

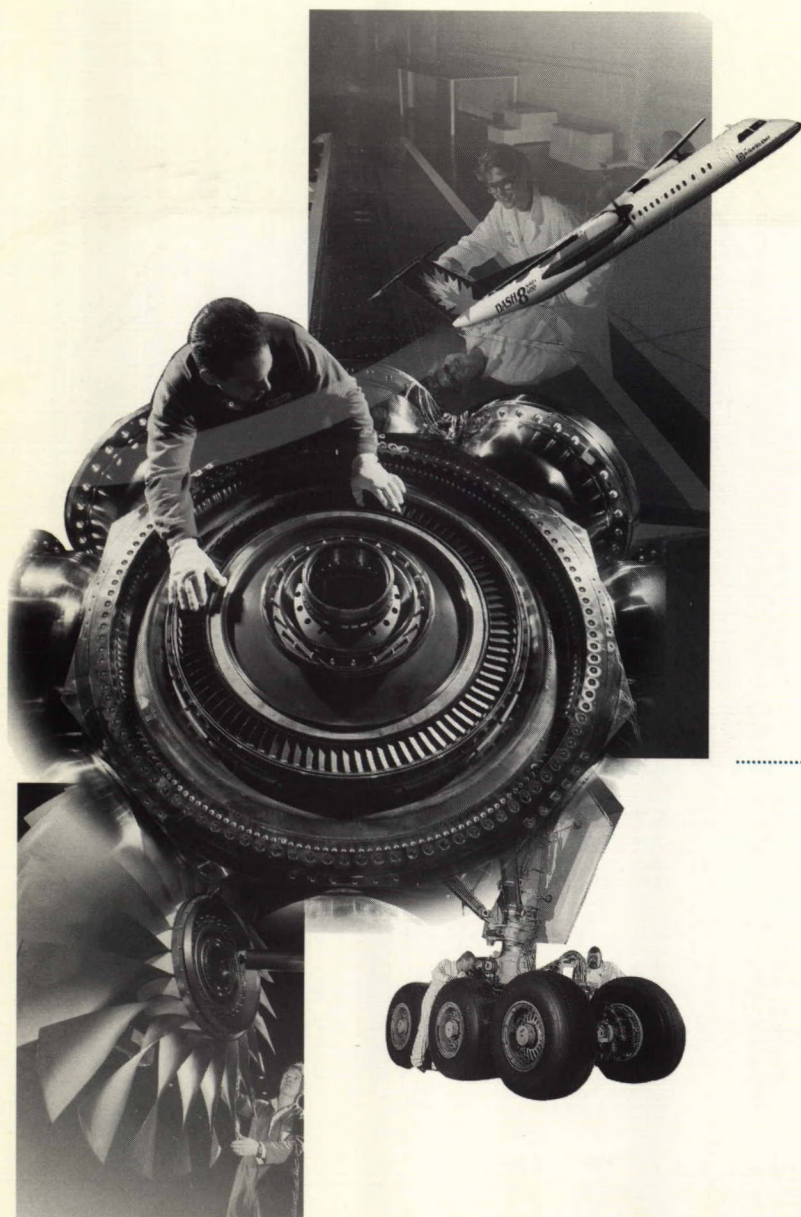


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# National Aerospace Skills Symposium



Final Report  
April 1999

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1999

# NATIONAL AEROSPACE SKILLS SYMPOSIUM FINAL REPORT



Prepared for:  
Aerospace and Defence Branch  
Industry Canada  
April 1999

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For information about the contents of this review, or for additional print copies, please contact:

Robert E. Atkinson  
Industrial Development Officer  
Aerospace and Defence Branch  
Industry Canada  
Room 632B, East Tower  
235 Queen Street  
Ottawa, ON, K1A 0H5  
Tel.: (613) 954-3269  
Fax: (613) 998-6703  
E-mail: [atkinson.bob@ic.gc.ca](mailto:atkinson.bob@ic.gc.ca)

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## **Introduction**

On February 22, 1999, the first National Aerospace Skills Symposium was held at the Ottawa Congress Centre in Ottawa, Ontario. The symposium was conceived to bring human resource (HR) professionals together to discuss human resource issues concerning the Canadian aerospace industry. It was organized and sponsored by the Aerospace and Defence Branch of Industry Canada. Several other organizations provided advice and encouragement during the planning for the symposium:

- Human Resources Development Canada
- Manitoba Aerospace Human Resources Coordinating Committee
- Ontario Aerospace Council
- Centre d'adaptation de la main-d'œuvre aérospatiale au Québec
- Aerospace Industries Association of Canada and many of its member companies
- Canadian Aerospace Maintenance Council

This was the first time that a large group of Canadian stakeholders concerned with human resources in the aerospace industry have gathered together to learn about industry best practices and partnering initiatives, to make new contacts and explore opportunities for collaboration. Approximately 80 people attended the symposium, about half of them from aerospace companies and the other half from colleges, universities, industry associations, organized labour, and federal and provincial governments. Most of the attendees were involved in human resources or training; however, there were a number of people involved in other aspects of the aerospace industry. Attendees came from across Canada.

### **Key goals of the symposium**

1. To provide people working in the aerospace human resources and training areas, or otherwise concerned with aerospace skills, with the opportunity to learn about the human resources practices in some leading aerospace companies.
2. To provide an opportunity to make contacts and to exchange and generate ideas with people concerned with aerospace skills throughout Canada.

### **How the goals were achieved**

The symposium featured presentations by aerospace industry human resources executives, directors of provincial aerospace industry associations and representatives of the federal government. Presentations dealt with successful practices being used within aerospace companies for recruiting, training and retaining skilled workers; with industry-government-

---

education sector partnerships; and with future challenges. To provide for an interactive exchange of ideas, there were discussion periods after each presentation, plus time during coffee breaks and lunch for informal discussion and networking. The agenda for the symposium is presented on the next page.

**AGENDA**  
**NATIONAL AEROSPACE SKILLS SYMPOSIUM**  
**February 22, 1999**  
**Ottawa Congress Centre**

- Co-chairs:** Jo-Ann Ball, Manager, Human Resources, Magellan Aerospace Limited  
Daniel Verreault, Vice President, Policy and Research, Aerospace Industries Association of Canada
- 08:30 Registration/Coffee
- 09:00 Call to Order, Introduction of Co-chairs  
*Ron Watkins, Director General, Aerospace and Defence Branch*
- 09:05 Welcoming Speech  
*The Honourable Ron J. Duhamel, Secretary of State  
(Science, Research & Development and Western Economic Diversification)*
- 09:25 Creating Effective Industry — University Partnerships  
*P. Michel Gagné, Manager, Human Resources Planning and Development,  
Pratt & Whitney Canada Inc.*
- 10:10 Coffee Break
- 10:25 Managing Competencies at Bell Helicopter Textron Canada  
*Charles Larocque, Director, Human Resources,  
Bell Helicopter Textron Canada*
- 11:10 Human Resources: The Evolution from Traditional Manager to Strategic Partner  
*Barry Wohl, Vice President, Human Resources, Messier-Dowty Inc.*
- 11:55 Ontario Aerospace Council's Aerospace Industry Training Program  
*Rod Jones, Executive Director, Ontario Aerospace Council*
- 12:05 Networking Lunch



- 13:30      Creating an Effective Aerospace Work Force: Meeting the Challenges of the 1990s and Beyond  
*Bruce Clarke, Vice President, Human Resources, Standard Aero Limited*  
*D'Arcy Phillips, Coordinator, Manitoba Aerospace Human Resource Coordinating Committee (MAHRCC)*  
*Wendall Weibe, Manager of Staff Development, Bristol Aerospace Limited*
- 14:15      Developing Employee Skills Within an Entrepreneurial Culture  
*Don Amos, Executive Vice President, Administration and Human Resources, Magna International Inc.*
- 15:00      Coffee/Juice Break
- 15:15      Overview of the Expert Panel on Skills  
*André Bazergui, Panel Member/Special Advisor for Strategic Development, Innovitech Inc.*
- 15:25      Advanced Engineering Training in a Virtual Enterprise Environment  
*Serge Tremblay, President and Chief Executive Officer,*  
*Centre d'adaptation de la main-d'œuvre aérospatiale au Québec (CAMAQ)*
- 16:10      Leadership Development at Bombardier Aerospace  
*Mark Porter, Director, Organizational Development and Staffing,*  
*Bombardier Aerospace – de Havilland*
- 16:55      Co-chairs' Concluding Remarks

## Summary of presentations

### Welcoming Speech

*Ron J. Duhamel, Secretary of State  
(Science, Research & Development and Western Economic Diversification)*

Mr. Duhamel was not able to attend the symposium due to a scheduling conflict. A video of his prerecorded remarks was shown instead. Mr. Duhamel welcomed everyone to the symposium and commented on the recently released federal budget. In addition to increased support for healthcare and social programs, the budget announced an Innovation Strategy that reinforces key building blocks of Canada's knowledge base, investing in research and development, and supporting the commercialization of knowledge. Technology Partnerships Canada, for example, will receive an additional \$150 million over three years, starting in 1999. The new budget adds more than \$1.8 billion over the remainder of this fiscal year and the next three years to promote the creation, dissemination and commercialization of knowledge, and to support employment.

The aerospace sector skills study and the skills dinners hosted by Mr. Duhamel last year confirmed the importance of highly skilled workers to the Canadian aerospace industry. Canadian companies must be able to design, manufacture and service world-class products at lower cost and more rapidly than our competitors. He stressed that productivity growth is a critical success factor in sustaining the industry's competitive position and that this requires capital investment, entrepreneurial innovation and an increasingly skilled work force.

