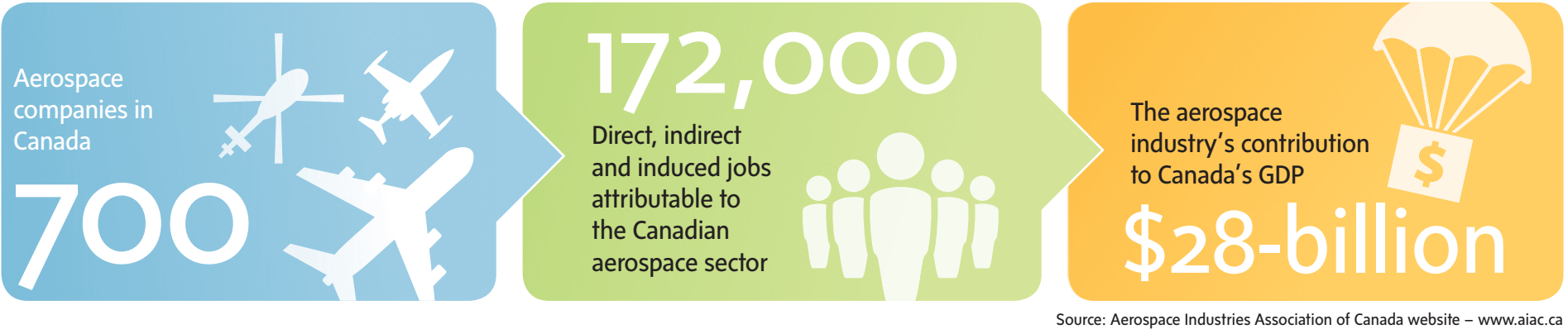


LEADERSHIP IN AEROSPACE



Source: Aerospace Industries Association of Canada website – www.aiac.ca

Ready for takeoff

Approximately 36,000 new aircraft are expected to be built worldwide over the next 20 years at a cost of around \$5.2-trillion, and Canada’s aerospace sector wants a chunk of that change.

As president and CEO of the Aerospace Industries Association of Canada (AIAC), Jim Quick knows that Canada’s aerospace companies are in for a tough fight over the next two decades. The size of the global aircraft fleet is set to more than double over that period to over 42,000 aircraft, and aerospace industries in more than 70 countries will be vying for a piece of the business.

Canada already punches well above its weight in the international aerospace market and currently ranks third in terms of global civil aircraft produc-

tion activity. But Canadian companies have their work cut out to remain competitive and protect their existing share of business.

Mr. Quick believes innovation is a key to Canada’s continued aerospace success.

“Canada has a very strong reputation as a global leader in technology development and innovation,” he says. “We have to build on that; we can’t stand back. We have to increase that reputation. We have to be a country that attracts research and development.”

Canada also needs to address the global rebalancing that’s happening in the aviation sector and be ready for the challenge.

“We’re not just looking at key markets in Europe and the United States anymore,” adds Mr. Quick. “We have the emergence of the Asian aerospace community, and there are now aerospace jurisdictions in Africa and South and Central America. These are all new players in the marketplace.”

He says Canada is fortunate that the work done by former cabinet minister David Emerson in his report on the aerospace sector in 2012 anticipated a need for global rebalancing, and many of his recommendations have been implemented.

Another challenge Canada faces, says Mr. Quick, is a new global defence environment and changing perspectives on security.

“We’re trying to deal with that to make sure that we stay ahead of it,” he says. “The government’s defence procurement strategy will certainly allow us to meet the challenge. It has all the right elements in my view.”

The opening up of Northern Canada represents a huge opportunity for the space community in Canada and the aerospace sector in general.

“We have to look at new kinds of technology, like the use of unmanned air vehicles, which could service com-

munities when we open the North, and expanded telecommunications,” says Mr. Quick.

For Canada’s space industry, he adds, the challenge is to grow the sector, which will require government collaboration because the government is the primary customer, as is the case in many other countries. But space is also becoming highly competitive with 52 countries now active in the sector.

