SPACE·ESPACE CANADA | CANADA'S SPACE INNOVATORS | INNOVATEURS DE L'ESPACE DU CANADA

MEETING THE MOMENT:

CONNECTING CANADA'S SPACE SECTOR TO NATIONAL DEFENCE

POSITION PAPER

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MESSAGE FROM THE CEO

The world is at an inflection point with security and defense wherein the efficiency to operationalize commercial space capabilities will be pivotal. The space economy is an emerging sector poised to generate massive economic growth while enabling countries to strengthen national security and foster innovation. Globally, the space sector is projected to become a multi-trillion-dollar industry over the next two decades, and Canada is uniquely positioned to claim its place at the forefront.

Investing in space is about far more than technology. It's about security, prosperity, and an increased standard of living. Advancements in space directly support Canada's ability to protect its borders, strengthen continental defense, monitor climate change, bridge the digital divide, and build the infrastructure required for an inclusive, innovative, and sustainable future. Prioritizing space is not optional - it is imperative if Canada is to remain competitive, resilient, and secure in a rapidly shifting world.

As global geopolitical dynamics evolve, Canada faces increasing challenges, particularly in the Arctic. The region's accessibility has drawn attention from several countries, creating new pressures on sovereignty and security. At the same time, defense strategies are changing worldwide, and space capabilities now underpin nearly every aspect of modern military operations from communications and surveillance to navigation and early-warning systems.

The purpose of this paper is to consider the changing landscape and operational imperatives that frame the procurement of space capabilities in support of Canadian National Defense aims. It makes a number of recommendations to the Government of Canada, with the ultimate goal being a clear articulation of government priorities to leverage and position the Canadian space industry for relevance and success across both the domestic and international marketplace.

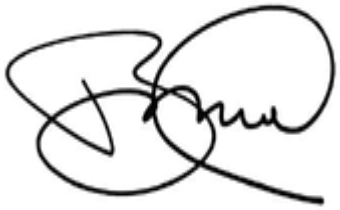
Canada must accelerate the delivery of identified space defense programs and deepen engagement with the country's space innovators, ensuring that the best domestic technologies are leveraged to meet national security needs. Space-based systems are essential for initiatives like NORAD modernization, NATO contributions, Arctic monitoring, and continental defense. Canada's history in space provides a powerful foundation - but maintaining an edge will require greater investment, faster procurement, and stronger collaboration between government, industry, and research institutions.

Globally, other nations are moving quickly, leveraging their space sectors to drive innovation, create high-value jobs, and secure strategic advantages. Canada cannot afford to fall behind. Streamlined procurement processes, faster adoption of commercial technologies, and investment in domestic capabilities are critical. Experience has shown that every dollar invested in space delivers multiple returns: greater economic output, stronger security, and a workforce equipped with the advanced skills needed for the future.

To effectively capitalize on the opportunities stemming from the space sector, Canada should establish a National Space Council to ensure a unified vision within the Federal Government and enable Canada to act decisively at the speed required by today's rapidly evolving space economy.

The choices Canada makes today will define its place in the space economy for decades to come. By prioritizing investment, supporting innovation, and embracing collaboration between government, industry, and researchers, Canada can unlock enormous opportunities - driving economic growth, strengthening our defense and security, and improving the lives of Canadians.

Canada is ready.
Our innovators are ready.
The global opportunity is here.
Space needs more Canada!



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WHO IS SPACE CANADA

Space Canada is a national organization representing Canada's space innovators and ecosystem to convey the value of space technology, research, and investment to domestic and international audiences. From vibrant start-ups to large global companies, Space Canada's 90+ members are designing, building, and implementing innovative new solutions on and around our planet. Organizations with fewer than 100 employees make up over 75% of Space Canada's membership, providing for a diverse set of members.

Canada's space sector contributes $2.8 billion annually to Canada's GDP and over 11,000 direct jobs – 62% being STEM jobs and 67% being highly qualified personnel jobs – and over 12,000 indirect jobs to Canada's economy.

Space Canada members are investing billions of dollars here in Canada and have facilities across the country employing thousands of people in Canada and around the world with a strong emphasis on STEM and innovation.