Mr. Duhamel believes that there are three dimensions to the skills challenge:

**Pre-employment skills** — There are opportunities to make further advances in our learning institutions to ensure that our youth have the skills needed for employment, and to ensure that firms have access to a pool of skilled youth to remain competitive.

**Lifelong learning** — Preparation for employment cannot stop after initial education and training. We need to put more emphasis on continuously upgrading the skills of the work force. There are some highly innovative approaches taking place to accomplish this.

**Immigration and emigration** — Canada needs the right policies to position itself to attract and retain highly skilled workers.

Mr. Duhamel outlined some of the challenges facing Canadian aerospace companies in the skills area, including the following:

- Technology is moving very rapidly and industry's training needs are not always well defined and clearly communicated to the education and government sectors.
- There is real competition amongst Canadian firms for skilled workers and there is also competition from foreign firms.
- Assuring an effective and adequate work force will require dealing with the cyclical nature of the industry.
- Developing a science and technology culture in Canada is critical to all Canadians to ensure that we have the skills to participate fully in the knowledge-based economy.

Mr. Duhamel emphasized that meeting these challenges will require government, industry and other organizations to work together in partnership. There are always downturns in any economy, and while the aerospace sector must be prepared for them, at no time can we afford to lose sight of the long term. We can find solutions to both short-term and long-term problems by working together. He acknowledged that many in the audience are working very hard at the company level, in educational institutions and through provincial associations and governments. The federal government is a partner in many of these initiatives. A good example of federal partnership with the aerospace industry is the report *Assessment of the Skills and Training Situation in the Canadian Aerospace Industry*. We need to keep working together. This symposium is an important first step and other initiatives are planned, including round tables to develop further action plans and best practice case studies to be shared throughout the sector.

## **Creating Effective Industry — University Partnerships**

*P. Michel Gagné, Pratt & Whitney Canada Inc.*

More than ever, educational institutions are relying on the business sector to provide financial support and other assistance to meet the mounting challenges they are facing. While there are many ways for the business community to help universities, there is also some homework that officials from the education sector need to complete in order for this partnership to be balanced. This session addressed these elements.

Pratt & Whitney Canada works with the university sector through partnerships with selected universities that are treated as preferred suppliers. These partnerships are a two-way street, involving contributing efforts from both the company and university. Pratt & Whitney contributes more than just funding for research and development and for teaching. The

company works closely with its university partners to develop and implement ideas. Membership of senior executives from Pratt & Whitney on university boards enables the company to understand the issues facing universities and to help develop solutions. Technical personnel from the company help universities to incorporate industry practices and standards into the curriculum. In the process, lasting relationships are forged between the company and the university.

Another way that Pratt & Whitney has assisted its university partners is by using its purchasing power to ensure that the universities receive the best terms on purchased equipment. The company also donates goods and services, such as end-of-lease equipment, to its university partners and makes financial contributions where appropriate. Donations and contributions are handled by committees that include, among their membership, Pratt & Whitney employees who play the role of advocate for academic institutions.

Pratt & Whitney's financial support emphasizes "brains, not brick and mortar." The company provides scholarships and internships to promising students. Successful internships require effort on the part of Pratt & Whitney to provide a sponsoring manager and team that provide coaching for the intern and help develop case studies. The company's technical employees also transfer knowledge to universities by lecturing on campus or at the company, and participating in round table discussions with students and professors.

Pratt & Whitney discusses technical challenges that may be suitable for university research and development through its Technology Forums, to which many universities are invited. These forums are a starting point for the identification of joint projects, which can ultimately lead to long-term relationships.

Mr. Gagné stressed that Pratt & Whitney is committed to partnering with universities but that these partnerships need to be made more balanced and comprehensive. Successful partnerships involve both parties taking them seriously. He concluded by citing a study by the Hudson Institute, entitled "A Ticket to Mediocrity." According to the study, higher education has lowered its standards to accommodate large enrollment. The result has been lower qualifications among graduates. He indicated that this is an area that needs attention.

**P. Michel Gagné** is Manager, Human Resources Planning and Development, at Pratt & Whitney Canada Inc. in Longueuil, Quebec. Pratt & Whitney is the world leading technology company in the design, manufacturing, marketing and maintenance of gas turbine propulsion systems for the corporate and regional aviation markets. Its 7500 Canada-based employees operate from facilities in Quebec, Ontario, Nova Scotia and Alberta. It is able to conduct business globally through some 1500 employees located in the United States, Poland, Russia, Singapore and the United Kingdom, as well as several service centres around the world.

Mr. Gagné has been with Pratt & Whitney since 1987. Previously, he worked in human resources assignments at Shell Canada and Bell Canada. He also worked as a consultant with Coopers and Lybrand Consulting Group. He holds a bachelor's degree from the University of Ottawa and an MBA from McGill University. Mr. Gagné is active in the education sector, as a member of the Commission des études of École de technologie supérieure and on the board of directors of Collège Édouard-Montpetit.

**Discussion following Mr. Gagné's presentation**

*Question:* How successful has Pratt & Whitney been in influencing curriculum design in universities?

*Answer:* The responses have been very positive from some schools, particularly in the Montreal area. Overall, there is still a need for more input to university curricula by industry practitioners. In some cases, this is best accomplished by companies working through an advisory group responsible for several universities.

*Question:* We understand that there is not a shortage of graduates from university, rather a shortage of graduates with 2–5 years experience. One way to get experience is through internships. What can be done to create more of these positions?

*Answer:* The move to leaner organizations in recent years has made it more difficult to find managers within industry to supervise interns. One approach that Pratt & Whitney is working on involves employing company retirees to act as coaches for interns. This is actually part of a broader Pratt & Whitney concept — "Retiree Inc." — that has the potential to allow retirees to keep making a contribution to the industry by sharing their knowledge. This is a work in progress.

*Question:* To what extent can a company like Pratt & Whitney, with facilities worldwide, alleviate shortages by international transfers?

*Answer:* Pratt & Whitney and its parent company, United Technologies, provide some international assignments. These are challenging ("stretch") assignments to develop the capabilities of future leaders.

*Question:* You mentioned that graduates' qualifications must be strengthened. How can this be done when industry is also asking for broader qualifications? How can we handle the trade-off between broadly based and in-depth knowledge?

*Answer:* There is not necessarily a conflict here. The skills that need strengthening are the basic bachelor's-level ones. They can provide a solid base on which the student/graduate can build.

## **Managing Competencies at Bell Helicopter Textron Canada**

*Charles Larocque, Bell Helicopter Textron Canada*

Bell Helicopter Textron Canada, the only integrated manufacturer of helicopters in Canada, designs, manufactures, markets and services approximately 55% of the world's helicopters, 90% of which are exported. It produces nine models, including the Bell 206B, 206L4, 206LT, 407, 212, 412, 230, 430 and 427. The company was established in 1985 with 25 employees and managers whose mission was to develop an organization based on socio-technical organizational principles, i.e., semi-autonomous work teams. The group established a non-traditional management philosophy, based on each employee being manager of his or her own work. Using this approach, work is organized into a maximum of five hierarchical levels and decisions are made close to where actions are taken. A key aspect of the approach involves daily team meetings, from 15 to 20 minutes in length, during which the team discusses any problems related to manufacturing, supply, quality, and health and safety.

Developing the required work force was a challenge, since there was a shortage of workers with experience in helicopter manufacturing in Quebec. To meet this challenge, the company defined the characteristics of the employees it required, considering the non-traditional work environment that was being established. General characteristics include communications ability, willingness to work in a team, positive attitude and initiative. Specific characteristics include graduation from high school with required math courses or an equivalent combination of schooling and experience, general experience, manual dexterity and comprehension of written English. Initially, employees were hired with experience in a wide range of non-aerospace sectors. The establishment of École des métiers de l'aérospatiale de Montréal (ÉMAM) (the Montreal Catholic School Commission aerospace trade school, run in collaboration with the aerospace industry) has improved the supply of people with the required entry level skills.

Employee training is a key element of Bell Helicopter's approach to management. The skill level of employees is a key determinant in how effectively technology is utilized in the company and how the required quality is achieved. Bell makes a significant, ongoing investment in training. In 1998, for example, the company spent 3% of its payroll on training, providing 5 to 10 days of training per employee. Each employee is encouraged to acquire knowledge and skills in his or her area. The training function provides theoretical knowledge

through classroom instruction and practical knowledge in training workshops. The content of training is 75% technical (related to specific manufacturing processes), 15% interpersonal (geared to the management of work teams) and 10% general (common throughout the plant).

There are 10 sectors of activity within the plant. Within each sector (for example, structural assembly, mechanical assembly, paint shop, quality assurance and tooling), there are 10 to 14 skill levels, with progressively higher pay levels. Employees are evaluated every six months to determine if they can progress to the next skill level. Typically, over 95% of employees pass the evaluation. Those that do not have a three month waiting period prior to being re-evaluated. Evaluations are conducted by the employee's supervisor and checked by another manager. Evaluation criteria include production output meeting quality standards, work methods used, participation in work team, tools utilized, work documents successfully used, certifications acquired and complexity of work accomplished.

Bell Helicopter's approach to management has produced some concrete results. Between 1994 and 1998, the number of employees at Bell Helicopter Textron Canada grew from 1500 to 1700 (13%), production increased from 194 to 210 (6%), sales increased from \$533 million to \$692 million (30%) and market share increased from 40% to 55%.

