

InterVISTAS

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FINAL REPORT

Economic Impact of Business Aviation in Canada *- 2015 Update*



PREPARED FOR
Canadian Business Aviation Association (CBAA)

PREPARED BY
InterVISTAS Consulting Inc.

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Foreword

Business aviation (BA) is underestimated by many in and outside aviation. It is the responsibility of the Canadian Business Aviation Association (CBAA) to ensure that the true scope and value of this aviation sector is well recognized and supported. Business aircraft are true business tools that corporations use to their advantage to grow their business both nationally and internationally. In today's world of travel challenges and delays, business aviation, known for its efficiency and safety, is an attractive alternative to scheduled airlines.

Updated in 2015, this BA Economic Impact Study provides you with both a description of how businesses use their aircraft to their advantage, and also the dollar value in contribution to the Canadian economy. This update boasts several enhancements, including the inclusion of four new case studies, updates of all impacts to reflect 2015 dollars and the inclusion of impacts on a per aircraft basis.

We take this opportunity to thank the InterVISTAS team under Mike Tretheway and Steve Martin for their exceptional efforts in providing us with this invaluable proof of its economic contribution.

Problems are like mountains: even the largest mountain can be moved with a solid fulcrum and a large enough lever. Information such as this study supports our fulcrum and membership strengthens our leverage. We encourage all of you to use this report to educate policy-makers, businesses and your community to show them how business aviation matters to everyone.



David Hall



Rudy Toering



David Hall
Chair
Canadian Business Aviation Association



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Executive Summary

Business aviation in Canada contributes directly to employment and the general economy in Canada. It helps to facilitate transportation of service and specialist employees and executives to further their business initiatives and operations. Business aviation also helps to improve worker productivity, customer service and retention and also enhances supply chain performance in every province and territory. This study examines the current economic impacts of business aviation in Canada and the individual provinces and territories.

Business aviation in Canada provides many benefits to the economy. It:

- May be the only effective transportation option available for technicians and other professionals to reach remote or distant locations. Some of these may only be reachable by float plane or helicopter.
- Enhances productivity by allowing employees to work together in secure, private spaces.
- Enables employees to reach multiple destinations in a single day and return home to headquarters or family. This saves time and money, and improves quality of life.

In Canada, there are an estimated 1,900 business aviation aircraft, including both fixed wing (76%) and rotor aircraft (24%). This is a portion of the roughly 36,000 registered aircraft in Canada. These business aviation aircraft are spread across Canada, with the majority based in Québec, Alberta, British Columbia and Ontario.

As stated, business aviation contributes directly to employment and the general economy. Economic impact is a measure of the spending and employment associated with a sector of the economy, a specific project, or a change in government policy or regulation. The three major components of economic impact are classified as direct, indirect and induced impacts. These classifications are used as a basis for the estimation of the total economic impact of business aviation in Canada.

Ongoing Economic Impact

Direct economic impact measures the employment directly associated with the business aviation. This includes employment from organizations such as Fixed-Base Operators (FBOs), company flight departments and other support staff. Indirect impacts include employment in industries that supply or provide services to the business aviation industry. Induced employment is somewhat more complicated than indirect employment. Induced employment is employment created because of expenditures by individuals employed both directly and indirectly by businesses directly related to Canada's business aviation industry.

The ongoing operations of business aviation in Canada annually generate an estimated 11,500 direct person years of employment, with employees earning approximately \$810 million in wages and salaries. Direct employment generates

Ongoing Economic Impacts of Business Aviation in Canada

Annual Direct Impacts:

- 11,500 person years
- \$810 million in wages
- \$1.3 billion in gross domestic product (GDP)
- \$3.2 billion in economic output

nearly \$1.3 billion in direct gross domestic product and \$3.2 billion in direct economic output in the nation annually.

Total impacts are calculated by adding together the direct, indirect, and induced impacts. Including indirect and induced multiplier impacts, ongoing economic impacts of business aviation in Canada estimate a total of 23,500 person years of employment. Total earnings of all employees amount to over \$1.6 billion in wages and salaries. Furthermore, business aviation in Canada contributes an estimated \$2.6 billion and \$5.5 billion, in total gross domestic product (GDP) and total economic output, respectively. The total economic impacts of business aviation in Canada are summarized in **Figure ES-1**.

Figure ES-1: Annual Total Ongoing Economic Impacts of Business Aviation in Canada

Type of Impact	Employment (Person Years)	Wages (\$ millions)	GDP (\$ billions)	Economic Output (\$ billions)
Direct	11,500	\$810	\$1.3	\$3.2
Indirect	8,000	\$520	\$0.8	\$1.5
Induced	4,000	\$220	\$0.5	\$0.8
Total Impacts	23,500	\$1,550	\$2.6	\$5.5

Note: Wages, GDP and Economic Output are presented in 2015 prices.

Annual Tax Impacts

Business aviation in Canada also contributes to government revenue, including revenues received by federal, provincial/territorial and local governments. Total taxes paid on an annual basis are estimated at approximately \$315 million per year.¹

The majority of taxes collected accrue to the federal and provincial/territorial governments at 68% and 30%, respectively. Municipal taxes are also estimated to be \$6 million across Canada (2% of total taxes collected).

Figure ES-2 provides a summary of the taxes collected.

Tax Impacts of Business Aviation in Canada

Federal Government:

- \$216 million (68% of total)

Provincial/Territorial Government:

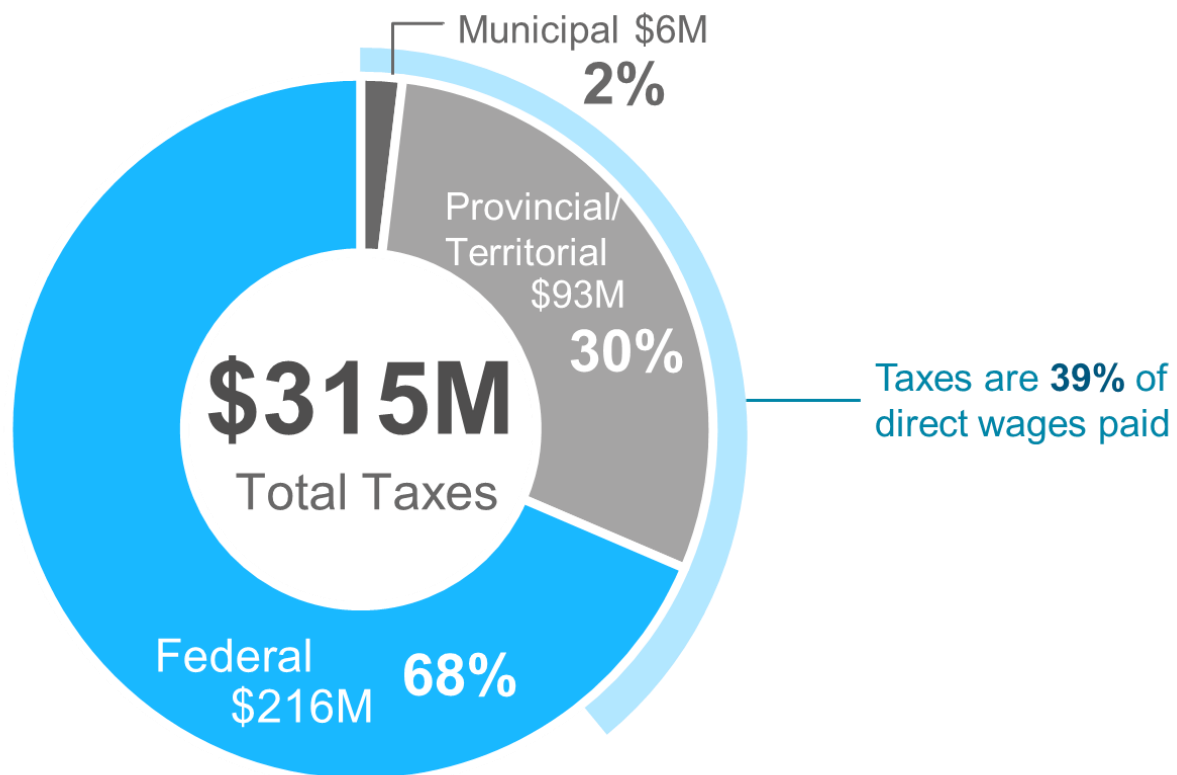
- \$93 million (30% of total)

Municipal Government:

- \$6 million (2% of total)

¹ Tax impacts are presented in 2015 prices, using 2013 tax rates.

Figure ES-2: Breakdown of Tax Revenues by Government Level



Source: InterVISTAS analysis.

Note: Tax impacts are presented in 2015 prices, using 2013 tax rates.

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1 Introduction

Business aircraft are flown by a broad cross-section of businesses and organizations, ranging in size from small to large. Business aviation in Canada plays critical roles in:

keeping essential Canadian production and infrastructure facilities operational,

- marketing Canadian products and services of businesses scattered across a vast geography,
- improving the effectiveness of supply chains,
- improving the safety and security of employees, customers and property,
- increasing company and national productivity,
- achieving higher customer service rates, thereby retaining existing and developing new customers, and;
- lowering out-of-pocket transportation costs for many businesses.



Most business aviation trips are time-critical, often carrying middle management and technical personnel (e.g. engineers) needed to solve an immediate problem.

Business aviation is essential to all sorts of companies that need speed, flexibility, efficiency and productivity. According to the National Business Aviation Association (NBAA), the vast majority of companies that utilize business aircraft (85 percent) are small and mid-size businesses. Many of those are based in communities where commercial airlines have reduced or eliminated service, or where there was no commercial service to begin with. Business aviation allows companies to stay in those communities while reaching suppliers, customers, or production facilities located anywhere in the country or world.

1.1 Defining Business Aviation





Within the Canadian civil aviation system, there are two primary subdivisions: commercial operations and private operations. The commercial category comprises major airlines that operate scheduled air transportation, such as Air Canada, WestJet, Porter and various regional carriers. Private operations include all other types of non-military aviation, including both business and personal operations.

Put simply, the data relates to business aviation when the aircraft is flown for business purposes.

1.2 Examples of Business Activities Captured in our Dataset

Many types of businesses use aviation to address different needs. Business aviation may be perceived as a corporate perquisite for executives who want to avoid commercial airlines. This perception, however, incorrectly misses the many uses of aircraft to meet the needs for fast, flexible, safe, secure and cost-effective access to small and remote destinations that may be impossible to reach by commercial air and even ground transportation.