The work Canadian space innovators do on orbit, on the ground, and for space exploration and research puts people to work and consistently pushes and expands the envelope of Canada's potential.

INTRODUCTION

Space systems are essential for defending Canada's sovereignty, the Arctic, critical infrastructure, and supporting Canada's longstanding commitment to NORAD. Investing in space and procuring products and services from Canadian enterprises are essential to addressing national Defense and security objectives in a timely manner while bringing immediate benefits to the growth and strength of our economy.

As articulated at the Hague Summit in June 2025, Canada has committed to reach the 2% of GDP Defense spending target by March 2026, and the 5% NATO target by 2035. To achieve this, Canada will benefit by engaging more closely with our domestic space industrial base. Canada should commit to ensure - as advocated by Alexander MacDonald (Former Chief Economist, NASA), Jaxson Khan (CEO, Aperture AI and Senior Fellow at University of Toronto) and John Stackhouse (Senior Vice President, Office of the CEO, RBC) in RBC's report *A Higher Orbit: How Canada can build and finance a bolder space strategy* - that at least 5% of the overall NATO commitment to spend at least 5% of GDP on Defense by 2035 is allocated to space capabilities in support of Canada's Defense, national sovereignty, civil preparedness, and Defense industrial base objectives as outlined in the new NATO objective[1]. Canada's current Defense policy, Our North, Strong and Free, emphasizes the need for engaging with industrial partners, and incentivizing domestic supply chains. However, the current procurement policies and systems for Defense space procurement are not suited to take advantage of the pace of innovation from Canadian enterprises.

Space Canada encourages increased dialogue, engagement, and collaboration with the Department of National Defense (DND) and the Canadian Armed Forces (CAF) to better align the space industrial base with the strategic vision, and how to meet the operational requirements of the Royal Canadian Navy (RCN), the Royal Canadian Air Force (RCAF), the Canadian Army, Canadian Special Operations Forces Command (CANSOFCOM), and joint enabling capabilities. Space Canada seeks to discuss new procurement models that leverage existing and emerging technologies, and to foster proactive collaboration between industry and Defense. Canadian companies already deliver sovereign capabilities, both large enterprises and SMEs, that are ideally positioned to rapidly commercialize new and adaptive capabilities much more effectively and efficiently than existing multi-year development and procurement models.

Canada's space innovators are experienced and ready to deliver capabilities to meet Canada's Defense and national security while building our national prosperity and bringing economic benefits to communities across the country. Realizing Canada's ambitious goals through increased Defense spending requires more active engagement between Canada and space innovators to take advantage of home-grown innovation, products, services, and solutions to position Canada as a world-class contributor of space capabilities for Defense and security and as a trusted and reliable ally and partner.

The Moment

The rules-based international order that has served Canada and our allies so well for decades is under attack and faltering. At the same time, the world is facing precarious global security challenges, with a war in Ukraine that shows little signs of ending, ongoing conflicts in the Middle East that raise concerns about escalation to wider conflict and war, and the North American Aerospace Defense Command (NORAD)

continue to track Russian and Chinese aviation assets operating in the Alaskan Air Defense Identification Zone (ADIZ) with more frequent occurrences to test our defensive responses. At home, Canada is facing environmental threats from wildfires and flooding, causing greater damage to more communities with each passing year. Trade relations between Canada and the United States are facing the greatest challenges in living memory, forcing Canada to reconsider its supply chain dependencies and resource development priorities. Space has a key, and ever increasing, role to play in addressing these challenges.

Canada is recognizing this geopolitical inflection point and is taking action. The Prime Minister announced that Canada will increase Defense spending to reach the 2% of GDP target for NATO members by early 2026. After the June 2025 NATO Summit in The Hague, NATO members agreed to further accelerate Defense spending to reach a 5% of GDP target on Defense and related spending by 2035. These plans represent the greatest national and collective commitments to Defense spending since the Second World War. The Prime Minister also emphasized that Canada needs to be reducing reliance on others, globally, and developing our domestic industrial bases for that purpose. The Prime Minister pointed out that the Canadian military spends roughly 75% of its capital budget on American suppliers, and that Canada flatly must rebalance this approach.