Additional information on Bell Helicopter Textron Canada's approach to management and human resources can be found on the Internet at [www3.sympatico.ca/clarocque](http://www3.sympatico.ca/clarocque).

**Charles Larocque** is Director, Human Resources, at Bell Helicopter Textron Canada. He holds a master's degree in industrial and organizational psychology from the University of Montreal. After working as a management advisor for a major international consulting firm and a lecturer at École des hautes études commerciales (HEC) de Montréal, he held various management positions in high technology companies in the pharmaceutical, computer and aerospace sectors. In addition to his position at Bell Helicopter, Mr. Larocque is an officer in the Canadian Armed Forces and sits on several boards of directors, such as École des métiers de l'aérospatiale de Montréal (ÉMAM) and the Regional Council of Partnerships of the Laurentian Labour Market for Employment Québec.

#### **Discussion following Mr. Larocque's presentation**

*Question:* Can employees move from one trade to another?

*Answer:* After an employee reaches Level 3, it is not feasible to move to a higher level while switching trades.

*Question:* How do you ensure consistency in the evaluation process?

*Answer:* We use comprehensive written descriptions of skill levels in the evaluation processes and supervisors are trained in how to perform evaluations. Also, decisions are reviewed by the next level of management.

## **Human Resources: The Evolution from Traditional Manager to Strategic Partner**

*Barry Wohl, Messier-Dowty Inc.*

Increasingly, aerospace chief executive officers are recognizing that their companies' competitive edge comes from people-related factors. According to the Conference Board of Canada, the role of human resource departments is changing fundamentally to become a key part of business strategy. This trend is creating new challenges and opportunities for human resources managers. The conventional role of human resources managers is as providers of personnel services, such as policies, employment, labour relations, benefits and compensation, etc. The human resources manager's new role involves being an advisor/consultant, a change agent and a key strategic partner within the organization. The human resources manager must focus on building and maintaining the organization's capability to execute successful business strategies. This involves articulating the vision, goals and values of the organization and, through appropriate communications, ensuring that everyone gets the right message. The new role demands a broader set of competencies. Human resources managers still need to be competent at developing and managing procedures to deliver the conventional human resources services to the company. Now, however, the human resources manager must also possess business leadership qualities — being committed, being entrepreneurial and having good judgement. As a change agent within the company, the human resources manager must be innovative, proactive, flexible and willing to take risks.

The evolution of human resources into a strategic business function is being accompanied by increased participation of line managers and employees in the traditional activities of the Human Resources Department. Line managers are getting more involved in employee selection, performance management and counseling. To ensure that line managers have sufficient time for these activities, human resources processes and systems must be redesigned to free managers from perceived low-value human resources activities. This may involve outsourcing some human resources functions. Employees must become more responsible for their own career development, training and benefits administration.

At Messier-Dowty, these changes have occurred during a period of unprecedented business growth and transformation. Between 1994 and 1998, the company's sales have grown from



\$47 million to \$115 million. The customer base has been diversified from two principal commercial customers to include numerous others. To support this growth, the company's assembly facility has been expanded and its business offices have been modernized and reorganized. During this time period, ownership of the company changed twice and there were significant changes to the senior management team.

The Human Resources Department has facilitated the implementation of these changes in several ways. The first step was to develop a human resources strategy in line with company objectives and with the understanding and buy-in from senior management and other managers. This key step involved the Human Resources Department and its customers reaching mutual agreement as to how responsibility for managing human resources would be shared within the firm.

An important part of the human resources strategy involves communications. Several mechanisms have been put in place to take over from the "rumour mill." These include a quarterly newsletter, bulletin boards and regular meetings with employees. One type of regular meeting involves a group of randomly selected employees meeting with senior management for lunch. These lunch meetings provide an opportunity for employees and management to exchange ideas and raise issues of concern. Messier-Dowty has taken other actions to help its employees become more involved in the company's business. These include implementing a profit-sharing program, management-union meetings on continuous improvement and bring-your-kid-to-work days.

The Human Resources Department introduced a performance management system called CORE (Communicating Objectives and Results for Excellence). The system is designed to communicate clearly objectives and desired results, focus employees on mission-critical success factors, develop commitment to plans and align responsibilities throughout the company. It provides feedback and recognition on performance and involves creation of individual employee training plans.

Although human resources management is a partnership between the human resources and other managers, it is the human resources manager who is ultimately responsible for successful implementation of the company's human resources strategy. Measuring the value of strategic human resources management remains a key challenge. Potentially useful tools include employee opinion surveys and measures such as the relationship between customer retention, employee turnover and the bottom line.

**Barry Wohl** is Vice President, Human Resources, at Messier-Dowty Inc., a leading manufacturer of landing gear systems that employs 750 people in Ajax, Peterborough and Montreal. He has over 24 years of progressive experience in change management, quality initiatives, performance management, cost containment and win-win union and management

negotiations. He has implemented a number of human resources initiatives at Messier-Dowty and other companies that form an integral part of company strategy and have resulted in significant and quantifiable improvements in business performance. Prior to joining Messier-Dowty in 1996, Mr. Wohl was Vice President, Human Resources, at Bombardier Aerospace - de Havilland. He has also held human resources positions in companies in sectors other than aerospace. He is a member of the Ontario Aerospace Council Task Force on Training and played a key role in developing the association's Aerospace Industry Training Program. Mr. Wohl received a BSc (Hons) in mathematics from McMaster University and has completed the Cambridge Executive Leadership Program and Harvard Negotiation Program for Senior Executives.

#### **Discussion following Mr. Wohl's presentation**

*Question:* Are all employees involved in the profit-sharing program?

*Answer:* Yes, all employees are involved, both union and non-union, and all receive the same amount of profit-based compensation. The amount received is based on company performance compared to revenue and profit targets.

### **Ontario Aerospace Council's Aerospace Industry Training Program**

*Rod Jones, Ontario Aerospace Council*

The global aerospace industry is growing steadily while market demands are changing. Original equipment manufacturers (OEM) are pushing risk, investment and workshare down through the supplier chain. Suppliers are being asked to design and manufacture more complex, integrated systems while encountering increasing cost constraints. The industry is undergoing several changes, including more use of design/build teams (concurrent engineering) and adoption of new manufacturing technologies. The challenge for Canadian aerospace companies is to respond to changing market demands while building on their strengths in systems and equipment and maintaining manufacturing as a core capability. To meet these challenges, companies need a highly skilled, adaptable and flexible work force.

To help its members' companies increase the capabilities of their existing work force, the Ontario Aerospace Council (OAC) has developed the Aerospace Industry Training Program (AITP). OAC's industry members have been involved in developing the program, including setting priorities for training needs, defining learning outcomes and assessment standards, and working with educators to develop course and instructor manuals. They will also be involved in ongoing monitoring of program performance.

The AITP provides training courses leading to certificates in two strategically important areas: aerospace manufacturing, and program and contracts management. These programs, which are available throughout Ontario, have been designed to meet aerospace industry and employee needs, not only in course content but also in method of delivery. Once a company has identified which employees it wants to enroll in a program, it can contact one of several Ontario community colleges and make specific arrangements. The program provides significant flexibility in location, scheduling and instructors. Participating colleges will be responsible for ensuring instructor qualifications and administering the certification process.

The Aerospace Manufacturing Certificate Program consists of 15 courses (231 hours total) and the Program and Contracts Management Certificate Program consists of 11 courses (174 hours total). A prior learning assessment and recognition (PLAR) process will be used to assess employees' existing skills and allow them, in some cases, to complete a certificate program in fewer hours.

Future plans for the AITP include expanding and accelerating the available training, with an emphasis on advanced manufacturing methods. This will involve another cycle of curriculum development, preparation of learning materials, and testing and refinement via pilot courses. The PLAR process will be developed further and a registry of accredited course providers will be established.

**Rod Jones** is the Executive Director of the Ontario Aerospace Council. He joined OAC in 1993 and was responsible for managing the development of a sector strategy by Ontario aerospace sector stakeholders from industry, labour and government. Mr. Jones was subsequently appointed as OAC Executive Director and assumed responsibility for managing the implementation of the OAC strategy. Prior to joining OAC, Mr. Jones was Executive Vice President of Novatronics Inc. in Stratford, Ontario. He also spent several years as Manager of Engineering at Electrohome Ltd., Motor Division, Cambridge, Ontario. Mr. Jones has degrees in engineering and business administration.

### **Creating an Effective Aerospace Work Force: Meeting the Challenges of the 1990s and Beyond**

*Bruce Clarke, Standard Aero Limited*

*D'Arcy Phillips, Manitoba Aerospace Human Resource Coordinating Committee (MAHRCC)*

*Wendall Weibe, Bristol Aerospace Limited*

The presentation was on work force development at both the corporate and sectoral levels. The presenters defined work force development as not just the training of existing employees and

new hires but also the approaches to growing the labour pool from which future hires will be drawn. The experience at Standard Aero provided the corporate perspective. The company has worked closely with the Manitoba Aerospace Human Resource Coordinating Committee (MAHRCC) on work force development. A sectoral perspective is provided by discussing MAHRCC's activities with Standard Aero, Bristol Aerospace and other aerospace companies in Manitoba.