The reasons that businesses use aviation are myriad:

- **Transportation of service and specialist employees and executives.** The most common use of business aircraft is transporting the company's own employees. Businesses may use their aircraft to facilitate strategic opportunities, explore new markets, extend management control, and improve relations with customers, investors and the public. Moving specialist management, legal or financial teams may be necessary to close transactions. Some companies may use their aircraft to move production, engineering and operations teams on a regular basis between company facilities or to remote locations that cannot be reached by commercial airlines.
- **Improved productivity.** Passengers on business aircraft can meet, plan and work in a secure office environment, free from interruptions and distractions. Efficient employee scheduling and employee time-savings are possible because business aircraft have the ability to fly on demand and nonstop between smaller airfields that usually are closer to a traveler's destination than a major airport. Many business aircraft are equipped with advanced communication technology, allowing passengers to stay in touch throughout the flight.
 - Business aircraft can reach communities that may be far removed from commercial air service. Employees gain considerable time saving in being able to directly access small and remote locations. In addition, business aviation gives passengers an ability to reach multiple remote locations in a single day.
 - Depending on the business's needs, the aircraft can deliver equipment, engineers, maintenance and repair staff, or other technical personnel to locations so that goods are delivered and services can be maintained or restored.

CASE STUDY

TELUS: Providing access to telecommunications

TELUS is Canada's fastest growing telecommunications company with annual revenues of \$11.7 billion. TELUS has 13.4 million customer connections including 7.9 million wireless subscribers, 3.2 million wireline network access lines, 1.4 million Internet subscribers and 865,000 TELUS TV customers. With more than 43,000 team members, TELUS provides a wide range of communications products and services, including wireless, data, Internet protocol (IP), voice, television, entertainment and video, and is Canada's largest healthcare IT provider.

In 2013, the company invested more than \$2.1 billion in capital expenditures focused on advanced wireline and wireless broadband technologies and began offering 4G LTE (a standard for wireless communication of high-speed data for mobile phones and data terminals) wireless products and services in Northern Canada with launches in Whitehorse, Yukon and Yellowknife. TELUS is committed to bringing world-class telecommunications services to remote and geographically challenging communities across Canada, though reaching these destinations is not something that can be done quickly or easily by commercial aviation or by car or truck. Using the company's aircraft is the fastest and most efficient way to get technicians on-site to repair or upgrade telecommunications infrastructure to provide customers critical access to telecommunications services.

TELUS operates three aircraft including a DHC-2 Turbo Beaver and a Quest Kodiak (amphibian). The company uses the two float planes to enable its technicians to reach locations that are otherwise inaccessible. Rather than leaving customers without service for days at a time while technicians travel by commercial air or ground, TELUS technicians can reach remote locations and handle service issues the same day they arise, providing a better customer experience and ensuring access to telecommunications throughout the country. Logging 60 flight hours per month on average, TELUS' float planes are not only used during emergency situations, but also for routine maintenance, bringing technicians to remote areas efficiently and safely.



- **Improved customer service and retention.** Companies can use their aircraft to reach key customers in the most time-efficient manner for both parties. Working with a customer while on-board, companies can spend focused time with customers. This extra time deepens their relationship and allows them to gain a better understanding of their needs. Business aviation also allows companies to deliver enhanced service. When a major piece of a customer's machinery breaks down, the company immediately begins to suffer losses of revenues, and typically workers begin to lose wages until the equipment is put back into service. Business aviation allows immediate dispatch of needed technicians and parts. This high level of customer service not only restores the customer's revenue stream, it leads to loyalty to the vendor resulting in future sales.
- **Enhance supply chain performance.** In today's global economy, attention is focused on supply chains for moving products and people to where they are needed. For businesses and organisations that are not located at major intercontinental gateways, business aviation is the means by which time sensitive products can reach overseas gateways for distribution. They are also the means by which sales, finance, marketing and technical personnel can access intercontinental air services. Companies also use business aviation to improve supply chain efficiency by transporting suppliers, improving a supplier's understanding of production facilities, or bringing multiple suppliers to customer meetings.
- **Safety and security of employees.** Business aircraft (piloted by trained professional pilots) are engineered and built to the highest standards, allowing them to achieve a stellar safety record. When traveling on its own aircraft, a company can be better assured that business proprietary information and intellectual property stays with the company rather than being overheard in an airline terminal or a commercial aircraft, or observed from a nearby seat. In certain situations, using a business aircraft better allows key decision-makers to avoid visibility, which may be crucial for advancing mergers or sales. The use of business aviation can also help minimize missed flights and connections due to delays in general screening.
- **Transportation of cargo, parts, and mail.** Companies use their aircraft to move cargo, machine parts, and mail between internal facilities and externally between suppliers, customers, and potential customers. Companies can keep operations moving by shipping parts directly to remote locations.



In summary, the benefits of business aviation are clear:

Business aviation may be the only effective transportation option available so that technicians and other professionals can reach remote or distant locations. Some of these may be reachable only by float plane or helicopter.

- Business aviation enhances productivity by allowing employees to work together in secure, private space.
- Business aviation enables employees to reach multiple destinations in a single day and return home to headquarters or family. This saves time and money, and improves quality of life.



CASE STUDY

Skyservice: Supporting Canada's Businesses

Founded in 1986, Skyservice provides a wide range of services to the flying public and the Canadian aviation industry, operating from facilities in Montreal, Toronto, and Calgary.

One of the company's "core business pillars" is its charter operations. Skyservice can take customers anywhere in Canada or the world on "Canada's largest fleet" of more than 50 corporate aircraft. These range from the turboprop Piaggio P180 Avanti or Bell 430 helicopters to long-range Gulfstream V, Bombardier Global Express 5000 and XRS. Skyservice offers clients flexibility in meeting their individual travel schedules and flexibility in serving specific destinations, since charter services are not restricted to airports served by commercial air service. This flexibility boosts business productivity.

Skyservice also provides professional aircraft management services. The company handles all of the work associated with owning, operating, and maintaining business and personal aircraft, allowing customers to focus on the business at hand. Sky Service essentially provides "turnkey" support. They manage maintenance, flight coordination, catering, security, flight operations, and other technical and administrative services. Skyservice's corporate clients may be flying to Europe or South America to meet with potential clients or visit production facilities. Others might be sending a team into a location to develop their own assessment of business opportunities. In other situations, corporations may be using their aircraft to shuttle staff among multiple locations in Canada in a single day -- something that would be virtually impossible using commercial airlines. With those corporate shuttle operations, passengers can achieve all of their business needs in a day and still be able to spend the night at home with family. That ability to meet business needs while allowing employees to retain some quality of life not only improves the immediate productivity of the corporation, but also enhances its ability to attract and retain talented staff.

Skyservice's professional management and charter operations allow its clients to succeed with business and with life. With a team of over 500 employees across Canada, Skyservice is a leader in its commitment to quality, safety, security and respect for its employees and clients.



1.3 Business Aviation Enables Economic Activity throughout Canada

Access to air transportation is a key consideration that businesses often take into account when considering where to locate a facility. Some companies are known to have relocated their headquarters from one city to another, at least in part to be able to use an airport with better flight options to both domestic and international destinations. Others may locate an office or plant to be near a public airport because of the ready and efficient access it gives the company to the air transportation system. Business aviation expands the range of locations where effective air access can be obtained. It allows enterprises from all regions and across all sizes of communities and economies to remain in place and prosper in an increasingly globalised marketplace.

In Canada, however, commercial airlines serve only about 20% of the country's 1,460 public-use airports. Business aviation not only uses those airports, but may also operate at the other 80%. This helps support these facilities which offer a number of important non-commercial aeronautical functions. These range from emergency preparedness and response to agricultural spraying, aerial surveying, and energy exploration. These airports may also be important destinations for business flying.

Business aviation frees companies from the decisions made by commercial airlines about which markets to serve. That is why business aviation is considered an essential tool by so many companies, especially small to mid-size businesses. These companies have business aircraft because there is no more efficient and flexible transportation option that provides direct access to destinations located far from a company's headquarters.

1.4 Aircraft Used in Business Aviation

Business aircraft include helicopters, turbine-powered turboprops and turbojets. Although the worldwide fleet includes ultra-long range business jets capable of flying 20 or more passengers nonstop between distant international business centers such as Toronto and Tokyo, the vast majority of business aircraft seat six passengers in a cabin and fly average trips of less than 1,000 miles. Depending on their capability, these aircraft may fly at altitudes below the airlines (below 20,000 feet) or above the airlines (above 40,000 feet).

1. **Turboprop aircraft** have one or more gas-turbine engines that turns the propeller(s). Turboprop aircraft burn Jet-A fuel, are frequently larger than piston-powered aircraft, and can operate at higher altitudes. They also can carry more payload and passengers than piston-powered aircraft. These aircraft may seat 6-8 people. It is not unusual for these aircraft to fly missions of between 600-1,000 miles of travel between smaller airports that may have runways too short to accommodate jets. Examples of common turboprop aircraft used for business applications are Cessna Caravans and Beech King Airs.



2. **Jet aircraft** have one or more gas-turbine engines. Jet aircraft use Jet A fuel, tend to fly faster than turboprop aircraft and are capable of flying at higher altitudes than pistons or turboprops. The size and flight range of jets varies widely - some have a single pilot and very small cabin, while others require two pilots and can carry a large number of passengers and operate across long international stages. The vast majority seat six passengers and fly an average stage length of around 1,000 miles. Examples of jets used for business purposes include the Bombardier Learjet, Challenger, and Global.



3. **Helicopters** are powered either by a piston engine that uses 100-octane low-leaded fuel or a turbo engine that uses Jet A fuel. They are often used for flights of less than 100 miles, at altitudes of less than 1,000 feet. The interior of a business helicopter typically seats 4-6 people. Helicopters are often attractive because of their ability to land at a variety of heliports and outlying airports. Examples of helicopters used for business include the Eurocopter 130 and Bell 407.



All of these aircraft types have the uses in business aviation. Turboprop aircraft, for example, are highly efficient for short to medium haul flight stages, while jets are the choice for longer stages. All of these aircraft types offer a range of sizes, dependent on the business mission.

CASE STUDY

Aviation CMP: Promoting Business Efficiencies

Established in 1997, Aviation CMP was started by three firms working in three different sectors. Individually, the firms were unable to purchase their own aircraft and needed to pool resources. Since then, they have grown to 18 member companies working in a wide-range of sectors – from manufacturing, construction, food products, banking, pharmaceutical, telecommunications, charitable foundation, and private equity funds. Due to the diversification in its shareholders' industries, Aviation CMP has been able to better weather the economic downturn in recent years. Rather, Aviation CMP has experienced a moderate increase to aircraft utilization (less than 5% per year). Shareholder status is reviewed every three years by the Board of Directors, with membership based on referrals and word of mouth instead of through a sales or recruitment process.

Aviation CMP is a private shareholding company managed and run as a cooperative – a model unique to Canada. This fractional ownership model lowers the cost of business aviation, enabling shareholders to focus on developing their core businesses instead. Most of the users of Aviation CMP's aircraft require visiting multiple sites. Trip duration varies between 1-day to 4-day trips, and includes short-haul flights to business centres in Eastern Canada as well as transcontinental flights to London and Paris. According to Jean Langevin, General Manager of Aviation CMP, "it is not about luxury, it is efficiency." By using private aircraft, executives are able to optimize visits across several sites within a couple of days, which would take double the amount of time if commercial air services were used instead. Thus, business connections are made quicker and more efficiently. In addition to flexibility and time savings, travelling on business aviation aircraft, allows multi-functional teams to visit sites together on-board 8-seater aircraft, further promoting business efficiencies.