In early September 2025, the Prime Minister expanded on that theme with a "Buy Canadian" approach, where Canada should use the power of government procurement to prioritize buying from companies in Canada to improve our long-term prosperity, particularly where Canada has key industrial capabilities to serve the CAF. This will put Canada on a better footing globally for the space sector, as currently Canadian companies are at "a clear disadvantage in the global market, where international competitors benefit from far greater and more favourable forms of government support."[2] To meet this moment, Canada is emphasizing the need to buy from companies in Canada. This must apply to the Defense space industrial base too.

In light of these global risks and threats, Canada has committed to updating its national Defense policy, and a new Defense industrial strategy is expected. The Defense Investment Agency (DIA) was announced in early October 2025 and is intended to accelerate the process of buying Defense solutions for Canada while delivering domestic industrial benefits, improving industrial-military engagement on operational challenges and available capabilities and pursuing closer engagement with allies[3]. Changes have also been promised in the way the DND and the CAF procure the platforms, systems, and capabilities they need. A Secretary of State for Defense Procurement has been named to support procurement reform and reshape the way Canada buys national Defense capabilities. This is particularly critical for Defense space.

For Canada's space innovators, this national sense of urgency puts a spotlight on how space capabilities support Canada's national Defense and security objectives. Canadian space innovators have the capability, capacity, innovation, and desire to meet this moment. What the space sector needs now is for Canada to act on its intent for change and modernization, recognizing and embracing space as the force multiplier it is for national Defense. The space defense industrial base should be developed as a strategic, sovereign, and world-class industry and innovation powerhouse that represents a deterrence as an element of Canada's Defense posture. The space Defense industrial base will be uniquely positioned to contribute with speed to national objectives.

The Need for Defense Space Capabilities

Canada's 2017 Defense policy, *Strong, Secure*, *Engaged*, declared that space-based assets are critical for modern militaries. Canada's 2024 Defense policy update, *Our North Strong and Free,* again clearly highlighted space as an indispensable part of Canada's national Defense, security and sovereignty. Canada's space innovators are delivering systems, services and capabilities that give DND/CAF the insights they need to make informed decisions and to help maintain advantage over adversaries. However, the pace of commercial and dual-use space innovation is moving faster than Defense requirements and procurement. Space systems provide vital earth observation data that support critical intelligence, surveillance and reconnaissance (ISR) requirements, as well as critical space domain awareness (SDA). Global connectivity is extended through satellite communications, enabling the CAF to communicate and move secure data no matter where in the world they are operating[4]. Ground infrastructure connects with satellites to keep them on-time and on-target, and data analysis and synthesis on the ground provide unique insights for planners and decision makers. The modern connected battlespace, and the associated platforms dedicated to conduct operations and ISR roles demand reliable, secure, and low-latency communications solutions to enable real-time C2 and decision-making.

Canada's landmass especially in Canada's North—and its global interests have long dictated that space is a core part Canada's national Defense and security. We know that Defense policy is wholly interdependent with industrial policy. We also know that space policy has major implications for Defense policy both for Canada's exclusive use and for contributing to coalitions and strategic burden sharing with allies and partners. In 2022, Canada announced its intentions for a suite of programs as part of Continental Defense and NORAD Modernization. These programs will expand capabilities for satellite communications and earth observation and will include land-based programs to improve surveillance of space.

There are also important space domain capabilities to detect, deter, and defend against threats that must be addressed. Given the strategic advantage space provides to Canada and our allies, it should be no surprise that adversaries are seeking to hold these capabilities at risk. Whether through cyber-attacks, electronic interference or through physical attack, the Defense space (and cyber) enterprise must be resilient to malicious activity in a similar manner to land, air, and maritime domains. Canada's objectives for its national Defense and security are inseparable from the space sector capability and capacity.

