

# **Aerospace Related Public Procurement**

## **Working Group Report**

**July 18, 2012**

(Revision 1 dated September 18, 2012)

*“This report reflects the views of one of the six industry-led working groups created to provide advice to the Aerospace Review Head and the members of the Advisory Council. The recommendations therein may not reflect the findings of the Aerospace Review.*

*For more information on the Review process visit [www.aerospacereview.ca](http://www.aerospacereview.ca).”*

# Introduction

## Background

Global supply chains, technologies, and market conditions are all changing rapidly, giving rise to new challenges and creating new opportunities for Canadian aerospace firms. In this evolving environment, the sector's on-going competitiveness will depend on the engagement of all stakeholders in the development and implementation of appropriate strategies to foster growth and sustained innovation. To this end, industry was pleased when the Government of Canada announced its intention to initiate an Aerospace Review in Budget 2011.

One specific and vital aspect of this very broad review is the role of public procurement in relation to the evolution and growth of Canada's aerospace industry. The Public Procurement Working Group was established "...to examine how procurement by the Government of Canada can be leveraged to optimize economic benefits for and enhance the competitiveness of the Canadian aerospace industry. Areas to be covered by this working group may include but not be limited to: In-service-support (ISS), the Industrial and Regional Benefits (IRB) Policy, the need for a Canadian defence industrial base, optimizing industrial benefits for Canadian firms in major aerospace defence procurement and recommendations included in the Jenkins report on procurement, the Government's responses to the report as well as potential changes in procurement practices to be implemented by Public Works and Government Services Canada."

Industry appreciates having this opportunity to contribute to this effort. This report is the result of a collective effort by representatives of a large number of aerospace companies, as well as government and academic representatives from across Canada, all of whom worked very hard to prepare their respective contributions. The depth and breadth of experience of the Working Group participants resulted in a thorough analysis of the topics under discussion, with fresh ideas and insights advanced by all.

Given the broad scope of the Working Group's mandate, three Sub-Working Groups were formed by committee members who volunteered their time and effort to address the following topics, which form the central focus of this report:

- a. Industrial Strategy
- b. In-Service Support
- c. Governance

The views of these sub-working groups, along with input from all members of the Working Group, and ideas and concepts contained in recent comprehensive industry studies by both AIAC and CADSI among others, were used in developing the final recommendations presented in this paper.

These sub-groups, comprising individuals with differing backgrounds and perspectives, deserve recognition for their hard work and contribution. Through their efforts, a range of options and ideas were developed and explored. While there may not be complete unanimity in all of the recommendations contained in this report, their work is to be commended as it is clear that there are many perspectives and interests.

Canada has a robust aerospace sector that currently ranks 5<sup>th</sup> in the world. Much of Canada's aerospace activities are in commercial and dual-use aerospace products. However, in terms of military aviation products, which are the bulk of aerospace related public procurement, Canada's domestic base is very limited. This causes our government to look off-shore for most major procurements. It is therefore imperative that these off-shore investments be leveraged to the maximum extent possible to benefit Canadian industry and the economy. This objective has been clearly recognized in the past by a number of studies and analyses of the aerospace and defence sectors. In particular, the National Aerospace and Defence Strategic Framework (NADSF)<sup>1</sup> published by the government in 2005, identified Public Procurement as one of seven pillars required to support a comprehensive aerospace and defence strategy. The 2009 reports by the Aerospace Industries Association of Canada (AIAC)<sup>2</sup> and the Canadian Association of Defence and Security Industries (CADSI)<sup>3</sup> also emphasized the fundamental importance of public procurement as part of an overall Canadian aerospace strategy. Most recently, the Jenkins Special Report on Procurement<sup>4</sup> further reinforced the need to change public procurement practices to better support Canada's broader economic interests.

Despite these recommendations, there is still no comprehensive governance structure or strategy to pro-actively ensure that government procurement is optimized to maximize the potential economic and industrial competitiveness benefits for Canada. While existing policies and guidelines to foster such objectives do exist, they are not being implemented in a way that achieves the intended outcomes for a multitude of reasons. These include: competing departmental mandates, poor stakeholder communications, a propensity to overlook existing policy direction and the absence of mechanisms to address systemic issues that frustrate positive outcomes. This paper seeks to identify the challenges to the Canadian aerospace industry as they relate to public procurement of aerospace products and services, and offers recommendations for change. Given that Canada's aerospace and aviation sectors are directly linked to approximately \$2 B of annual government expenditure and an estimated 18,000 jobs for Canadians, there is ample reason for attention.

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<sup>1</sup> National Aerospace and Defence Strategic Framework, 25 November 2005, ISBN 0-662-42075-6 54349E

<sup>2</sup> Submission to the Government of Canada Consultation on Military Procurement – Aerospace Perspectives on Defence Procurement Renewal: Making the Right Decisions Now to Ensure a Canadian Defence Industrial Base for the Long Term", AIAC, October 29, 2009

<sup>3</sup> Canada's Defence Industry: A Vital Partner Supporting Canada's Economic and National Interests: Industry Engagement on the Opportunities and Challenges Facing the Defence Industry and Military Procurement, CADSI, December, 2009

<sup>4</sup> Innovation Canada: A Call to Action (Special Report on Procurement)

## **Scope of the Report**

Public Procurement of aerospace products and services originates from a number of federal government departments and agencies including the Department of National Defence (DND), Transport Canada, Department of Fisheries and Oceans (including the Canadian Coast Guard), the National Research Council (NRC) and the RCMP. Data gathered from each of these is presented in Figure 1, Annex A, which shows that DND expenditures account for approximately 98% of the federal government expenditure on aerospace. Accordingly, the Working Group focused predominately on military aircraft and associated equipment acquired and operated by DND. Figure 2 of Annex A portrays military aviation as being a subset of both the aerospace and the defence and security sectors, and seeks to clarify the scope of this report. While there are some unique issues related to military aircraft procurement, there is a high degree of commonality with defence procurement generally. Indeed, military aircraft procurement has more similarity of issues with defence procurement than with the civil aerospace sector. This commonality leads to discussion in this paper of topics such as the “Aerospace and Defence Industrial Base” of which military aircraft and related equipment form a part. Governmental expenditures on Space are dealt with by the Space Working Group and are not considered in this report.

## **Context**

Defence procurement is a managed market with a very constrained set of potential customers. All nations intervene, to some extent, in the defence marketplace. Their right to do so is legitimized by special provisions exempting defence procurement from the provisions of the World Trade Organization (WTO) Treaty and the North American Free Trade Agreement (NAFTA). Of all the countries examined during the analysis of global practices, Canada seems to be less inclined to take concerted actions to support its own indigenous defence industry.

Defence departments of other nations are very hesitant to purchase Canadian goods and services unless they are already being used by Canada. In order for the Canadian aerospace and defence industry to be competitive in the international market, it must be successful in its home country. For Canadian companies, a “demand pull” from the government is critical, particularly in the early development stages of a new product or service to position these companies for export success.

In contrast to the need for off-shore procurement of aircraft, a particular strength of Canadian industry has been the ability to provide comprehensive In-Service Support (ISS) for military aircraft. ISS is a large and important business, with costs to DND over the life cycle of an aircraft typically exceeding the cost of procurement. It is an excellent example of how, over a period of decades, government procurement fostered the growth of Canadian ISS providers and created a world-class Canadian ISS industry that met this country’s requirements, and ultimately generated export sales as well. However,

recent changes in government procurement practices have undermined the ISS industry and, left unchecked, this sector will be reduced to the point where it will be effectively destroyed as an industry. The Aerospace Procurement Working Group was specifically mandated to address the Canadian ISS industry, and this is provided as a separate section in this report.

Notwithstanding increasing Canadian defence budgets over the last few years and repeated commitments by the federal government to better leverage defence expenditures for economic benefit, Canadian firms are threatened by shrinking opportunities at home and increasing barriers to export abroad. The current state of aerospace related public procurement in Canada is such that:

- a. It is difficult for industry to get information regarding the government's procurement intentions to enable it to effectively plan its business evolution and product /service development strategies;
- b. Uncertainty and changes to programs create excessive destabilization;
- c. The transaction costs of tracking and bidding on Canadian procurement opportunities are excessively high;
- d. Unlike other nations, Canadian companies receive no preferential treatment from Canada and are often at a disadvantage to foreign suppliers in the competitive process;
- e. The benefits accruing to Canadian industry are insufficient in quantity or quality in relation to the value of taxpayer dollars spent;
- f. Canadian companies are left to deal from a position of weakness with government-chosen foreign manufacturers for large Canadian programs;
- g. Canadian companies can turn to a number of programs to assist with developing product and export markets but none of these are linked to the actual capital equipment expenditures of DND, or other departments, and few are applicable to services;
- h. Recent changes to military aircraft procurement, such as Single Point Accountability and Sole-Source Procurement are effectively destroying the indigenous In-Service Support industrial sector; and,
- i. The Industrial and Regional Benefit (IRB) program, in the absence of a defined industrial policy and strategy, does not have the "teeth" to successfully support the Canadian aerospace industry.

All of these weaknesses are believed to be repairable in a fiscally neutral way. The key to this is the development of a comprehensive strategy that will bring government and

industry together to maximize the overall benefit to the economy without compromising the essential requirement to ensure DND gets the equipment needed for its missions.

This industry does not need or want handouts from government, but it does need a sound industrial strategy to be successful both at home and in global markets. This paper identifies the challenges to the Canadian aerospace industry as it relates to public procurement of aerospace products and services and provides recommendations for change. These issues are addressed in the following four major sections in this report:

- a. Industrial Strategy;
- b. Industrial and Regional Benefits;
- c. In-Service Support; and
- d. Governance

## Industrial Strategy

In 2005, after an extensive consultation with a wide range of stakeholders across the nation, the Government of Canada published a National Aerospace and Defence Strategic Framework (NADSF) addressing a 20-year timeframe from 2005 to 2025. The NADSF provided a snapshot of the aerospace sector in Canada and established the importance of the aerospace industry sector to Canada and the need to have a National Aerospace and Defence Strategic Framework. Both the 2009 Canadian Association of Defence and Security Industries (CADSI) and the Aerospace Industries Association of Canada (AIAC) submissions to the Government of Canada emphasized the urgent and fundamental need for a Canadian Defence Industrial Strategy. A recent AIAC study<sup>5</sup> of the aerospace sector in Canada published in 2010 confirmed the 2005 NADSF findings and has highlighted the urgency of translating the strategic framework into implementable strategies as Canada has slid from 4th position to 5th position in the global marketplace.