Different from commercial aircraft rentals, shareholders pay capital based on usage. Fractional ownership allows companies to own part of the aircraft while assisting with the investment process. Shares belong to enterprises that each pays both monthly fixed costs and variable costs per flight. The aircraft are used mostly for business and occasionally for leisure purposes. As a co-op, Aviation CMP's corporate objective is to be cash neutral, thus placing focus on the efficient utilization of the aircraft. With a large enough fleet, Aviation CMP is able to meet the different needs of each of its shareholders, rarely experiencing conflict in aircraft availability and the need to charter from a third party.

Aviation CMP has a fleet of seven aircraft all registered to the co-op, consisting of four corporate jets, two turboprops and one helicopter. The aircraft are based at Montréal–Saint Hubert Airport (YHU) and Saint-Georges Airport (CYSG), a municipal airport located south of Québec City and managed by Aviation CMP.

1.5 Other Businesses are Instrumental in Supporting Business Aviation

Business aviation activities are supported by numerous types of other businesses. These include companies that provide regulatory service and support for the aircraft and their operators, those that maintain and repair the aircraft themselves, and other companies that provide professional management services to aircraft owners.

- **Fixed Based Operators.** (FBOs) provide support and services to the general and business aviation community with services geared towards maintenance, refueling, catering and other support services. Across Canada, there over 70 FBOs that provides such services at both large and small airport sites.²
- **Maintenance and Repair.** Aircraft must meet airworthiness standards and maintenance schedules. They're not like a car that can pull over to the side of the road if something breaks. The repair stations may be part of the original equipment manufacturer (e.g., Bombardier, Gulfstream and Dassault) or independent shops. Further, the shops may specialize in only particular aspects of maintenance and repair – airframe, powerplant, propeller, radio, instrument, or accessory.

There are more than 1,100 certified Aircraft Maintenance Organizations (AMO) in Canada, with a comprehensive range of capabilities. Collectively, these firms generate more than \$3 billion in annual revenues and employ some 17,000 highly skilled workers.³

- **Professional management services.** Some companies offer aircraft management services that provide plane owners with flexibility and the comfort of knowing that their aircraft is being cared for in a professional manner. These companies can take care of all the non-operational, “back office” matters such as insurance, hangars, pilots, training, regulatory oversight, maintenance and flight coordination. Clients can go on their aircraft when they need to and let the company manage the rest. In some cases, these companies can work with the owner to help charter out the aircraft to other customers when the owner will not be using the aircraft. Doing so helps defray the total cost of ownership.
- **Original Equipment Manufacturers.** The aircraft used for business aviation would not exist without the Original Equipment Manufacturers (OEMs). OEMs such as Bombardier, Gulfstream, Embraer, among many others, build the aircraft (or at least parts) used for business aviation aircraft. Many also provide repair services and customization of the aircraft for specific purposes.
- **Airports.** Airports provide support and services to business aviation, whether they are large NAS airports close to major business centers or smaller airports, allowing companies to access more remote locations. Airport infrastructure (e.g., runways) is instrumental in the supporting business aviation.
- **NavCanada.** NavCanada is Canada's Air Navigation Service Provider. They provide support and services to business aviation through air traffic control, flight information and other aeronautical information (such as airspace and safety procedures). NavCanada reflects the importance of its stakeholders through their Board of Directors, which has one seat chosen by the CBAA.

² Canadian Business Aviation Association Membership Data and InterVISTAS Consulting research

³ Aerospace Industries Association of Canada

CASE STUDY

Vins Plastics: Competing for U.S. Customers

In order to close sales in an increasingly competitive market, Jamie Vins and his marketing team fly to meet clients spread across the Eastern and Central U.S. to sell customised flexible plastic products. “Video and phone don’t help close the deal,” says Vins, the President and CEO of Vins Plastics Limited.

Based in a Bradford, Ontario north of Toronto, the second generation family-owned business competes with firms from Asia, the U.S., and Europe to sell its packaging materials. The company has over 75 employees, its own R&D lab, and produces its packaging product in Ontario at a time when Ontario’s manufacturing sector is shrinking. Many employees have been with the company for over 15 years. Selling into the U.S. market is critical for maintaining its workforce and keeping its unit costs down.

Selling high end packaging materials for medical products is the most competitive market the company is in. These are technical packages designed for specific products. “Time is of the essence for our pharmaceutical customers and we can react quickly with a business aircraft,” says Vins. His marketing team makes approximately eight flights per month primarily to U.S. clients in New Jersey, Illinois and Texas. The company’s Embraer Phenom 100 carries two to three sales and engineering staff for these meetings, plus all the samples and other materials needed to demonstrate their capabilities and close a sale. The speed and responsiveness of aviation is critical to the success of this Canadian manufacturer, especially when faced with Asian competitors.

The company’s aircraft is based at Simcoe Regional Airport, and is also available for charters “to help recoup costs.” The aircraft therefore operates under CARS 604 and 704 regulations.



2 Canadian Business Aviation by the Numbers

2.1 Introduction

The number of aircraft used for business purposes is growing. In a 2013 report, using data from JETNET,⁴ NEXA Advisors reported that there were over 33,000 fixed-wing business aircraft around the world, with approximately 19,300 jets and 13,700 turboprops. The majority (nearly 21,200) were in North America, where the total number had increased on an annual basis by 2.4% (compounded) since 2004.⁵

Because of limitations in the type, amount, and quality of data available from Transport Canada, it is not possible to give definitive statistics on the number of business aircraft registered and operated in Canada over time, or the number of hours flown by Canadian business aircraft. NavCanada has limited data on business aviation movements relative to total movements in Canada

2.2 Data Limitations in Canada

Data on current business aviation in Canada is limited when compared to the breadth of data available for its counterparts in the United States and Europe. In the United States, for example, data on total hours flown for business aviation is readily available, and at a detailed level. Traffic data is also available on a monthly basis for business aviation in Europe. There are no dedicated databases to business aviation in Canada, and as such, much of the data used in this publication is estimated based on available data and industry consultation. Efforts have been made in the past to increase data collection, but the programs introduced have not been successful, partly due to the use of voluntary submission. The lack of data inhibits the government's ability to understand the breadth, activities, and significance of business aviation. The CBAA is currently leading an effort to collect some data from its membership to help inform about business aviation activity in Canada.

2.3 Aircraft in Canada

In Canada, the total number of registered aircraft has grown since the year 2000 and currently numbers over 36,000.⁶ Of the 36,000 aircraft, it is estimated that approximately 1,900 are business aviation aircraft, including both fixed wing (76%) and rotor aircraft (24%).⁷ These aircraft are spread across Canada, with the majority based in Québec, Alberta, British Columbia and Ontario (see **Figure 2-1**). This is mirrored in **Figure 2-2**, which shows the distribution of CBAA membership across Canada; the membership is concentrated in the provinces/territories with the largest number of registered aircraft.

⁴ JETNET is a provider of data, information and market intelligence on business and commercial aircraft worldwide.

⁵ NEXA Advisors, *Business Aviation and the World's Top Performing Companies*, Part V, Fall 2013, p. 10.

⁶ Transport Canada and Canadian Civil Aircraft Registry, www.tc.gc.ca

⁷ The total fleet is calculated based on the JetNet database provided by the CBAA and additional analysis by Inter VISTAS and the CBAA

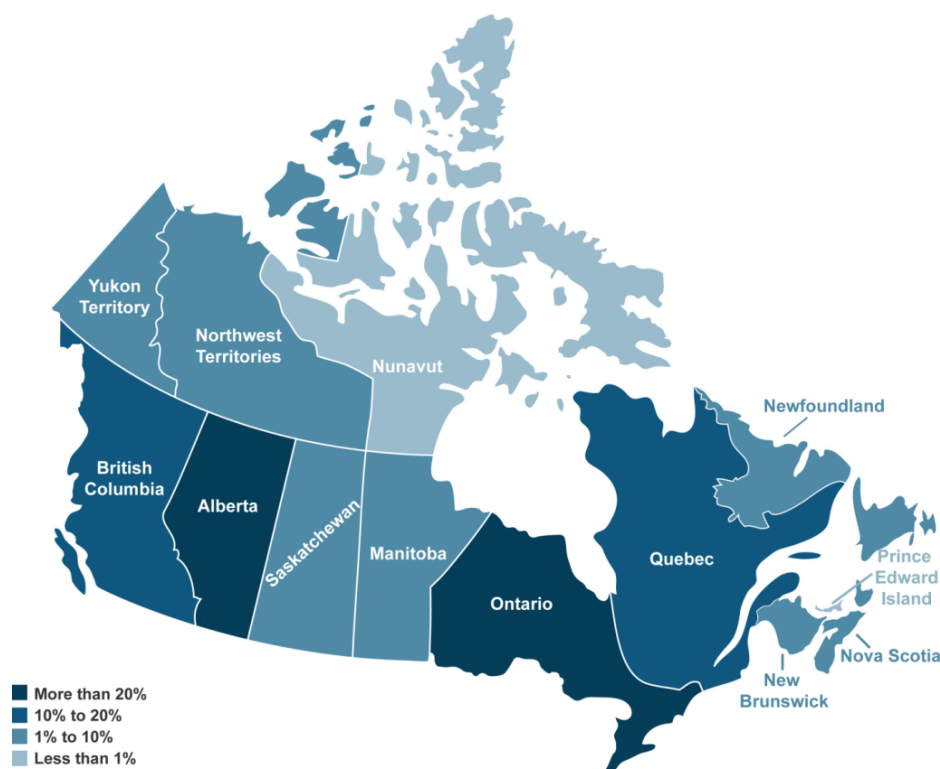
2.4 Changes in Aviation Activities in Canada

If Canada's business and private aviation sectors parallel those in the U.S., then one could estimate that since 2003, approximately 33% of non-scheduled commercial aviation hours are attributable to business aviation.⁸

Broadly speaking, aviation activity closely tracks the health of the national economy. As the economy improves and as fuel prices decrease or stabilize, flight activity increases. As the strength of the economy falters and fuel prices increase, both commercial and private aviation activities slow.

According to NavCanada, between January 2006 and July 2012, aircraft movements in Canada totaled more than 17 million.⁹ This included all itinerant movements (civil and military). In that same time period, there were approximately 3.2 million movements in Canada that were classified as business aviation (18% of the total movements). **Figure 2-3** shows the number of business aviation movements in Canada for each year in the period. Year over year growth showed a trend downwards between 2006 and 2009, which coincides with the global economic downturn that occurred. The largest drop in year over year growth occurred in 2009, with an 8% drop in movements. The economic crisis led many businesses to cut costs, and the drop in movements could be a result of this. Business aviation movements did start to rebound in 2010 and 2011 with positive growth of 3% each year.