Space capabilities are essential to maintaining an operational advantage across all domains. Land, air and maritime assets rely on space systems for navigation, and real-time transmission of data. Cyberspace relies on land-based infrastructure and a global space-based transmission network to pass data around the world. The pace at which space technologies are developed–primarily from the commercial sector–is getting faster with each passing year. To sustain an operational advantage over threats and adversaries, "keeping pace" with technology is no longer optional. Defense and national security organizations need to maintain or exceed the pace of our adversaries' technological integration in order to maintain an operational advantage. Dual-use technologies offer part of the solution.

The Rise of Dual-Use Technology

The majority of new space innovations and technologies are coming from commercial initiatives. Between 70%[5] and 80%[6] of the space market is comprised of revenues from private sector companies that are innovating, commercializing, and fielding new technologies. Many of these technologies are "dual-use", originating from the commercial sector, and serving both commercial and military purposes.[7] The private sector tends to innovate faster and at a larger scale than Defense space programs. This means the commercial sector develops and delivers new technology at a far higher rate than Defense-only innovation. Capabilities that originated in the private sector deliver immense benefits to Defense. Sensing technologies can provide tracking of crops, forest growth, navigability of waterways, and also provide military planners with insights on installations and the movements of military power by hostile powers. Satellite communications enable civilian telecommunications for things like streaming services and other entertainment channels and are used to connect military forces deployed around the world to regional or national headquarters.

Canada currently does not have a single space strategy or commercial space strategy that clearly articulates strategic priorities that serve the national interest, as some of our allies like Australia, the United Kingdom, and the United States have. Canada also does not have a strategic coordination function for managing the space enterprise similar to that which our allies in the United States and the United Kingdom have. Budget 2024 committed to a National Space Council for this purpose, though so far this council is being implemented as an Assistant Deputy Minister (ADM)-level committee and does not have the executive authority necessary to make decisions and coordinate implementation across departments. This function is essential for a true "whole-of-government" approach to coordinating any national strategy.

Categorizing space capabilities as either purely military or civilian is losing meaning in an era where commercial technology is the biggest engine of innovation. States are increasingly adjusting their national strategies and approaches to space to embrace dual-use technology for both civil and national security benefits. Japan is expanding its space-based national security capabilities by relying on dual-use technology; the United Kingdom is providing incentives to its commercial space sector specifically because it delivers benefits for civilian and military capabilities, maximizing the national benefits of space investment; NATO is seeking the contribution of all its members for space security—irrespective of whether those capabilities originated in the Defense or commercial sector—and is investing directly in finding and accelerating dual-use technologies through the NATO DIANA and NATO Innovation Fund programs; and Canada already relies on dual-use space technologies, operated by the Canadian Space Agency to satisfy requirements for information for civil and Defense use[8].

Nearly all space technologies have potential Defense applications, making the list of "Defense-only" priorities for space very short. Those capabilities are essential differentiators for militaries around the world; however, they are a small minority of the overall space capabilities that serve Defense needs today. With the growth of the space sector forecasted to grow significantly in coming years, even more commercially driven innovations will become available, and many will have Defense applications. For these reasons, investment in the space sector generally will deliver benefits for Defense application. Dual-use has become a standard model for delivering the latest technology for Defense applications.

Canada's allies are prioritizing commercial integration in Defense and leveraging dual-use technology. Australia has integrated commercial components into both its civil and Defense strategies; the United Kingdom has an overarching national strategy that includes civil, commercial and Defense components; and the United States has a national space policy that connects civil, commercial and Defense components. For its national Defense, the Department of Defense released a Defense commercial integration strategy last year[9], quickly followed by the United States Space Force's commercial space strategy for integrating more commercial capabilities into the Space Force enterprise[10].

Irrespective of various space technologies having civilian, Defense, or dual-use applications, the ability to have meaningful conversations between industry and government at a Top Secret level will be imperative in order to adapt and apply the technologies to address future problem sets.

The Global Space Market: Reaping the Rewards of Decades of Investment

The global space market is growing at an exceptional pace. In 2024, some forecasts show that the space economy could be worth $1.8 trillion (USD) by 2035 up from an estimated $630 billion (USD) in 2023—or, about 35% compounded annual growth rate (CAGR)[11]. The sector is poised to grow globally, and that must not be ignored. Canada generated about $5.5 billion in annual revenue from its space sector in 2019[12]. If Canada can sustain the growth of its space sector at the pace of global growth, Canada's space sector could be worth $40 billion by the year 2040[13]. This means that Canada's space sector could grow by over eight times from its current annual value of $5bn [14] if Canada captures its fair share of the global market.