Standard Aero is one of the largest independent companies in the world specializing in the maintenance of small gas-turbine engines and accessories. It has over 60 years of aviation experience in over 70 countries. In the early 1990s, it commenced its World's Best Program, with the objective of transforming a good company into a much better one. This program has been successful as evidenced by the company achieving 30% annual growth since 1994. By 1999, the company had 1600 full-time employees worldwide, 63% of whom are technical employees, 6% engineers, 22% professional/managerial/administrative and 3% sales.

Standard Aero has undertaken a number of initiatives to create an effective work force. These have included developing a training culture within the company with increased emphasis on areas such as basic skills, soft skills, multi-skilling and team building. The company has developed strategic relationships with government and educational institutions. For example, Standard Aero is involved with Red River College and the University of Manitoba in providing cooperative education and apprenticeship programs. Many of its arrangements with these institutions are developed through MAHRCC.

In the early 1990s, Standard Aero and other aerospace companies in Manitoba faced several human resources issues, including:

- a lack of contact between industry and training/educational institutions;
- the need to increase the skills of existing workers (new technologies, multi-skilling, soft skills);
- the need to attract youth to the sector and to retain them as successful new employees;
- providing work experience and industry orientation to young people wishing to work in the aerospace industry;
- the lack of a training culture in many companies;
- a lack of occupational standards and portable credentials; and
- the need to grow the labour pool by developing a more diverse work force that is more inclusive of Manitoba's population.

To address these issues, MAHRCC was established in 1992 by a group of companies, including Standard Aero, Bristol Aerospace and Boeing Canada, with support from the Manitoba and federal governments. The membership of MAHRCC now includes over 30 companies, employing about 5500 people. It has a mandate to assist in the training of

existing and future employees, facilitate positive changes within educational institutions and develop the Manitoba aerospace sector.

MAHRCC has worked with a number of educational institutions in Manitoba to help them strengthen their technical programs and respond to the educational and training needs of the province's aerospace industry. Some of these initiatives include:

- helping the University of Manitoba develop an aerospace engineering option and create (with support from Bristol Aerospace) a Natural Sciences and Engineering Research Council chair in advanced materials;
- supporting the development and delivery of training courses by Red River College;
- supporting the re-opening of the metal working shop at Winnipeg Technical Vocational (Tec Voc) high school and the "Wings Across Winnipeg" project in which students assemble a light aircraft from a kit;
- working with several universities in western Canada to create a joint master's in aerospace program;
- holding an Aerospace Career Symposium for young people;
- facilitating arrangements whereby new entrants to the industry can get on-the-job training at Standard Aero and then be transferred to smaller companies;
- working with the Canadian Aviation Maintenance Council (CAMC) to ensure that CAMC accredited courses are available in Manitoba;
- developing an Aviation Manufacturing Orientation Program that provides training in fundamentals skills for prospective new entrants to the aerospace industry (this program was adapted from a CAMC program focussing on aviation maintenance skills);
- providing support, along with the school system, for a Teacher's Year in Industry — industry secondments designed to produce "bicultural individuals" who understand industry's needs and environment and can incorporate this into their teaching;
- developing and supporting scholarship and summer employment programs; and
- supporting the development of prior learning assessment and recognition (PLAR) methods.

Bristol Aerospace has been the principal company, along with MAHRCC and Red River College, working on the PLAR initiative. The company's need for this program arose from a shift in its customer base and the resultant need to employ certified journeyperson machinists. The company employs a number of machinists with extensive experience that was not obtained through formal apprenticeship or college programs. PLAR provides an alternative route to broadly recognized certification. It provides a means to measure and document knowledge and skills gained outside formal programs. Employees can use the outcome of their PLAR assessment to obtain course credits from the college for demonstrated equivalent competence and to develop training programs tailored to their needs.

MAHRCC has identified a number of human resources challenges facing the aerospace industry in Manitoba. These include:

- dealing with specific skills shortages, particularly CNC/conventional machinists, AMEs, TIG welders, aerospace engineers, etc;
- attracting the best and brightest from traditional and non-traditional sources to develop a more diverse work force;
- developing reliable projections of the supply and demand for skilled workers;
- developing courses new to Manitoba, e.g., metallurgical processes;
- exploring the need for apprenticeable trades; and
- exploring new media (computers, telecom) as a possible means of increasing the diameter of the training pipeline for high-demand occupations.

**Bruce G. Clarke** is Vice President, Human Resources, at Standard Aero Limited. Since joining the company in 1984, Mr. Clarke has held increasingly senior positions and was appointed to his current position in 1990. He has been involved in the entire spectrum of human resources management at Standard Aero, covering such diverse areas as recruiting, employee relations, payroll and benefits, pensions, health and safety, training and development, and regulatory programs. He has been instrumental in the evolution of human resources management at Standard Aero in response to changing work force requirements and business conditions. Prior to joining Standard Aero, Mr. Clarke was an educator in the Manitoba school system for a number of years. He is on the Board of Directors of the Manitoba Aerospace Association, the Manitoba Safety Council and the Educare Business Centre, and is a past president of the Manitoba Aerospace Human Resource Coordinating Committee. Mr. Clarke holds a Bachelor of Arts and Certificate in Education from Brandon University and an MBA from the University of Manitoba.

**D'Arcy Phillips** is Coordinator of the Manitoba Aerospace Human Resource Coordinating Committee, which was established in 1992 by federal and provincial governments and industry. The committee was designed to assist industry and educational institutions in developing and delivering training for both existing and prospective employees in the Manitoba aerospace industry, consistent with current and projected demands for skills.

Mr. Phillips received a Bachelor of Arts degree from Queen's University, a Bachelor of Education degree from the University of Toronto and a Diploma TEFL from London. He has spent over 25 years in adult education and training in secondary schools, colleges, universities, private sector training and government organizations as a teacher, curriculum developer, program developer, program evaluator, policy advisor and senior program manager. Mr. Phillips spent seven of those years in East Africa, the United Kingdom and Saudi Arabia.

Wendall Weibe has worked at Bristol Aerospace Limited since 1992 as Manager of Staff Development. He has been involved in all aspects of employee education and training programs within the company in collaboration with MAHRCC. He is responsible for the Prior Learning Assessment and Recognition initiative at Bristol and works through MAHRCC with government and the educational sector on this program. Mr. Weibe has been on the executive board of MAHRCC for five years and is the organization's new president.

Mr. Weibe graduated with a Bachelor of Arts degree and a Master of Education degree. He was instrumental in establishing the Winnipeg Transition Centre, where he spent five years training adults in how to find a new job or start a new career.

## **Developing Employee Skills Within an Entrepreneurial Culture**

*Don Amos, Magna International Inc.*

Magna has over 49 000 highly skilled employees who design, engineer and manufacture quality systems and assemblies for many of the world's major automotive manufacturers. With 160 manufacturing operations and 31 product development and engineering centres in 17 countries, and sales of approximately \$9.1 billion, Magna operates in a highly competitive global environment. This environment is characterized by increasing customer-driven requirements for innovation, quality, affordability and speed. The supplier base is consolidating in response to customer needs for suppliers with a global presence and the ability to design and manufacture increasingly complex assemblies and systems. Magna has met these challenges while achieving growth and profitability well above the industry average.

A key critical component of Magna's strategy is its highly decentralized entrepreneurial culture. This culture originated with the company's founder, Mr. Frank Stronach, who started the company as a one-person operation. As the company expanded, senior management realized that "the bigger you get, the more you have to work hard at being small," that is, maintaining the entrepreneurial culture that created the growth in the first place. An added challenge involves transplanting the Magna corporate culture into companies that Magna acquires.

In 1982, Magna instituted a more formal system to ensure that its entrepreneurial culture would be maintained as the company continued to grow. The system is based on the following operating principles: a decentralized operating structure, employee involvement, entrepreneurial managers, an Employee's Charter and employee ownership. The Magna Corporate Constitution defines the rights of employees, management and other shareholders with respect to equity and profit participation. The Magna Employee's Charter further

articulates the company's operating philosophy, addressing areas such as job security, workplace health and safety, wages and benefits, fair treatment, employee equity and profit participation. Below are some of the ways that Magna implements these principles:

- Senior management produces a monthly commercial strategy document and provides it to all general managers, who use it to update their employees on the business.
- One-hour monthly meetings are held between managers and employees.
- Magna provides its employees with an accurate picture of wages and working conditions elsewhere in the industry through a credible process of "replacing rumour with fact."
- Employees with concerns over any issue related to their work and workplace environment can use the "hot line" to bring the issue to management's attention. Management then assigns a person to investigate the issue and identify any problems that need fixing. The goal is to resolve problems when they are small.
- Magna is developing an approach to "democracy in the workplace" in which decisions about the work environment are decided upon by all employees using a secret ballot.
- Employees conduct an annual health and safety audit, which they have played a significant role in developing.
- Magna supports continuing education among its employees and will pay the tuition for courses that are relevant to employees' work.

Mr. Amos stressed that an entrepreneurial, skilled work force is the greatest source of competitive advantage available. Anybody can build buildings and buy equipment but not everyone can fill the building with an outstanding work force. He had a number of comments on the North American educational system in comparison with the system in Europe. Community colleges in North America often fall short in terms of having sufficient, up-to-date equipment, instructor knowledge and curriculum. In Europe, a higher level of importance is placed on technical training. For example, at Styre, one of Magna's recent acquisitions, apprenticeship training is provided by the company's two best tool and die makers. One of the problems in North America is that the technical route is a dead-end for most people. There is a need for more flexibility in the educational system to accommodate lifelong learning — being able to move in and out of the educational stream. The German system, in particular, provides more flexibility in this area.