Figure 2-1: Distribution of Business Aviation Aircraft Across Canada



Source: InterVISTAS analysis of JetNet data.

⁸ FAA General Aviation and Air Taxi Activity (GAATA) survey, 2012

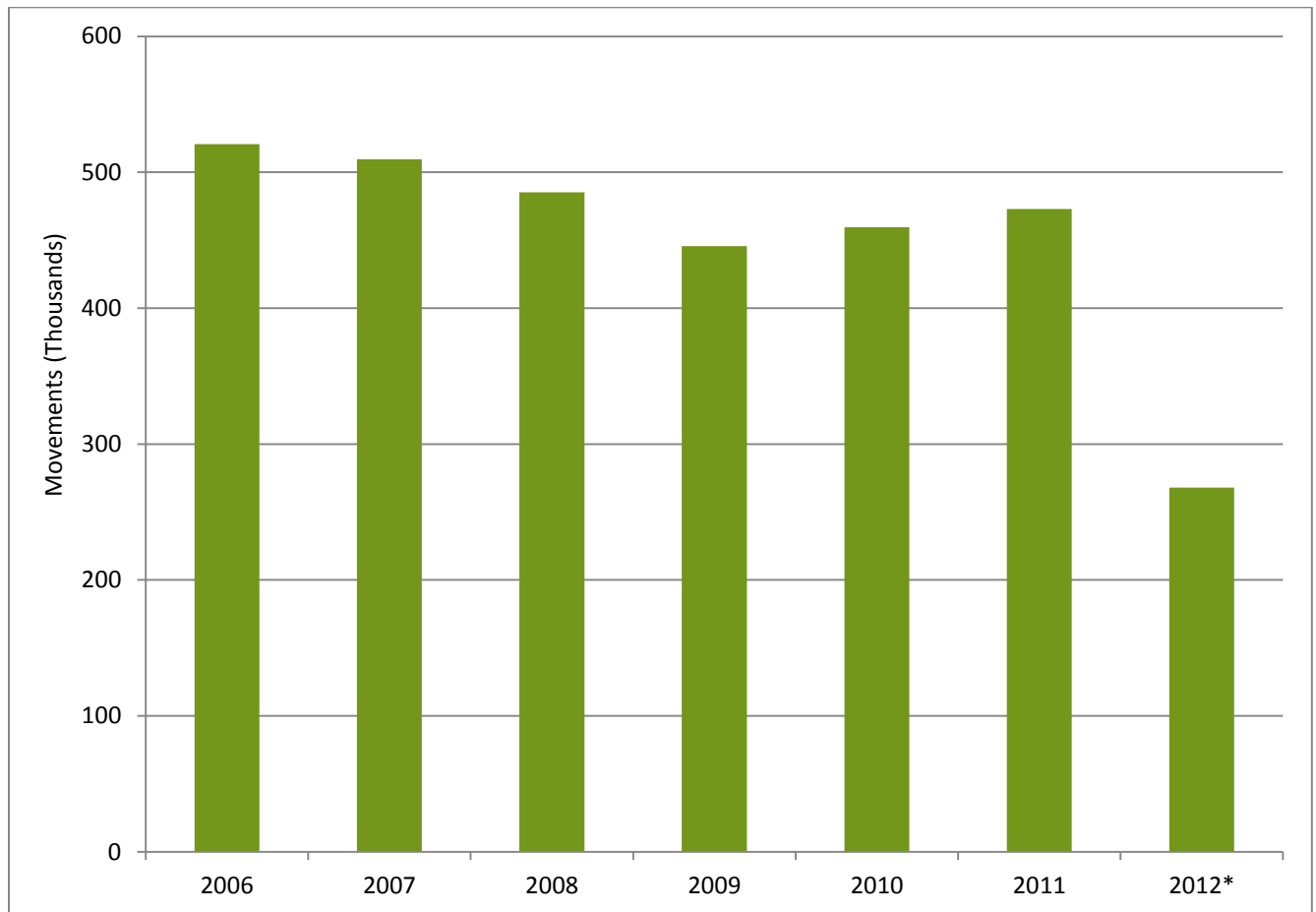
⁹ NAV Canada, Business Aviation Movements. Provided by CBAA. Business aviation was classified by type of aircraft.

Figure 2-2: Geographic Distribution of CBAA Membership



Source: Canadian Business Aviation Association, 2015

Figure 2-3: Business Aviation Movements at Canadian Aerodromes, 2006-2012



Note: Movements for 2012 are for the partial year (January to July)
Source: NAV Canada data provided by CBAA.

CASE STUDY

London Air Services ~ Business & Leisure Charters

The decision to create London Air Services was born in five hours—five hours during which Wynne Powell, then President and CEO of London Drugs, was stranded on the tarmac in Chicago, waiting for an airline to find a crew. Wynne crunched the numbers: though the chairman's meeting he attended lasted only five hours, he had spent three days in flight and layovers. How was that efficient? He set out to create an alternative—a productive, efficient, smart travel alternative which Wynne designed and implemented.

That solution was the creation of London Air Services (LAS), which offers charter air services on high-end aircraft. According to Wynne Powell, now President and CEO of LAS, these services are designed especially for those individuals affected by “time poverty.” In too many cases, the crunch of business travel needs simply do not correspond to commercial airline schedules. Site visits that might take multiple days can be completed in a single day with business aircraft. And deals that need to be made now won't need to depend on commercial flights and the uncertainty of their delays.

The LAS fleet now includes five Bombardier Learjet 75s, three Bombardier Challenger 605 jets and three AgustaWestland AW139 helicopters. The Learjets can carry up to 9 passengers and have a range of approximately 2,000 nautical miles. The Challenger 605s – which has a capacity of up to 12 passengers and a range of 4,600 statute miles -- are deployed on long-range trips. LAS also has a Bombardier Global 7000 business jet on order, due to arrive in 2017. That aircraft can carry up to 17 passengers a distance of 7,300 nautical miles. The AW139s can carry up to 14 passengers. It has a maximum speed of nearly 200 knots with the regular flying at 160 knots. With a landing area of only about 100 feet radius, it can land in many locations that are otherwise inaccessible.

LAS operations directly support Canada's tourism and entertainment industries. London Air Service specializes in travel for the film, forest and mining industries, which are important elements of the British Columbia economy. LAS knows that the industry's busy schedule can change quickly, so it is ready to fly at a moment's notice. Its helicopters can also move crew to remote film or industrial sites that are not reachable by road.

Those rotorcraft are invaluable for real estate and property developers. Rather than struggling to remote locations on commercial flights, slow ferries and long road trips, LAS aircraft can carry those professionals to locations quickly and efficiently, and offer them an airborne perspective on site attributes, conditions, and qualities.

CASE STUDY

London Air Services ~ Business & Leisure Charters

One of LAS' sister companies is the luxury Sonora Resort, on Sonora Island, BC. The resort was voted a top resort in two categories – 5th for Best Luxury Hotel in Canada, and 6th for Best Hotel in Canada, by Trip Advisor's Travelers' Choice 2014 Awards. LAS' AW139s are often used to fly passengers to and from the resort, a short 50-minute flight from Vancouver International Airport. The resort is not accessible by highway, so LAS plays a critical role in bringing visitors and guests to the facility. It's safe to say that all of the employment and activity supported by the resort depend in no small measure on LAS.

View of the Sonora Resort, which depends on service from LAS



3 Business Aviation: Economic Impact

3.1 Introduction

Business aviation supports both the local economies where the aircraft are based, and the Canadian economy as a whole. The importance of the industry is highlighted by both the employment/wage impacts and the impacts on the greater economy (through both Gross Domestic Product (GDP) and Economic Output). Economic impact methodology is a common tool used to quantify these types of impacts.

The three major components of economic impact are direct, indirect, and induced impacts. These distinctions are used as a base for the estimation of total economic impact of an industry. Each of these three components requires different tools of analysis. Employment impact analysis determines the economic impact in terms of employment created and salaries and wages paid out. In the case of business aviation, the direct, indirect, induced, and total numbers of person years created from business aviation are examined to produce a snapshot of the industry.

The total national economic impact of business aviation in Canada is similar to that of Vancouver International Airport's or the Port of Montreal's direct employment impact.

- **Direct impacts** account for the economic activity of the target sector itself. It is employment that can be attributed to the operation and management of business aircraft, including pilots, engineers and dispatchers among others. Thus, the direct employment base includes employees of aviation departments of organizations, fixed base operators, aircraft maintenance, among others, directly working with business aircraft in Canada.
- **Indirect impacts** are those that result because of the direct impacts. It is employment in down-stream industries that results from the presence of business aviation. For example, aircraft manufacturers, such as Bombardier, would be considered indirect employment. Indirect employment is generated in industries that supply or provide services to business aviation.
- **Induced impacts** are economic impacts created by the spending of wages, salaries, and profits earned in the course of the direct and indirect economic activities. Induced employment impacts are generated from expenditure by individuals employed indirectly or directly. For example, if a pilot decides to expand or re-model his/her home, this would result in additional (induced) employment hours in the general economy. The home renovation project would support hours of induced employment in the construction industry, the construction materials industry, etc.
- **Total impacts** are the sum of direct, indirect, and induced effects.

Business Aviation in Canada supports:

- 11,500 direct person years
- \$810 million in direct wages
- \$1.3 billion in direct GDP
- \$3.2 billion in direct economic output

To calculate the direct impacts related to business aviation in Canada, InterVISTAS used a variety of sources to first compute the total size of the business aviation fleet in Canada, and then estimate the

employment associated with each business aircraft in Canada. The related employment was estimated using a piece-wise methodology, from the flight crew who work directly with the planes to the support staff at FBOs and other airport support.

3.2 Direct, Indirect and Induced Employment and Wages

Every aircraft in Canada used for business aviation has associated employment to support its operations. The operation of the aircraft will require pilots, dispatchers, engineers, fueling services and maintenance among others to support the operation of the aircraft. The direct employment related to business aviation will also include some support overhead labour (e.g., administrative and clerical staff). The direct impacts of business aviation are largely related to the operations and servicing of the business aircraft.