“The immediate aim is to make sure that we are at the leading edge of space technology development,” says Mr. Quick. “We are looking to government to work with industry to identify those opportunities and find ways to fund them.”

Mike Pley, chair of AIAC’s space committee and CEO of COM DEV International, a leading global provider of space hardware and services, says the recent publication of the government space policy framework is a good starting point to getting Canada’s space industry back to where it was a

few years ago.

“Ten to 15 years ago, there was a lot more emphasis on government support for what they called technology development work. We would do our R&D, but would get matching funding from the Canadian government,” he says.

The program accelerated R&D investment and allowed some Canadian companies to become world leaders in particular areas of expertise, such as MDA in Montreal, which became a world leader in antenna, and COM DEV, which became a world leader in payload equipment.

However, the program was cut back over the years, and the industry is now encouraging the government to reinstate it, says Mr. Pley.

“This is really where you need to invest if you want to have a vital space program,” he adds.

The new space policy is a good start, but needs some “meat around the bones,” says Mr. Pley.



The global profile of Canada’s aerospace sector is bolstered by companies like Vancouver Island’s Viking Air, which has sold 100 Twin Otter Series 400 aircraft to customers in 22 countries. SUPPLIED

The AIAC is the national association representing Canada’s aerospace manufacturing and services sector. As the world’s fifth-largest aerospace industry, Canada’s aerospace sector contributes nearly \$28-billion to the economy in GDP, exports 80 per cent of its output, and dedicates over 20 per cent of its activity to research and development. Aerospace is responsible for the employment of 172,000 Canadians. AIAC represents the interests of over 700 aerospace companies across Canada.

Online? Visit www.Globeandmail.com/adv/aerospace2014 for more information.

UPLIFTMENT

Airport’s economic muscle confirmed by latest research

A new study of the economic impact of Montréal–Mirabel International Airport has highlighted its value to the Laurentians and the City of Mirabel as a job creator and world-class aviation hub, according to Aéroports de Montréal (ADM), the local airport authority responsible for the management, operation and development of Montréal–Mirabel and Montréal-Trudeau international airports.

Using the intersectoral model of the Institut de la statistique du Québec, E&B Data estimates that industrial-airport operations at the Montréal–Mirabel site generate a total of about 10,000 direct, indirect and induced jobs representing \$506-million in compensation and \$350-million in purchasing power.

According to the research report, capital expenditure on the airport site totalled \$150-million in 2013, leading to



“Aéroports de Montréal is very proud to be contributing to the development of this world-class aerospace hub.”

James Cherry
is president and CEO of Aéroports de Montréal

the creation or maintenance of more than 3,700 jobs. New investment projects valued at \$250-million are planned for 2014 and 2015. The study, conducted earlier this year by E&B Data on behalf of ADM, showed that 96 per cent of the 3,700 direct jobs generated by activity at the airport are linked to the high-added-value aerospace sector, including the manufacture and repair of aircraft, engines and other aircraft components.

ADM president and CEO James Cherry says there’s been a definite transition on the airport site to higher quality and better paid than was the case in the past. In 2002, ADM outlined a strategy to achieve optimal development in each of three key sectors – passenger traffic, cargo traffic and industrial development – at each of the two airport complexes, Montréal-Trudeau and Montréal–Mirabel.

To allow Montréal to develop its

potential as a passenger hub and to emphasize Mirabel’s major assets, the ADM strategy calls for the specialization of each airport based on their respective strengths. Montréal-Trudeau’s focus is primarily on passenger traffic while Montréal–Mirabel is being developed as a general aviation, industrial and all-cargo facility boasting a 24-hour operating capability.

“Aéroports de Montréal is very proud to be contributing to the development of this world-class aerospace hub for the benefit of all of Greater Montréal,” adds Mr. Cherry.

