



AEROSPACE INDUSTRIES
Canada's competitive advantages



UNLIMITED HORIZON

Canada's aerospace industry is ranked 5th amongst OECD¹ countries in terms of revenues and contribution to GDP. With some 700 companies, it generates direct annual revenues of \$22.1 billion and \$41.2 billion across multiple supply chains in Canada. Direct industry employment is nearly 70,000 and the aerospace industry is responsible for more than 160,000 jobs in the Canadian economy.² Highly integrated into global value chains, the industry exports 80% of its production globally. Although highly focused on civil aviation, it is remarkably diverse in the market subsectors it serves.

Canadian aerospace firms are suppliers of choice in the global supply chains of aircraft Original Equipment Manufacturers (OEMs) including Boeing, Airbus, Bombardier and Embraer.

The Canadian aerospace sector is a leader in terms of export intensity and trade diversity, with partners in the US, Europe, Asia and South America.

As a member of the North American Free Trade Agreement (NAFTA), Canada is well integrated into the North American market via a multi-modal transportation system, one of the world's best.

The Canadian aerospace manufacturing sector is one of the most research and development (R & D) intensive in the Canadian economy. More than 20% of its activity is dedicated to R & D.²

There are 177 flight schools with operating certificates in Canada. They issued approximately 1,248 commercial pilot licenses in 2011. Canadian flight training is world recognized. It provides training in diverse climates and geography which contribute to develop superior professional pilot skills.

Canada's Maintenance, Repair and Overhaul (MRO) sector generates more than \$6.5 billion in annual revenues and employs nearly 27,000 highly skilled workers.² Its strengths include:

- > Full 'nose-to-tail' services for single and twin-aisle commercial transports, regional jets and turboprops, business aircraft, military aircraft, and helicopters.
- > Engine and accessory repair and overhaul for gas turbine and piston engines.

CANADA'S KEY STRENGTHS

Commercial and business aircraft
Helicopters
Utility and general aviation aircraft
Aircraft engines
Avionics
Aerostructures

Flight simulation
Landing gear systems
Advanced composites manufacturing
Airframe, engine and component MRO
Satellites, robotics and space-based services

*Unless otherwise noted, all values in this publication are in Canadian dollars. Content is based on the latest available information at time of publication. Cover image: Photo Courtesy of Bell Helicopter. Page 2 image: A member of the Bombardier Aerospace Global family, Paris Airshow 2011.

¹ Organisation for Economic Co-operation and Development
² Industry Canada. Economic modelling based on data from Statistics Canada (Business Registry, Census and CANSIM), OECD and firm level observation, 2012

AEROSPACE CLUSTERS

Canada's aerospace industry is comprised of regional capability clusters that provide opportunities throughout the value chain.

WESTERN PROVINCES

Asco Aerospace - aerostructures
 Avcorp - aerostructures
 Boeing Canada - composites
 IMP Group / Cascade Aerospace - airframe MRO
 EADS / Vector Aerospace - helicopter MRO
 General Dynamics Canada - defence electronics
 Magellan Aerospace - aerostructures, space systems
 MDA - Earth observation
 P&WC - engines
 StandardAero - engine MRO

EASTERN PROVINCES

APEX Industries - precision machining and complex assemblies
 EADS SOGERMA / Composites Atlantic - composites
 EADS Vector Aerospace - gas turbine MRO
 IMP Group - MRO, design and manufacturing
 P&WC - engines
 Slemon Park - MRO cluster

ONTARIO

Bombardier - commercial and business aircraft
 COM DEV - satellite payload subsystems
 United Technologies Aerospace Systems - landing gear
 Honeywell Canada - ECS, electrical power
 Magellan Aerospace - engine parts and MRO
 MDA - space robotics
 Messier-Bugatti-Dowty - landing gear
 L-3 Electronic Systems - MRO, Display Systems
 MHICA - aerostructures
 Northstar Aerospace - gears and gear assemblies
 P&WC - engines