Magna is working with a number of community colleges on educational and apprenticeship programs and has also established the Magna Training Centre. The centre, which was set up by two of Magna's retirees on a retainer to the company, provides a real world environment for training. In the future, it will be possible for people to earn an internationally recognized engineering technology degree at the centre.

**Don Amos** is Executive Vice President of Administration and Human Resources at Magna International Inc. and is a member of Magna's Policy Committee. He joined Magna in 1984



and has held increasingly senior positions in the corporation. His experience is in operations management, computer communications and systems design, sales, product development, preferred supplier agreements and labour relations, as well as all facets of employee relations and human resources.

Mr. Amos has served as chairman of the Profit Sharing Council of Canada as well as the Technical Committee on the Design for the Environment for the Canadian Standards Association (CSA). He is currently the co-chair of the Human Resources Committee for Industry Canada's Automotive Advisory Committee and also serves on the General Motors Supplier Environmental Advisory Team and the CSA's Strategic Steering Committee on the Environment. Mr. Amos graduated from Sir Wilfred Laurier University with honours in business administration in 1968.

#### **Discussion following Mr. Amos's presentation**

*Question:* If you were doing it over again [building Magna from a small company to a major one], what would you do differently?

*Answer:* [Nothing specific was mentioned regarding doing things differently] ... But the most important thing we did was create Magna's Corporate Constitution.

### **Overview of the Expert Panel on Skills**

*André Bazergui, Innovitech Inc.*

The Prime Minister's Advisory Council on Science and Technology (ACST), recognizing that skills are critical to Canada's success in the transition to a knowledge-based economy, has established the Expert Panel on Skills. The 11 members of the panel, coming from different sectors and regions of the country, have been chosen by the ACST for their expertise and long-term interest in key aspects of the skills challenge. The panel is chaired by Dr. Jacquelyn Scott, President of University College of Cape Breton.

The panel is examining key industrial sectors, including aerospace, and has been asked to report on three fundamental issues:

1. What critical skills are needed over the next decade to improve or maintain Canada's competitive position?

2. Are these critical skills in short supply, now and in the foreseeable future, and do we have the appropriate means to monitor their availability?
3. What practical approaches and strategies could help ensure that Canadians acquire and develop the critical skills necessary to succeed in a knowledge-based economy?

The panel will attempt to provide answers to some key questions concerning the capacity of the educational system to meet current and future industry needs, and the magnitude of the so-called "brain drain" through which capable Canadian workers may be leaving the country for employment elsewhere.

André Bazergui, a member of the Expert Panel on Skills, provided a brief overview of the panel's progress and invited attendees to provide comments to the panel.

**Dr. André Bazergui** is Special Consultant to the CEO, Innovitech Inc., a Montreal-based high technology firm. Dr. Bazergui recently retired from École polytechnique de Montréal, where he holds the rank of full professor, after completing his second four-year term as Director General (CEO) and Vice Chairman of the Board. He holds a bachelor's degree in mechanical engineering from École polytechnique de Montréal and received a PhD from the University of Sheffield (United Kingdom) through an Athlone Fellowship. He was recently awarded a Doctorate of Laws, *honoris causa*, from Concordia University. He has taught and carried out extensive research and industrial contract work, and published numerous papers and reports, as well as a textbook entitled *Strength of Materials*. He is internationally known for his work on gaskets and bolted joints in pressure vessels.

#### **Discussion following Dr. Bazergui's presentation**

*Comment:* One way that the federal government could help colleges is by the Department of National Defence donating older equipment. Industry has been much more responsive in this area.

### **Advanced Engineering Training in a Virtual Enterprise Environment**

*Serge Tremblay, Centre d'adaptation de la main-d'œuvre aérospatiale au Québec (CAMAQ)*

The aerospace workplace is evolving toward an integrated, multi-site, highly collaborative engineering environment in which design, development, manufacturing and service functions extend across traditional intra-company and inter-company boundaries. To work effectively in the virtual enterprise environment, engineers will need to achieve mastery of new

technological tools, processes and methods (e.g., computer aided three dimensional interactive application (CATIA)). They will also need a highly developed set of people and business skills that enable them to be sensitive to market requirements, break down barriers between engineering functions and become change agents within their organizations.

Existing university programs and experience gained in a conventional engineering environment do not fully prepare engineers for work in the virtual enterprise. To bridge the gap between the conventional engineering competencies and those required in the evolving virtual enterprise workplace, CAMAQ is coordinating the development of a program of studies aimed at both new graduates and practising engineers. The program is being developed and implemented through the collaboration of universities and aerospace companies. The companies that initiated the program were Pratt & Whitney Canada Inc., Bombardier Canadair Inc., Bell Helicopter Textron Canada and IBM. Several other member companies of CAMAQ have since joined the program. Participating universities include École polytechnique, Concordia, Laval, McGill and Sherbrooke.

The program involves course work and case studies tied together through a coherent learning strategy. Pratt & Whitney, Bell Helicopter and Bombardier have helped develop the program and will be involved, along with the participating universities, in providing instruction and case study supervision. IBM has provided hardware (15 work stations), software, furniture, technical support and teaching to support the program.

The program's specific objectives are that future engineers

- acquire a global awareness of the complete process, from product conception, based on client needs, to delivery of the product;
- become aware of the business culture and its values, aims and perspectives and be able to put their own professional contribution into context;
- acquire a mind set that allows them to break down the barriers between design, engineering, methods, tooling and manufacturing;
- become competent integrated engineers able to work in the multi-site, often international setting, be aware of the global picture, be sensitive to market requirements and be able to put their own collaboration into perspective with any project as a whole;
- adopt a positive and proactive attitude towards technological and organizational changes associated with the virtual enterprise;
- acquire the knowledge, skills and specific abilities associated with the virtual enterprise; and
- become agents of change within the organization.

Specific abilities that the program is designed to develop include

- the ability to describe a typical enterprise process and share in the global vision of any ongoing project;
- the ability to contribute a multi-disciplinary work team for a specific work package and the corresponding work flow;
- the ability to use the major technical tools in the virtual enterprise context at a high level of proficiency;
- the ability to review and apply quality control concepts and methods and adapt relevant technical skills in a virtual enterprise environment; and
- the ability to demonstrate the people and business skills required in a collaborative engineering environment.

The program is organized into several course modules and a case studies project as described below:

Module 1: Understanding Processes — developing a full understanding of the global process, from concept to product; with integration into and participation as part of an integrated product development team.

Module 2: Understanding Work Flow — developing a full understanding of how each element of the project is achieved, including the engineering contribution, technical input, technical output, data management and approval cycle.

Module 3: Virtual Enterprise Technical Tools — for example, computer aided design/computer aided manufacturing (CAD/CAM), simulation of specific manufacturing operations and collaborative engineering. (Note: More than 50% of CAD/CAM users in the aerospace field work on CATIA.)

Module 4: Quality — including both technical and soft skills needed to continuously improve the equilibrium between perfection and manufacturing feasibility.

Case Studies — These case studies are based on real life industry- and specification-driven technical design requirements. They involve working in a multi-disciplinary, on-line, collaborative engineering environment based on an integrated product development team framework. Ongoing supervision is provided by sponsor enterprises.

Further information on CAMAQ can be obtained on the Internet at  
<http://www.cam.org/~camaq>

**Serge Tremblay** is General Manager of l'Association québécoise de l'aérospatiale and President and Chief Executive Officer of Centre d'adaptation de la main-d'œuvre aérospatiale au Québec (CAMAQ). Mr. Tremblay was instrumental in the formation of CAMAQ, in 1983, and was elected Chairman of CAMAQ's Board of Directors in 1987. CAMAQ is an association of Quebec-based aerospace companies and unions whose objectives are to stimulate and assist industry members in training, planning for labour force needs, participating in the development of secondary and post-secondary educational programs, promoting the industry as a source of careers, encouraging job creation, and working with government to develop and implement human resources and training programs.

Mr. Tremblay has held positions of increasing responsibility in human resources management in public sector organizations and industry. Prior to the formation of CAMAQ, he was Vice President, Human Resources, at Québécoir. Mr. Tremblay holds a Bachelor of Arts degree from Collège Ste-Croix and Bachelor of Science and Master of Science degrees in industrial relations from Université de Montréal. He is involved in a number of professional associations and community service organizations and is a member of several boards of directors.

#### **Discussion following Mr. Tremblay's presentation**

*Question:* When will the program start and will the results of the case studies be shared?

*Answer:* The roll-out will be in September 1999. Excluding some proprietary information, the case studies will be shared.

*Question:* Is the virtual engineering program incremental to the existing master of aerospace engineering involving the five universities mentioned?

*Answer:* Yes, it is expected to result in another 15 master's graduates per year in addition to the current level of 40 graduates per year.

### **Leadership Development at Bombardier Aerospace**

*Mark Porter, Bombardier Aerospace – de Havilland*

A 1997 McKinsey report concluded that "the war to attract, develop and retain executive talent will be the battleground that determines corporate performance." Like it or not, we are all in this battle! Growth in the aerospace industry has created greater demand for executive talent. Bombardier Aerospace has estimated that it will need 150 directors over the next five years.

New managerial skills are required for growth, globalization, technology and leadership. The top ten leadership competencies are driving for results, people development, big picture awareness, being a team player, flexibility, integrity/honesty, a learning orientation, strategic thinking, setting vision and direction, and creating a high performance climate. While the demand for executive talent has been increasing, the supply has been shrinking and become more elusive. There are decreasing numbers of 35 to 45 year olds with the required qualifications available. Executive talent is becoming more mobile and is often attracted to small companies.