Companies operating out of the Montréal–Mirabel site include Bombardier, Pratt & Whitney, Mechachrome, Nolinor, Aerolia and L3 Communications. With the demolition of the old passenger terminal, ADM will add some 200,000 square metres of premium industrial land with runway access and good visibility for future projects.

“Mirabel airport is a strategic asset, and ADM is constantly working to improve its performance through investments of some \$170-million over the next few years, including \$40-million for the repaving of runway 06-24,” says Mr. Cherry.

INSIDE

An industry expert’s view on procurement reform. AIAC 2

Global growth continues for B.C. company. AIAC 3

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AEROSPACE

Procurement Reform: While we're at it, let's get the nuances right



By Linda Wolstencroft, P.Eng., MBA, president of Aerospace BizDev Inc., a company based in Delta, British Columbia, that works with companies to secure large contract awards.

The principles of procurement reform as set out by the Defence Procurement Strategy (DPS) are based on a solid review of past practices. As a result, we are on track to make significant changes that will provide substantive benefits to Canada as a whole. However, there is a danger that resistance to change and ingrained

bureaucratic processes will block progress and that we will miss addressing important nuances. Because this is a rare opportunity to enact changes of this magnitude, we must get this right. So while we're at it, let's address the important nuances that will make a difference and make the DPS come to life.

We should assign the risk to the party who is able to manage it. Canadian government officials have indicated that risk reduction will happen as a result of earlier industry engagement. But if the outcome of the risk profile subsequent to industry engagement remains unchanged, we are no further ahead. Risk management needs a higher profile in our DPS, and industry engagement must

be deeper. Many of our companies are prepared to take risks that they can manage, but not risks that are beyond their control.

Improving the decision process is critical if we are to streamline procurement. The physical governance structure is now being put in place. In addition to this, shared high-level objectives that translate the three DPS key objectives into practical terms need to exist or decisions will languish. Further, the performance metrics that are being established can include simple metrics such as the time taken to execute a procurement process and the individual decisions within. These types of metrics are clear and simple. We cannot manage what we cannot measure.

True engagement is established when an open conversation is enabled. "Industry engagement" sessions that are too highly scripted and lack key information should be made more useful by measuring how the procurement was improved as a result. If there is not enough relevant information and/or the right players are not engaged, we risk losing the upside. We should not be afraid of engaging. We should welcome the emergence of sensitive issues so that we can know them and manage them.

There needs to be more transparency on the real value that Canada accrues the Industrial and Technological Benefits and Value Proposition. Even now, without any further policy, it would be instructive to learn the

reality of the Industrial and Regional Benefits (IRB) experience. There are still billions in IRB obligations against current contracts. How is Canada benefiting?

We should always remember that our market for aerospace is the export market. The danger is being insular, resulting in being non-competitive in the global market. The DPS challenge will indeed lead us to a better procurement process; our government and its advisers should be congratulated in taking this on and showing so much success so far. But why stop? Let's not allow resistance to change and ingrained bureaucratic processes to get in the way; let's take the extra, simple actions needed to get it right.

CASE STUDY

COM DEV International: Enhancing Canada's global aerospace profile

Cambridge, Ontario-based COM DEV International has been flying the Canadian flag in the global space arena for 40 years as a world leader in the design and manufacture of satellite subsystems. The company's technology has been used on more than 900 spacecraft, including over 80 per cent of all commercial communications satellites ever launched. Now, as joint owner with the Spanish company HISDESAT Servicios Estratégicos S.A., COM DEV aims to establish an equally successful profile for exactEarth Ltd., a data services company that leverages advanced microsatellite technology to provide vessel monitoring around the world. Mike Pley, CEO of COM DEV, says exactEarth is focused on developing technologies based on the growing trend towards microsatellites, which provide cost-effective opportunities for the private sector and governments. "It doesn't cost as much to put microsatellites into space as it does to launch a big, traditional satellite," he



"You can achieve business goals and national objectives for a fraction of what the cost might have been even five years ago."