The methodology used to estimate the direct employment related to business aviation aircraft was to build the employment from the ground up by estimating the amount of employment that directly contribute to the operations and service each aircraft. Based on data provided by the JetNet database, the volume of business aircraft in each Canadian Province and Territory is available. *It is estimated that there are 1,891 business aviation aircraft in Canada, of which 1,436 are fixed wing and 455 are rotary aircraft.*

- First, through data collected from the various case study interviews with business aircraft users, an estimate of the number of pilots, dispatchers and in-house engineering were estimated on a per business aircraft basis. *This results in approximately 1.9 person years of employment per aircraft.*
- Second, using data that was collected via a survey of FBOs across Canada, we were able to gain a better understanding of the ratio of activity at FBOs related to business aviation versus general aviation. It was found that the large majority of activities at FBOs in Canada are related to servicing business aviation clients. An estimate of FBO employment per business aircraft is generated. *This results in approximately 1.2 person years of employment per aircraft.*
- Third, an estimate of other external airport support for business aviation aircraft in the area of maintenance and other support activities is also considered on a per aircraft basis. This employment ratio per business aviation aircraft is based on a review of past InterVISTAS studies as well as economic impact studies prepared by other consultants. *This results in approximately 2.5 person years of employment per aircraft.*
- Finally, an estimate of other external support services (e.g., hotel and taxi use by pilots while aircraft is away from the base) and other airport support is included in the computations. The provision for these services is based on InterVISTAS estimates to ensure support services are taken account in the analysis. *This results in approximately 0.5 person years of employment per aircraft.*
- In total, the estimated amount of direct person years of employment per business aviation aircraft amounts to 6.1.

Figure 3-1 shows a visual representation of the direct employment associated with the operation of one business aviation aircraft.

CASE STUDY

Chartright Aircraft Management Services

Skiesmag.com's September 2014 edition featured an article highlighting Chartright's service.

Chartright was founded in 1987 and now operates 37 aircraft and employs 135 people, including 60 pilots and over 20 employees in maintenance. Altogether, it operates 17 different types of aircraft, ranging from a King Air 100 up to a Bombardier Global 5000, and including a fleet of four AgustaWestland helicopters. The company flies from locations in Toronto (the headquarters), Chatham, and Timmons, Ont.; Regina, Sask; Calgary, Alta; and Vancouver, B.C.

The satellite bases in smaller locations like Chatham, Ont., are indicators of the spread of business aviation and needs. Although many people associate business aviation with large metropolitan areas like Toronto and Vancouver, there are still many people who own and operate business aircraft who are located in smaller communities.

Chartright is a leading provider of air charter in Canada. About 90 percent of the Chartright fleet is available for charter. Chartright handles charters separate from sales, in recognition of the fact that charter clients have different needs and requirements than those of aircraft owners. About 40% of the total hours flown by Chartright in FY 2014 were charter, with most of those trips going to the U.S. and another 20% to other international destinations.

The range of aircraft types allows Chartright to meet a wide diversity of client needs, flying to airports that range from 3,500 foot gravel strips in the wilderness to international airports in China and everywhere in-between. The diversity of aircraft available means that the company can meet almost any client need in terms of passenger capacity, operating range, and budget.

Chartright's aircraft management services also provide plane owners with flexibility and the comfort of knowing that their aircraft is being cared for in a professional manner. Chartright handles the insurance, hangars, pilots, training, and regulatory oversight. Clients can go on their aircraft when they need to and let Chartright manage the rest. They take the complexity out of the business and create a seamless, simple process for their clients.

Chartright offers safe, available, and effective air charter and private jet transportation. Business aviation creates opportunities.

CASE STUDY

Kelly Panteluk Construction Ltd.: Building the Company through the Help of Business Aviation

Kelly Panteluk is a second generation construction company owner. Based in Saskatchewan, Kelly Panteluk Construction Ltd. (KPCL), is one of the largest privately owned businesses that provides heavy equipment earth moving and underground services in Saskatchewan. The company was established in 1953 by Kelly Panteluk's father, who bought his first aircraft, a Cesna 206, in 1966. The Cesna 206 was used to get to places easily and support business operations, such as moving equipment and even, delivering paycheques to staff.

Over the last 60 years, KPCL has grown into a reputable firm in the industry, moving over 6 million cubic meters of construction material each year with more than 150 pieces of heavy construction equipment and 200 experienced staff. The business has also expanded beyond Saskatchewan to job sites in Alberta, Manitoba and B.C. Likewise, the company's aircraft fleet has also grown with the purchase of additional aircraft with more range and increased capabilities. As the company base broadened and annual business revenues increased, so did the requirements for business aviation aircraft. According to Mr. Panteluk, "it would be impossible to build the company to the size that it is today without business aviation."

Coming from a "flying family", Mr. Panteluk, who attended flying school in Saskatchewan, has always understood the advantages of owning his own aircraft and the benefits this brings to his company. With his own aircraft, currently a Citation Bravo, he is able to visit multiple sites in a day, which allows him to coordinate with employees better and have more personal interactions with clients and owners.

Furthermore, business aviation has enabled Mr. Panteluk to do business quicker and farther away from the company's home base. Operating out of a small community in Estevan, Saskatchewan with no commercial service, it would take Mr. Panteluk approximately two hours to drive to a commercial airport from his home. However, as a business owner and pilot with his own aircraft he is able to get in the air and to his job sites quicker, increasing efficiencies and accessibility.

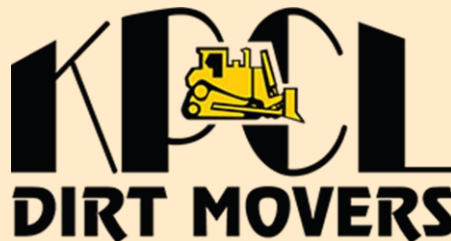
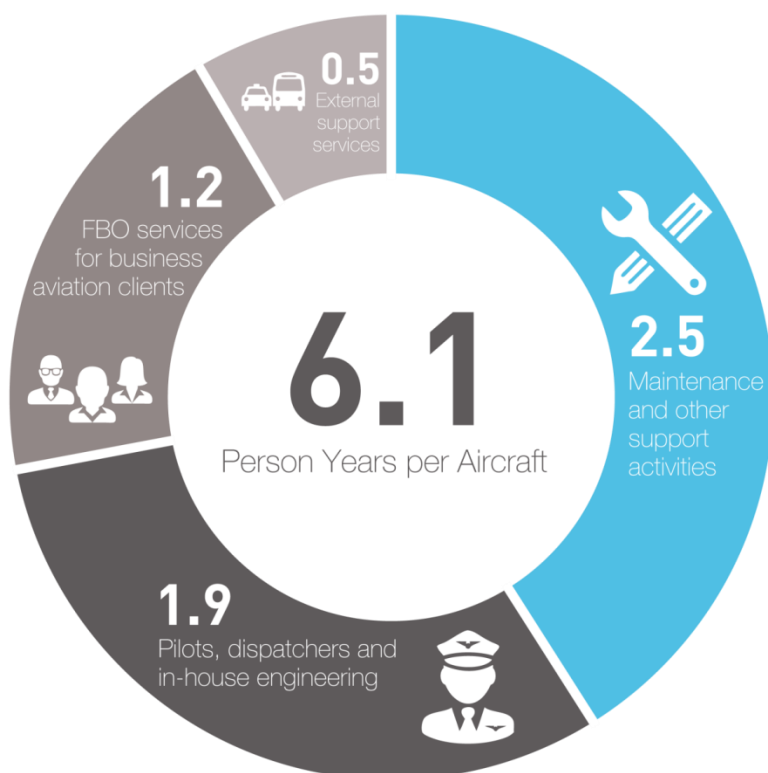


Figure 3-1: Direct Employment per Business Aviation Aircraft, Ongoing Operations Per Annum



As a result, direct employment related to business aviation in Canada amounts to approximately 11,500 person years or Full-Time Equivalents (FTEs).¹⁰ These employees earn approximately \$810 million in wages, yielding an average of \$70,400 per person year of employment. This compares to an average annual wage in Canada of \$48,600 across all industries, and is roughly in the same ranges as jobs in trades, transport and equipment operators and related occupations in Canada.¹¹ Employment figures are summarised in **Table 3-1** for wages as well as person years.

Table 3-1: Direct Employment and Wages from Business Aviation in Canada

Type of Impact	Employment (Person Years)	Wages (\$ Millions)
Direct Impacts	11,500	\$810

¹⁰ One full time equivalent (FTE) year of employment is equivalent to the number of hours that an individual would work on a full time basis for one year. In this study we have calculated one full time equivalent year to be equivalent to 1,832 hours. Full time equivalent years are useful because part time and seasonal workers do not account for one full time job.

¹¹ Statistics Canada, CANSIM, Table 281-0027, Earnings, average weekly, by province and territory, 2014, calculated for annual earnings.

Indirect impacts include employment in industries that supply or provide services to the business aviation industry. Using national employment impact multipliers, it is estimated that there are nearly 8,000 person years of indirect employment associated with business aviation in Canada. The source of the multipliers and ratios was Statistics Canada's Interprovincial Input-Output Model.¹² This total suggests that close to 8,000 person years of employment are indirectly generated in industries across Canada that supplies the business aviation community. Aircraft manufacturing is considered to be a component of the indirect impact of business aviation, which includes employment at Bombardier that manufactures business aviation aircraft.¹³ While not all of the jobs and wages from Bombardier are related to business aviation in Canada, there are still a sizable number of jobs related to this supplier and industry. Labour income associated with the total indirect employment is estimated at \$520 million per annum.

Induced employment is somewhat more complicated than indirect employment. Induced employment is employment created because of expenditures by individuals employed both directly and indirectly by businesses directly related to Canada's business aviation industry. It represents the demand for goods and services generated by wage earnings from economic activity directly and indirectly related to business aviation in Canada. Using national employment impact multipliers, induced employment attributable to business aviation in Canada is estimated at 4,000 person years. Induced employment is associated with a wages amounting to \$220 million per annum.

Table 3-2 summarises the direct, indirect, induced and total employment associated with business aviation in Canada.

Table 3-2: Direct Employment and Wages from Business Aviation in Canada

Type of Impact	Employment (Person Years)	Wages (\$ Millions)
Direct Impacts	11,500	\$810
Indirect Impacts ¹⁴	8,000	\$520
Induced Impacts ¹⁵	4,000	\$220
Total Impacts	23,500	\$1,550

Source: InterVISTAS analysis using multipliers and ratios from Statistics Canada Interprovincial Input-Output Model

¹² The multipliers used for the analysis are based on Statistics Canada economic multipliers and ratios for Canada from the Interprovincial Input-Output model, the most recent available. These multipliers were updated with Consumer Price Indices to account for inflation.

¹³ As a point of comparison, Bombardier's entire aviation division employs over 22,000 in Canada. A portion of this employment makes up a portion of the indirect employment impact of business aviation in Canada. Source: Bombardier Country Brochure, "Canada's Bombardier 2014"

¹⁴ Multiplier impacts must be interpreted with caution since they may be illusory when the economy experiences high employment and output near industry capacity. When they are reported, it is recommended that the reader be reminded of the limitations on the use of multipliers. Mindful of these limitations, this study has undertaken multiplier analysis to estimate indirect and induced employment.

¹⁵ Ibid.

To put these impacts into context, the total impacts associated with business aviation in Canada are similar to the impacts of the Vancouver International Airport and greater than airports such as Edmonton International Airport. The impacts are also greater than Canadian ports such as Halifax and similar (though larger) to the Port of Montreal.¹⁶ Business aviation has a sizable impact on the Canadian economy.

