

TAKING FLIGHT



**Making an Ontario
Aerospace Cluster a Reality**

Co-hosted by



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UNIVERSITY OF
TORONTO

Conference Report

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Taking Flight:
Making an
Ontario
Aerospace
Cluster A Reality

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Introduction

On June 7th, 2012, Canada 2020, in partnership with the Program on Globalization and Regional Innovation Systems (PROGRIS), Munk School of Global Affairs, University of Toronto, hosted a conference on the Ontario aerospace industry, titled, “*Taking Flight: Making an Ontario Aerospace Cluster a Reality.*” The conference was based on the following assumptions:

- Ontario has a unique, large, world class aerospace industry that has done relatively well through the recession and the period of exchange rate appreciation, in sharp distinction with other elements of the Ontario manufacturing base.
- The Ontario aerospace industry has some of the conventional attributes associated with industrial clusters, but the sector also has significant gaps, particularly in regards to institutionalized structures and policy support/co-ordination. It is at best a nascent cluster.
- With the right combination of leadership and vision – from industry, governments and the academic sector – Ontario aerospace could easily move from sector to cluster.
- This move would significantly enhance the growth, competitiveness and resilience of the Ontario aerospace industry, and thereby improve the productivity and innovation potential of the Ontario economy.

Background on the Ontario Aerospace Industry

The global aerospace sector is growing – with an estimated \$3.2 trillion in new commercial aircraft orders and a further \$661 billion in business aircraft orders over 20 years. There will be intense competition for this demand. The Ontario industry is well positioned in the global market today, but firms and governments cannot rest on their laurels. Canada is currently 5th in terms of global aerospace exports – a highly coveted position. A regional breakdown within Canada shows that Quebec has 45.7 per cent of the employment, while Ontario has the 2nd largest sector at 27.8 per cent

The Ontario aerospace industry is a large sector of some 350 firms of various sizes that has been an important part of the Ontario manufacturing landscape for many decades. Some 22,000 people are employed in the sector, which generated \$7 billion in total economic output in 2009.

The industry is concentrated in the Greater Toronto Area, which boasts several internationally significant companies in aerospace, including Bombardier Aerospace, Pratt & Whitney, Honeywell, Goodrich Landing Gear, SAFRAN, Messier-Dowty, and McDonald Detweiller. The Ontario sector represents an estimated 35 per cent of Canadian aerospace R&D expenditure on an annual basis.

Conference Agenda

8:00am – 8:30am	REGISTRATION AND BUFFET BREAKFAST
8:30am – 8:40am	WELCOMING REMARKS Eugene Lang , Co-Founder, Canada 2020
8:40am – 9:00am	CONTEXT SETTING Industrial Clusters: What they are and Why they Matter? David Wolfe , Co-Director of the Program on Globalization and Regional Innovation Systems (PROGRIS), Munk School for Global Affairs, and Royal Bank Chair in Public and Economic Policy, University of Toronto
9:00am – 9:50am	OPENING KEYNOTE Reflections on the Montréal Aerospace Cluster and the International Competitive Environment Suzanne M. Benoit , President, Aéro Montréal
9:50am – 10:15am	KEYNOTE: OVERVIEW OF THE SECTOR Evolution of the Ontario Aerospace Sector Rod Jones , President, Ontario Aerospace Council
10:15am – 10:30am	NETWORKING BREAK
10:30am – 12:00pm	PANEL I: FROM SECTOR TO CLUSTER Representatives from Ontario-based aerospace companies and the CAW present on the sector's growth potential as they see it—including employment growth—and constraints on growth. What is needed to grow aerospace in Ontario to its potential? Panelists: Larry Fitzgerald , Site Leader/General Manager, Honeywell Canada Simon Roberts , Vice President and General Manager, Turboprops and Toronto Operations, Bombardier Aerospace Jim Stanford , Canadian Auto Workers Tim Whittier , Director, Government Relations, Goodrich Landing Gear Moderator: Don Newman , Chair, Canada 2020
12:00pm – 12:30pm	LUNCHEON KEYNOTE Luncheon speech from the Honorable Brad Duguid , Minister of Economic Development and Innovation. Moderated Q&A to follow.
12:30pm – 1:20pm	BUFFET NETWORKING LUNCH Buffet self-served lunch