The forecasted growth from Canada's space sector builds on a strong, deliberately evolved industrial base, initiated by national leadership decades ago to enable communication, surveillance and navigation across our enormous land mass and space exploration, a domain that is in the early stages of commercialization. The resulting space sector in Canada delivers significant economic benefits and jobs from coast-to-coast-to-coast and drives Canada's global competitiveness through innovation and exports. In 2022, the space sector sustained 25,000 jobs, with 67% of those jobs in STEM and 68% of people are highly-qualified personnel (HQP – jobs where people have post-secondary degrees)[15]. The sector is also a major innovator, spending about $593M in research and development (R&D), 13 times the R&D intensity of other manufacturing sub-sectors in Canada.[16] The sector also contributes to Canada's export growth, with 40% of the sector's products and services being exported, generating $2 billion in annual revenue[17].

Data from 2023 shows that roughly 80% of the satellites orbiting the earth are operated by commercial companies, slightly more than 10% operated by governments for civilian purposes, and slightly less than 10% operated by militaries[18]. This figure, however, is somewhat misleading. Dual-use and dual-purpose space systems operated by commercial entities are increasingly being leveraged for military purposes. In Canada, the government currently spends roughly 71% of total expenditure on civil systems and 29% for its national Defense, noting that the national Defense element is set to accelerate in the coming year[19]; in part because of dual-use systems that have national Defense applications and in line with global Defense space growth trends.

Earth observation systems, for example, can detect adversary activities as well as the risks posed by floods, wildfire, and melting polar ice. Satellite communications systems can move military or civilian data, with

the security requirements of both converging. Ground-based systems can peer into space to better understand the universe while also tracking adversary activities in space. Data analytics and fusion are evolving to both improve civil space products as well as empowering military pan-domain operations. New space technology innovations that are developed and commercialized with civilian purposes in mind often have military applications, and vice versa. The sooner the Canadian space sector can be engaged and empowered to optimize these interdependencies, the better.

Here is what Canada should do.

RECOMMENDATIONS

01 Build a resilient Canadian Defense Space Industrial Base

02 Modernize procurement to accelerate the adoption of commercial space capabilities for defense

03 Modernize defense space R&D programs to strengthen the competitiveness of Canada's industrial base

04 Increase export promotion activities to grow Canadian space exports while supporting allies abroad

RECOMMENDATION #1

Build a resilient Canadian Defense Space Industrial Base

Canada should make buying space capabilities, products, and services from Canada's Defense space industrial base a foundational priority to keep the benefits of tens of billions of increased Defense spending in Canada and to build up Canada's sovereign capabilities. This will make the Defense space industrial base more resilient in the long term.

The Prime Minister has made clear that Canada's surge in Defense spending will prioritize the Canadian Defense and space industrial bases where it is strategic and practical; specifically, to keep the economic and industrial benefits of tens of billions of dollars of investment in Canada. The September 2025 announcement that Canada intends to "Buy Canadian" through government procurements to improve our long-term prosperity is very welcome news. Buying at home will help sustain our long-term prosperity, including for the space sector. Space Canada endorses this position wholeheartedly. Canada's space innovators deliver high paying jobs, economic benefits, innovation and export growth. Buying Canadian for Defense space will invest in a sector with a strong track record of delivering innovation, exports, and jobs in communities across the country[20].

By having Canada as an "anchor customer," Canadian space innovators can invest in new innovations at home while signaling to the global market that Canadian space exports are worthy of international consideration. Too often, Canadian companies face challenges in making sales abroad if Canada is not a buyer. When Canada expresses confidence in Canadian solutions, it raises the potential for export growth which directly contributes to national prosperity objectives. For Defense space solutions, this means DND and the CSA seeking Canadian space innovators first, where they have the expertise and the capability to meet operational needs. To realize this vision, it should be simpler and more straight-forward to build mutual understanding on Canada's needs and what solutions are available from the Defense space industrial base in Canada. An extension of this vision is for industry to be engaged early discussions pertaining to future requirements early enough to allow for those capabilities to be established within the space defense industrial base in Canada, in a timeframe that enables the delivery of the capability when the future demand is made.