Mike Pley is CEO of COM DEV

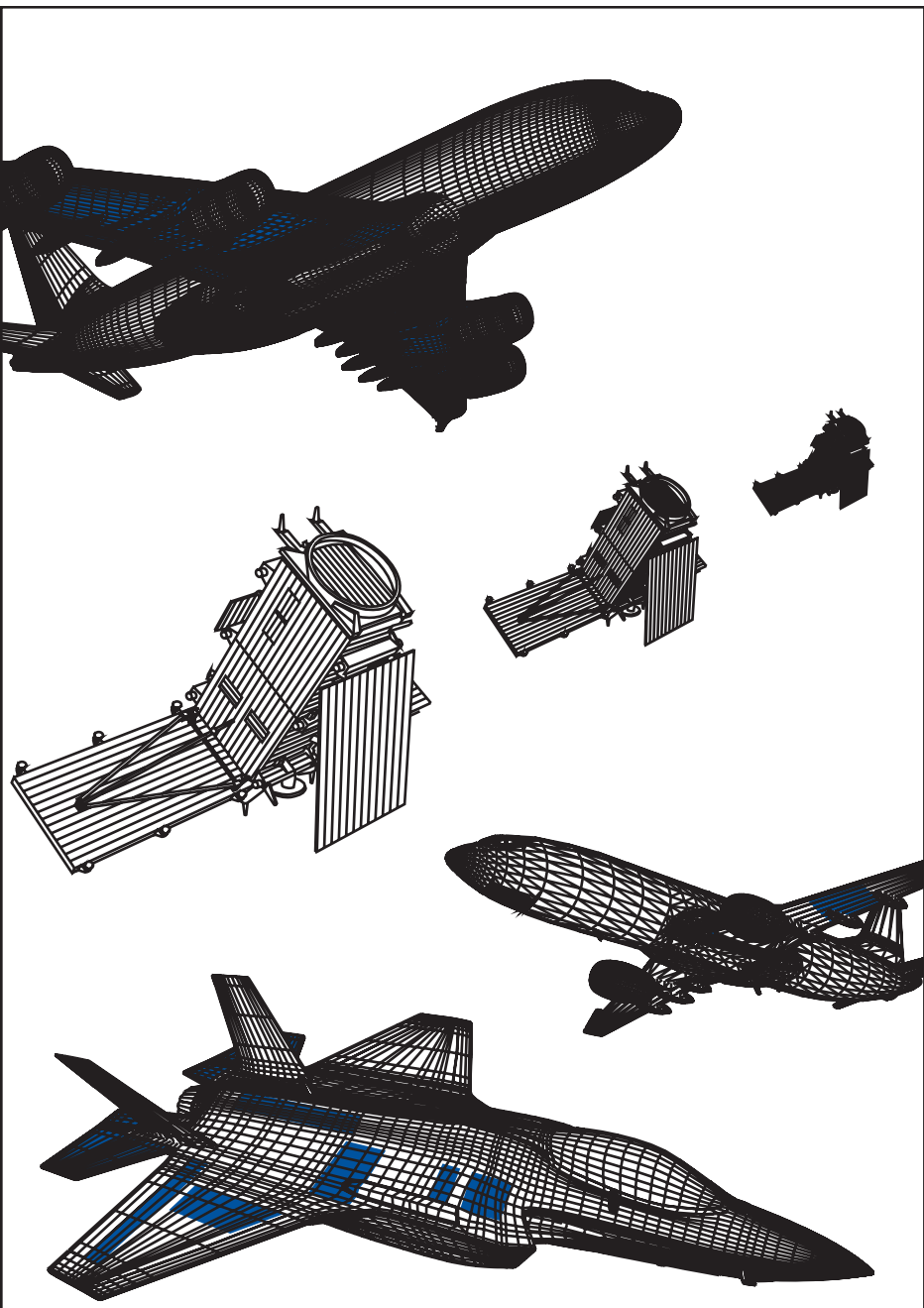
says. "So you can achieve business goals and national objectives for a fraction of what the cost might have been even five years ago, which is what exactEarth aims to do." The company now has five of eight planned microsatellites in orbit and the entire ground infrastructure to collect the data, all for a price of \$85-million. "With an entry price at that level, we can build a business case to collect data and sell it on to customers and build a business around it. It's a relatively low cost, and I think we have a winner," adds Mr. Pley. Company revenue is projected to grow from zero at startup in 2009 to \$50-million by 2018, of which \$20-million will drop straight to the bottom line based on COM DEV's initial investment. "It's a whole new world in this new space front," says Mr. Pley. "COM DEV saw the opportunity early and built the equipment and then established exactEarth. We believe it's the first of many similar opportunities, and we are well positioned to take advantage