3.3 GDP and Output

The two most common measures of economic contribution (in addition to employment) are *gross domestic product* (GDP) and *economic output*. Economic output roughly corresponds to the gross revenues of goods or services produced by an economic sector, while GDP measures only *value-added* revenues. As such, GDP removes the revenues to suppliers of *intermediate* goods and services and only includes the revenue from value-added production. Alternatively, economic output adds all revenues at each stage of production together as a measure of total production in the economy. Economic output will always be greater than GDP (also termed value-added).

To estimate economic output for a sector, one might add up the gross revenues of the various firms in that sector. However, to find GDP for a sector, care must be taken to avoid double-counting. The revenues of one firm providing service to another are not incremental GDP. For example, in the automobile sector, one cannot add the value (gross revenue) of a finished auto to the value of the tires. The tires are already included in the value of the automobile.

One approach to measuring economic output and value-added is to ask firms in a survey to provide information on their gross revenues, payments to suppliers, etc. However, there are several problems with the approach. First, it is much too expensive to capture all of this information in a survey. Second, the double counting problem makes this approach impractical.

An alternative is to infer economic output and GDP for an economic sector from employment data using economic multipliers. Statistics Canada produces economic multipliers for Canada, and these are more cost effective and more accurate than obtaining the data from surveys. This method, using Statistics Canada economic multipliers and ratios for Canada, is the approach adopted here.

The direct employment from business aviation in Canada generates \$1.3 billion in direct GDP and \$3.2 billion in direct economic output in the economy. Including multiplier effects, the industry supports \$2.6 billion in total (direct, indirect and induced) GDP and \$5.5 billion in total economic output, economy-wide in Canada. **Table 3-3** provides economic output and GDP impacts related to business aviation in Canada the national economy.

The total national GDP impact of business aviation in Canada is roughly the same magnitude as the total GDP impact of Vancouver International Airport.

¹⁶ Sourced from airport and port websites.

Table 3-3: Direct and Total GDP and Economic Output from Business Aviation in Canada

Type of Impact	GDP (\$ Billions)	Economic Output (\$ Billions)
Direct Impacts	\$1.3	\$3.2
Indirect Impacts	\$0.8	\$1.5
Induced Impacts	\$0.5	\$0.8
Total Impacts	\$2.6	\$5.5

Source: InterVISTAS analysis using multipliers and ratios from Statistics Canada Interprovincial Input-Output Model

3.4 Economic Impacts per Business Aviation Aircraft

Each business aviation aircraft contributes significantly to the economy. As mentioned previously, each aircraft *directly* generates 6.1 person years, earning approximately \$430,000 in wages. This contributes \$700,000 in *direct* GDP and \$1.7 million in *direct* economic output to the Canadian economy. Including multiplier impacts, operations of a single business aviation aircraft support labour hours for a *total* of 12.4 person years, earning \$820,000 in wages annually. Furthermore, the *total* GDP contribution of one business aviation aircraft is estimated at \$1.4 million in GDP, while the *total economic output* is measured at \$2.9 million. The direct and total economic impacts per business aviation aircraft are provided in **Figure 3-2** and **Figure 3-3**, respectively.

Figure 3-2:
Direct Economic Impacts of 1 Business Aviation Aircraft's Ongoing Operations Per Annum

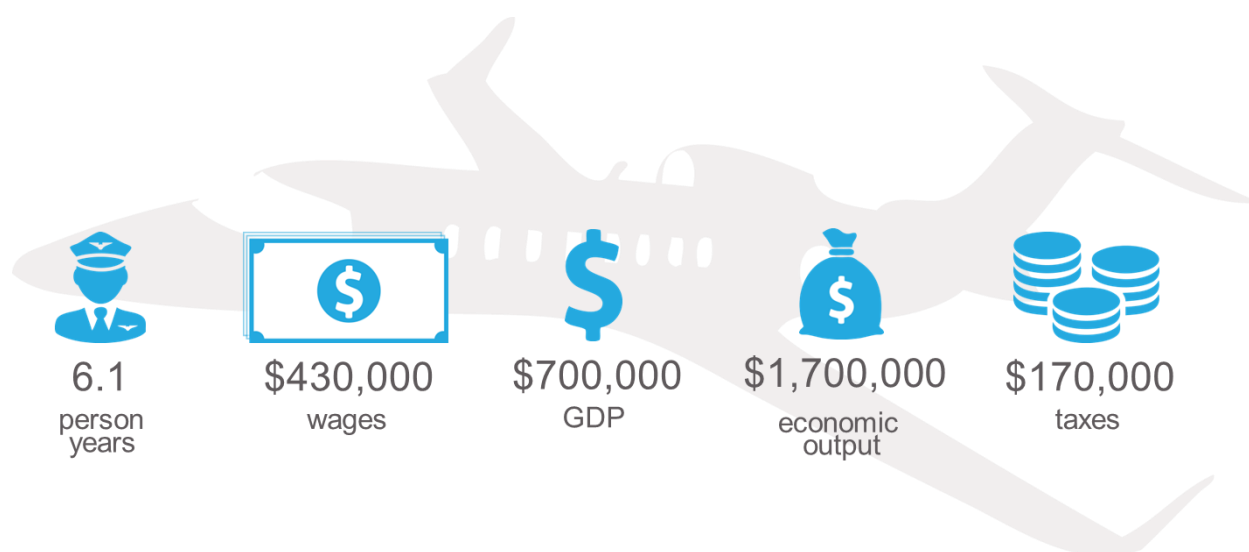
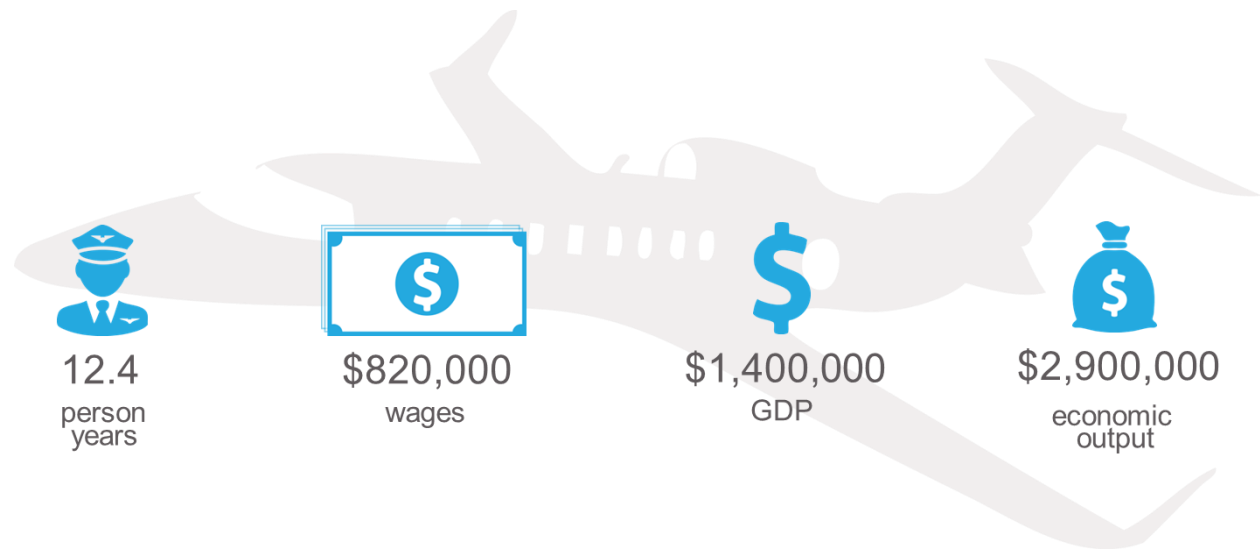


Figure 3-3:
Total Economic Impacts of 1 Business Aviation Aircraft's Ongoing Operations Per Annum



3.5 Economic Impacts by Province/Territory

The economic impact of business aviation is also calculated for each of the provinces/territories in Canada. **Table 3-4** provides the direct employment, wages, GDP and economic output impacts by province/territory.

Table 3-4: Direct Employment, Wages, GDP and Economic Output by Province/Territory

Province/Territory	Number of Based Aircraft	Employment (Person Years)	Wages (\$ Millions)	GDP (\$ Millions)	Economic Output (\$ Millions)
Ontario	504	3,080	220	390	970
Alberta	419	2,560	210	320	760
Quebec	364	2,220	130	260	570
British Columbia	288	1,760	120	160	350
Manitoba	93	570	30	50	100
Saskatchewan	69	420	30	40	110
Northwest Territories	45	270	20	40	130
Newfoundland and Labrador	28	170	10	20	40
Nova Scotia	23	140	10	10	30
Yukon	22	130	10	20	50
New Brunswick	21	130	10	10	30
Nunavut	12	70	10	20	50
PEI	3	20	1	2	10
Total Canada	1,891	11,500	810	1,340	3,190

CASE STUDY

Innotech-ExECAire – Support Business Aviation in Canada for 60 Years

The Innotech – ExECAire Aviation Group forms a key part of the historic foundations of Canadian corporate aviation. In 2015, Innotech will celebrate its 60th year in business, and ExECAire is only 5 years younger. Over those many decades, the company has evolved and adjusted to changing national and global economic conditions. By successfully navigating those challenges, the company has directly and indirectly affected literally thousands of people across Canada and around the world, whether as employees or as clients or other beneficiaries of the services provided. Today, the companies employ nearly 900 highly skilled people across Canada, from Halifax to Vancouver. The companies' operations touch every corner of the globe.

Innotech Aviation began service in Montreal in 1955 and has grown today into one of the most modern Maintenance, Completion & Refurbishing centres in North America with over 200,000 square feet of hangar, paint and specialty manufacturing facilities with highly specialized mechanics, technicians, craftspersons, and engineers. It is a Bombardier Authorized Service Facility as well as a Bombardier Preferred Completion Centre and is recognized as a world leading company in the market it serves.

ExECAire is Canada's longest-serving and prestigious corporate aircraft company. It has managed, maintained and operated aircraft for more than half a century, and now manages one of Canada's largest corporate aircraft fleets. The company actively manages approximately 50 aircraft, ranging from turboprops and small business jets to the Bombardier Global Express, capable of flying nonstop on intercontinental routes and reaching anywhere in the world with one stop. ExECAire's pilots, technicians, mechanics, dispatchers, and other skilled staff provide all the aviation "know how" that enables corporate business to grow. The company offers a wide range of aircraft management services, including

- Aircraft Asset Management;
- Aircraft Hangarage & Fuel Sales;
- Flight Operations, Dispatch & Reservation Services;
- Flight Crew Training;
- Catering and Ground Transportation Arrangements;
- Aircraft Maintenance & Maintenance Planning; and
- Other Technical Services.