### Security and the Environment

The NADSF provided a vision and set of government objectives for the aerospace and defence industry which are equally valid today. The NADSF recognized the importance for the Government of Canada of having secure access to strategic goods and services:

*“Secure access to strategic goods and services is necessary for national security reasons. A country’s ability to protect itself and support its allies depends on its ability to deliver and maintain strategic materiel through its defence industrial base.”*

In fact, this requirement is embedded in the Defence Production Act (DPA) of 1985 (last amended April 2001). Under the DPA, the Minister of Public Works and Government Services Canada (PWGSC) is responsible for maintaining a Canadian defence industrial base capable to meet both the current and future defence needs of Canada:

*“The Minister shall examine into, organize, mobilize and conserve the resources of Canada contributory to, and the sources of supply of, defence supplies and the agencies and facilities available for the supply thereof and for the construction of defence projects and shall explore, estimate and provide for the fulfillment of the needs, present and prospective, of the Government and the community with respect thereto and generally shall take steps to mobilize, conserve and coordinate all economic and industrial facilities in respect of defence supplies and defence projects and the supply or construction thereof.”*

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<sup>5</sup> The Strategic and Economic Impact of the Canadian Aerospace Industry (Deloitte) October 2010

It appears that PWGSC action on this issue is dormant. It is understood that the staff that was managing the Defence Industrial Base within PWGSC was reassigned and their work was discontinued after the “end” of the Cold War as part of government cuts two decades ago.

Another contributor to the lack of action on this issue appears to be a sense that, because of the decades-old agreement on the North American Defence Industrial Base, Canadian manufacturers will still have unfettered, preferred access to the large US defence market. But with the US International Traffic in Arms Regulations (ITARs) acting as a non-tariff trade barrier, Canadian access to the US market is typically difficult. Further, in times of emergency or war, foreign OEM's and suppliers' first priority is to satisfy their own government's needs, with Canadian requirements taking a lower priority. Canada's experience in previous conflicts underpins the necessity for a sovereign, in-country, strategic defence industrial base, and that is reflected in the Defence Production Act.

Under the Security and Environment pillar, the NADSF further states that:

*“Even in the case of equipment that the federal government sources from multinational producers, there is a strategic need to be able to support that equipment in Canada. The Department of National Defence has explicitly stated that domestic sources of maintenance and repair are of national strategic importance and has invoked the national security provisions included in international trade agreements for various in-service support contracts.”*

## **Supporting Policy Framework**

The 2005 NADSF and the 2009 CADSI and AIAC submissions to government, all recommended the creation of a strategy, policy or framework for the development and sustainment of a Defence Industrial Base. It is proposed that policy must be created to cover all areas of the aerospace and defence industrial base, beginning with the goods and services consumed by aerospace-related public procurement.

It is strongly recommended that Canada create an industrial policy for aerospace and defence to enhance Canada's long-term economic prosperity, respond to the technology needs of DND and support sovereignty and national security interests
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With an enlightened policy to foster the Canadian industrial base, government officials would have appropriate direction and context in which to frame project procurement strategies. Concurrently, industry would have the basis on which to predict, plan and adjust its products, services and business models, and both the government and industry could substantially reduce transaction costs. It is neither possible nor necessary for Canada to be a leader in all technology or capability areas. An industrial policy defines those selected areas that would be developed and nurtured in Canada

based on sensible, forward-looking, achievable criteria. The four main drivers for that selection are: Prosperity; Sovereignty; National Security; and Operational Response. This is more fully discussed in Annex B.

It is recognized that many stakeholders need to be engaged in the generation and maintenance of an aerospace and defence industrial policy. However, there should be one clearly designated, lead department or agency. The government is encouraged to appoint a lead industrial policy department, and to provide it with the mandate and resources to fulfill this critical function. Given the role of the Minister of PWGSC as defined in the Defence Production Act paragraph 12 (cited above), the recent precedent of the National Shipbuilding Procurement Strategy (NSPS), and most recently the acquisition of the new Fighters, PWGSC could be the logical choice as lead department. All stakeholders within government should also be included in this process, as should representatives from the Canadian defence industry.

The government should select a lead department or agency to create and manage a Canadian Aerospace and Defence Industrial Base policy in consultation with other government departments and agencies, including the Regional Development Agencies, and industry.

Industry will need to be a key partner in advising government on the creation of a defence industrial base policy. To ensure that the creation and nurture of the defence industrial base takes place in a timely manner, and remains relevant going forward, there needs to be a high degree of communication, openness and transparency both within government and between government and industry. To that end, we endorse two of CADSIs previous recommendations that state:

*“Create a Defence Industry Advisory Council reporting at the Ministerial level to offer continuing advice to Government on the formation, implementation and ongoing management of aerospace and defence industrial policy and its implementing strategies.”*

*“Produce an annual Report to Parliament on the state of readiness and competitiveness of the aerospace and defence industrial base and its contribution to the national economy.”*

Currently, selected munitions and shipbuilding are the only industrial capabilities which are covered under specific industrial strategies. These precedents are a reflection of the fact that an industrial strategy framework only provides a starting point for strategy development. Real results occur when targeted policies and implementable strategies are developed for industrial capabilities of strategic interest.

The task of creating a defence industrial policy and strategy is daunting, so the work must be separated into manageable pieces. Industry believes that this task can be made manageable through the identification of Key Industrial Capabilities (KICs). Appendix B provides a framework for a defence industrial policy based around critical,

strategic KICs, and explains how KICs would be selected and how public policy would be modified to facilitate the implementation of such an industrial strategy. This framework would be ongoing and evolutionary, in that rigorous, continuous assessments of current and future potential KICs would be an on-going process.

The selected lead department, with input from other government and industry stakeholders, should select Key Industrial Capabilities (KICs) as the basis for an aerospace and defence industrial policy

In 2012, CADSI developed an initial list of proposed defence and security KICs (see Annex C). This list has been provided to the government as the basis for discussion of a more definitive list. It is recommended that the government start by taking selected aerospace-related KICs from this list, actioning them in accordance with Annex B, and then generating an industrial policy position and KIC strategies.

### **Canada First Approach to Industrial Policy**

As is the case in most other countries examined, Canada should give preference to its indigenous industry when conducting aerospace related public procurement. This is allowable under the terms of current international trade agreements and obligations which establish clear policies for acquisitions related to national security requirements. These national security exceptions are aggressively pursued by most nations.

Specific actions that Canada can take in this area are:

**Canadian Industry as a Preferred Supplier** – the default decision in public procurement should be to acquire selected goods and services from a Canadian KIC supplier where it satisfies the operational needs of the government. Amendments to the existing Canadian Content Policy<sup>6</sup> could facilitate this outcome. The Australian Defence Industry Policy Statement<sup>7</sup> is a useful source of fresh ideas in this regard.

**Canadian Government as Anchor Buyer** – as has been demonstrated on numerous occasions, Canadian industry would be much stronger on a global basis if it could refer to the Canadian Government as its anchor customer. Within Canadian procurement plans and selected KICs, the intent to buy products and services from Canadian suppliers should be made explicit when these suppliers provide high quality products and services that meet the needs of the Canadian government.

Amend the Canadian Content Policy to give more latitude and impetus to permit and encourage the selection of Canadian preferred suppliers for the provision of Canadian aerospace and defence goods and services.

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<sup>6</sup> “Canadian Content Policy is a Cabinet-mandated policy. The Policy encourages industrial development in Canada by limiting, in specific circumstances, competition for government procurement opportunities to suppliers of Canadian goods and services”, Supply Manual 3 Procurement Strategy Section 3.130, Annex 3.6

<sup>7</sup> “Building Defence Capability: A Policy for a Smarter and More Agile Defence Industry Base”, Commonwealth of Australia, ISBN: 978-0-642-29728-0, 2010, [http://www.defence.gov.au/dmo/id/dips/DIPS\\_2010.pdf](http://www.defence.gov.au/dmo/id/dips/DIPS_2010.pdf), Retrieved on 2-Jun-2012.

Embed the “Anchor Buyer” objective, linked to the appropriate KICs, in government procurement policy.

Foreign Affairs and International Trade representatives in various countries form part of a useful support network to assist Canadian companies to identify and execute export opportunities. Canadian Defence Attaches in the embassies can also be useful in this regard as can military officials in Canada. Unlike other countries, Canadian military personnel are reluctant to promote Canadian products and services. We believe this is a cultural issue based on a default notion that this is not the military’s role, or that it would in some way compromise their integrity or would violate some rule. Changing this is a no-cost way of assisting Canadian industry.

Establish appropriate ground-rules that would encourage, and formally legitimize, all Canadian government entities, including the military, to assist in promoting Canadian products and services.

## Industrial and Regional Benefits Program

The vital importance of public procurement for both the aerospace and defence sector and the Government of Canada was recognized in the NADSF. Within the NADSF, the Industrial and Regional Benefits (IRB) program was identified as the principal framework for leveraging government procurement investments. The concept of having an IRB policy is sound, and Canada is much better off with an IRB policy than without one. The IRB policy is potentially a powerful tool to achieve national objectives which need to be enshrined in an aerospace and defence industrial strategy/policy. Unfortunately, in the absence of these policy objectives, the IRB policy has been expected to achieve impossible goals. Indeed, it can be argued that the very existence of the IRB policy may have lulled the government into a false sense of achievement. In fact, it seems to have exacerbated a difficult situation by leaving Ministers and government officials with the impression that they need not put effort into developing focused strategies to generate Canadian industrial strength and economic well-being because the IRB program would achieve these objectives. The reality is that the procurement strategy identified at the front end of a program has far more impact on economic outcomes and jobs than an IRB program, applied on the back end, in the absence of an accompanying industrial strategy.