PANEL II: PROGRAMS AND POLICY FRAMEWORKS: THE ROLE AND THINKING OF GOVERNMENTS IN AEROSPACE AND INDUSTRIAL CLUSTERS

Senior government officials discuss their organization's thinking about the Ontario aerospace sector, the importance they attach to clustering in economic development, and any cluster-related initiatives existent or underway. What partnerships do we need to move Ontario aerospace from sector to cluster?

1:20pm – 2:25pm

Panelists

Marta Morgan, ADM, Industry Sector, Industry Canada

Mahmood Nanji, ADM, Economic Development Division, Ontario Ministry of Economic Development and Innovation

Michael Williams, General Manager, Economic Development and Culture Division, City of Toronto

Moderator: **David Watters**, President, Global Advantage and former ADM, Finance Canada

KEYNOTE

2:25pm – 3:05pm

The Honourable **Gary Goodyear**, Minister of State (Science and Technology and Federal Economic Development Agency for Southern Ontario)

PANEL III: AEROSPACE RESEARCH AND TRAINING IN ONTARIO'S UNIVERSITIES AND COLLEGES

Representatives from Ontario universities and colleges with substantial programs in aerospace research, engineering and technical trades, present on how they are collaborating with firms on research and labour supply issues, and their visions for the future of aerospace technology research and training at their institutions. How can educational institutions support the development of an Ontario aerospace cluster?

3:05pm – 4:05pm

Panelists

Ann Buller, President & CEO, Centennial College

Janusz Kozinski, Dean, Science and Engineering, York University

Mohamed Lachemi, Professor and Dean, Faculty of Engineering, Architecture and Science, Ryerson University

David Zingg, Director, Institute for Aerospace Studies, University of Toronto

Moderator: **David Wolfe**, PROGRIS

4:05pm – 4:25pm

NETWORKING BREAK

KEYNOTE

4:25pm – 4:40pm

The Federal Aerospace Review and the Ontario Aerospace Sector

Maryse Harvey, VP, Public Affairs, Aerospace Industries Association of Canada

MODERATED DISCUSSION

Taking Flight: Conference Summation and the Way Forward

4:40pm – 5:25pm

The facilitator wraps up the day's discussions, identifies the areas of consensus and missing pieces needed to move from sector to cluster, and proposes an ongoing process to flesh out an action plan with input from all participants.

Facilitator: **Marcel Côté**, Senior Partner and co-founder, Secor Consulting

5:25pm – 5:30pm

CLOSING REMARKS

Canada 2020 and PROGRIS

5:30pm – 6:30pm

COCKTAIL RECEPTION

Detailed Report

Welcoming Remarks: Eugene Lang, Canada 2020

Canada 2020 co-founder Eugene Lang opened the day by highlighting the economic importance of the aerospace sector in Ontario, noting also that this sector has been relatively unaffected by the economic downturn.

Aerospace in Ontario is a nascent cluster. The concept of clusters has real economic meaning and important parameters that should be explored. Lang emphasized that today's discussion is a starting point and should not be considered to be a one-off event. Lang stated, "We hope that people who come here today will see the benefits of working together and start collaborating on the development of a cluster strategy in Ontario."

Context Setting: David Wolfe, PROGRIS

David Wolfe, Co-Director of the Program on Globalization and Regional Innovation Systems (PROGRIS), Munk School for Global Affairs, and Royal Bank Chair in Public and Economic Policy, University of Toronto, explained the economic concepts underlying cluster theory, drawing on the well established work of Michael Porter, a management professor at Harvard Business School.



Asking "What is the value of clusters," Wolfe listed:

- To get ahead economically it can be important to blur the lines between collaboration and competition;
- Clusters can be the environment in which this collaboration and competition happens;
- Clusters help build critical mass and can generate a positive, reinforcing environment;
- From the public policy perspective, clusters act as a "focusing device" providing governments with an effective vehicle for supporting a whole sector.