CASE STUDY

Innotech-ExECAIRE – Support Business Aviation in Canada for 60 years...continued

With its highly trained staff and decades of experience, the company can provide “turn key” aircraft management services to meet varying client needs and sustain operations – no matter what unexpected event might arise. As of 2013, ExECAIRE’s aircraft have accumulated more than 250,000 flight hours, and flown in excess of 100,000,000 miles worldwide, all while maintaining an industry leading safety record. This track record assures clients that it can sustainably and reliably serve them on a 24/7 basis, whether business requires travel not only to destinations in North America, but also to China, Russia, Africa, the Middle East, or South America. That capability allows its corporate clients to manage their companies and complete the deals that drive Canada forward in the competitive global economy.

For its corporate clients, ExECAIRE understands that convenience means more than getting to meetings in out-of-the-way locations. It means more than being able to work on-board in total security and privacy. And it means more than being well-rested and prepared when clients arrive. Convenience by chartering executive aircraft means clients get home sooner, rested and in time to enjoy the important things in life. ExECAIRE understands that business aviation drives the economy in Canada and keeps it competitive worldwide.



3.6 Taxation Impact

Along with contributing to the greater economy, business aviation also contributes to government revenues via taxes. While the government does collect taxes on fuel and other operational fees, due to data availability the taxation impact calculated here focuses on the taxes paid by direct employees and employers in the industry. An estimate of property taxes paid to municipal governments is also provided.

Taxes paid by direct employees and employers include income and payroll taxes, corporate taxes and social insurance contributions (such as the employment insurance premiums) among others. For the most part, this study **estimates** taxes paid from information on the employers and employees in the industry. In a few situations, such as the corporate income tax paid by employers, an approximate method was used to estimate taxes paid. In every case conservative methods were used.

On-going economic activity from business aviation in Canada generated tax revenue contributions to various levels of government, estimated to be in the order of approximately \$315 million.¹⁷ The federal government is the largest recipient of tax revenue, receiving nearly \$216 million, as seen in **Figure 3-4**. The provincial/territorial governments received a tax revenue contribution of nearly \$93 million while the municipal governments received an estimated \$6 million.¹⁸ A breakdown of tax revenue by province/territory is provided in **Table 3-5**.

Annual tax contributions of Business Aviation in Canada:

- \$315 million

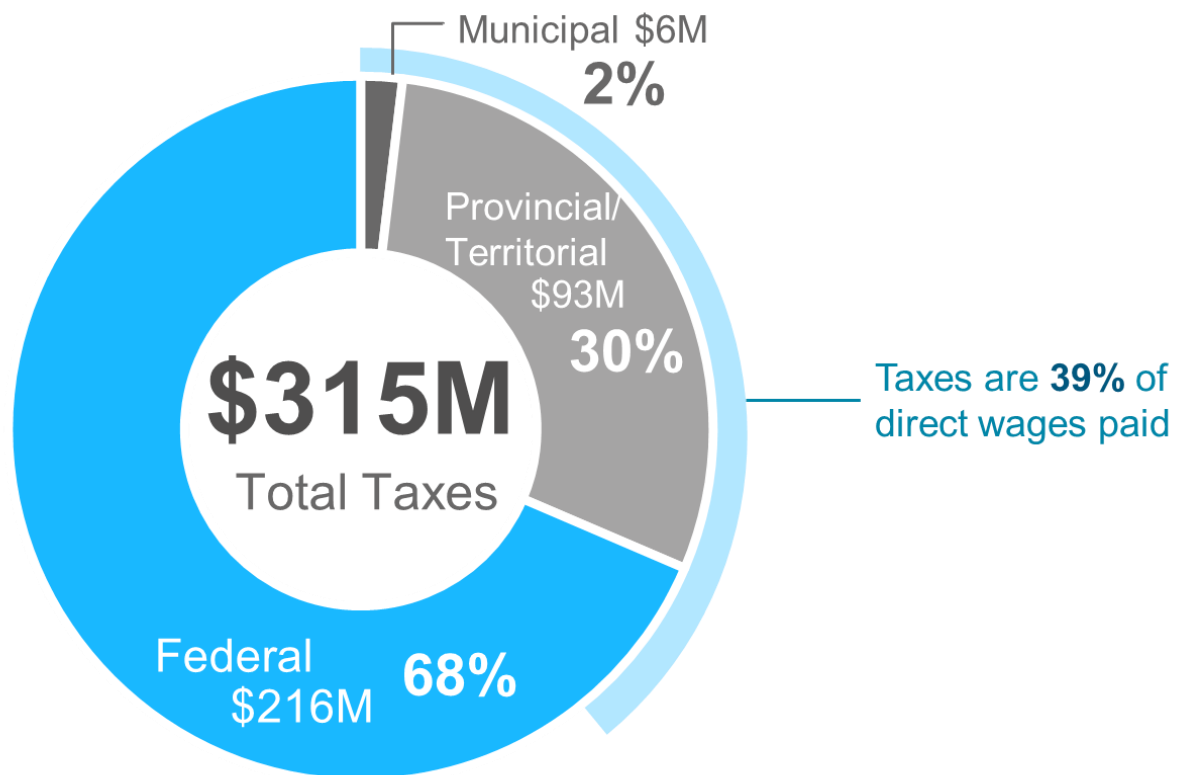
Breakdown by Level of Government:

- \$216 million to the federal government (68%)
- \$93 million to the provincial/territorial government (30%)
- \$6 million to the municipal governments (2%)

¹⁷ Tax impacts are presented in 2015 prices, using 2013 tax rates.

¹⁸ InterVISTAS' estimate based on previous airport economic impact studies.

Figure 3-4: Breakdown of Tax Revenues by Government Level



Source: InterVISTAS analysis.

Note: Tax impacts are presented in 2015 prices, using 2013 tax rates.

CASE STUDY

Aurora Jet Partners: Sharing costs and benefits of business jets

Over the years, Aurora Jet Partners has adapted to meet the needs of Canada's business aviation market. Established in the early 1970s, the firm started as Brooker Wheaton Aviation with a Fixed Base Operation, and several cabin-class piston and turboprop aircraft offering air services mainly to petroleum and express-courier companies. By the early 1990s, the firm had transitioned into exclusively operating aircraft for FedEx Canada nationwide as Morningstar Air Express. In 2007 the company diversified into business aviation again by starting a unique fractional jet ownership model. Four years later, the company had grown from two to seven jets, and, after merging with Opus Aviation (a Ledcor company), re-branded as Aurora Jet Partners. By 2012, the company had expanded to include a full suite of services, including jet management, jet charter, jet cards, and fractional jet shares. Aurora Jet Partners currently operates a fleet of 14 business jets ranging in size from light four-seat Embraer Phenom 100s to a large fourteen-seat Bombardier Global.

Being a fractional aircraft operator and a jet management and charter firm allows Aurora to offer a range of customized private travel solutions to meet the specific travel needs of their clients. They fully serve both the business traveller who may need jet service to a remote destination to tend to their business, and the leisure traveller heading to a vacation property. Aurora Jet Partners' also offers its Aurora Jet Exchange or "AJX". The AJX offers owners or partners on one of their jets the flexibility and convenience of travelling on an entire fleet of various sized jets by simply trading time using their jet's trade factor to exchange flight hours instead of trading cash. This cost pooling arrangement allows participants to reduce overall costs by sharing ownership and operating expenses on one jet while enjoying all the benefits of guaranteed on-demand service on an entire fleet of jets.

Aurora Jet Partners is also a very dynamic workplace. For example, steady growth from two to fourteen jets over the past seven years has generated relatively fast career progression for their growing roster of 46 pilots. Aurora's pilots enjoy operating state of the art jets, for interesting clients, to multiple cities throughout North America and the world.

With an increasing number of business jets currently based in Vancouver, Edmonton, Regina and Toronto, Aurora Jet Partners continues to adapt to the changing needs of Canada's aviation marketplace.



Table 3-5: Federal and Provincial/Territorial Tax Impacts by Province/Territory

Province/Territory	Federal Taxes (\$ Millions)	Provincial/Territorial Taxes (\$ Millions)	Municipal Taxes (\$ Millions)	Total Taxes (\$ Millions)
Ontario	\$57	\$23	\$1.7	\$81
Alberta	\$53	\$20	\$1.5	\$75
Quebec	\$36	\$22	\$1.2	\$59
British Columbia	\$31	\$11	\$0.9	\$43
Manitoba	\$9	\$4	\$0.3	\$13
Saskatchewan	\$8	\$3	\$0.2	\$11
Northwest Territories	\$6	\$3	\$0.2	\$10
Newfoundland and Labrador	\$5	\$1	\$0.1	\$6
Nova Scotia	\$4	\$2	\$0.1	\$5
Yukon	\$3	\$1	\$0.1	\$5
New Brunswick	\$2	\$1	\$0.1	\$4
Nunavut	\$2	\$1	\$0.1	\$3
Prince Edward Island	\$0.27	\$0.13	\$0.01	\$1
Canada Total	\$216	\$93	\$6	\$315

Source: InterVISTAS analysis.

CASE STUDY

Flight Safety International Inc.: Ensuring safety is a main priority

Flight Safety International provides high-quality professional aviation training and operates advanced-technology full flight simulation systems. As “the best safety device in any aircraft is a well-trained crew,” each of Flight Safety International’s training courses focuses on enhancing safety. Safety is naturally the main priority of all business aviation flights. Furthermore, training is of utmost importance to business owners as it is a form of protecting the investment of their aircraft. Flight Safety International’s comprehensive training ensures business aviation professionals achieve proficiency beyond basic instruction, enabling professionals to reach their destinations safely and efficiently.

With 42 centres across the globe, Flight Safety International is a trusted world leader and employs 4,500 instructors worldwide, 250 of which are based in Canada. The main core training for business aviation pilots occurs in the U.S., with basic training typically delivered in Vero Beach, Florida, where Flight Safety International was founded. The flight simulators in Canada, over 300 in number, are located in Montréal and Toronto, where pilots are able to develop their skills by being on a “real airplane” via a simulator and gain the competencies needed to face any circumstance. Approximately 95% of training occurs in Flight Safety International’s Learning Centres, with the remaining 1% occurring in the actual aircraft in flight.

With the largest fleet of simulators worldwide, more than 800 flight simulators and advanced training devices, Flight Safety International continually invests in technology. This is especially important in ensuring top-quality training and the highest level of safety in a dynamic industry. The firm works together with aircraft manufacturing companies worldwide to gain a better understanding of the different types of current and next generation aircraft, and to negotiate when and where simulators are to be built.

Flight Safety International offers a wide range of services to corporate clients. Military personnel and individual, leisure pilots are also able to avail of the different training courses delivered by Flight Safety International. Training courses are also offered for technicians, flight attendants and dispatchers. In addition, training is also provided on simulators for twin-engine and single-engine helicopters. Courses are offered either once per year or twice per year, depending on the fleet and demand. Each of Flight Safety International’s 3,500 courses is approved by Transport Canada, the U.S. Federal Aviation Association or other international organizations.



