



Aerospace Industries
Association of Canada

L'Association des industries
aérospatiales du Canada



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Summary of the Situation

Canadian aerospace companies play in a highly competitive international arena and the industry is at a critical turning point. The industry's current challenges can be summarized as follows:

- The aerospace business model has shifted drastically – demanding that partners engage in substantial long-term risk-sharing. Canada, however, has few Systems Integrators able to undertake these risks. This is limiting the Canadian industry's ability to access and position itself on future aircraft platforms;
- Canada is no longer one of the top 10 investment locations for Aerospace & Defence in aircraft manufacturing, maintenance & overhaul or defence, and it is at risk of losing its position among the top aerospace nations;
- The absence of a long-term defence procurement strategy undermines Canada's ability to sustain and grow a solid defence industrial base. Current policies do not take into account the full socio-economic implications of current procurement strategies, or the sovereignty implications of a weak or irrelevant defence industrial base.
- Canada's current leadership position in space among major space nations is being eroded by the lack of a renewed long-term space plan and adequate funding. As such, Canada is not taking full advantage of the critical role that space technology solutions can play for its economy, security and the environment.
- Current and future opportunities for growth are unprecedented, but the aerospace industry must be technologically competitive to capture a sizeable share of these opportunities.

The Aerospace Industries Association of Canada (AIAC) is a not-for-profit organization that represents the interests of more than 400 aerospace, space and defense companies across Canada. It is pleased to submit recommendations for the 2010 pre-budget consultations.

Aerospace: An Outstanding Wealth Creation Opportunity for Canada

The Canadian aerospace industry is undeniably one of the strongest pillars of the Canadian manufacturing sector and of the Canadian economy. Thanks to the ingenuity and talent of its workers and several strategic investments, it has steadfastly grown since the late 1950s to become nothing less than the fourth largest aerospace industry in the world. It has achieved renowned world leadership in many sub-sectors. Canadian successes in space and defence are also outstanding as industry is a key international supplier of high-technology. Our successes in aerospace are particularly notable given the small size of our domestic market for defense products. Our industry has systematically weathered each economic downturn and has continued to grow both in terms of revenues and employment. Today, the industry employs more than 80,000 high value-added jobs. It generates revenues of \$23.6 billion, exports over 80% of its production and is the highest contributor to GDP in the manufacturing sector. Investments in R&D and capital have continued to grow, reaching \$2 billion in 2008.

Global passenger air traffic is expected to increase at a yearly rate of 5% over the next 20 years. This will create a demand for more than 24,000 new aircraft, representing a market of nearly 3 trillion USD¹. Given that our industry already has an edge in aerospace technology and capabilities, this growth in global demand represents an outstanding opportunity for wealth creation in Canada – if the right initiatives are undertaken now.

Many of our industry's successes have been attainable thanks to close partnerships between industry and the Canadian government. The initial Defense Industrial Productivity Program (DIPP) largely contributed to the creation and expansion of a solid base of defense, space and aerospace suppliers in Canada. The

¹ Boeing Current Market Outlook 2007-2026 and Airbus Global Market Forecast 2007-2026.

Technology Partnership Program (TPC) further supported the industry in its quest to develop world class technologies and obtain world product mandates. The current Strategic Aerospace and Defence initiative (SADI), also in the form of refundable contributions, is fundamental to the industry's competitiveness in the current environment, as are other initiatives such as the Canadian Fund for Innovation (CFI), the National Research Council's (NRC) IRAP, the NRC Institute for Aerospace Research (IAR) and the Department of National Defence's (DND) National Defence's Research Development Canada (DRDC). These programs have played a key role in making Canada an aerospace world-leader and are crucial to the industry's long-term sustainability. Adjustments, however, are required to meet the new business model requirements of next generation aircraft.

An Evolving Playing Field

The Canadian aerospace industry is highly innovative and technology-driven, but it currently faces serious challenges.

The reserves of innovative technology developed in the 1960s and 1970s that fed the dramatic growth of the aerospace sector in the 1980s and 1990s are reaching the end of their life-cycles. Increasingly, high levels of risk-sharing R&D are driving future growth and the current level of investment in R&D – despite the notable recent increase by Canadian industry – will not suffice to ensure sustainable growth, due to the fierce competitive global environment.

The Canadian aerospace industry's future will predominately be driven by its ability to make in-roads into global markets and build relationships with foreign partners in markets where technology is the established driver for success.

There has been a drastic shift in the traditional aerospace business model. Original Equipment Manufacturers (OEMs) are increasingly transferring the risks and responsibilities associated with the development of new aircraft to Systems Integrators (or Tier 1 suppliers). These groups must become prime risk sharing partners and share substantial capital expenditure, Research and Technology Development (R&TD) costs and risks. In turn, these Systems Integrators transfer some of the development costs to their Supply Chain (Tiers 2 and 3). Canada currently has few Systems Integrators of the magnitude required to undertake the risks demanded of the OEMs. Achieving this status requires a concerted and directed effort, and sufficient risk-sharing support to undertake massive R&D investments over the long-term that offer the potential for high levels of return².