The particular make-up of a cluster will be industry-specific. Critical pieces of the puzzle include:

- A strong and dense labour market of specialized skills and talents;
- Good internal knowledge flows;
- Anchor companies; and
- An effective research infrastructure.

Knowledge institutions (e.g. universities and colleges) can make a strong contribution to clusters. In particular, they can be excellent readers of market signals and are able to meet the needs of developing labour markets.

In the U.S., local supply and local demand are critical in clusters but this is not the case in Canada. Our market is too small. Consequently, firms must rapidly penetrate global markets. Access to global networks is therefore especially important in Canada.

When it comes to public policy in Canada, the three levels of government often fail to work together. Clusters can help address this shortcoming by providing a focus to better align public policy support. Each level of government has different key responsibilities but all have an important role to play. The quality of the local education system is critical for attracting firms which illustrates the fact that seemingly unrelated issues can be very important to the development of clusters.

The city of Toronto has an explicit cluster strategy but has not invested anything like the same resources as the city of Montréal. There is a need for strategic planning right down to the local level. It can be the lowest level of government that draws in and coordinates the higher levels (e.g. provincial and federal).

There is no simple answer as to how to develop or support clusters, though Wolfe argued that successful clusters are overwhelmingly business-led. The role of governments is to support. He also emphasized that clusters are a process, not a goal or an end point. It is important to focus on small, achievable steps at the outset (i.e. low hanging fruit), then revise and refocus. Networking should be promoted, based upon a common vision, so that companies, institutions and resources are all working in the same direction.

Opening Keynote: Suzanne Benoit, Aéro Montréal

Ms. Suzanne Benoit, President of Aéro Montréal, gave an overview of the sector.

Challenges to the aerospace sector include globalization, competition from emerging countries, volatility, fluctuating exchange rates, and workforce skills, among others. However, there are also numerous opportunities. Projected growth is high with an expected demand for 30,000 new planes worth some \$3.2 trillion over the next 20 years. There are also defence and green opportunities, which will require innovation.



Montréal considers itself the world's third aerospace centre: it has four primes, 15 tier one suppliers and 215 tier two to four suppliers. Ninety Eighty per cent of the aerospace industry is in greater Montréal. The aerospace cluster is one of six recognized and targeted clusters in the Montréal area. All six clusters are supported by all three levels of government and the private sector.

Aéro Montréal coordinates the cluster and is a strategic think tank on issues to do with the aerospace industry. It brings together key decision makers from companies, educational institutions, research organizations, associations, and unions. At the outset it brought together the four Quebec primes and all three levels of government. Everyone made a financial contribution.

Benoit explained how Aéro Montréal has focused on the practical steps required to adapt cluster theory to the needs of the aerospace companies that are located around Montréal. Aéro Montréal is an organized structure with clear governance mechanisms. It provides a single forum in which all key stakeholders can come together to address common, strategic issues. The secretariat helps to develop, plan and execute integrated and concerted actions to support the sector.

It has six strategic committees:

1. Branding and development of the cluster;
2. Innovation;
3. Supply chain. A key achievement of this group has been to develop the MACH excellence framework through which suppliers are mentored by larger companies, audited for performance and rated. This program built on similar programs elsewhere, but was developed in house;
4. Human Resources development. This group conducts outreach, even down to the primary school level. The group works alongside the Montréal Aerospace Institute, an umbrella organization of the companies and educational establishments that promote careers in aerospace and help students find placements. The committee also conducted a talent assessment to identify gaps in talent and work with the universities to plug these in a timely fashion;
5. Defence and security;
6. Commercialization and business development for Small and Medium Enterprises (SMEs).

A cluster strategy is a pro-active position looking to leverage new opportunities. It is not a defensive position. It enables a group of organizations to act collectively when they could not do so individually. It is not possible to create a cluster: a cluster has to grow organically. In Quebec, the aerospace cluster started with industry, not with research organizations or government.