of them as time goes on." In the meantime, COM DEV sees ongoing opportunities to keep expanding its traditional business as well, due in part to the move toward high throughput satellites. "That's positive from our perspec-

tive because these satellites are big and use more of the type of equipment that we build – as much as one and a half to three times the volume of equipment that we typically sell to a broadcast satellite. That's a really good thing for us," says Mr. Pley.



COM DEV's technology is used by satellite manufacturers around the world. SUPPLIED



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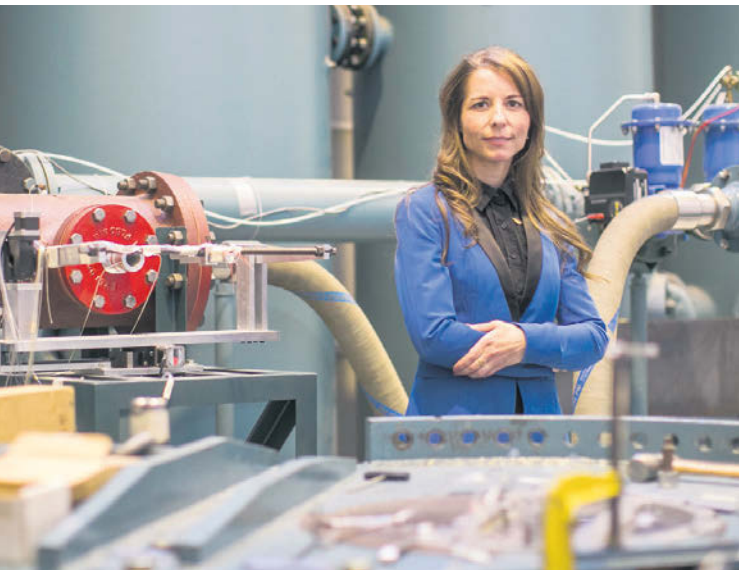
BY THE NUMBERS

- 3
Canada's ranking in global civil aircraft production activity
- 5
Canada's ranking in global aerospace activity
- \$1.7-billion
Annual investment in R&D by Canada's aerospace companies
- Source: Aerospace Industries Association of Canada website – www.aiac.ca

INNOVATION Carleton University research aims to reduce aircraft fuselage noise

From noise-cancelling earphones to high-tech earplugs, passengers around the world struggle every day to block out the incessant roar caused by an aircraft hurtling along at hundreds of kilometres an hour. But relief could be at hand if research underway at Carleton University in Ottawa is successful. Prof. Joana Rocha, from the Aeroacoustics Research Group in Carleton University's Department of Mechanical and Aerospace Engineering, is leading a research project to study the physics behind the turbulence-induced noise in aircraft, and ways to reduce it. When an aircraft is in flight, a layer of turbulence exists around its fuselage, creating loud noise that can potentially cause hearing loss and other health problems in passengers and crew. In addition, noise to the exterior of the aircraft is a problem for communities near airports. The industry is well aware of the problem, but research into ways to reduce it is generally expensive and difficult. Dr. Rocha's main research focus is to investigate the wall pressure fluctuation due to turbulent flow in the surface of panels tested in the low- and high-speed flows in wind tunnels at Carleton University. To be able to recreate airflow condi-