Buying Canadian also means taking measures to support small-medium businesses (SMBs) in the space sector, and those companies in their supply chains. Over 90% of Canada's space companies are SMBs, generating almost 40% of the total revenue and employing 30% of the people employed in space across Canada[21]. SMBs in Canada are developing new space technologies for advanced sensors, data processing and fusion, cybersecurity and data security solutions, and launching satellites with unique payloads. Canada should also implement measures to ensure that large space companies partner with SMBs to create the best available Team Canada solutions to develop the full Canadian space ecosystem.

Buying Canadian supports the Defense space industrial base, and generates new intellectual property, commercial solutions, and jobs across the country. Maintaining and expanding the Defense space industrial base means we can do more at home. Building greater innovation, manufacturing and assembly, testing, systems integration, launch, and operational services means more capability and industrial capacity at home. The global space economy is growing rapidly, with space-faring countries seeking a greater global role.

Sustaining Canada's industrial capabilities provides sovereign solutions, and expanding the range of capabilities means greater domestic capacity at home.

RECOMMENDATION #2

Modernization procurement to accelerate the adoption of commercial space capabilities for Defense

Canada should modernize the concepts and processes that drive Defense procurement for space, including taking a performance-based approach, embracing more services-based contracts, and expanding Defense-industry dialogue – including for up to TOP SECRET requirements.

The process of pursuing and winning Defense business in Canada follows a rigid, often slow process where DND/CAF attempt to define 'the' perfect solution through options analysis, and then eventually solicit competition from industry. Based on an outdated procurement model that was developed to procure air, land and sea platforms, this approach often pre-supposes that a space solution either already exists and can be procured by defining the solution up front via the request for information (RFI) process and then delivered with state-of-the-art innovation embedded. For space capabilities, this is simply not the case.

The first step is to shift away from the RFI and exquisite 'request for proposal (RFP)' approach to a performance-based approach. Shifting to a more performance-based, commercial-like approach means DND/CAF could stay focused on performance metrics linked to their high-level mandatory requirements (HLMR), down-select teams or companies from the space industrial base quickly, then together create optimal solutions collaboratively at pace with selected industry partners. Much of the existing innovation for space is being driven for the much larger global commercial market, where there are hundreds or thousands of potential customers. This market reality incentivizes speed of development and commercialization, which moves orders of magnitude faster than Defense procurement. By Defense mission partners focusing on HLMR performance, Canada's space innovators can leverage their internal ingenuity, creativity and innovations to deliver solutions. These recognized challenges come at a time when there is widespread recognition of a changing paradigm for Defense procurement – more evident in the Space domain than any other.

For accelerating the process of procurement, Canada should integrate AI and Large Language Model (LLM) technology to accelerate workflows across the Defense and space procurement enterprise. There are many processes that rely on manual adjustments and approvals, adding time and opportunity cost to the procurement process.

Canada should also prioritize commercially-owned and commercially operated (COCO) space solutions whenever government owning and operating a solution is not critical to meet operational objectives. There are some vital national security space capabilities that Canada should own and operate. However, the vast majority of space capabilities do not need to be owned. Which ones Canada should own and which ones it should contract is a decision for Canada to make based on a range of factors. There are many benefits to Canada in increasing use of a COCO, or even government owned commercially operated (GOCO), approach for Defense space whenever possible.

First, using a COCO approach is much, much faster than using government owned and operated solutions. COCO solutions focus on the outcome the Defense mission partner wants—imagery and sensing products, satellite communications service, data analysis and fusion to support ISR requirements, etc.—not the platform or product that provides the outcome. Second, using a COCO approach means accessing the latest and most current capabilities because of the faster pace of commercial innovation. When government owns and operates a solution, the time horizons for development, launching and full operational capability are typically a decade or more. By relying on commercially-operated solutions that are regularly improved and updated, Canada receives the benefits of improved capability every few years as new iterations of technology are fielded.