The next generation of aircraft platforms is on the verge of being announced by OEMs. Industry has been working intensely on a strategic approach to position Canadian companies on platforms such as the Airbus and Boeing replacement programs, or the Bombardier or Embraer New Generation aircraft. The objective is to ensure that Canada obtains a substantial share of work packages on these aircraft and assure sustainable growth for the next 20 to 30 years.

The success of our industry rests largely on its ability to take on large risks and undertake unprecedented levels of R&D aimed at developing newer, more eco-efficient technologies. It is essential that Canadian industry access the level of financial support needed to compete head-to-head with other large international firms and bid for large workshares on new aircraft.

There is also an increasing trend in foreign countries to support the Technology Demonstration Phase in the overall R&D continuum. This is particularly critical as the cost for doing Technology Demonstration is proportionately much higher than that of early stage R&D. The European Union (EU), for instance, supports

² Typically, and contrarily to other industries, the ROI period for investments in new aircraft platforms is between 10 – 12 years, but high levels returns are projected over a 30-40 year period.

Technology Demonstration projects generously (5 billion euros from 2007-2013) through its 7th Framework Program in which consortia of industry submit projects for collaborative research specific to the aerospace industry. Our industry is entitled to participate in these consortia and has, on occasion, been invited. Canadian companies, however, are at a disadvantage vis-à-vis other participants because these participants are not required to repay the R&D support for collaborative R&D projects. Moreover the EU supports the development of greener aerospace technologies with a fund of 800 million euros (\$1.2 billion) through the Clean Sky Initiative while Canada obtains \$11.8 million through NRC's Green Aviation Research & Development Network (GARDN).

Major Issues and Challenges

A recent study by AeroStrategy Management Consulting states that Canada is currently absent from the list of 10 investment locations for Aerospace and Defence – demonstrating the lost ground to emerging competitors making major investments in R&D³. Increasingly, outsourcing is no longer only performed for low value-added functions and this further threatens Canadian suppliers.

The Canadian aerospace industry has traditionally weathered the previous economic downturns well. However, the current downturn will likely have a larger impact, given that an important part of the Canadian aerospace industry is dependent on the business jet sector. A recent survey of the top 12 companies in the industry (mostly located in Quebec) demonstrated that 58% of their business is related to business jets. Indications are that the business jet sector has lost a 25% market share, which would translate to a loss of revenue of 14.5% on sales totaling approximately \$16 billion.

Furthermore, Canadian industry is currently strongly affected by the credit issue and the high value of the dollar makes it extremely difficult to find financing. This impedes the competitiveness of firms who are required to demonstrate overall financial health in addition to capability, performance and innovation. The nature of the recovery will also be shaped by the ability of manufacturers and exporters to introduce new and improved products and services, adopt new technologies, improve business processes, and upgrade employee skills. In this context, AIAC supports CME's top priority budget recommendation to introduce refundable tax credits for business investment in productive assets.

Canadian firms need to obtain a strong position on the new platforms currently on the horizon through R&D and risk-sharing. If they do not, they will be relegated increasingly to tier 2 and 3 supplier status and risk competing head-to-head with emerging countries such as Mexico, India and China.

Our industry, government and academia must have the foresight to act now in partnership and provide sizeable injections of R&D funding through existing financial mechanisms. This is needed to ensure that Canada seize the tremendous new opportunities that are within its reach. Funding programs must be substantial to meet the sizeable demands of developing new aircraft and reap the potentially high rewards over 30 to 40 years (as illustrated by the repayments on programs such as the CRJ aircraft which repaid \$99 million on a loan of \$45 million).

Recommendation 1: AIAC recommends that the Government of Canada increase aerospace funding through SADI, NRC-IAR, and a special fund for Technology Demonstration Project by a total of \$400 million over 4 years. This is needed to ensure the Canadian aerospace industry's continued position as a world leader and as an important contributor to Canada's technological advancement and economic prosperity.

³ Amongst the ten nations getting the most aerospace R&D from the 50 largest OEMs are Russia, India, USA, UK, China, Mexico and Korea.

A Strong Defence Industrial Base: Partnering to Ensure Canadian Sovereignty

Protecting national sovereignty and ensuring the safety of its population, participating in the defence of North America, and contributing to international peace and security demand that the Canadian Forces have a wide range of capabilities and the capacity to adapt to changing circumstances. To meet these challenges, Canada relies in large part on the creativity and know-how of our domestic defence and security industry. Canada's Defence Industrial Base (DIB) is comprised of large, small and medium size enterprises with expertise in many areas of defence requirements. They represent a key component of the Canadian innovation system and a key source of products and solutions for Canada's military.

Canada must maintain key capabilities within its domestic industrial base that are necessary to ensure "independence of action" in defending its national security and furthering its foreign policy interests. A strong domestic defence industrial base ensures that Canada's armed forces can be supported when deployed at home and abroad in defence of Canada and its foreign policy interests.