To help meet its leadership needs by developing leaders from within, Bombardier Aerospace – de Havilland has created a leadership development framework. The framework provides a career path through which new graduates hired by the company can progress to becoming supervisors, managers and ultimately senior managers/directors. The framework incorporates the principle that an employee's rate of learning should not be allowed to fall off once a certain age or position is reached. To accomplish this, it identifies learning objectives and activities at each step in a high potential employee's career, from newly hired graduate, through first level manager to senior manager/director.

Major components of Bombardier de Havilland's leadership development framework include the following:

- The **Graduate Development Program** allows new graduates with leadership potential hired by Bombardier de Havilland to develop functional, professional and cross-functional competencies within their regular work experience. An employee's involvement in the program will last about two years.
- The **Certificate in Management Skills** program is aimed at managers in a first level leadership role. The program is accredited by the American Management Association (AMA) and utilizes both Bombardier and AMA instructors. It provides managers with a better understanding of management skills and techniques, develops their leadership skills and builds in systems discipline. Participation involves 12 days off the job over a four month period.
- As managers progress to more senior levels, they are encouraged to increase their knowledge and competence through further learning activities. Currently under development is a **Degree/Diploma in Management Skills** program that will be implemented in partnership with a university. This externally accredited program will require approximately 20 days off the job over one year.

- Within the **leadership development framework**, high potential managers are encouraged to complete an executive MBA program and senior managers will continue to improve their competencies through executive development activities.

Bombardier de Havilland's leadership development framework provides the means to ensure effective succession planning. The succession planning process is driven by top management. It involves reviewing leadership "bench strength," identifying high potential employees and ensuring that they are given an appropriate range of cross-site functional development assignments.

Some key principles that define the way forward for developing leadership at Bombardier de Havilland include

- cross-functional experience;
- driving accountability to the lowest levels in the organization;
- up-skilling and cross-skilling employees at all levels;
- improving retention strategies;
- diversity;
- enhancing a multi-functional framework; and
- developing integrated business learning.

Bombardier de Havilland's approach is based on the belief that it is more cost effective to develop leaders from high potential employees within the company than to parachute them in from elsewhere. The leadership development framework is designed to accomplish this.

**Mark Porter** is Director, Organizational Development and Staffing, at the Bombardier Aerospace - de Havilland site. This facility, located in north Toronto, has approximately 5500 employees and is one of Bombardier's four manufacturing sites. Mr. Porter's responsibilities include all recruitment and development, covering the shop floor and unionized employees as well as all levels of management. He has been at Bombardier Aerospace – de Havilland for approximately 15 months. Prior to this development assignment, he worked in Human Resources for Bombardier – Shorts, the company's European facility situated in Belfast, Northern Ireland.

Having graduated in engineering, Mr. Porter started at Bombardier – Shorts in their Stress and Weights Department before transferring into the training function and moving quickly up through the Human Resources Department. In addition to his qualifications in engineering, he holds an MBA from Sussex University in England as well as various qualifications in personnel and manufacturing management.

**Discussion following Mr. Porter's presentation**

*Question:* Has Bombardier - de Havilland considered partnering with its suppliers in these programs?

*Answer:* This is a possibility for the future. Right now, we are concentrating on getting the programs operating within our own company.

*Question:* How do you assess people for leadership potential?

*Answer:* We have a comprehensive performance appraisal system to assess employees and help identify their training needs, which is then used to formulate training programs for each employee.



## **Networking Lunch**

Attendees had the opportunity to make new contacts in the human resources field and renew acquaintances during the networking lunch. Some interesting discussions on skills topics were also held. Tables were marked with signs identifying key skills issues and attendees were encouraged to sit at a table with a topic of particular interest to them. The topics are listed below:

- Creating a science and technology culture in Canada
- Human resources cooperation within supplier chains
- Prior learning assessment and recognition
- Computer-based and distance learning
- Role of the human resources function in aerospace companies
- Industry-academic-government partnerships
- Co- and similar programs
- Retaining skilled workers
- Developing managerial skills
- Skills and productivity
- Retaining skilled workers in Canada
- Dealing with the aerospace business cycle
- Worker mobility and credentials

According to the feedback questionnaire, attendees found the discussions during the networking lunch to be very useful. Most tables did not provide us with notes on their discussions; however, the following summaries were received.

### **Creating a Science and Technology Culture in Canada**

(Discussion among Mr. Duff Mitchell, Industry Canada; Dr. Richard Kind, Carleton University; and Dr. Marek Kujath, Dalhousie University. Summary provided by Mr. Mitchell.)

To benchmark Canada's science and technology culture, international comparisons have been made principally with the United States and Japan. In both the United States and Japan, there appears to be a more active debate about the role of science and technology that engages the full spectrum of society. For example, in the United States, both the President and the Vice President are closely identified with promoting technology as a major plank of their economic policy. At the same time, Congress has a role, spelled out in the Constitution, to review science and technology on behalf of the American people and as part of the annual appropriations process. With both the Administration and Congress having clearly defined roles, and with the stakes being considerable — some \$80 billion annually in publicly funded civilian research and

development and another \$70-80 billion in defence research and development — the American public is kept both informed and engaged. In short, the strength and dynamics of the American science and technology culture is largely based on the belief that science and technology contributes to economic growth and all Americans benefit when the economy grows.

Similarly, it was noted that in Japan, the preferred career is that of the engineer (as opposed to the lawyer, etc.). This is because of the recognition that the most rewarded jobs are those that contribute to technological innovation at corporations. As a result, when Japan holds a science fair, as it did in Tsukuba City in the late 1980s, it is a family affair. People of all walks of life participate. In short, the strength and dynamics of the Japanese science and technology culture is largely based on the belief that strong corporations make for a strong Japan, and technological innovation through engineering and science professions contributes to strong corporations.

It was also noted that in Europe, nationalism plays a major role in supporting a science and technology culture. Specifically, many countries are motivated to be able to claim that their science and technology initiatives contribute to technological innovation both at home and abroad. To some extent, this is a defensive response to the dominate role of the United States and Japan in global research and development.

### **Human Resources Cooperation Within Supplier Chains**

(Discussion among Mr. Gary Cronkwright, Association of Colleges of Applied Arts and Technology of Ontario; Catherine Rudick, Executive Assistant to the Honourable Ron J. Duhamel; Darren Taylor, Applied Microelectronics Inc., Halifax, Nova Scotia; someone from Boeing, Arnprior, Ontario; and Alan Underdown, Underdown Associates, Nepean, Ontario. Summary provided by Ms. Rudick.)

An example of cooperation within an aerospace supplier chain involves Pratt & Whitney Canada working with suppliers such as Haley Industries of Arnprior, Ontario, to transfer the Kaizen method of process improvement to Haley. There is a lot of employee training involved in using Kaizen.

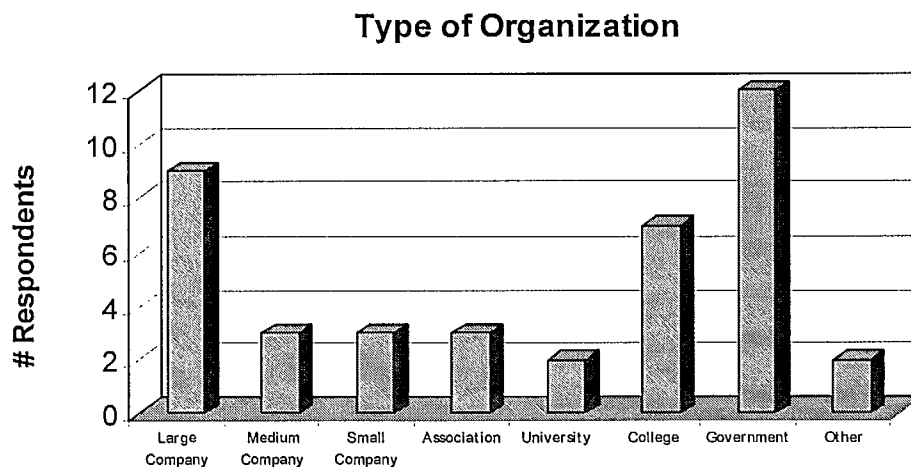
Another example, "Flying in Formation," is a cooperative effort by aerospace firms in Wichita, Kansas, to recruit people to work in aerospace within their region. They hold trade fairs and use other activities to bring people in. There is competition among the firms for workers, but they have a protocol to avoid having prospective employees leverage one firm's offer of employment against another.

A group of technology-based firms in the Halifax area is doing something similar. They are examining ways to identify people who have left the region to work and may be interested in returning.

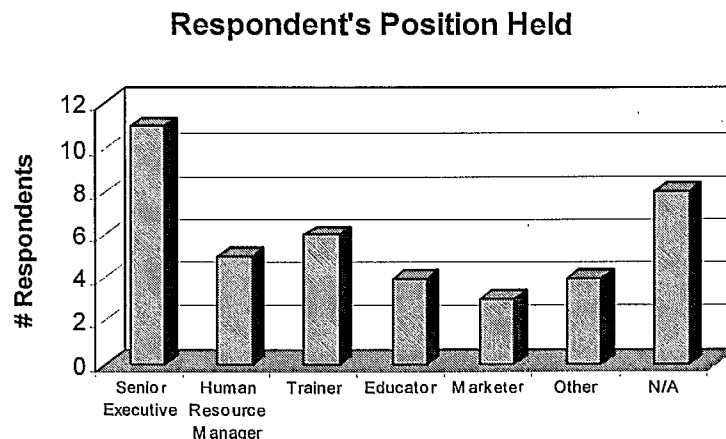
The issue of large companies hiring employees from their suppliers was discussed briefly. This has not been a problem for Boeing in Arnprior, likely because employees like to live in the area. In Halifax, there is competition among high technology firms, between suppliers and customers, for skilled employees.