QUÉBEC

Aerolia - aerostructures
 Bell Helicopter - civil helicopters
 Bombardier - commercial and business aircraft
 CAE - training and simulation
 CMC Electronics - avionics
 GE Canada - engine components
 Héroux-Devtek - landing gear
 Mechtronix - training and simulation
 P&WC - engines
 Rolls-Royce Canada - engine MRO
 Thales - avionics
 Turbomeca Canada - engine MRO

RECENT INVESTMENTS

Company	Business Activity
Aerolia (France)	Aerostructures
DEMA Aeronautics (Italy)	Aerostructures
GE Aviation (U.S.)	Engine manufacturing, robotics centre
GE Aviation & DAE (U.S./U.A.E.)	Engine testing
Latécoère/LATecis (France)	Engineering services
Liebherr Group (Germany)	Landing gear
Mitsubishi Heavy Industries (Japan)	Aerostructures
Rolls-Royce & P&W (U.K/U.S.)	Icing testing (GLACIER)
Safran Group (France)	Landing gear manufacture, electronics, composites R & D
Sumitomo Precision Products (Japan)	Aircraft systems
Thales Canada (France)	Aircraft digital control systems
UTC/Pratt & Whitney (P&W) (U.S.)	Engine flight test and assembly

CANADA'S ADVANTAGES

HIGH PRODUCTIVITY

With productivity growth of 53% between 2002 and 2009, the Canadian aerospace manufacturing sector is a leader in terms of productivity growth and value added per employee.³

RESEARCH & DEVELOPMENT (R & D)

With annual R & D and capital investment of more than \$1.7 billion, Canada is an industry leader in aircraft technology development and applications. Canadian aerospace manufacturing R & D intensity ranks 3rd among OECD countries.³

EXPORT COMPETITIVENESS

Export Development Canada (EDC) provides commercial solutions ranging from commercial financing support for inbound foreign investment to export market financing of aircraft sales. Also, the Canadian Commercial Corporation (CCC) is the Government of Canada's defence and security export sales organization, connecting Government buyers in other nations to Canadian technology and expertise through Government-to-Government contracts.

LOGISTICS AND MARKET ACCESS

Canada has a highly developed transport infrastructure and duty-free access to the U.S., Mexico and many other global markets. Automated permit ports, transponder identification systems, and joint processing centres are being tested and deployed for efficient movement of goods. Many Canadian production hubs are actually closer to U.S. markets than American production sites.

DUTY-FREE MANUFACTURING TARIFF REGIME

Canada is the first country in the G-20 to offer a tariff-free zone for industrial manufacturers. Canada has implemented a major new initiative that will see tariffs on all machinery, equipment and industrial manufacturing inputs reduced to zero by 2015.

SKILLS AND RESEARCH

The Canadian aerospace industry has a deep talent pool employing nearly 70,000 workers. This includes production staff (43%) as well as engineering, scientific staff and technicians (30%).

Canada has a world-class higher education system with 22 Canadian universities appearing in the top 500 universities of the world.⁴ Over 11,450 undergraduate degrees in engineering were awarded in 2010⁵, more than the U.S. on a per capita basis⁶ and approximately 3,000 students graduate from aerospace related courses each year.

LATÉCOÈRE

"This new Canadian operation puts us in an excellent position for future development in North America."

François Bertrand, President and CEO, Latécoère

AEROLIA SAS

"The announcement of the construction of an assembly plant in Quebec formalizes a major, ambitious and exciting step forward; [...] This new site will serve as a base to access both new markets and new customers."

Christian Cornille, CEO, Aerolia SAS

³ Industry Canada. Economic modelling based on data from Statistics Canada (Business Registry, Census and CANSIM), OECD and firm level observation, 2012

⁴ Shanghai Jiao Tong University, Academic Ranking of World Universities (2012)

⁵ Engineers Canada, Canadian Engineers for Tomorrow (2010)

⁶ US Department of Education, National Centre for Education Statistics (2010)

INNOVATION

Canada offers resources and programs to stimulate innovation at substantially reduced costs, to all levels of the supply chain and across the technology readiness spectrum. They are complemented by provincial support programs customized to regional needs.