European aerospace clusters tend to be more research focused and work mostly to secure government money that support research. They do not have the range of activities of Aéro Montréal. While innovation is clearly important to the Montréal cluster, it was not the starting point.

Factors that explain the success of the Quebec cluster include: physical proximity, industry concentration, leadership, inclusiveness, a culture of collaboration, a strong public-private partnership, and the development of the coordinating mechanism.

Benoit concluded by pointing to the opportunities for the development of a Quebec-Ontario aerospace corridor.

She answered questions on:

- Aéro Montréal's MACH program, a framework for excellence that allows suppliers to evaluate and identify performance gaps;
- The need for government involvement (yes, this is important: in Quebec all the planets aligned);
- Whether Aéro Montréal has considered the need to attract talent globally;
- Aéro Montréal's green aircraft initiative (They have committees, e.g. on landing gear, that ensure that members are prepared to be part of the platforms of the future. Each area is led by one company which then brings SMEs on board.); and

- Supply chains and whether Aéro Montréal encourages SMEs to sell to competing tier one companies (big companies only deal with tier one suppliers now so they need to get SMEs more involved with tier one aggregators. They are working on how to get SMEs to consolidate and work together. Many are not interested, but this needs to happen if these companies wish to grow).

Sector Overview Keynote: Rod Jones, Ontario Aerospace Council

Rod Jones, President of the Ontario Aerospace Council (OAC), provided background on the history and evolution of the Ontario aerospace sector. The sector employs 22,000 people and has annual revenues of seven billion dollars (80 per cent are exports and 80 per cent commercial). It is a technology-intensive sector that has managed to deal with the rising dollar and remain globally competitive. It is one of six recognized strategic sectors for Ontario.

In comparison with Quebec, Ontario has just one prime (Quebec has four), but it has strength further down with numerous tier one to four companies and a good representation of global aerospace leaders. The sector's key strengths are:

- Integrated systems and equipment;
- Structural assemblies;
- Aircraft integration;
- Good research tax credits (through SR&ED); and
- Strong human capital.

The OAC was formed in 1993. It has 200 industry and associate members and 20 affiliate members. It is a very basic organization that has to seek funding for activities on an *ad hoc* basis. This ensures that all activities are demand-driven but it does result in a lack of continuity. Thus far, the OAC has run programs in the areas of employee training and development, supplier development, market outreach and human capital.

Overall, Ontario has elements of a cluster, but additional effort is needed to bring them together. In Mr. Jones' view, the resources required to do so would be quite modest and the return should be high.



Panel I: From Sector to Cluster

Simon Roberts, Vice President and General Manager, Turboprops and Toronto Operations, Bombardier Aerospace

Simon Roberts highlighted the importance of collaboration: this is essential for success in Ontario. With collaboration, Ontario should be able to move well beyond its current position in the global value chain. It is time to be ambitious and move beyond our current limits.

To do this, certain issues need to be addressed, including a skills shortage. Mr. Roberts noted that the average worker age at Bombardier Aerospace is 53, which is a real cause for concern. It is essential to have an adequate supply of skilled labour.

He also highlighted the importance of forging public-private partnerships. He emphasized the opportunities of the Queretaro Aerospace Park in Mexico, a key Bombardier investment since 2006. This venture is a great example of industry, government and universities coming together to form an aggressive partnership.



Tim Whittier, Director, Government Relations, Goodrich Landing Gear

Tim Whittier asserted that Ontario firms do have the capabilities to develop into a more sophisticated cluster. Informally, companies have come together and tried to operate as a cluster, but it is time to take this to a new level.

There are some inherent challenges in doing this. For example, companies compete with each other (e.g. for skilled labour). There are also valid concerns about proprietary information moving between companies with employees (especially with the concentration of landing gear companies in Ontario). Nonetheless, it should be possible for firms to look beyond their own individual enterprise and strategies.