Industry Canada recently requested CADSI to provide comments on the IRB policy and options for improvement. Industry is confident<sup>8</sup> that this study will provide for a much more thorough review of the policy than was possible by this Working Group, and that it will identify the relevant issues from industry's perspective. Therefore, only brief comments are offered since government will be relied on to address the upcoming CADSI report on IRBs. The current IRB policy has a number of weaknesses when it comes to achieving national objectives and fostering the export potential of Canadian companies. Accordingly, the following is recommended:

- The IRB policy should align itself with government espoused strategy and desired national outcomes related to KICs as explained in the section of this paper dealing with Industrial Strategy, rather than just focus on transactions;
- The IRB plan should be a significant, rated element in each request for proposal and Industry Canada should convert to that approach. The current pass-fail approach is not a significant determinant in defence procurement and it does not incentivize bidders to do those things that best contribute to the success of Canadian industry;
- The IRB policy should overtly favour KICs through the use of thresholds, multipliers and other incentives, as do most other nations;

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<sup>8</sup> Advice from the Canadian Association of Defence and Security Industries (CADSI) to the Minister of Industry on the Government's Industrial and Regional Benefit (IRB) Program dated 3 July 2012

- The IRB policy should specifically reward the transfer of Intellectual Property/Technical Data to Canada by valuing such transactions as deliverables and applying IRB credits accordingly;
- The IRB policy should value licensing agreements between foreign and Canadian companies that permit the latter to develop and export a capability, and it should use multipliers and other incentives to achieve this outcome.

# In-Service Support

## Background

The history of In-Service Support (ISS) for Canada's military aircraft provides an excellent example of the fundamental issues identified in this paper. Canada's ISS story underscores the power of government procurement to create a vibrant, world-class industry that grew over decades in response to Canada's requirements, and then leveraged that domestic industrial capability to create substantial export sales. This success story illustrates the need for a vision for future requirements and for a clearly articulated strategy to provide a consistent ISS contracting framework for each new aircraft fleet acquisition. It demonstrates the need for a clearly defined and formalized governance structure to ensure that the strategy is consistently executed over time, and that any changes in policy or strategy are made only through an appropriate change control process. Finally, it shows how the lack of a formalized strategy and governance process can lead to changes in government procurement practice which, however well-intentioned at the time, now threaten to reduce the scope and scale of Canada's ISS industry to the point where it will be effectively destroyed.

In-Service Support (ISS) for Canada's military aircraft, as traditionally provided by Canadian industry, generally includes the following major tasks: maintenance, repair, overhaul, engineering, publications, supply chain management, integrated logistics support and training. ISS is provided over the complete life cycle of an aircraft fleet, and it is a large and highly specialized business (see Annex D – Canadian ISS Revenue Trends). The cost of ISS typically exceeds the acquisition cost of the aircraft in just the first 20 years of the aircraft's life. With aircraft typically in service for 40+ years, ISS costs increase even more during the following 20 years as the challenges of supporting the aircraft increase with the age of the airframe. As stated earlier, ISS is a significant industry with strategic, economic and sovereign importance to Canada.

Historically, government procurement has been the dominant factor in the development of Canada's world-class In-Service Support (ISS) capability for military aircraft. The evolution of this industry started in the 1960s as aircraft designs matured and the aircraft themselves did not quickly become obsolete as had been the case earlier. DND recognized this trend, and the resulting need for an organization that could provide both expanded support and long-term continuity for its aircraft programs. Starting in the 1970s, new contracting mechanisms were put in place that gave key Canadian contractors a central ISS role with much broader responsibilities. This Canada-first approach became the foundation for Canada's ISS industry.

By the 1980s, the expanding demand for ISS stimulated the growth of the industry, and this meshed naturally with an emerging philosophy of creating "Centers of Excellence" which was being followed by DND at that time. Although the Center of Excellence

philosophy was never formalized as such, it became deeply rooted and provided a coherent approach which was followed for many years. This philosophy was also supported by a contracting framework that included extensive financial checks and balances which ensured Canada received good value. DND further refined its ISS framework early in this century with the move to Optimized Weapon System Support (OWSS). OWSS objectives included expanding industry's ISS scope and authority even further within a performance-based contract framework, and reducing the government workload by designating just three system-level ISS contractors for each fleet (i.e. aircraft, engines, and avionics). These system-level contractors take direct responsibility for the smaller, primarily component level, ISS contractors on their respective systems. This consolidation of contracts was a significant move towards Single Point Accountability (SPA) for the aircraft, although for various reasons the aircraft, engines and avionics systems were each kept separate with their own OWSS contracts. The final step of consolidating these under a single prime contractor to achieve total SPA for the complete weapon system was not undertaken. Although the phrase "Key Industrial Capability" was not in use during this period, the concept was inherent in the manner in which ISS evolved. This "ISS evolution" produced outstanding results that benefitted the whole of Canada as well as DND in particular.

This procurement practice naturally stimulated a process whereby sub-tier requirements for such things as avionics support, modifications, etc. flowed out to other Canadian companies including Small and Medium Enterprises (SMEs). Of note, other countries such as the United Kingdom and Australia adopted a similar strategy and continue to do so to this day, as evidenced during their recent purchases of the C130J aircraft.

In the past, an absolutely essential ingredient for the success of these Canadian companies has been the acquisition of access rights to the OEM Technical Data for each aircraft. Without this data or Intellectual Property (IP), the depth of aircraft work that can be carried out is very limited. However, with the IP rights acquired, Canada had the freedom to make any necessary changes required to maintain, repair, modify, supply and support its aircraft in-depth, and in full compliance with airworthiness standards, with little or no dependence on the OEM. This is particularly important as aircraft age in service.

Typically, the selected ISS provider negotiated a licensing agreement with the OEM, enabling the ISS company to perform international work utilizing the IP / Tech Data access rights that had been acquired by the Government of Canada. In at least some cases, the OEMs were given IRB recognition in return for these licensing agreements. Canada's ISS contractors were ultimately able to succeed in this environment and provide services to a broad range of international customers, both military and commercial.

Until recently, Canada followed an aircraft ISS procurement philosophy that fostered, over many years, the development of Canadian ISS companies and ultimately led to the creation of a world-class Canadian ISS industry supporting both domestic and international customers.

## **Current Situation**

With recent acquisitions, the lack of a formalized strategy that recognized ISS as a Key Industrial Capability for Canada has resulted in procurement authorities taking a different direction. These new procurement practices that were applied to recent acquisitions, including the CC130J Hercules and the CH147 Chinook, have resulted in foreign OEMs being given total responsibility for ISS as part of the aircraft acquisition contract, with only minimal ISS responsibilities then contracted back to Canadian suppliers by the OEM.

Virtually complete control over billions of Canadian ISS procurement dollars has been given over to foreign OEMs as opposed to following a made-in-Canada ISS procurement strategy aimed at optimizing economic benefits and enhancing competitiveness

This contracting approach has had a major negative impact on the Canadian ISS industry. If left unchecked, this change in approach will reduce the scale and scope of military aircraft ISS providers in Canada to the extent that, as an industry, it will be effectively destroyed, with the following impact:

- The loss of a sovereign in-country capability to maintain, sustain and modify Canada's military aircraft as necessary to meet Canada's needs
- The loss of high skill and knowledge jobs in a range of important fields including aircraft maintenance, engineering, publications, integrated logistics support, and supply chain management
- The loss of international business opportunities in support of foreign militaries that do not possess this capability
- The replacement of a low cost, indigenous ISS solution with a foreign OEM monopoly over which Canada will have little if any leverage

The change in DND acquisition strategy was prompted by the desire to have a single entity to be totally responsible for ISS in order to achieve Single Point Accountability (SPA) for the complete aircraft. However, rather than building on the established Canadian ISS solution and expanding upon it to achieve this goal, the SPA entity was explicitly defined by DND to be the "platform supplier". In the case of Canadian military aircraft, this is almost always going to be a foreign OEM. In most cases, it will not be a first-order priority of a foreign OEM to build up or enhance indigenous Canadian ISS capability.

This new DND procurement approach has been used in a number of recent acquisition programs. In each case, the OEMs were each given total ISS/SPA responsibility for the new aircraft, with the expectation that they would involve Canadian industry in a substantial way in the delivery of ISS. However, the results speak for themselves:

- For the most part only simple, low-value tasks have been assigned to Canadian industry
- These tasks have been awarded on a fragmented basis to various companies so no 'critical mass' of capability is being established with any one company to achieve integrated support within Canada or to create the potential for the export of services
- Key, high knowledge functions have been retained by the foreign OEM
- The OEM Technical Data rights have not been acquired in a manner that allows Canada to independently support its aircraft in country or pursue export opportunities

The new Single Point Accountability procurement approach has had a negative impact on Canadian industry that extends beyond Canadian ISS companies to include other Canadian companies such as system integrators, SMEs, and sub-system suppliers

It is essential that the ISS for future projects such as Fixed Wing Search and Rescue (FWSAR) be determined by the Canadian government in accordance with a made-in-Canada industrial procurement strategy that optimizes economic benefits and enhances competitiveness for Canadian industry. The recent government initiative on FWSAR to establish a "Canadian ISS Integrator" is a positive step forward, but it is essential that this be implemented within a made-in-Canada framework. Thus, the Canadian ISS Integrator should in fact be the ISS Prime Contractor, selected by Canadian authorities, through a PWGSC led competition, amongst all qualified Canadian ISS providers.

It is important to note in this regard, that there are particular advantages when a Canadian company is in a position to be given this SPA responsibility, or when ISS responsibilities are contracted separately to a Canadian ISS provider:

- This approach ensures that the Government of Canada can conduct a fair, open and transparent competition for ISS, and will have flexibility for ISS for the life of the aircraft as required
- The Canadian ISS contractors are subject to financial checks and balances that ensure good value to Canada
- This allows Canadian companies to have direct contact with their own government (the end customer), rather than having no access which is the case in a subcontract relationship

- Canadian ISS companies are proven to be low-cost providers as evidenced by their success in the international marketplace
- Contracting directly with Canadian ISS providers eliminates an additional layer of cost through mark-ups

Canadian companies are here for the long haul, and are fully committed to growing their technical expertise, improving their skills and capabilities from their Canadian base and exporting these capabilities to global markets. Canadian ISS firms are uniquely subject to the full force of Canadian government influence and action.