## Feedback on the symposium

Attendees were asked to fill out a feedback questionnaire before going home. There were 41 responses to the questionnaire. This represents a response rate of approximately 60% of all attendees. The results demonstrate that the goal of attracting a broadly based audience, from industry, the education sector, government and other stakeholder groups, was achieved. Fifteen of the 41 responding attendees were from industry, the majority of these (9 respondents) being from large companies. Another three respondents were from industry associations. There were 2 respondents from universities, 7 from community colleges, 12 from government and 2 listed as "other." Note: There were two union representatives who attended the symposium.



The attendees hold a range of positions in their organizations, although these are mostly related to human resources and training. For example, the senior executive category includes some human resources vice presidents. The marketer category refers to marketing of training services.

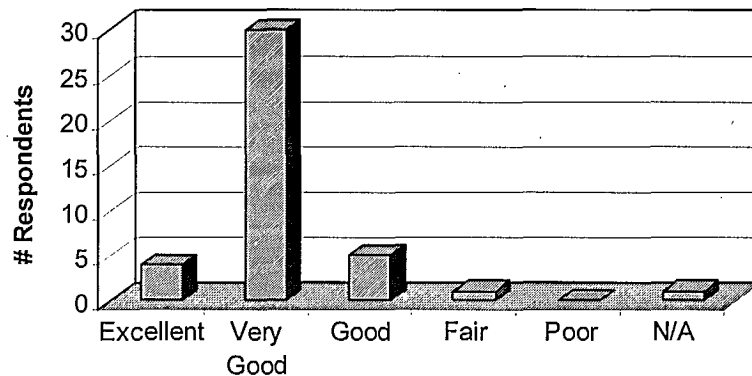


Below, we report on the attendees responses. The results are, for the most part, very positive with respect to the usefulness of this symposium and potential future events. These positive responses were seen among each specific category, such as those from industry.

*Was the content of the presentations useful to you?*

Over 80% of respondents (34 of 41) rated the content's usefulness at very good or excellent. Another five respondents rated it as good and only one rated it as fair. There was one non-response.

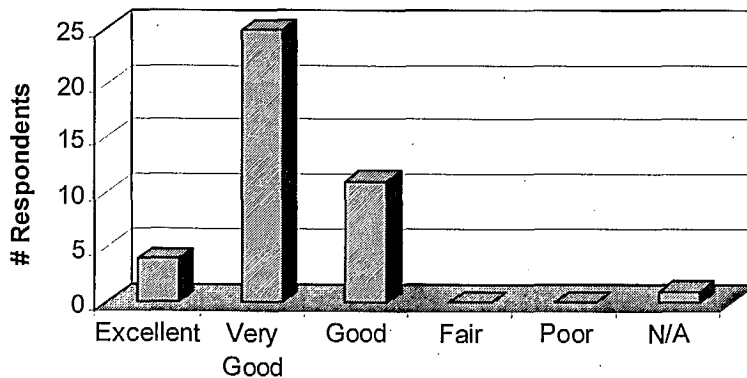
**Usefulness of Presentations**



*Effectiveness of speakers (Were they understandable, interesting?)*

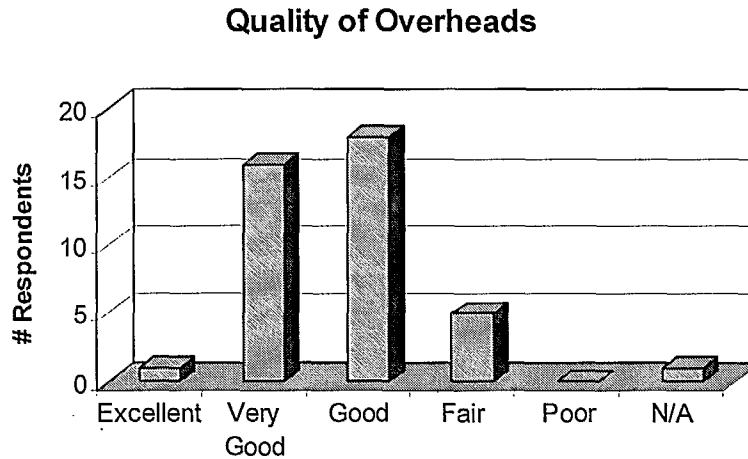
A majority of respondents (29 of 41) rated the speakers as very good or excellent. Almost all respondents (40 of 41) rated the speakers effectiveness as good or higher.

**Effectiveness of Speakers**



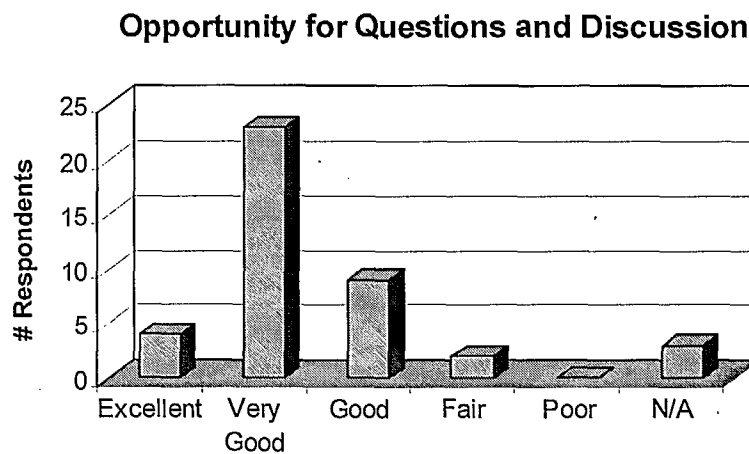
*Quality of overhead slides — Were they readable, understandable?*

Almost half of the respondents (18 of 41) rated the quality of overheads used as good. Over 80% of respondents (35 of 41) rated the quality as good or higher.



*Was their adequate opportunity for discussions and questions after the presentations?*

Over half of the respondents (23 of 41) rated these opportunities as very good. Over 80% of respondents (36 of 41) rated the opportunities as good or higher.



*Which speakers/topics were most useful to you?*

All of the presentations were mentioned as being useful. There were no negative comments on the presentations.

*Are there topics of interest to you that were not covered or could have been covered in greater detail?*

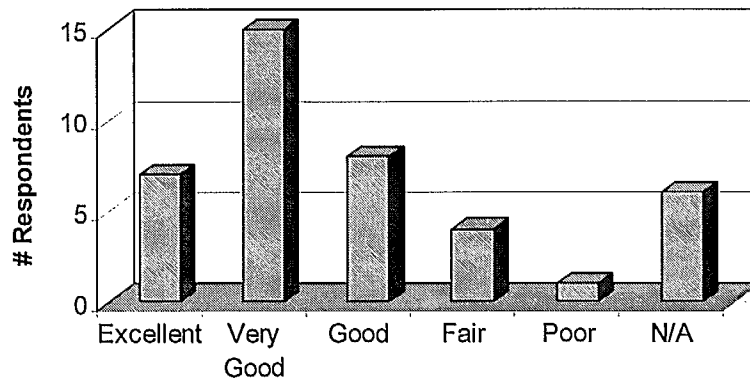
The respondents cited a number of topics, some of which had been covered in the symposium while others had not:

- Federal/provincial funding opportunities
- Models of government/industry/education partnerships; best practices
- Apprenticeships, presentations by colleges, unions
- How [the Canadian aerospace industry] can pass from 5th to 4th largest in the world
- How to implement a system for managing skills
- More standards practices comparisons — we heard that we are 10–15 years behind other industries, we need to know what these practices are
- Prior learning assessment and recognition
- Standardization of credit/acknowledgement given for courses taken and experience gained from one aerospace firm or institution to another
- Working within the business cycle
- The educational perspective
- Matrix management
- The importance of research and development and the lack of government support
- More discussion on various associations and how they can better work together to push aerospace industry training
- More coverage on developing skills within an entrepreneurial culture — need best practices from several firms
- Computer-based training
- Identifying and assessing competencies at the supervisory/management level (using prior learning assessment and recognition)

*How useful were the networking lunch discussions?*

About three quarters of respondents (30 of 41) rated the usefulness as good or higher.

**Usefulness of Networking Lunch**



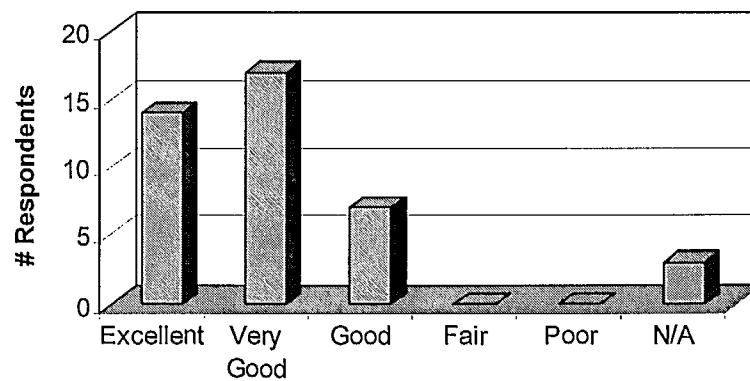
*Specific comments:*

- There should have been a chairperson/facilitator to focus the discussions.
- It was a good opportunity to meet people, not necessarily to discuss the topic specified at the table.