He noted that Ontario-based companies spend a lot of time looking beyond Canada at low cost suppliers, but seldom look at developing domestic suppliers and helping smaller companies to access government programs. This should change, as should the way companies seek to collaborate with academic institutions and develop internship/apprenticeship programs.

Jim Stanford, Canadian Auto Workers

Jim Stanford noted that the Canadian Auto Workers' union has 10,000 aerospace industry members who play a disproportionately important role and have a strong identity within the organization.

In Stanford's view, clusters are valuable because they capture benefits that would not otherwise be available to individual firms. However, they need government support of a far greater magnitude than Ontario is presently devoting to the sector.

Governments should play a role in skills development (the federal government has cancelled its sector skills approach which Stanford believes is a disaster), in risk mitigation, and in supporting the sector through public procurement. The recent ship-building contract provides an excellent model for government action. By contrast, the proposed F-35 fighter jet procurement does nothing to build Canadian companies. Overall, governments should play a creative, far-reaching role in nurturing the markets that the cluster will serve.

Larry Fitzgerald, Site Leader/General Manager, Honeywell Canada

Larry Fitzgerald noted that the OAC has been highly productive, despite underfunding. He also noted that aerospace companies benefit from long product lifecycles and that the engineering graduates in Ontario are first rate. By example, Honeywell aerospace in Mississauga accounts for just two per cent of Honeywell's global sales but 10 per cent of its R&D because of the high quality of recruits.

There are however weaknesses. Companies are operating independently and not as a cluster. The flip side of long product lifecycles is that R&D is hugely expensive. Collaboration is therefore a must. He noted that there are many opportunities for collaboration in electronics. OEMs are looking to tier ones and all down the chain to take on more of the risk of product development. Again, this requires working even more closely together.

Discussion

The following issues were raised during the panel discussion and Q&A from the floor:

- There is a tension between collaboration and competition. Traditional market behavior works against clusters. How can that be overcome?
- There were repeated mentions that governments need to play a stronger role.
- Government should guide the clustering process so that the wider benefits of collaboration are realized. It was noted that new clusters in BRIC countries all have significant government involvement. This suggests that Ontario needs an aggressive policy role to support clusters, one that goes well beyond effective tax structures and getting the basics right.
- Canada is at the losing end of “playing fair.” Companies need governments to share risks so that they can make investments that will not pay off for many years.
- The elephant in the room is the under-investment in the industry by all levels of government, a stark difference between Ontario and Quebec.
- The current Federal Aerospace Review Panel is obliged to make only revenue neutral recommendations but this is inadequate. Canada is not playing in the same league as many of the countries against which we compete.
- Canada needs a national innovation strategy.

- Federal support is currently targeted at pre-competitive technology development. More should be invested in manufacturing technology development to ensure that Canadian-based forms remain cost-effective.
- The federal government must play a role in ensuring that inter-provincial tensions do not damage the Canada aerospace sector.
- The life sciences corridor between Quebec and Ontario, in contrast to the aerospace sector, is functioning well and was industry-driven from the outset.
- Intellectual property (IP) agreements with universities can be problematic, but there has been progress in resolving these.
- The Aéro Montréal model provides a very good model for Ontario, though Ontario firms are more geographically dispersed than those in the Montréal area.
- It is important to develop a clear public-private strategy on the development of a future workforce for aerospace. This should start in public school. Aerospace companies must communicate to young people that viable careers exist in the industry.

Concern was expressed about the links between SMEs and OEMs: SMEs are asked to invest to develop technologies, but their contracts come with no guarantees. What happens if clients go elsewhere? It was noted that OEMs find it very disruptive to change suppliers, so as long as SMEs remain competitive, they should retain their customers. In this context, Aéro Montréal's MACH program was cited as being very effective at bridging between companies.

Luncheon Keynote: Hon. Brad Duguid, Ontario Minister of Economic Development and Innovation

Minister Duguid highlighted the importance of the aerospace industry in Ontario and noted the effective supporting infrastructure provided by the Government of Ontario (e.g. education, tax, and infrastructure). He stated that the Ontario government would continue to work with Quebec to develop ties (this is helpful when presenting Canada on a global stage). He recognizes that in order to compete internationally, we need to make a serious commitment to the sector and he takes the partnership role very seriously.