tions that more closely replicate flight conditions in laboratory, the high-speed wind tunnel is fundamental. However, it's a challenge because high-speed wind tunnels are typically very loud and uncondusive to the conditions necessary for aeroacoustics research. One of Dr. Rocha's objectives is to adapt the high-speed wind tunnel at Carleton University for aeroacoustics research. It is envisioned that results from this research initiative will lead to minimize the need for expensive flight testing for noise measurements. "Our goal is to find the best aircraft structural configurations for reducing noise and giving passengers a quieter, more comfortable flight," says Dr. Rocha. "We believe our research will help aircraft manufacturers design quieter aircraft, which may help airline companies provide a better customer experience." Researchers from the University of Toronto Institute of Aerospace and the Groupe d'Acoustique de L'Universite de Sherbrooke showed interest in participating in this research project, which so far has already attracted industry support from Bombardier Aerospace and MDS Support Aero. Canada's National Research Council and the German Aerospace Centre are also supportive of this initiative.



Dr. Joana Rocha's research at Carleton University could help reduce aircraft fuselage noise. CHRIS ROUSSAKIS

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Commercial pilots from around the world travel to Vancouver Island for training on Twin Otter Series 400 aircraft at Pacific Sky flight school. SUPPLIED

Canadian manufacturer reaches global market from Vancouver Island base

Viking Air Limited has been manufacturing parts for and servicing de Havilland aircraft for over 40 years, but it's the Series 400 Twin Otter that has placed the Vancouver Island company firmly on the global stage since the aircraft was introduced in 2007. With 100 Series 400 units now sold, of which 63 have been delivered so far to operators in 22 countries, Viking is producing one new aircraft every 10 manufacturing days for a total of 24

"We can go almost anywhere with this aircraft, and it's very safe, very reliable."

Michael Coughlin
is CEO of Pacific Sky flight school

so far in 2014. Dave Curtis, Viking's president and CEO, is understandably pleased with those numbers, but believes that there's far more to come. "As we move forward and look at new markets and areas where we are going to see sustained growth on the product, our focus will be on the BRIC countries – Brazil, Russia, India and China," he says. Russia in particular, aside from current geopolitical challenges, presents

a good opportunity for growth, adds Mr. Curtis. "Russia is very similar to Canada in many ways. Interconnectivity to small communities is high on their priority list, and the Series 400 is ideal for that." China is also a prime target for growth where the seaplane configuration of the Twin Otter could provide much-needed air transport in heavily populated regions. "Just as an example, the Vancouver-Victoria corridor with a total population of about four million supports 23,000 seaplane flights a year. Shanghai, on the other hand, has a population of about 20 million, a large river bisecting the downtown core, and dozens of satellite cities with populations equal to that of Vancouver, all with access to water and within a 150-kilometre range. That's our potential market and could translate into 100 to 150 Viking Series 400 Twin Otters over 10 years," says Mr. Curtis. But the Series 400 is not just a commuter aircraft. Viking's customers have included the Vietnamese navy, the Peruvian air force and mining companies around the world that appreciate the airplane's versatility in remote regions on rudimentary airstrips. While Mr. Curtis knows that opening up new markets is primarily Viking's responsibility, he believes governments at all levels in Canada need to play a part as well. As a strong believer in economic diplomacy, Mr. Curtis wants to see Canadian politicians talking more about Canadian aerospace when they are overseas. "You can bet that Barack Obama is talking about Boeing when he visits