To be able to invest in new technologies and applications, industry must be aware of emerging military needs and the military must understand the industry's capabilities. Having clear priorities for in-country industry capabilities serves two purposes: 1) It provides essential input into designing procurement strategies for the supply and support of Canadian Forces; and 2) It provides Canadian industry with a guide to its own investment and business planning.

The existence of a domestic defence industrial base is a fundamental condition for maintaining the sovereign capacity to meet critical defence and security requirements.

Through the "**Canada First Defence Policy**", the Government has recognized the domestic defence industry as a key partner in contributing to Canada's defence and national security. On the same basis, "**Advantage Canada**" – the Government's strategic, long-term plan to improve the country's economic prosperity by building on national strengths – identifies the leveraging of defence procurement spending as a means to accelerate the pace of technology innovation and reap economic spin-off benefits. It recognizes that Canada must have a healthy, vibrant, and innovative domestic defence industrial sector that can continue to be responsive to the nation's military needs and, at the same time, continue to be globally competitive. It commits to developing and drawing-on the world-class knowledge and state-of-the art expertise possessed by domestically-based firms.

Procurement choices and the strategies followed to attain them have a major impact on the shape of the domestic defence industry. Insufficient consideration of these topics can lead the domestic defence industry to irrelevance.

The benefits of a well-defined, long-term procurement strategy that recognizes the importance of a strong defence industrial base are far reaching. They assure Canada's sovereignty in matters of national security by ensuring access to world-class domestic suppliers. Long-term planning also ensures cost-efficiencies by building and maintaining a critical mass of capabilities, developing and sustaining leading-edge, cost-cutting technologies and the ability to research and offer new solutions to the Canadian Forces' challenges in theatres. Currently, Canada has recognized capabilities in several leading-edge industry segments and these have been built through considerable R&D efforts that have created important research opportunities for researchers and academia. Economic benefits include the creation of high-quality, value-added technology jobs with spin-offs in many other sectors such as communications and the medical field. The erosion of the Canadian industrial base, on the other hand, would eventually be a threat to national security and have serious consequences on the economy.

AIAC recognizes that Canada's defence industrial base is capable of meeting many, but not all of its defence and national security needs. Achieving the right balance of domestic and foreign sources of supply is a critical and complex undertaking. A clear articulation of those domestic industrial capabilities that are essential to

Canada's national security and competitiveness is needed. From this, industry will be better able to re-shape and position itself strategically to align and meet Canada's evolving defence requirements.

Recommendation 2: AIAC recommends that Government and industry work in partnership to develop, adopt and implement a cohesive and visionary Defence Industrial Strategy in partnership with industry. This strategy should align Canada's defence industrial capability and Canada's military requirements; maintain other benefits to Canada and the defence sector in terms of competitiveness, skills development, employment, exports and intellectual property assets; and ensure economic growth and long-term prosperity.

Canada's Space Industry: A key Contributor to the Economy, Security and the Environment

Canada possesses undeniable world class capabilities in space technologies. Our technological breakthroughs and scientific talent are the envy of larger nations. Not only is space a key contributor to the economy, but our space industry plays a crucial role in Canada's priorities with respect to communications, security and land management, agriculture and the environment. The Canadian space sector represents thousands of high quality jobs in high-tech space companies, close to one thousand space researchers, and global leadership in space telecom, robotics and science instruments.

Over the last 40 years, Canada has been an active player in space exploration. It has designed and built world-renowned space robotics systems, and provides much of the satellite hardware currently in space. In addition, Canada has developed the world's most advanced radar satellites to track ice and ships over wide areas. International collaboration is a key element of space industry success in that world players come together to work on international projects through the Canadian Space Agency, the National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA).

Canada's space industry, however, has seen a decrease in investment and a number of reductions to highly-qualified staff. Urgent action is needed to reverse the situation so that our nation can continue to develop world-class space technologies. The Canadian space sector must be supported to ensure that it is a full participant in new programs such as the International Space Station and other initiatives such as the Radarsat Constellation, Polarsat and the Automatic Identification System. Additionally, enhanced funding would revitalize and encourage further research through our universities.

Canada's Space Agency has seen its buying power shrink to almost half of what it was in 1999, and Canada is the only space-faring nation whose space budget has actually decreased in the recent past. The decline in our space program is preventing Canada from pursuing space applications to meet national needs, is causing us to miss opportunities to participate in important international space programs, and has had a detrimental effect on our industry.

Recommendation 3: The AIAC strongly supports the adoption of a Long-Term Space Plan for Canada with adequate funding for its delivery. This plan should re-affirm the importance of international cooperation, the long-standing "Canada First" policy for space procurements by the CSA, re-establish a partnership relationship with the Canadian Space Industry, and bring state-of-the-art capabilities to the pursuit of government priorities.

The Canadian Aerospace Industry is a tremendous success story. Its productivity and innovative nature make it an important contributor to the Canadian economy, with an outstanding potential for growth. If current challenges are adequately and promptly addressed, our industry can increase its contribution to the prosperity and security of Canadians significantly through the creation of high value-added employment, challenging research and development opportunities and cost-effective, long-term industry building solutions for the Canadian military.



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