In his opinion, the province needs to be better at guiding young people into future growth careers sectors, such as aerospace. The current Jobs and Prosperity Task Force will be important in this regard.

When asked about whether a cluster organization would make it easier for the provincial government to support the industry, he replied positively, saying that a cluster strategy makes more sense in aerospace than in any other industry.

Panel II: Programs and Policy Frameworks: the Role and Thinking of Governments in Aerospace and Industrial Clusters

Marta Morgan, ADM, Industry Sector, Industry Canada

Ms. Morgan noted that the federal government does not focus on clustering, *per se*. She listed several important federal initiatives that support the aerospace sector, including:

- The Strategic Aerospace and Defense Initiative (SADI), which supports collaborative research in the sector. More than \$800m has been invested thus far.
- National Research Council (NRC) programs.
- The Industrial and Regional Benefits (IRB) policy ensures that Canadian industry benefits from government defence and security procurement. Changes are being made to encourage greater innovation and collaboration. Extra credits will be given for public-private partnerships.
- The Federal Aerospace Review Panel will make recommendations on aerospace policies.



Mahmood Nanji, ADM, Economic Development Division, Ontario Ministry of Economic Development and Innovation

Mr. Nanji pointed out that thirteen of the top 25 global aerospace companies operate in Ontario. Mr. Nanji argued that Ontario already has a vibrant aerospace cluster that is big, growing and strong but it is not as integrated as the Montréal cluster. Government can be the catalyst of integration but industry must drive the process.

Mr. Nanji believes that aerospace in Ontario is getting adequate policy attention but that it is behind in public recognition. Ontario has a strong competitive infrastructure (tax system, tax harmonization, R&D tax credits, etc.), which is essential to grow a sector like aerospace. Likewise, the Government of Ontario has been effective in supporting aerospace through advancing the innovation agenda and investing in higher education and research. The sector demands highly skilled workers and the government must ensure that there is an adequate supply, otherwise firms will leave.

Michael Williams, General Manager, Economic Development and Culture Division, City of Toronto

Mr. Williams argued for focussing on the positive. He used the metaphor of catching a rising tide, rather than always beating out competition. The aerospace sector offers such opportunities, though it requires strong support from all three levels of government. Currently, there are not enough government resources dedicated to the sector.

Governments can set the table but not bring people to it. Private sector participation is essential, as is the contribution of private sector funds. Governments, in general, are poor at supporting SMEs.

Toronto has the advantage of a growing labour pool which will be critical in the face of aging populations.

Keynote: Hon. Gary Goodyear, Minister of State for Science and Technology and Federal Economic Development Agency for Southern Ontario

Minister Goodyear argued that industry clusters can be a source of strength. To succeed in this kind of environment, Canada needs to grasp any advantage it can and governments need to unceasingly support these efforts.

For these reasons, the federal government launched the current Aerospace Review.

Innovation is a top priority for the federal government, as evidenced by Budget 2012. It doubled the funding of the NRC's Industrial Research and Assistance program (IRAP) and made the NRC more customer-focused. Canada also has the advantage of being the first G20 country to be tariff free for manufacturing inputs.¹



The Federal Economic Development Agency for Southern Ontario (SODA), initially established in 2009 to create jobs, now focuses on up-scaling job creation and supporting better jobs.

Minister Goodyear congratulated the industry, noting “You are in the middle of a vibrant industry and the Government of Canada recognizes that and is committed to your success.” In closing, he added “I hope we remain connected and please call me.”

¹ Canada has implemented a major new initiative that will see tariffs on all manufacturing inputs reduced to zero by 2015. Canada's initiative applies across the entire country, making Canada one large Free Trade Zone (FTZ) for firms importing manufacturing inputs.

Panel III: Aerospace Research and Training in Ontario's Universities and Colleges

All the presenters gave accounts of their own institutions and how they fit into the aerospace puzzle in Ontario.

