoperable.⁴⁹ The actual costs, timelines, and quality of final product are yet to be verified and are not within the scope of this paper. Regardless, it is a means by which Canada can work to develop a technologically advanced system that is integrated with US command structures to meet the future needs of NORAD

How can P3 help Canada?

A P3 arrangement between the Canadian federal government and a consortium proves worth investigating for two potential roles in the development of domain awareness in Canada's Arctic. In the first instance, there is the development of new technology and systems that will be used to develop awareness across the aerospace, maritime, and other domains as deemed necessary. A second potential P3 option is the construction of new infrastructure and on-going maintenance of the new systems once they have been designed.

As previously discussed, the range of potential threats and demands for domain awareness have expanded. The use of updated radars to replace the *status quo* will not provide sufficient identification and reaction time. NORAD modernization will need to include new technology that wasn't being considered in the 1980s such as satellites, internet communications, and even newer modes of detection. A P3 arrangement leverages the relational contracting element where there is ambiguity in specificity regarding what is to be the end product. The resulting partnership allows Canada to maintain control over development, thus ensuring adherence to interoperability with NORAD systems and integrated command structures for aerospace response. Most

⁴⁹ Levent Ozdemir. "Analyzing the multi-national cooperative acquisition aspect of the Joint Strike Fighter (JSF) Program." MBA Professional Report Naval Postgraduate School Monterey, 2009: 99-102

importantly, the private consortiums that submits bids on the partnership have the opportunity to create proposals that employ the most up to date technology in fully customized solutions. The added benefit of this arrangement means staying current with technological development by stipulating so in the creation the long-term relationship. Long considered the bane of Defence acquisition, the extended timelines of capital projects leaves the CAF feeling it struggles to remain up to date on technology. Employing a P3 with a Design-Build-Operate (DBO) structure leaves the private consortium responsible for continued operations and responsiblity to implement upgrades over time and in response to evolving threats.

The challenges with using a P3 in a DBO for NORAD modernization to produce Arctic Domain Awareness include the need to build the consortium and develop good understandings of how P3s fare in Canadian security. Factors that tend to indicate successful P3 relationships include government competence, selection of the right partner, risk and mitigation plans, and finally the financing plan.⁵⁰ Attempting to incorporate a P3 construct for the development of NORAD modernization includes the risk of rushing to failure without sufficient experience in the Canadian government to implement and monitor the relationship.

Therefore, the second potential option for P3 adoption in Arctic Domain Awareness involves the physical construction, operation, and maintenance of the systems. Theoretically, this would commence towards the end of the development process of whatever systems are deemed necessary. The designs and requirements for the new systems need to be handed over to a P3 partnership along with whatever existing

⁵⁰ Kwak, et al. Towards a Comprehensive..., p 73

infrastructure and land rights are necessary to build the new systems. The goal of this project is to take advantage of private sector knowledge in construction, logistics, procurement, and IT skills to deliver a system that is built on time and within acceptable costs.

The Canadian government needs to maintain ownership of the risk in terms of relationships with local population and territorial governments regarding access and use of the land. It will also be responsible for the arrangements with the USA to ensure adherence to the system requirements, interoperability, and command structures for NORAD response. The inclusion of multiple government departments also implies a need for a central government coordination function to ensure proper use by the agencies who will depend on the domain awareness system that are not part of NORAD.

Development in Canada's Northern regions now creates a requirement to bring employment benefits to the local populations. This especially applies to government contracts in the North where there is an obligation to include more indigenously owned companies in the bidding process.⁵¹ To achieve this, the private consortium must contain sufficient elements of Inuit-based companies, which then becomes a vehicle by which the Federal government provides sustained employment and development benefits to the Northern populations. Such a technologically driven project is certain to demand creation of a workforce with new skillsets that will provide a boon to the Arctic economy. This arrangement is similar to the expected benefits from the Nasittuq Corporation which has

⁵¹ Canada. Agreement between the Inuit..., p. 199-201 and Indigenous Services Canada, Directive on Government Contracts, Including Real Property Leases, in the Nunavut Settlement Area. (Ottawa: Canada Communications Group, 2019): Art 6.3

recently been awarded the contract for the in-service support of the existing Northern Warning System.⁵²

Conclusion

Canada needs to improve its awareness of what is happening in the Arctic in order to respond to incidents of various natures. The hurdles of development in the north are not insignificant and the need is continually evolving due to technology and climate. Harnessing the strengths of the private sector through a P3 provides Canada with expertise and capabilities needed to be timely and remain current with changing conditions over the long run. This would also provide Canada with the control measures it needs to maintain control over socio-economic concerns and effectively manage the risks. Not only would a P3 provide the flexibility needed to establish mult-domain awareness, the participation of a range of government agencies ensures the long-term profitability and stability of the arrangement. Most importantly, the incorporation of the private partner in this project delivers procurement flexibility and adaptation not otherwise found in public procurement. Finally, such a project would create spin-off benefits to the local economies. A P3 arrangement for NORAD modernization and enhancement for Arctic multi-domain awareness is of significant value for Canada to establish the ability to monitor for and respond to security concerns in the North.

⁵² Department of National Defence, *Government of Canada award in-service support contract for North Warning System*. (Ottawa: Canada Communications Group, 2022)

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