*Did the symposium run smoothly?*

About three quarters of respondents (31 of 41) indicated very good or excellent on this question. Everyone who answered the question (38 of 41) answered good or higher.

**Did the Symposium Run Smoothly?**



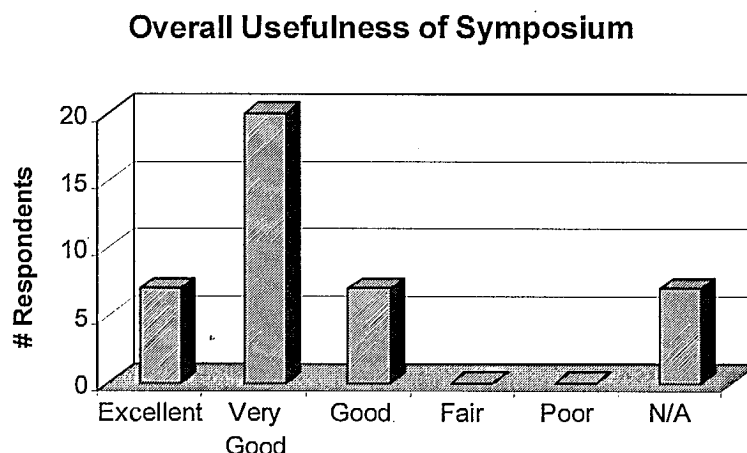


*Specific comments:*

- There were some audiovisual glitches.
- Simultaneous translation problems.

*Overall, how useful was the symposium?*

About half of the respondents rated the overall usefulness as very good. Everyone answering this question (34 of 41) rated the overall usefulness as good or higher.



*Specific comments:*

- Thank you — a great day with a lot to think about!
- It has been great to meet and hear what others are doing. This sharing could reduce the cost of developing models.
- I think the day was very valuable for everyone — could have been more effective if there were more opportunities for interactivity.
- The symposium was very interesting. Do it again for a broader audience.
- It was a good forum to exchange ideas.

*How could we have done a better job?*

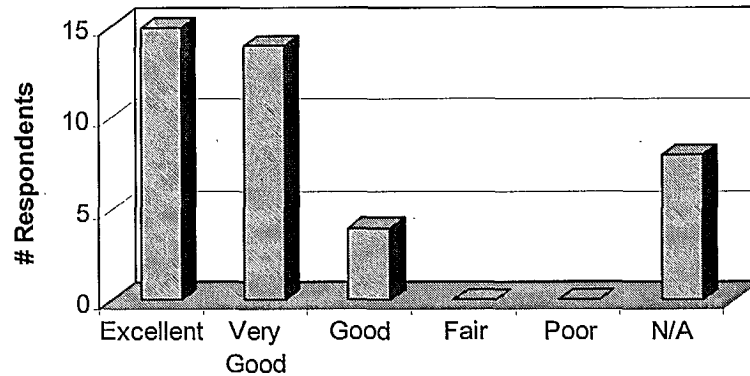
- More opportunities for interactive participation (several responses).
- Provide copies of overhead presentations (several responses).
- Provide list of attendees with phone numbers and E-mail addresses.
- More diversity in the format of presentations.

*How interested would you be in attending/participating in*

*a) Future national aerospace skills symposia (every one or two years)?*

About three quarters of respondents (29 of 41) indicated their interest level at very good or higher. All attendees answering this question (33 of 41) rated the idea as good or higher.

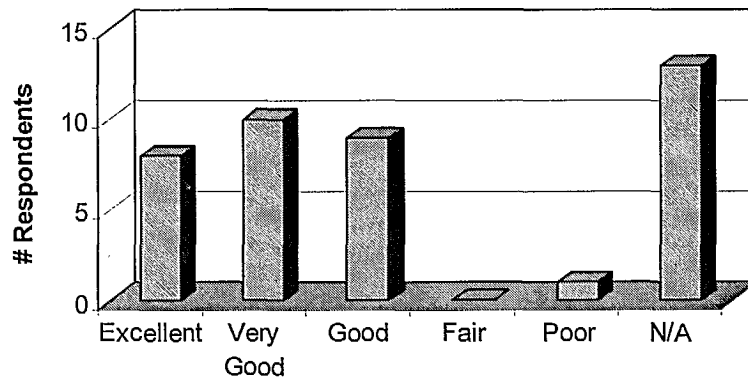
**Interest in Future National Skills Symposia**



*b) National round table discussions?*

About two thirds of all respondents (27 of 41) and all but one of those who answered the question rated this idea as good or higher. (There were 13 non-responses.)

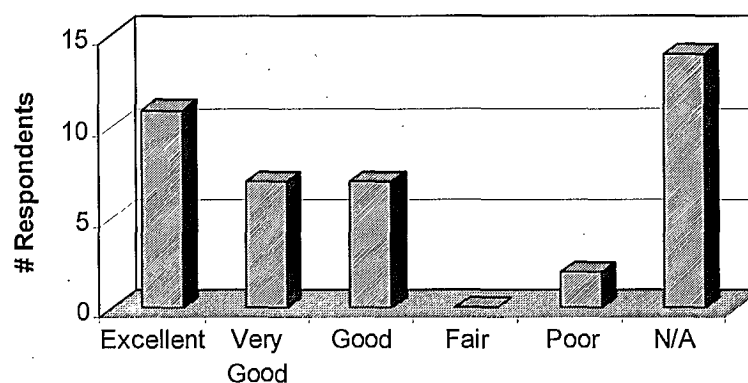
**Interest in National Round Table Discussions**



*c) Regional aerospace skills symposia?*

About 60% of the respondents (25 of 41) rated this idea as good or higher. Two attendees rated it as poor and there were 14 non-responses.

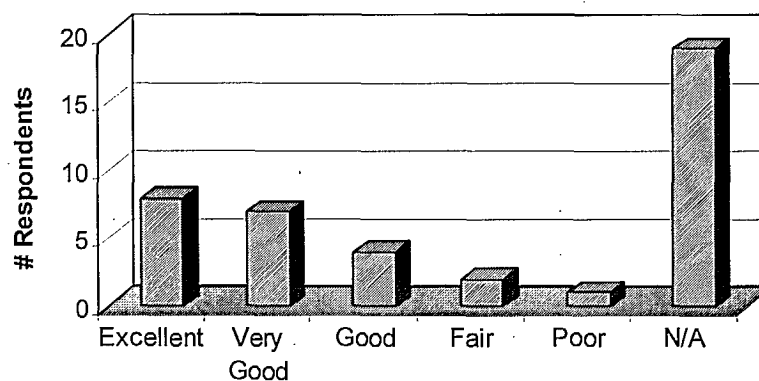
**Interest in Regional Aerospace Skills Symposia**



*d) Regional round table discussions?*

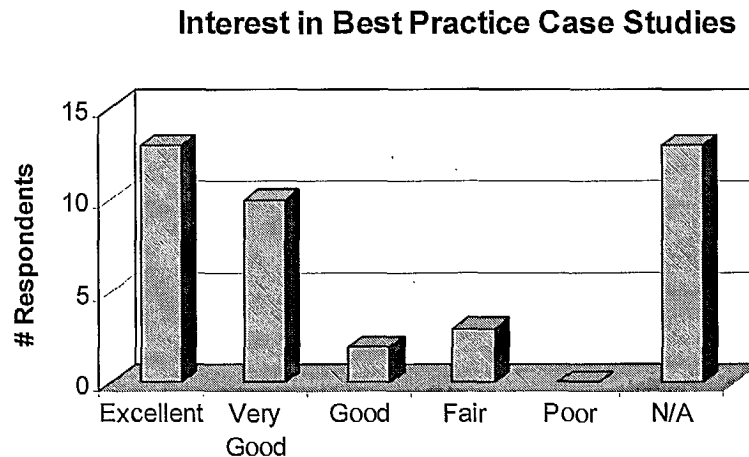
Almost half of the respondents (19 of 41) rated this idea as good or higher, whereas only three rated it as fair or poor. There were 19 non-responses.

**Interest in Regional Round Table Discussions**



*e) Case studies on best practices?*

More than half of the respondents (23 of 41) rated this idea as very good or excellent. Two others rated it as good and three rated it as fair. There were 13 non-responses.



*Comments:*

- Criteria for determining what is a best practice should be defined beforehand.
- Somehow we need to make sure that we focus on strategic priorities. All training is good — some aspects are vital.
- I would be very interested in working on projects to create solutions to the problems identified by the above mechanisms.
- Initiatives dealing with the development of curricula related to manufacturing would be of great interest.
- All of the above events would be worthwhile if they lead to tangible results — otherwise, they will only generate talk.
- Need to develop focussed actionable results — not "infomercials."

## **Conclusions**

The National Aerospace Skills Symposium was highly successful in terms of the number and mix of attendees, quality of the presentations and discussions, and interest among attendees for future initiatives. Positive responses about the usefulness of this symposium and potential future events were obtained from all attendees and within each specific category, such as those from industry. The attendees indicated a number of topics that they would like to see addressed by future initiatives. They also indicated that more time should be devoted to interactive discussion at future events. The positive results from this symposium were particularly encouraging given that it was the first of its kind held at the national level in Canada.

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