Mohamed Lachemi, Professor and Dean, Faculty of Engineering, Architecture and Science, Ryerson University

Professor Lachemi described the program of Ryerson Institute of Aerospace Design and Innovation (RIADI), which places students in industrial projects with the support of industry partners. He noted that Quebec universities are generally much better than Ontario universities at collaborating with industry.



David Zingg, Director, Institute for Aerospace Studies, University of Toronto

Universities must educate a workforce that can benefit Canadian companies but they have to educate for the future, not just for the present. Furthermore, universities cannot simply be a job shop for industry. They also have to achieve a balanced research portfolio between short term and long term demands. Prof. Zingg explained the University of Toronto Institute for Aerospace Studies (UTIAS) program, which works closely with industry and has industry representatives on its advisory board.

Ann Buller, President & CEO, Centennial College

Ann Buller stated that colleges are well suited to meet the needs of emerging economic trends and provide students with the required soft and hard skills. Colleges provide an education that works and which is especially important in preparing immigrants to be effective workers in Canada.

She referenced the Colleges Ontario Network for Industry Innovation (CONII) that helps SMEs get products to market with less than \$10 million in funding from the Government of Ontario.

Janusz Kozinski, Dean, Science and Engineering, York University

Currently, York is greatly expanding in the fields of science and engineering. The Lassonde School of Engineering provides a unique education as it has been working together with York's law and business faculties from the outset. Many graduates are "business engineers" that industry demand.

Discussion

Participants noted the impressive array of college and universities in Ontario and their strong desire to collaborate widely within the sector and to build on their world-class skills.

Educational organizations should be part of the cluster from the outset. There is a need for mutual understanding which can be gained by dialogue. If Ontario is to be prepared for platforms of the future, industry must play a role in defining what students learn. Industry executives and workers can attend programs to upgrade their skills and help connect professors with industry.

Panelists believed that the academic sector presented a quite coherent view of where it fit in. The ball is now in the court of industry. What will industry do to increase collaboration with educational establishments? It was also noted that NSERC and NSERC chairs play an important role and provide funding.

Keynote: Maryse Harvey, Aerospace Industries Association of Canada (AIAC)



Ms. Harvey outlined the mandate of the AIAC, which focuses on advocacy at the federal government level. It has 120 members, almost half of whom come from Ontario.

The AIAC recently conducted an economic impact study of the aerospace industry and found that the indirect/induced benefits of the sector extend well beyond sales or employment. Such benefits are important and help counter the view that this is an industry that takes from government.

The AIAC is currently focusing much of its attention on the Aerospace Review announced in Budget 2012. This review has a 12-person secretariat and various working groups, including:

- Technology development, demonstration and commercialization
- Space
- Market access and development
- Aerospace related public procurement
- Small business and supply chain development (e.g. talking with Aero- Montréal about their MACH program)
- People and skills

Working groups will provide advice to the Chair, David Emerson, in the form of actionable, evidence-based recommendations by August 2012. Ontario is well-represented throughout the process, with the OAC being active in each working group.

Overall, the growth of the aerospace industry depends upon our national capabilities. This is a broad issue. Ontario's growth does not have to be to the detriment of other regions. Indeed, it is important for regions and firms to adopt a collaborative approach. There should also be more federal-provincial collaboration in supporting aerospace. Increasing R&D intensity is a must.

Quebec, for example, is very good at bringing players together and responding to requests and is flexible enough to complement the federal government. Ontario is well behind in this regard.

Moderated Discussion: Marcel Côté, Secor Consulting

Marcel Côté masterfully summed up the day's proceedings, highlighting how Ontario:

- Has first-rate universities and colleges.
- Lacks collaboration across the sector.
- Has 19 tier one companies, a high number. These firms are of great importance as they are being asked to act in the same way as primes were 30-40 years ago.
- Has fewer head offices than Quebec and fewer companies with control over R&D budgets.