## Way Ahead

The events of the last several decades clearly demonstrate that ISS for military aircraft programs is a Key Industrial Capability in which Canada has excelled, and which can be leveraged to optimize economic benefits for and enhance the competitiveness of the Canadian aerospace industry. The cost of ISS amounts to billions of government procurement dollars over the life of each aircraft fleet. It is essential that expenditures of this magnitude be controlled and directed at every step by the government of Canada to ensure the national interests of Canada are best achieved. Canada's military aircraft ISS industrial base should be Canada-centric, based on decisions made by the Canadian government that adhere to a competitive philosophy under an overarching strategy and governance structure, in a manner similar to the NSPS. Canadian contractors are completely capable of meeting all ISS requirements provided the program is properly set up at the time of aircraft acquisition.

The recent practice of giving total ISS responsibility for military aircraft to foreign OEMs can be remedied with a strategy and governance philosophy that incorporates the following:

- For future aircraft acquisitions: mandate that the platform supplier (OEM) must work with a Canadian ISS prime, to be selected by PWGSC through a fair and open competition from a pre-approved list of qualified Canadian ISS suppliers. The Canadian ISS prime would be selected immediately following aircraft selection, and would work closely with the OEM from the outset to facilitate a rapid build-up of all the necessary elements required to support that fleet. As a condition of purchase of the aircraft, the OEM would be required to provide a complete Technical Data package to the Canadian ISS prime, and would be incentivized through IRBs to provide a license to use this data in support of international customers. There are two possible contracting options with this approach:
  - a) There would be a single government contract with the OEM to acquire the aircraft. The OEM would fulfill the role of SPA during the first 3 to 5 years of

the program, during which time all the warranty issues associated with a new aircraft would be addressed. During this period the Canadian ISS provider (as selected by PWGSC), working under an OEM subcontract, would set up the Canadian ISS capability. As the OEM contract comes to an end, Canada would execute a contract with the Canadian ISS provider, and transfer SPA responsibility to the Canadian ISS provider. The OEM would continue to provide support under a subcontract negotiated with the Canadian ISS prime; or,

- b) There would be two separate government contracts initially – a short term acquisition contract with the OEM, and a long term ISS contract with the Canadian ISS prime. The Canadian ISS contractor would fulfill the role of the SPA for ISS from the outset. The OEM would retain its normal responsibilities for aircraft delivery and warranty support under the acquisition contract for a period of 3 to 5 years. Thereafter, the OEM would be in a support capacity, as in option (a) above.
- For recently acquired aircraft: Since Canada only recapitalizes its fleets approximately every 40 years, it is essential that the negative impact of the recent change in procurement practice be reversed to preserve the ISS industry in Canada. This may be done by exploring any contractual off-ramps on existing ISS contracts at the earliest opportunity with the aim of transferring responsibility to a Canadian ISS / SPA prime (to be selected by the Canadian government. This approach would in essence, be similar to Option (a) above. Again, the provision of OEM Technical Data rights would be an essential element for success.

The recent recapitalization of military aircraft fleets is nearly over, and won't be repeated for decades. Urgent action is required to reverse the damage done to the Canadian ISS industrial base as a result of recent procurements, and to ensure that forthcoming procurements are structured to maximize the benefits for Canada.

CADSI<sup>9</sup> identified the following as one of their specific priorities in 2011: *“Stop requiring foreign equipment manufacturers (OEMs) to be responsible for the life-cycle maintenance of Canada’s defence equipment. The government can promote Canadian jobs in the defence and security sector by selecting domestic industry to undertake the maintenance, repair and overhaul of military equipment acquired from foreign OEMs and, to that end, by obtaining the necessary licenses and the right to use intellectual property at the time of equipment acquisition.”*

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<sup>9</sup> CADSI Policy Priorities 2011

# Governance

Good governance can be viewed as the persistent stewardship of a process which operates within an essential and clearly defined structure to produce a pre-determined output that matches strategic mission and vision. Governance typically embodies **structure**, **process** and **agents** (i.e. people). For aerospace public procurement, the governance structures are numerous with considerable duplication, gaps and ambiguity; the processes are cumbersome and confusing; and some agents are inadequately trained for their responsibilities and not incentivized for achieving “national objectives”<sup>10</sup>.

Governance of aerospace public procurement starts at the Cabinet and Treasury Board and flows to the line departments and their individual project teams. Committees and Boards abound ostensibly to provide the coordinating “glue” to pull procurement elements together. Yet it is clear to industry that much more needs to be done to produce an effective and efficient governance system. The lack of adherence to existing rules and policies, the insulation of unique departmental mandates and the absence of common metrics upon which to manage and ensure performance, have led to a degree of inconsistency in the procurement process.

For industry this means delays, duplication, confusion, excessive transaction costs, inconsistency and lack of predictability that negatively affect the revenue and profitability of Canadian companies. Risk aversion, information control, a lack of trust and the absence of constructive communication mechanisms with industry contribute to the perpetuation of inefficient processes, failures in procurement projects, and unnecessary cost for all stakeholders.

## Structure

While the governance structure of aerospace public procurement in Canada is more complex and cumbersome than is ideal, it could work properly under the right circumstances. However, industry sees an unhealthy tension in the process with various government stakeholders primarily concerned with their individual mandates and with little interest in common goal achievement. In its 2009 report to government, CADSI proposed a single point of accountability at the Cabinet level for defence procurement with a number of structural options considered. It is understood that changes to Acts of Parliament, mandates and the machinery of government are difficult to implement. Therefore, the most pragmatic action is not to make radical change to structures but to assign greater oversight and co-ordination responsibility to one Minister – a clearly designated “first among equals” with a mandate to assert policy and to achieve national objectives. The recent formation of Secretariats for the NSPS and the National Fighter

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<sup>10</sup> Treasury Board Procurement Review Policy: <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12074>

Procurement Secretariat appears to be a step in that direction. While this construct still relies on consensus and the good will of departments, with sufficient commitment and openness to industry and the public, this approach should bring significant improvements in governance. As noted above, one Minister should be selected to be responsible for aerospace public procurement with the mandate to satisfy “national objectives” and to coordinate and provide oversight to the functions and activities of all other departments in this regard.

Select one Minister to be responsible for aerospace public procurement with the mandate to satisfy “national objectives” and to coordinate and provide oversight to the functions and activities of all other departments in this regard.

One key to procurement success is to create mechanisms for clear communication both within government and between government officials and industry. This must occur at the individual project level and also at the broader system process level. There are no robust, functioning mechanisms for government and industry to address systemic procurement issues and to engage in a **continuous improvement** process. For the necessary communication and openness to take place, we endorse this previous CADSI recommendation:

*“Create a Joint Industry-Government Procurement Advisory Council reporting at the ADM level to improve understanding and management of procurement issues between government and industry”*

To deal with the details of continuous improvement of the procurement process, based on the direction of the aforementioned Council, we recommend the creation of a **Procurement Centre of Excellence (PCOE)**, established within PWGSC under an Executive Director reporting to the ADM. The PCOE would be the repository of knowledge and skill for the procurement process and would provide direction, guidance, oversight and quality assurance on process matters at the portfolio or macro level as well as to individual projects, to ensure the highest standards and consistency. This proactive PCOE would deal with systemic procurement issues to facilitate the benchmarking of best practices, establish standards and drive continuous improvement.

The integrity of any procurement system depends upon having avenues of recourse for companies that perceive unfair treatment to lodge complaints to an independent body which can adjudicate and direct, or at least recommend, remedies. The Government Accountability Office (GAO) in the US is an example of such a body. The closest equivalent in Canada is the Canadian International Trade Tribunal (CITT). However that body judges complaints against the requirements of trade agreements and has no mandate when the National Security Exception has been imposed – which is often the case in aerospace public procurement. Canada has an Office of the Procurement Ombudsman (OPO) but its current terms of reference preclude it from a role in most aerospace and defence procurement. We recommend that the mandate and resources

of either the CITT or the OPO be expanded to adjudicate all concerns and complaints from industry on aerospace and defence procurement.

## **Process**

It is beyond the scope of this report to delve into the myriad government processes related to aerospace public procurement in a significant way. In its 2009 report to government, CADSI made a number of recommendations to improve defence procurement processes and practices which this Working Group endorses. The PCOE is seen as the natural interface with industry on improving process.

Government officials repeatedly emphasize being “fair, open and transparent” - certainly an expected element in the procurement process. However, project personnel are often reluctant to communicate with anyone in industry for fear that someone will allege preferential treatment. The preoccupation with fairness is out of balance with the use of common sense, efficiency and good business practices. A concern for risk avoidance has meant that the optics of fairness have created equal unfairness for all stakeholders. Successful aerospace public procurement demands that rules be used wisely to achieve national objectives rather than be used as impediments to process.

In the May 2008 Canada First Defence Strategy (CFDS) the government committed to “enhancing its interaction with industry” and to “fostering greater transparency and engagement earlier in the process”. To achieve this goal, industry needs detailed procurement plans upon which to conduct product and service evolution, allot resources and budget business expenditures. The CFDS is at too high a level to trigger industry decisions. Companies spend inordinate amounts of time and money trying to piece together tidbits of information to reach an accurate understanding of government procurement intentions. This lack of transparency severely handicaps Canadian companies. Even the simplest inquiries to Canadian departments are often rebuffed and companies are forced to go the Access to Information route – usually with limited results. This approach benefits neither government nor industry. Departmental Investment Plans and other related documentation should be made available with as much information as possible about projects so that industry can make better decisions and be more competitive at a reduced cost.

## **Personnel**

For personnel in government to function successfully in procurement jobs they must have the proper experience, training and culture. Our observation is that many project personnel as well as more senior government officials are hampered by a lack of business exposure and an understanding of industry. Therefore, it is almost inevitable that, in an endeavour that is all about interfacing with industry, there will be miscommunication, missteps and mistrust. That heightens the potential for failure and increases cost for government and industry. We recommend measures to achieve better education, exposure and engagement with industry.

The US Defense Department runs a Training With Industry Program (TWIP) (Canada also had such a program at one time) as well as the Industrial College of the Armed Forces, which focuses on understanding and communicating with industry. In contrast, senior Canadian officers are given only a passing exposure to Canadian industry and business principles in the National Security Program. Formal education in and exposure to industry practices should be necessary for military officers and civilian government officials engaged in aerospace public procurement. A broader exposure to and understanding of the link between industry and national objectives is an important stepping stone for those destined for executive-level positions in government.