Third, by relying more on COCO models, Canada can reduce the overall risk in procurement. The greater speed and agility in the COCO model means that Canada can reduce reliance on longer-term capital expenditure (CAPEX) programs in favour of operational expenditure (OPEX) arrangements that can be modified to suit changing operational requirements or surging immediate needs in the case of a domestic or international crisis where space capabilities provide Canada an advantage. The shift toward more OPEX and less CAPEX means an overall reduction in financial and program risk for Canada. The private sector owns and operates the capability, which means the costs of development, launch, operations, maintenance and upgrades are borne by the owner, not by Canada. Canada pays the cost of outcome and service delivery, and therefore massively reduces the risks associated with ownership.

Fourth, if Canada becomes an "anchor customer" for a new capability (i.e.: the first buyer), it will provide clear incentives to unlock private capital for iteration and improvement of capabilities and development of new solutions. When Canada choses a service provider, it signals confidence in that product, service, or solution, and provides an incentive for iterating the next generation. This will incentivize private capital providers who see the opportunity of a national-level customer.

Canada should also be more open to considering unsolicited proposals, especially for SMBs and companies delivering highly innovative solutions. Where Canada has a clear problem or challenge in the space domain—for which there is no clear solution based on existing technologies—it should be open to unsolicited proposals that meet that need, including COCO proposals. Establishing an openness to unsolicited proposals will enable dialogue between innovators developing new technology and Canada to address stated problems.

Lastly, Canada should revisit how it meters security clearances to companies and staff in Canada's space industrial base. To be clear, this is not to suggest there should be any change to the rigour of the security clearance process, but the current 'gate keeper' approach to providing access to government clearance capacity has to adapt for Defense space. Currently, personnel clearances are only issued to companies once they have a sponsoring contract. This effectively means that companies cannot conduct classified business development nor be a part of classified threat reviews, challenges and capability requirements until after a contract is secured. This makes it nearly impossible for the Canadian space industry to effectively compete for classified space opportunities, especially internationally, without already having a minimum number of appropriately cleared employees, let alone fully established and certified classified infrastructure, pre-sponsor/pre-contract.

Prospective Defense space mission partners have little incentive to sponsor Canadian companies pre-contract, especially international partners. And even when they are interested, the rapidly shrinking contract-to-production lead times for Defense space (in some cases now 2 years or less) make sponsorship consideration irrelevant. It would not be possible, post-contract, to build and certify classified infrastructure fast enough to execute a contract within required timelines. These challenges create strategic risks, because they favour international companies that already have the necessary classified infrastructure and people acquired in the course of delivering other space and Defense programs. The lack of pre-sponsor/pre-contract security policy puts Canadian companies at a strategic disadvantage with those companies that already have clearances and infrastructure. This challenge will prevent Canadian companies from competing for billions in domestic and global Defense contracts and is entirely fixable.

In addition, the shortfall in cleared industry members is a major obstacle to enabling companies and staff to better understand Canadian Defense threats, challenges and emerging requirements. By enabling classified dialogue with a limited number of space industry members, the space industrial base will better understand the challenges Canada is facing and would enable internal investment decisions. In this context, industry must be viewed as a Mission Partner in the delivery of national security effects.

Modernizing the way Canada procures and buys Defense space solutions is essential to keeping pace with the introduction of new technologies by our partners and allies, and by our adversaries. Keeping pace (or exceeding pace) with adversaries is important to maintaining a technological advantage in the operating environment. Keeping pace with our partners and allies gives Canada a greater range of domestic options for space solutions and reduces the overall dependency on other countries. Innovating new solutions as fast, or faster, than partners and allies also create export growth potential for the Canadian space industrial base, enabling Canada to leverage domestic capability for international benefit.

RECOMMENDATION #3

Modernize Defense space R&D programs to strengthen the competitiveness of Canada's industrial base

Canada should modernize Defense space innovation programs by increasing the dollar limits on individual programs and allow space companies to proactively pitch innovation investment projects to address known problems.