3.7 Catalytic Impact

Catalytic impacts refer to air transport's role in facilitating the effective business of other sectors of the economy.¹⁹ The impacts can include:

- **Trade.** Although air cargo accounts for 0.5% of the volume of global trade shipments, it accounts for over 35% by value, meaning that air cargo is high value, often times perishable or time-sensitive.²⁰ Air transport connects businesses to a wide range of global markets, providing a significantly larger customer base for their products than would be accessible otherwise. It is particularly important for high-tech and knowledge-based sectors, and suppliers of time-sensitive goods.
- **Investment.** A key factor many companies take into account when making decisions about the location of offices, manufacturing plants or warehouses is proximity of an airport. Locating near an airport can save crucial time and increased potential for delays that come with having to rely on scheduled air service and its hub-and-spoke system, often requiring connections and subject to various system delays and cancellations.
- **Productivity.** Air transportation offers access to new markets which in turn enables businesses to achieve greater economies of scale and to reduce unit costs. Business aviation helps companies get their employees to multiple destinations in a single day and still get home at night, preserving some work-life balance while increasing productivity. This helps companies attract and retain talented employees.
 - Because business aircraft can reach communities that may be far removed from commercial air service, employees gain considerable time saving in being able to directly access small and remote locations. In addition, business aviation gives passengers an ability to reach multiple remote locations in a single day.
 - Depending on the business's needs, the aircraft can deliver equipment, engineers, maintenance and repair staff, or other technical personnel to locations so that a good or service can be maintained or restored.
- **Enhance Supply Chain Performance.** For businesses that are not located near commercial airports, general aviation is the means by which time sensitive products can reach international gateways for distribution, and are the means by which sales, finance, marketing and technical personnel can access intercontinental air services.
- **Sustaining Small Communities and Regional Economies.** This not only enhances businesses' overall supply chain productivity, but also enables and sustains economic activity at small and remote communities. Similarly, it helps sustain the quality of life in those areas as well, particularly in situations where the air service helps maintain vital links in the delivery of health care.

¹⁹ Catalytic impacts can also be estimated for other modes of transport – rail, marine, road, etc.

²⁰ Air Transport Action Group: <http://www.atag.org>



Hope Air (<http://www.hopeair.ca/>) is the only Canadian registered, national charity that provides free flights to people who cannot afford the cost of an airline ticket to get to medical expertise or specialized medical technologies that usually exist only in larger urban centres. Hope Air's corporate partners are examples of how business aviation also assists individuals and communities with vital health-related air transport.²¹

General aviation also assists communities and regions by flying missions for humanitarian purposes. Business aircraft are uniquely suited to providing a first response to natural disasters and other crises because they can operate on short notice into outlying airports with small and sometimes unpaved runways, or even onto roads, that are inaccessible to airliners or automobiles.

Business Aviation Contributes to Improved Corporate Performance and Broad Economic Strength

According to NEXA Capital, business aviation drives overall enterprise value in ways that ripple through the corporation to shareholders and thus to the overall economy.²² Among the largest corporations, business aircraft users outperformed nonusers in several important financial measures. Between 2003 and 2007:

- Average annual revenue growth on a market cap-weighted basis was 116 percent higher for users (6 percent unweighted)
- Average annual earnings growth was 434 percent higher for users (253 percent unweighted)
- Average annual EBIT growth was 81 percent higher for users (54 percent unweighted)
- Average annual EBITDA growth was 32 percent higher for users (minus 10 percent unweighted).

Among small and medium-sized corporations, the results were similar: Business aircraft users outperformed nonusers in several important financial measures:²³

- Business aviation users were more successful at returning value to shareholders, with Total Return (stock price appreciation + dividends) that was 245 percent higher than that of nonusers.
- Operationally, users generated more income based on productivity and efficiency, outperforming in both EBITDA and Earnings (230 percent and 219 percent higher, respectively).
- By maximizing output from their resources, users were able to provide superior Return on Assets, Return on Equity, and Asset Turnover (70 percent, 40 percent, and 21 percent higher, respectively).
- Users were able to tap more new business opportunities, with 22 percent higher average revenue growth.
- Investors rewarded the users for their business success. Market capitalization growth for users was 11 percent higher than nonusers.

²¹ See <http://hopeair.ca/supporters/Corporations.aspx> for more information on the corporations and foundations that support Hope Air.

²² NEXA Capital Advisors, Business Aviation: An Enterprise Value Perspective, The S&P 500 From 2003-2009, Part I Fall 2009, p. 2.

²³ NEXA Capital Advisors, Business Aviation: An Enterprise Value Perspective, The S&P Small Cap 600 Companies From 2005-2010, Part II Fall 2010, p. 3.

CASE STUDY

Business aviation means greater productivity and more effective customer contacts

Imagine a situation in which a company is based in Toronto but has facilities and customers spread across the country. On a regular basis, the company needs to make visits to its production locations and to key customers. The choice is between flying with commercial airlines and using rental cars to get to outlying locations, or using business aircraft. The two choices present very different logistical options, which are summarized in the table below.¹

In this case, suppose that the locations and customers to be visited are in Manitoba, Saskatchewan and Alberta.

Option 1: Itinerary using commercial air service

Location	Time	Day	Event
Toronto	6:30 a.m.	1	Flight departs Toronto Pearson Int'l Airport
	8:05 a.m.		Arrives Winnipeg
Winnipeg	9:00 a.m.		Meeting in Winnipeg
	11:00 a.m.		Drive to Gimli
Gimli	noon		Business lunch in Gimli
	2:00 p.m.		Return to Winnipeg
Winnipeg	3:00 p.m.		Arrives Winnipeg
	8:45 p.m.		Flight to Regina
Regina	9:55 p.m.		Arrives in Regina - overnights in hotel
	8:30 a.m.	2	Meeting in Regina
Saskatoon	10:00 a.m.		Drive to Saskatoon
	1:00 p.m.		Lunch meeting
	3:50 p.m.		Flight to Edmonton
Edmonton	9:20 p.m.		Arrive in Edmonton - overnight
	8:00 a.m.	3	Drive to Athabasca
Athabasca	10:00 a.m.		Meeting
	noon		Lunch and drive back to Edmonton
Edmonton	5:45 p.m.		Return flight to Toronto
	11:20 p.m.		Arrive Toronto Pearson

¹ For ease of presentation, the table ignores any changes in time zones.

CASE STUDY

Business aviation means greater productivity and more effective customer contacts (continued)

With Option 1, using commercial air service and rental cars allows a traveller to complete the trip requires three full days, with a late arrival back to Toronto on the evening of the 3rd day. This assumes no missed or delayed flights and perfect driving conditions.

With business aviation, however, the traveller avoids much of the time that is spent driving, waiting for flights, or connecting over Calgary (on the flight from Saskatoon to Edmonton). The business aviation itinerary would be something like this: ²

Location	Time	Day	Event
Toronto	6:30 a.m.	1	Flight departs Toronto
	9:00 a.m.		Arrives Winnipeg
	9:30 a.m.		Meeting in Winnipeg
	11:30 a.m.		Fly to Gimli
Gimli	12:30 p.m.		Business lunch in Gimli
	2:30 p.m.		Fly to Regina
	3:30 p.m.		Arrives Regina
Regina	4:00 p.m.		Meeting in Regina
	6:00 p.m.		Fly to Saskatoon
	7:00 p.m.		Arrives Saskatoon
Saskatoon	7:30 p.m.		Dinner meeting in Saskatoon - overnights
	7:00 a.m.	2	Flies to Athabasca
Athabasca	8:30 a.m.		Meeting in Athabasca
	10:30 a.m.		Flight departs Athabasca
Toronto	3:00 p.m.		Arrives back in Toronto

The total time savings for this trip is over 32 hours. If the business makes multiple trips per year, and if more than one traveller is involved, then the total savings over the course of the year increase dramatically. Business aviation can reduce costs for businesses, increase productivity of managers, technicians, trainers, etc. and dramatically increase customer service and customer contact.

² No particular aircraft type assumed. Average speed of 600 kph assumed for purposes of calculating travel time.

Glossary of Terms

Contract Work: Any work which is done for a company by an individual who is not on the payroll or work done for a company by another company. Generally speaking, firms will contract out work in areas in which they do not have expertise or when there are cost advantages to doing so.

Direct Employment: Direct employment is employment that can be directly attributable to the operations in an industry, firm, etc. It is literally a head count of those people who work in a sector of the economy. In the case of the airport, all of those people who work in an aviation related capacity would be considered direct employment.

Economic Activity: (also Output, Production) The end product of transforming inputs into goods. The end product does not necessarily have to be a tangible good (for example, knowledge), nor does it have to create utility (for example, pollution). Or, more generally, the process of transforming the factors of production into goods and services desired for consumption.

Economic Output: (also Economic Activity, Production) The end product of transforming inputs into goods. The end product does not necessarily have to be a tangible good (for example, knowledge), nor does it have to create utility (for example, pollution). Or, more generally, it is defined as the process of transforming the factors of production into goods and services desired for consumption.

Employment Impact: Employment impact analysis determines the economic impact of employment in terms of jobs created and salaries and wages paid out. In the case of FBO's, the direct, indirect, induced and total number of jobs or person years created at the FBO is examined to produce a snapshot of its operations.

Full Time Equivalent (FTE): (also Person Year) One full time equivalent (FTE) year of employment is equivalent to the number of hours that an individual would work on a full time basis for one year. In this study, we have calculated one full time equivalent year to be equivalent to 1,832 hours. Full time equivalent years are useful because part time and seasonal workers do not account for one full time job.²⁴

Gross Domestic Product: (GDP, also value-added) A measure of the money value of final goods and services produced as a result of economic activity in the nation. This measure is net of the value of intermediate goods and services used up to produce the final goods and services.

Indirect Employment: Indirect employment is employment which results because of direct employment. For the FBO, it would include that portion of employment in supplier industries which are dependent on sales to the air transport sector. In some cases, contract work would be considered indirect employment.

Induced Employment: Induced employment is employment created because of expenditures by direct and indirect employees.

Multiplier Analysis: Analysis using economic multipliers in which indirect and induced economic impacts is quantified. Essentially, a multiplier number is applied to the "directly traceable economic impact" to produce indirect, induced and total effects (see Multiplier.)

²⁴ *The Dictionary of Modern Economics*, David W. Pearce, General Editor, The MIT Press, Cambridge Mass., 1984

Multiplier: Economic multipliers are used to infer indirect and induced effects from a particular sector of the economy. They come in a variety of forms and differ in definition and application. A multiplier is a number which would be multiplied by direct effects in order to calculate indirect or induced effects. In the case of the airport, as in many other cases, multipliers can lead to illusory results, and thus must be used with great care.

Value-Added: (also GDP) A measure of the money value of final goods and services produced as a result of economic activity in the nation. This measure is net of the value of intermediate goods and services used up to produce the final goods and service.



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