The Working Group also recommends that measures be taken to augment, over time, the number of government civilian personnel with industry experience, through a focused hiring program with numerical targets. This could be accomplished with a public service entry program to feed skilled professionals with industry background into the directorates of PWGSC, Industry Canada and DND that deals with aerospace public procurement or contracting.

No matter how successful the military and public service are in achieving these two objectives, there will never be sufficient business acumen and specialty industry expertise in government to handle all procurement issues and to be “smart buyers”. Therefore, on major procurement projects, the government should engage qualified executive level consultants to monitor and advise project teams on industry issues. These experienced “Business Monitors” would be used by government in the same way as “Fairness Monitors” are today. Business Monitors would provide advice to project teams on business and industry related issues so that government officials can better construct competitions, be smart buyers and produce a more efficient and effective procurement process.

## **Metrics**

Every successful, coordinated endeavour requires relevant metrics upon which all stakeholders can judge success or failure and make improvements. The only metric for aerospace public procurement that ever gets touted is timeliness – the time from the start of the project to contract award or completion. While laudable, we need other, meaningful business metrics upon which to judge the efficiency and effectiveness of aerospace public procurement and to drive needed changes in practice. The creation of a common, relevant set of metrics, with the data universally visible, would allow all stakeholders to monitor accountability and achievements collectively based on the same set of criteria.

## Recommendations

This report from the Aerospace Related Public Procurement Working Group focused on four key areas of study, examining how procurement by the Government of Canada can be leveraged to optimize economic benefits for and to enhance the competitiveness of the Canadian aerospace industry. As a result of this study, the following recommendations are made:

### Recommendation 1 – Industrial Strategy

It is recommended that the Government of Canada create and implement an Industrial Strategy and policy that support the defence, sovereignty and prosperity of Canada. Specifically we suggest the following actions:

- The government should select a lead department or agency to create and manage a Canadian Aerospace and Defence Industrial Base policy in consultation with other government departments and agencies, including the Regional Development Agencies and industry;
  - Create a Defence Industry Advisory Council reporting at the Ministerial level to offer continuing advice to Government on the formation, implementation and ongoing management of aerospace and defence industrial policy and its implementing strategies;
  - Produce an annual Report to Parliament on the state of readiness and competitiveness of the aerospace and defence industrial base and its contribution to the national economy;
  - The selected lead department, with input from other government and industry stakeholders, should select KICs as the basis for an aerospace and defence industrial policy; and
  - The government should start by taking selected aerospace-related KICs, actioning them in accordance with Annex B, and then generating an industrial policy position and KIC strategies.
- b) Amend the Canadian Content Policy to give more latitude and impetus to permit and encourage the selection of Canadian preferred suppliers for Canadian aerospace and defence goods and services.
- c) Embed the “Anchor Buyer” objective, linked to KICs, in government procurement policy.
- d) Legitimize and encourage all Canadian government entities, including the military, to promote Canadian products and services.

## **Recommendation 2 – Industrial and Regional Benefits Program**

The Government should adopt the July 2012 CADSI recommendations on IRBs as well as consider the following recommendations:

- The IRB policy should align itself with government espoused strategy and desired national outcomes related to KICs as explained in the section of this paper dealing with Industrial Strategy, rather than just focus on transactions;
- The IRB plan should be a significant, rated element in each request for proposal and Industry Canada should convert to that approach. The current pass-fail approach is not a significant determinant in defence procurement and it does not incentivize bidders to do those things that best contribute to the success of Canadian industry);
- The IRB policy should overtly favor KICs through the use of thresholds, multipliers and other incentives, as do most other nations;
- The IRB policy should specifically reward the transfer of Intellectual Property/Technical Data to Canada by valuing such transactions as a deliverable and applying IRB credits accordingly;
- The IRB policy should value licensing agreements between foreign and Canadian companies that permit the latter to develop and export a capability and it should use multipliers and other incentives to achieve this outcome.

## **Recommendation 3 – In-Service Support**

It is recommended that the recent practice of giving total ISS responsibility for military aircraft to foreign OEMs be replaced with a new approach based on a strategy and governance philosophy that directly favors the Canadian ISS industry. This new approach should be applied to both future aircraft procurement contracts as well as recent procurements (by exploring any off-ramps at the earliest opportunity). This new approach would be based on the following principles:

- The Canadian ISS Prime Contractor will be the ISS SPA, either at the outset or at some point early in the life of the aircraft fleet (3 – 5 years after acquisition)
- The Canadian ISS Prime will be selected by Canadian authorities (PWGSC) as a result of a fair, open and transparent competition among all qualified Canadian ISS providers
- The Canadian ISS Prime will have full access to all appropriate aircraft Technical Data and international licensing rights, which will be negotiated at the time of aircraft acquisition

## **Recommendation 4 – Governance**

It is recommended that a governance process for aerospace related public procurement be introduced with the following characteristics:

- Select one Minister to be responsible for aerospace public procurement with the mandate to satisfy “national objectives” and to coordinate and provide oversight to the functions and activities of all other departments in this regard.
- Create a Joint Industry-Government Procurement Advisory Council reporting at the ADM level to improve understanding and management of procurement issues between government and industry;
- Create a Procurement Centre of Excellence (PCOE) within PWGSC and provide it with the resources and mandate to liaise with other relevant government departments and industry, to make continuous improvement to procurement processes and to provide oversight, mentorship, and quality assurance to acquisition projects
- Expand the mandate and resources of the Canadian International Trade Tribunal (CITT) or the Office of the Procurement Ombudsman (OPO) to receive all industry complaints and challenges regarding aerospace public procurement decisions and to render remedial and corrective recommendations to government;
- Make departmental Investment Plans and other related documentation available with as much information as possible about projects so that industry can make better decisions and be more competitive at a reduced cost;
- Put much greater emphasis on training of military and government officials in business, project management and procurement process using formal courses, self-study, third party accreditations and the PCOE. Institute Training with Industry Program (TWIP) for selected procurement personnel;
- Create a public service entry program to feed skilled professionals with industry background into the directorates of PWGSC, Industry Canada and DND that deal with aerospace public procurement or contracting;
- Utilize Business Monitors on all major projects to advise project teams on business and industry related issues so that government officials can better construct competitions, be smart buyers and produce a more efficient and effective procurement process; and

- With assistance from all stakeholders, including industry, the Minister responsible for aerospace public procurement should generate a set of metrics which will then be used to track and assess the progress of projects.

David Gossen

Chair

Peter Gartenburg

Vice Chair

## Annex A

### Clarification of Scope of Working Group Report

Only limited information was available from government departments with respect to their projected aerospace program expenditures. Figure 1 is based on a combination of that information coupled with estimates provided by the committee. Of particular note, the number of aircraft in inventory for each department provides an accurate comparison of the relative departmental expenditures in aerospace, which is heavily weighted towards the military. In addition, the cost is disproportionately even higher for military aircraft which tend to be far more complex.

Dept	A/C in Inventory	Fleet Residual Value	5 Yr. Acq. Plan (# of A/C)	Total Capital Expenditure Planned for next ten years	Annual Leasing & Contracting
DND	345	\$5.2 B	135 est.	\$17.5 B est.	\$127 M est.
Coast Guard	22	\$36 M	Not stated	\$100 M est.	0
DFO	0	0	0	0	\$19 M
Transport Canada	17	\$20 M	0	0	0
NRC	NA	NA	NA	NA	NA
RCMP	NA	NA	NA	NA	NA
Total	384	\$5.3 B	135	\$17.6 B	\$146 M

Figure 1: Aerospace Related Public Procurement by Department/Agency (aircraft purchases and flying services)

As shown in Figure 2 below, military aviation is that activity at the intersection of the aviation portion of the aerospace industry (which is primarily commercial in nature) and the defence and security industry which includes aircraft as well as ships, vehicles and other equipment.

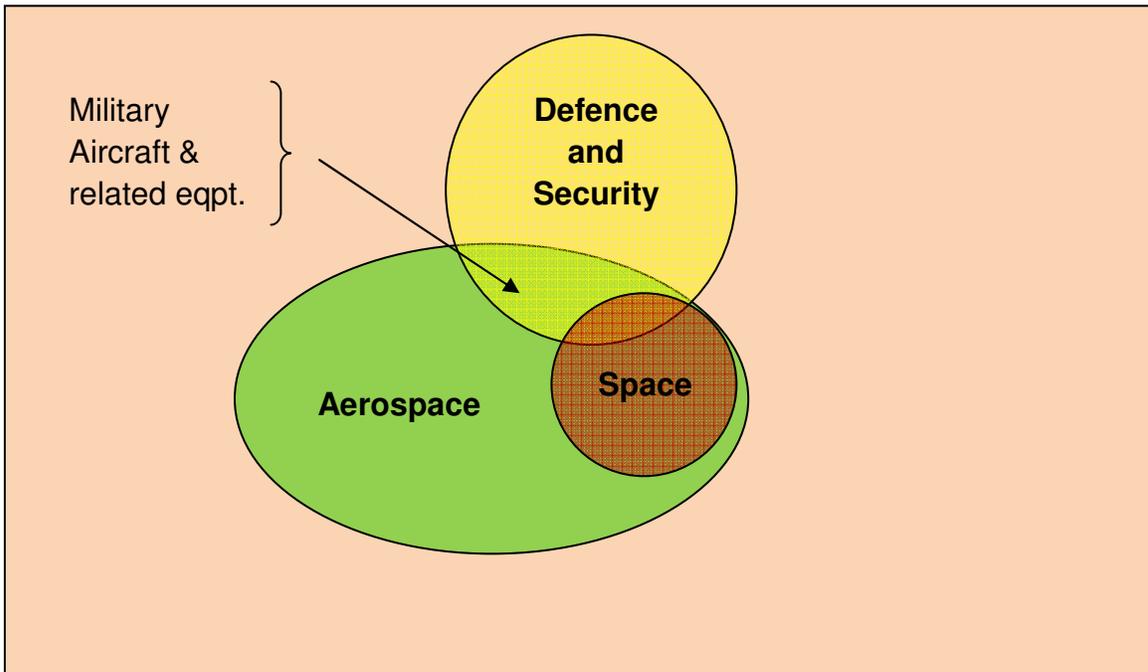


Figure 2 – Military Aircraft as part of Aerospace, Defence and Security

While the federal government acquires and maintains a significant amount of aviation related ancillary equipment including airfield radars, air traffic management systems, and ground handling equipment, it is the aircraft themselves that account for the predominant element of the expenditures and are given the most attention in this report.