Strategic Aerospace and Defence Initiative (SADI)

- > *Repayable contributions to Canadian aerospace and defence companies.*
- > *Learn more at www.ic.gc.ca/eic/site/ito-oti.nsf/eng/h_00022.html*

National Research Council (NRC) Industrial Research Assistance Program (IRAP)

- > *Innovation assistance to SMEs includes advisory services, funding for innovation, networking and youth employment.*
- > *Learn more at www.nrc-cnrc.gc.ca/irap*

Scientific Research and Experimental Development (SR & ED)

- > *Income tax credits and refunds for expenditures on eligible R & D activity in Canada.*
- > *Learn more at www.cra-arc.gc.ca/txcrdt/sred-rsde/menu-eng.html*

Natural Sciences and Engineering Research Council (NSERC)

- > *Funding for university researchers.*
- > *Learn more at www.nserc-crsng.gc.ca/index_eng.asp*

Canada also facilitates collaborative R & D and initiatives supported by the federal and provincial governments:

Green Aircraft Research and Development Network (GARDN)

- > *Business-led network of centres of excellence.*
- > *Collaborative R & D projects focussed on environment.*
- > *Recent MOU with Air Transport Advisory Group (ATAG).*

CRIAQ

- > *Based in Quebec, includes researchers from across Canada.*
- > *Collaborative R & D with strong training component.*
- > *International programs.*

Composites Innovation Centre (CIC)

- > *Based in Manitoba, collaborative R & D.*
- > *Manages Canadian Composites Manufacturing R & D (CCMRD).*

Composites Research Network

- > *Based in British Columbia, collaborative R & D.*

CANNAPE

- > *Increase engagement between Canadian and EU aeronautics R & D communities.*

NRC Aerospace

- > *Based in Ontario, Quebec and Manitoba.*
- > *Collaborative research and technology development opportunities focused on safety, weight, cost and the environment.*

INVEST IN CANADA TO ACHIEVE GLOBAL EXCELLENCE

FINANCIAL STABILITY

For the fifth consecutive year, the World Economic Forum has declared Canada's banking system to be the soundest in the world.

Source: Global Competitiveness Report 2012-2013, World Economic Forum (WEF)

A STRONG GROWTH RECORD

Canada led all G-7 countries in economic growth over the past decade (2002-2011).

Source: World Bank

A HIGHLY EDUCATED WORKFORCE

Canada's workforce is the most highly educated among members of the Organisation for Economic Co-operation and Development (OECD), with half of its working-age population having a tertiary level education.

Source: Education at a Glance 2012, OECD

A WELCOMING BUSINESS ENVIRONMENT

Canada rates as the best country for business in the G-20.

Source: Forbes Magazine, November 2012

LOW TAX RATES

Canada's combined federal-provincial general corporate income tax rate of 26.1% in 2012 is below the level of most other G 7 countries, and about 13 percentage points lower than the U.S.

Source: Department of Finance Canada and the OECD Tax Database 2012

MARKET ACCESS

Canada is the first among the G-20 members to eliminate tariffs on manufacturing inputs and machinery and equipment, hence offering access to a lucrative North American market of nearly 461 million consumers.

Source: World Bank, World Development Indicators Database, 2012, and Department of Finance Canada

A GREAT PLACE TO INVEST, WORK, AND LIVE

Canada ranked second among G-7 countries, having one of the most multicultural populations in the world, a universal health care system, world-class universities and clean and friendly cities.

Source: United Nations Human Development Index, 2011



FOREIGN AFFAIRS AND INTERNATIONAL TRADE CANADA



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Invest in Canada
Foreign Affairs and International Trade Canada
111 Sussex Drive
Ottawa, Ontario, K1N 1J1
CANADA
vp.investincanada.com

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