The Innovation for Defense Excellence and Security (IDEaS) program is a Defense Research and Development Canada (DRDC) program that provides funding for commercialization of new Defense and security technologies. The funding starts at $250,000 for technology readiness level (TRL) 1-3 projects, and then up to $1.5 million for TRL 4 or 5 projects, and eventually up to $5 million up to TRL 9[22]. While this program is important and these figures sound impressive, the cost of space research demands that the funding level should be significantly increased for space research. The total cost ceiling for TRL 1-3 projects should be increased to $1 million, and the cost for TRL 4 or 5 projects should be increased to

$4 million. This level of funding should not be granted automatically a formal application process should still be required. However, the ceiling should be increased to incentivize bolder and broader innovative space concepts for Defense. Space innovation requires capital, and the IDEaS program should raise the ceiling for space funding to bring the best of Canada's space innovators into the program.

Another important change to Defense innovation programs is to add a stream for unsolicited, industry-presented solutions. The IDEaS program defines many contests, competitive projects and sandboxes where the area of research meets an operational issue identified by the CAF. This is an important pathway to connect the operational community to research and development, and this approach should continue. However, many space innovations are being developed that address challenges the operational community may not be aware of or may not be prioritizing. By empowering space innovators to share concepts for innovation, DND/CAF can benefit from exposure to the latest innovations to assess suitability for operational applications. This approach would provide Defense professionals with the opportunity to see and understand new space technology and would provide valuable insights to space innovators on how to improve solutions- in-development to better meet operational needs.

RECOMMENDATION #4

Increase export promotion activities to grow Canadian space exports while supporting allies abroad

Canada should actively promote Canadian space solutions to reach our full export potential, improve the resilience of the space industrial base, and strengthen relationships with partners and allies

The global Defense market is a managed market that may be characterized by companies relying on their respective governments for domestic Defense and contributions to international peace and security, all while maintaining comparative advantage in the global market. Canada's commitment to increase Defense spending and to deepen Defense cooperation with its allies offers a generational opportunity to grow Canada's Defense and space industrial base at home and abroad Canada should identify those of its allies who invest heavily in their collective Defense and security over the next decade and identify opportunities to promote its existing and developing space capabilities to better support our allies to move more efficiently to realize their ambitious Defense and security missions.

Canada should take a much more active role in supporting global business development and export growth by promoting the highly advanced and world-leading products, services and solutions developed by Canada's space innovators in global markets. Canada should prioritize the use of all elements of national power available for economic development starting at the top with the Prime Minister and the Cabinet, and including the Trade Commissioner Service, personnel in Canadian embassies abroad, Defense attachés in foreign capitals, the Canadian Commercial Corporation, and Export Development Canada—to support the export of Canadian space solutions to allies and partners, including at NATO, the European Commission and the European Space Agency. Many of Canada's allies take a similar approach to championing their domestic industries abroad – and Canada should take a page form their playbook.

CONCLUSIONS

Canada and indeed, the world is facing a generational moment. Within the context of an increasingly dangerous world and a struggling rules-based international order, the Government of Canada is recognizing the need to expand Defense spending to a level unprecedented since the Second World War. Canadians are broadly supportive, understanding that our national Defense and national prosperity are inextricably linked. Space is a central part of Canada's national Defense capabilities, enabling virtually everything the CAF does both at home and abroad.

To meet this moment, Canada should take bold action and implement a range of measures to maximize the benefits of accelerated and increased Defense space spending within our sovereign space industrial base. By buying Canadian wherever possible, modernizing procurement, expanding research and development programs, and using more tools of national power to support export growth, Canada can turn the challenges of this moment into long term, strategic opportunity.

Canada's space innovators are proudly Canadian, supporting 25,000 jobs and economic growth across the country, and delivering innovative new technologies and services to sustain the space industrial base. With billions in new spending on Defense coming, Canada has the opportunity to accelerate the growth, innovation and strategic capacity of the space sector while meeting vital national Defense and security requirements.

Onward to renewed Defense and space capabilities. Upward to our 5% target. And courage to build the community that will reach for the stars.

SPACE·ESPACE CANADA | CANADA'S SPACE INNOVATORS | INNOVATEURS DE L'ESPACE DU CANADA

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