## Annex B

### Aerospace (and Defence) Industrial Strategy

#### Argument for a Defence Industrial Strategy

Strategy is defined by Oxford Dictionaries<sup>11</sup> as “a plan of action designed to achieve a long-term or overall aim”. The question, then, is whether a plan of action to achieve long-term benefits to the Canadian defence industrial base is of value and why?

In Canada, the mandates for what could be considered elements of an industrial strategy lie with a wide range of Government departments and organizations. Examples include Industry Canada (IC), Public Works and Government Services Canada (PWGSC), Department of National Defence (DND), Defence Research and Development Canada (DRDC), Department of Finance, Treasury Board, Human Resources and Skills Development Canada (HRSDC), Foreign Affairs and International Trade Canada (DFAIT), Atlantic Canada Opportunities Agency (ACOA), Canada Economic Development for Quebec Regions (CED-Q), Western Economic Diversification (WED), Canadian Commercial Corporation (CCC), Export Development Canada (EDC) and others. Of note is that no mandate includes a “coordinating” function among other departments.

In most cases, the mandates of these various departments/organizations are well written and are sufficient to support a strong industrial strategy which would further Canada’s interests. However, no comprehensive industrial strategy exists and hence the culture and resulting behaviour of these departments/organizations is primarily to make risk-averse decisions that avoid any perception of bias or favouritism towards Canadian industry. As such, they do not maximize the benefit of Government procurement to Canadian industry and therefore do not maximize the benefit of public procurement to Canada.

*There needs to be a significant cultural shift across the whole of Canadian Government to engage with, work more closely with, support and benefit from a strong Canadian Industrial base.*

As per the definition of strategy above, the argument for a Canadian defence industrial strategy is primarily to coordinate and align the plan of action that each department or organization should take to increase the overall benefits to Canada. In the absence of such a strategy, each department is purely incentivised to meet their own particular mandate with no commitment to a whole-of-government outcome.

*A defence industrial strategy would provide specific industrial policy and strategic framework guidance for all Government departments/organizations directing a **cultural shift** within all of Government to better strategic decision making resulting in greater overall benefits to Canada.*

A Canadian defence industrial strategy would provide the following key benefits to Canada’s national interests:

Prosperity – Increase long-term, sustainable prosperity (economic benefits) to Canada resulting in greater employment and higher standards of living for Canadians by growing long-term sustainable industrial capabilities in Canada based on intellectual property generation in Canada.

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<sup>11</sup> “Definition for strategy – Oxford Dictionaries Online (World English)”, Oxford Dictionaries, <http://oxforddictionaries.com/definition/strategy?q=strategy>, Retrieved on 2-Jun-2012.

Sovereignty – Strengthen the independence and capability for Canada to maintain and defend its sovereignty by growing Canadian-based key industrial capabilities. While sovereignty is often dismissed as a high-level political concept, at the operational level, it is critical to maintain a certain level of independence and therefore a level of self sustainability particularly during times of crisis.

National Security – Add strategic capabilities to Canada’s base industrial capability to defend against emerging and growing threats to Canada’s national security by developing specific Canadian-developed industrial capabilities that counter critical threats to Canada. National security can also be dismissed as a high-level political concept but becomes especially critical when specific threats and the extremes of resulting damage to Canada are considered.

Operational Response – By developing and sustaining Canadian industrial capability, critical decisions supporting Canadian Forces operations will be made in Canada rather than in a foreign country. Considerable evidence supports the operational disadvantages to foreign decision making.

## **Balancing Long-Term Prosperity and Growth with Sovereignty and National Security**

With few exceptions, the following success characteristics applied in every case of current and past successes in the Canadian Aerospace Industry:

Market leader in their niche on a global basis

Strong export business from Canada

Initial development support from the Canadian Government

Leader in research and development, both internal and externally funded

Canadian Government is an initial anchor customer providing credentials for the global market

Long-term in-service support is provided to the Canadian Government

A major concern with this objective is that it could be seen to cause Canada’s sovereignty and national security objectives to be sacrificed, or, specifically in the case of DND, for DND’s operational needs to be sacrificed. DND has, itself, stated this issue numerous times and has an often publically stated position that their mandate is dominated by the need to purchase operational capabilities rather than provide support to Canadian defence industry (including aerospace). Acknowledging this concern must be part of any defence industrial strategy.

*Any defence industrial strategy must satisfy both the long-term prosperity (economic) growth of the defence industry with Canada’s strategic and operational needs for sovereignty and national security.*

## **Responsibility and Accountability for a Defence Industrial Strategy**

Under the Defence Production Act, PWGSC is responsible for maintaining a defence industrial base capable of meeting both the current and future defence needs of Canada:

12. The Minister shall examine into, organize, mobilize and conserve the resources of Canada contributory to, and the sources of supply of, defence supplies and the agencies and facilities available for the supply thereof and for the construction of defence projects and shall explore, estimate and provide for the fulfillment of the needs, present and prospective, of the Government and the community with respect thereto and generally shall take steps to mobilize, conserve and coordinate all economic and industrial facilities in respect of defence supplies and defence projects and the supply or construction thereof.

It is understandable that PWGSC owns that responsibility and accountability as it must be a balance between the Canada's operational defence needs, for which DND has responsibility, and long-term prosperity benefits in industry, for which IC has responsibility.

*PWGSC is responsible and accountable for managing, disseminating, executing, monitoring and measuring the defence industrial strategy. Other Government departments and organizations, in particular DND and IC, are responsible and accountable for performance against the PWGSC defence industrial strategy under their existing (but strongly clarified) mandates.*

Notwithstanding this statement, DND, in particular must play a key role in any defence industrial strategy as they are the most goal driven department and have the ability to provide real-world operational requirements.

### **Strategic Framework Based On Key Industrial Capabilities**

Both AIAC<sup>12</sup> and CADSI<sup>13</sup> have performed extensive research on the topic of a Canadian defence industrial strategy. This has included an assessment of foreign defence industrial strategies<sup>14</sup>.

In all cases, the concept of supporting key industrial capabilities by using properly selected policy instruments in the aerospace and defence sector is recommended as the core of a comprehensive Canadian defence industrial strategy.

*In particular, a Canadian defence industrial strategy would shift the Government default decision making to support the selected key industrial capabilities rather than the current risk-averse decision making which does not support or nurture Canadian defence capabilities.*

The figure on the next page provides a specific framework for a defence industrial strategy based around key industrial capabilities. The framework is ongoing and evolutionary in that continuous assessments of current and future potential key industrial capabilities should be made.

### **Execution and Measurement of a Key Industrial Capability Strategy**

As mentioned above, the Government of Canada (led by PWGSC), together with the Canadian defence industry would execute the strategic framework in the following manner:

**Identification** of potential key industrial capabilities by evaluating industrial capabilities where Canada has core competency strengths and where the global market for that industrial capabilities is growing and has a strong positive potential return on investment for Canada. Additionally, identification of potential key industrial capabilities may arise from pull from a specific emerging requirement of the Government of Canada; and/or from a specific market problem or requirement that emerges either in Canada or internationally.

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<sup>12</sup> "Submission to the Government of Canada Consultation on Military Procurement – Aerospace Perspectives on Defence Procurement Renewal: Making the Right Decisions Now to Ensure a Canadian Defence Industrial Base for the Long Term", AIAC, October 29, 2009.

<sup>13</sup> "Canada's Defence Industry: A Vital Partner Supporting Canada's Economic and National Interests", CADSI, December, 2009.

<sup>14</sup> "National Governments and Their Defence Industrial Bases: A Comparative Assessment of Selected Countries", Ron Kane, Submitted to CADSI, October 2009.

**Prioritization** of the potential key industrial capabilities based on a balanced assessment of the following three criteria:

*Sovereignty* – is this industrial capability necessary to maintain in Canada to assure Canada's sovereignty within the global community.

*National Security* – is this industrial capability necessary to protect Canada from emerging and growing security threats.