He listed current sector concerns as:

- Human resources/aging/getting the best and brightest.
- Supplier development, qualifications and experience.
- Federal policies (R&D, defence, exports) and coordinated policies across all levels of government.
- Globalization in both supply and demand, which created a demand to adapt.

He noted that the policy environment is not particularly supportive:

- The federal government is reactive and focused on defence, export markets and managing regional politics through policy.
- The Ontario government lacks continuity and investment, with few or short lived measures specific to aerospace.
- Municipalities are focused on attracting investment, not on organic growth in existing companies.
- There are no sector-specific labour policies.

He listed possible ideas and areas that could bring the Ontario sector together, including short-term initiatives, defence procurement policies and human resources. More fundamental issues that could act as a catalyst for collaboration include:

- Supplier development.
- Technological preparedness (e.g. planes of the future).
- Mastering collaboration, which is a serious issue as collaboration is a mindset.
- The need for a political consensus in Ontario for concerted action that will survive a change in government.

Côté noted that it is essential to have:

- A senior business leader who will dedicate a lot of time to catalyzing a cluster, as Jacques St. Laurent did in Quebec.
- Business leadership at the outset as collaboration does not come easily.
- Government respect and provision of seed capital.
- Sufficient resources and the ability to address relevant issues, which will evolve over time.
- Integration of all the various programs through a central organization.
- A leverage agenda, not a “beggar’s agenda”. This should not just be about asking for more tax credits, for example. It should be about really improving the efficiency of value chains.



He reflected on how there is much to be learnt from the experience of Aéro Montréal and the Quebec-Ontario life sciences corridor. Whether or not educational establishments should be part of the founding group is unclear. They will not provide funding and may not make a sector-specific contribution. He did note that success is possible if the players:

- Get their act together.
- Find leadership.
- Secure \$200,000 in seed funding from all governments and industry to launch a cluster initiative/organization.

With these actions, Ontario’s aerospace sector should be ready to move from sector to cluster.

Key Conference Findings

The conference confirmed that:

- The Ontario aerospace industry:
 - Is a large, diversified and successful part of the Ontario manufacturing landscape that has done relatively well through the recession and during the period of dollar appreciation.
 - Is a highly R&D intensive, innovative, globally oriented export industry, which probably explains its resilience in recent years.
 - Comprises largely tier one and tier two firms, with one large original equipment manufacturer (OEM).
 - Has elements of an aerospace cluster but has significant gaps (e.g. lack of formal, institutionalized, industry-government-academic collaboration and forward planning for the aerospace industry, and under-developed/poorly coordinated policy support, especially relative to the Quebec aerospace cluster concentrated in Montréal).
- There is a willingness, if not enthusiasm, within the industry and the academic community to work toward building an aerospace cluster in southern Ontario.
- One of the significant constraints to industry growth identified is an aging workforce and skilled labour shortage. One proposal to address this challenge, for which there was significant support, was to establish an aerospace campus at the Downsview Park site. This would leverage Ontario's very best educational institutions in a unique partnership designed to develop innovative new technologies, aid in workforce training and skills development, and participate in supply chain development activities. This campus would provide an anchor point to a proposed aerospace technology corridor between Toronto and Montréal and enhance the capabilities of both centres.
- While all three levels of government accept the benefits of industrial clustering generally and the importance of an Ontario aerospace cluster specifically, no level of government has policies designed to support cluster development in aerospace or any sector.
- There is insufficient understanding regarding the industry competitiveness and economic benefits of industrial clustering. This could explain the lack of policy framework designed to build clusters, and the absence of industry-led institutional arrangements to support cluster development.
- The industry's current organizational structure in Ontario is under-resourced, and probably ill-suited to develop an aerospace cluster in the province. Other, more robust models, along the lines of Aero Montréal, need to be seriously examined.
- There was a consensus that building an aerospace cluster in Ontario needs strong industry leadership, with supportive and knowledgeable governments working co-operatively.

Building on the consensus evident at the conference, Canada 2020 looks forward to working with industry, academic institutions, and governments in developing an aerospace cluster in Ontario.

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