China, and the French and Brazilian leaders are doing the same for their aircraft manufacturers," he says. "We need that kind of engagement from our leaders right down to the local level when mayors and councillors meet international counterparts and business people. Promoting Canadian aerospace capability is critically important." Pacific Sky, a flight training company based at Victoria airport on Vancouver Island, has trained more than 120 pilots to fly the Twin Otter Series 400 in Victoria and around the world, and their general reaction is overwhelmingly positive, says CEO Michael Coughlin. "The beauty of this aircraft is it flies just like the traditional Twin Otter that many of the pilots have flown before," he says. "It has the powerful Pratt & Whitney engines they're familiar with, and the same rugged air frame. But the modern, new generation avionics from Honeywell provides them with powerful navigation tools." In 2016, Pacific Sky will start using a Twin Otter Level "D" Simulator, manufactured by Tru Simulation in Montreal. It will be the world's first full flight simulator to feature a seaplane configuration. It will provide the most realistic training environment possible and reduce training time by about half compared to training on actual aircraft, says Mr. Coughlin. Pacific Sky also operates its own Series 400 configured with wheels and amphibian floats. "The versatility of the aircraft is amazing," adds Mr. Coughlin. "We can go almost anywhere with this aircraft, and it's very safe, very reliable."

POLICY Defence procurement reform welcomed by industry

Canada's new Defence Procurement Strategy (DPS) introduced earlier this year has been hailed as the most wide-ranging reform of its type in a generation. Tim Page, president of the Canadian Association of Defence and Security Industries, describes it as "a critical and positive milestone" that will transform how the country's military and Coast Guard are equipped and supported. "The principles of this new approach are fundamentally sound," says Mr. Page. Aerospace Industries Association of Canada president and CEO, Jim Quick says the new DPS will help Canada meet the challenge of a new global defence environment and changing perspectives on security. Mississauga-based Magellan Aerospace, a global, integrated company that provides complex assemblies and systems solutions to aircraft and engine manufacturers and defence and space agencies worldwide, says procurement reform should improve outcomes for the armed forces and Canadian industry. "A key issue for Canadian aerospace companies involved in defence procurements is the unpredictability of both the procurement process and the duration of the process," says Dan Zanatta, Magellan's vice president of business development, marketing and contracts. "At the end of the day, Magellan agrees with the government position that they need a systemic, standalone procurement system that will deliver the right equipment to all branches of our armed forces, that best utilizes the Canadian industrial base and delivers good value for Canadian tax dollars," he adds. Identifying, developing and growing into a market niche has been



"We look forward to a reformed system that will improve the outcomes for both our armed forces and for Canadian industry."


Dan Zanatta
is vice president of business development, marketing and contracts at Magellan Aerospace

the game plan for many successful Canadian aerospace companies – Magellan among them – and has elevated Canada to the upper ranks of the worldwide industry, Mr. Zanatta explains. "Magellan has centres of excellence that are designed and developed to support the aerospace industry," he says. "We put a heavy emphasis on applying leading-edge technologies in support of customer requirements." At Magellan's Winnipeg facility, for example, a significant investment in technology has been made in composite assemblies, which fits into Lockheed Martin's F-35 II joint strike fighter program. Magellan has been involved with the F-35 II program for more than 15 years, and early participation in the program by the government was the catalyst for the company's

investment in the technology and infrastructure needed to compete for F-35 work. Mr. Zanatta sees this is an example of Magellan's long-standing relationship and support for the Canadian Armed Forces, which is the product of providing excellent value in terms of competitive pricing and world-class technical experience. "Defence companies like Magellan

have a long and successful legacy of supporting Canada's military, have provided world-class products and services to our soldiers and have seen successful programs commercialized for international sales," he says, adding that history has shown the value of well-structured Canadian procurement programs. "We look forward to a reformed system that will improve the outcomes

for both our armed forces and for Canadian industry," says Mr. Zanatta. Aerospace business consultant Linda Wolstencroft says the principles of procurement reform set out by the DPS are based on a solid review of past practices. "As a result, we are on track to make significant changes that will provide substantive benefits to Canada as a whole," she adds.



BY THE NUMBERS

20%
Amount of industrial activity dedicated to R&D

80%
Share of production by Canada's aerospace sector that is exported

Source: Aerospace Industries Association of Canada website – www.aiac.ca

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