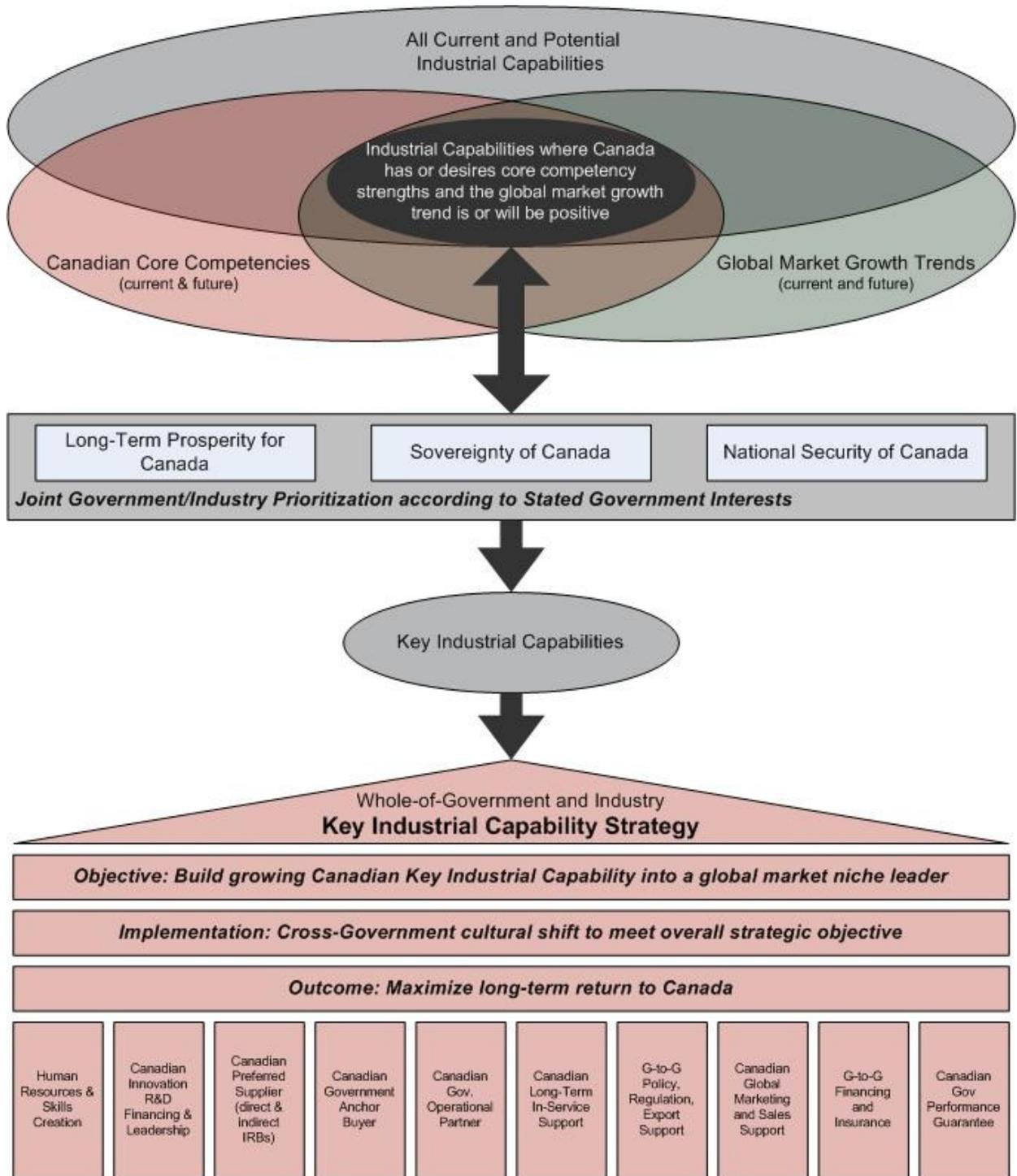
*Long-Term Prosperity* – can this industrial capability become a self-sustaining global export business for Canada leading to the creation of Canadian employment and an increase in the Canadian gross domestic product over a 20-25 year time frame.

**Selection** of key industrial capabilities based on the prioritization performed in the previous step. Ideally, quantifiable return on investment (ROI) for each of the three criteria should be generated and used in the selection. This quantifiable ROI needs to include both the potential return to Canada (prosperity) but also the potential loss to Canada if not supported (sovereignty and national security).

**Strategy Development** for each selected key industrial capability. In particular, this strategy development should take a whole-of-Government and industry approach outlining the roles, responsibilities and measurable targets for each Government department or organization with respect to the specific key industrial capability.

**Cross-Government Engagement and Cultural Shift** to disseminate each key industrial capability strategy and drive a cultural shift throughout Government to support each strategy. An example of this type of role has been the formation of the National Shipbuilding Procurement Strategy secretariat

**Measurement** of performance of each key industrial capability strategy. Critical to the success of the overall defence industrial strategy is to measure the performance – take an evidence-based approach. Specifically, this should include measures of real economic output including items such as industrial revenue, export revenue, employment, profitability, growth rates, etc. Each element of a key industrial capability strategy should have a quantitative measurement with targets for achievement. These measurements and targets should be reviewed on a regular basis to determine progress against the strategy.



3-Jun-2012

**Strategic Framework for Canadian Key Industrial Capability Development**

## Public Procurement's Role in a Key Industrial Capability Strategy

A key industrial capability strategy encompasses far more than just public procurement; however, public (Government) procurement must play a critical role in any key industrial capability strategy.

*There must be a continued and sustained strategy to use public procurement, specifically DND in the aerospace sector to build long-term, export industrial capabilities.*

Specifically the following key supporting elements:

**Canadian Research and Development Financing and Leadership** – For each key industrial capability strategy, a sustainable leadership position in Canadian R&D should be created including targeted financing through existing Canadian Government R&D programs for the specific key industrial capability.

**Canadian Preferred Supplier** – the default decision in public procurement should be to procure from a Canadian key industrial capability supplier where it satisfies the operational needs of the Canadian Forces. Elements of the Australian Defence Industry Policy Statement<sup>15</sup> could be used along with modifications to the Canadian procurement and IRB program as follows:

Direct – on procurements where the key industrial capability exists and has a sufficient level of quality and performance to meet Canadian operational requirements, the Canadian suppliers should be strongly favoured. This could be implemented by directives and/or incentives in the IRB program.

Indirect – on procurements where only a foreign supplier has sufficient level of quality and performance but Canada wishes to develop a key industrial capability in that area, the IRB program should require foreign suppliers to procure elements of the key industrial capability from Canadian suppliers thereby further developing the Canadian-based key industrial capability. This could be achieved through the use of rated IRB requirements versus the current pass/fail IRB requirements.

**Canadian Government Anchor Buyer** – as has been demonstrated on numerous occasions, Canadian industry is much stronger on a global basis if they can refer to the Canadian Government as their anchor customer. Within the Canadian procurement plans, the intent to select Canadian key industrial capabilities from Canadian suppliers should be made explicit when the Canadian suppliers provide high quality products that meet the needs of the Canadian Government.

**Canadian Long-Term In-Service Support** – Most capabilities evolve over time in response to long-term operational requirements and operational experience. A critical element of this in the aerospace sector is long-term in-service support. In this area, it is critical, not only for long-term prosperity benefit to Canada but also for sovereignty and national security that Canada's long-term in-service support programs be procured from and executed by Canadian-based companies.

## Conclusions

A fundamental observation of the Canadian aerospace sector is that its successful industrial capabilities have grown to become export leaders on a global scale.

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<sup>15</sup> "Building Defence Capability: A Policy for a Smarter and More Agile Defence Industry Base", Commonwealth of Australia, ISBN: 978-0-642-29728-0, 2010, [http://www.defence.gov.au/dmo/id/dips/DIPS\\_2010.pdf](http://www.defence.gov.au/dmo/id/dips/DIPS_2010.pdf), Retrieved on 2-Jun-2012.

Implementing a defence industrial strategy that focuses on leveraging all Canadian Government departments and organizations in a coordinated, strategic manner with an measurable objective of creating and growing export-oriented business for key industrial capabilities will improve the overall long-term benefits to Canada without significantly increasing Canadian Government spending.

*Most critically, a Canadian defence industrial strategy must cause a cultural shift across the Canadian Government to a culture of supporting Canadian defence industry vs. the current risk-averse culture.*

## Annex C



### CADSI Suggested Key Industry Capability (KIC) Areas

#### For The Purpose of Security & Sovereignty

- 1. (IA/Cyber) IT Security Architectures, Systems Integration, and In Service Support.** Canada purchases data and IT security technology from various sources, but requires Canadian industry to design, deploy, and support our nation's integrated IT security solutions. There is a defence and security industrial base in Canada to support this requirement, which is required to provide systems integration and in service support to Canada's Information Assurance and Cyber security solutions, at the government level for both defence and security, and at the industrial critical infrastructure level for national security.
- 2. Space-Based Radar Surveillance.** Canada's geographical situation is relatively unique and presents substantial challenges for both security and sovereignty – in particular, the vast expanses of the east and west coast maritime regions and the arctic regions. Given weather and expanse, the only practical way to monitor these regions is using radar satellites. Over the past twenty-five years, Canada has developed a world-leading space-based synthetic aperture radar surveillance industrial capability through development of RADARSAT-1, RADARSAT-2 and the future RADARSAT Constellation Mission. This has led to substantial exports of satellites, satellite components, ground systems, satellite data and value-added services. Radar surveillance supports both defence and security at the national level.

#### For the Purpose of Sovereignty

- 3. C4ISR Systems Integration:** A system is a series of components functionally integrated to achieve a command and control, communications, intelligence, or

surveillance capability. . Systems integration is the application of systems engineering to define the requirements for, design, develop, integrate, test, and deliver a system. In defence and security system integrators have the full project management, engineering, test, and delivery capability to create and deliver complex systems against a defined set of operational requirements. Often system integration firms also contain significant operational capability insight to enable them to bridge the gap between operational and derived system requirements. This is especially true in the area of Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems integration. Canada will purchase platforms (air, land, and maritime vehicles) from various sources, and build ships and satellites in Canada, but for sovereignty we must be able to integrate the C4ISR systems on and around the platforms and upgrade them over time.

**4. (ISS) Platform In Service Support, Integrated Logistics Support, Maintenance Repair and Overhaul.** In Service Support (ISS) involves the management and execution of support activities to ensure continued attainment of the intended operational capabilities of the system/equipment during its in-service phase. ISS teams conduct ongoing analysis of vehicle performance, predicting and executing on preventative maintenance as required, managing integrated logistics support (ILS) to ensure effective ongoing maintenance activities, and conduct ongoing systems engineering to define requirements, design, develop, and implement technology insertions and capability improvements through ongoing engineering support services. ISS typically also includes the development, delivery, and maintenance of the training program that follows a capability through its life cycle. Canada will purchase platforms (air, land, and maritime vehicles) from various sources, and build ships and satellites in Canada, but for sovereignty we must be able to provide in service support, including repair, overhaul, upgrades, and modifications within Canadian industry.

**5. (C4ISR) C4ISR Systems and Solutions.** C4ISR is defined by the terms that comprise the acronym, Command & Control (C2), Communications (C3), Computing (C4), Intelligence Surveillance and Reconnaissance (ISR).

- C2 refers to software applications used for command and control and situational awareness. Communications refers to the secure voice and data networks over which command and control is conducted. Computing refers to the (typically) rugged computing that is used to operate the C3 applications over the communication networks. C4 solutions are required for defence platforms, as well as for public safety (first responder) and security teams for their command, control, and communication.
- ISR refers to sensors (including human sensors) that collect data on operational environments, mission systems that integrate and correlate that data into friendly force and enemy force situational pictures, which are then communicated over networks in support of the operational planning and decision making cycles that guide the command and control process. This is one of Canada's largest and broadest technology bases in the defence and security

industry. The industrial base includes Command and Control centre and system companies, a number of proven communications companies, multiple computer/display companies, many geospatial and intelligence system companies, and a number of ISR sensor and mission system solution firms (air, land above water and under water-sonar). Example sensor manufacturing capabilities in Canada include EO/IR sensors, night vision sensors, lasers, radars, sonars, and electronic warfare sensors. Canada's ability to manufacture equipment and sub-systems is a key technology base for export. This capability is supplied to both defence customers for military ISR as well as security customers for critical infrastructure and site ISR.

- It is critical to Canadian sovereignty that Canadian controlled and based companies be able to design, development, deploy, and support integrated C4ISR solutions to connect defence and security platforms.
- Within the C4ISR domain, Electronic Warfare is an important sovereign industrial capability which assures the capability to utilize radio spectrum to meet mission needs. Canada has started to rebuild an industrial base in this domain particularly in addressing countering radio-controlled improved explosive devices. This EW capability is importantly connecting into Canada's deployable Intelligence function.

**6. Ordnance/Ammunition. This area focuses on the development and manufacture of ordnance and ammunition.** It is critical to Canadian sovereignty that Canada be able to manufacture and supply its own ammunition. Specific policy exists in Canada to ensure that ammunition is developed and supported within Canada. These ammunition are provided to both defense and security users throughout Canada.

**7. Small Arms Small arms refers to the design and development of small caliber armaments.** Similar to ordnance, Canada has policy, procurement, and an industrial base that provides various small arms. The domestic suppliers also export to approved global markets.

## **For the Purposes of Economic Base Sustainment**

**8. Shipbuilding and Marine Industries** Canada has a solid, proven, shipbuilding industry in Canada, recently enabled and fuelled for the future through the Canadian National Ship Procurement Strategy (NSPS).

**9. Armoured Vehicles** Canada is a world leading manufacturer of light armoured vehicles, as well as armoured vehicle modification, repair and overhaul. Within this industrial capability area is also a wide range of suppliers of vehicle sub-systems.

**10. Aircraft, Special Mission Aircraft and Aircraft Missionization.** Aircraft refers to the design, production, and delivery, maintenance and operation of aircraft for military purposes in general. Special mission aircraft include both manned and unmanned aircraft modified for special military and security missions, such as surveillance, border

patrol, anti-submarine warfare, search and rescue, or firefighting. Canada has a number of firms engaged in the global market for the delivery, maintenance, and operation of special mission aircraft, the development and delivery of aircraft mission systems, and the customization or missionization of aircraft. Special Mission aircraft are operated by defense users in air forces and navies around the world, as well as public safety and security agencies tasked for various border and site security missions.

**11. Simulation and Training Systems and Solutions.** Simulation refers to the design and development of live, virtual, and constructive simulation systems, while Training refers to the design, development, and delivery of training systems to employ those simulation environments. This is another component of the Defence and Security industrial base in Canada that is renowned for excellence and leading-edge technologies. It includes a range of Canadian firms engaged in live, virtual, and constructive simulation; the design, development and operation of training systems; and the application of synthetic environments for training, systems integration and C4ISR applications for both defence and security (first responder) customers

**12. CBRNE Detection, Protection, and Decontamination. Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE)** detection, protection, and decontamination solutions span across the defence and security sector. Canadian R&D projects have resulted in the establishment of a number of firms with capability in this field who sell into regular defence force customers, special forces, as well as national, provincial, and municipal response teams.

**13. (PPE) Personal Protective Clothing and Equipment for Defence and Security.** Soldiers, security personnel, maintenance crews, and others all require a range of specialized protective clothing and equipment to do their jobs effectively. Canada has a number of talented firms in this field that deliver to Canada and export worldwide.

**14. Shelters & Containers.** Tactical shelters and containers are used by defence and security personnel to ship and protect a range of equipment, and to house personnel and equipment in command, operations, and support centers throughout their missions. This is another area where Canada has several companies participating in the global marketplace.

**15. (Services) IT, Procurement, Management, Test & Evaluation, and R&D Services.** Canada has a strong services sector that supports the full breadth of the defence and security sector. These services include Project Management, Procurement, Engineering, Scientific and Technical Services, in support of the Department of Defence, research labs at Defence Research and Development Canada, Public Security Departments (Public Safety, Transport), etc.

**16. Engines and Power Generation** Canada has a number of firms that produce and export engines, power generation, power conversion, and power management solutions.

## Annex D

### Canadian ISS Revenue Trends

As explained in the Introduction of this report, and Annex A, DND accounts for 98% of the federal government's expenditures on aircraft acquisition. A similar ratio applies to the In-Service Support of these aircraft. Expenditures by DND for In-Service Support (ISS) of its fleets of aircraft, through the National Procurement (NP) account, are the main source of revenue for the Canadian ISS industry sector.

Basic data summarizing the past and planned NP expenditures was provided to the Aerospace Review team by DND. From 2006 to 2011, NP annual expenditures have averaged around \$800M. By 2017, that amount will increase to approximately \$1.2 B driven by the need to support a number of new fleets.

On average, 80% of NP expenditures (approximately \$640 M annually) have gone directly to Canadian based companies while the remainder has gone offshore, primarily to the US. Based on its developed expertise on the DND fleets, Canadian companies have been able to win at least \$100 M of additional annual business in the international marketplace. Hence the total impact of DND NP expenditures to the Canadian ISS Industry has been upwards of \$700M annually.

Recent changes to the DND aircraft procurement strategy mean that the newer fleets will have much less Canadian ISS content. The Canadian ISS companies will not have contracts with the government of Canada and will only get the workshare that is flowed to them as subcontracts from the foreign prime contractor. As the new fleets phase in and the older legacy fleets phase out, the Canadian company share of the NP fund will drop off both as a percentage of the total as well as in absolute value. Industry estimates are, that if this procurement trend continues, in the future Canadian ISS firms are likely to receive about 40% of the government's NP expenditure on aircraft fleets – approximating just over \$400 M in yearly total by 2020. Additionally this procurement approach will not allow the Canadian companies any foreground IP ownership or licensing agreements leading to export opportunities. The \$100 M of annual exports is expected to decline to zero.

Figure 1 below portrays these trends. Currently, for every dollar spent by the Canadian taxpayer, there is almost a dollar that flows into Canadian ISS companies, sustaining a world class expertise in engineering, logistics, maintenance, repair and overhaul. By 2020, our estimate is that for every dollar spent by Canada, only 30 cents will go to Canadian companies. The nature of the work is also changing. The \$400 M of Canadian

base that is retained will tend to be less knowledge-worker functions and more touch labour. If the current procurement strategy is not altered the Canadian ISS industrial sector will lose approximately \$600 M per year of potential addressable market.

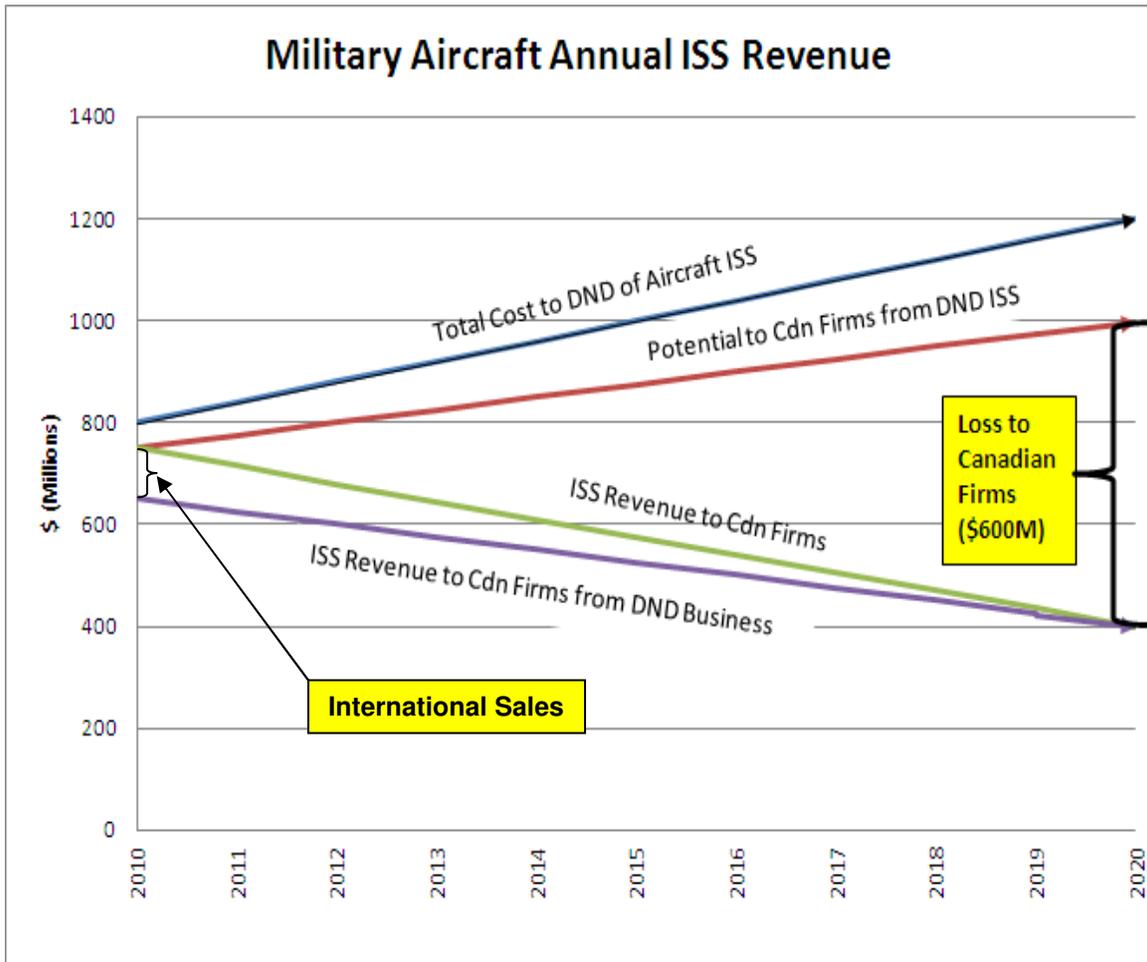


Figure 1: Predicted Trends in Cdn ISS Industry Revenue