AÉRO MONTRÉAL
THE AEROSPACE CLUSTER OF QUÉBEC

Taking Flight: Making an Ontario Aerospace Cluster a Reality

June 7, 2012
Presentation outline

1. Challenges & Opportunities in the Aerospace & Defence Sector
2. Clusters, a definition
4. Last piece of the puzzle
5. Clusters in other jurisdictions
6. Success factors
7. Partnership proposal
1. Challenges and Opportunities in the Aerospace & Defence Sector
Challenges

• Market globalization
  • Growth in emerging markets
  • Increasing competition from emerging countries

• Supplier rationalisation

• Volatility of the economy and of exchange rates

• Access to capital

• Access to a qualified workforce

• Pressures on customers

• Potential threat: more stringent environmental regulations
Opportunities

- Crowded skies: the long term forecast for commercial OEM aircraft is for approximately 30,000 new planes over the next 20 years
- Defence: under budgetary constraint but still a fertile ground for promising technologies
- Green technologies

Deloitte & Touche, *The strategic and economic impact of the Canadian aerospace industry, 2010*
Keys to Success

- Specialist or Integrator
- Concentration on core competencies
- Continuous investment in capabilities
- Quality
- Flexible and optimal cost structure
- Strong financial health
2. Clusters, a definition
What is a Cluster?

A geographical concentration of companies in relation amongst themselves, prime contractors, equipment manufacturers, sub contractors and specialised suppliers. These companies are supported by a network of institutions, associations, governments and local and regional authorities.
What is an Organised or Structured Cluster?

A cluster with clear governance mechanisms encompassing all key stakeholders in one forum on common strategic issues to develop planned, integrated and concerted actions.
Why an Organised Cluster?

A cluster strategy is not a defensive position, a reaction to challenges to a declining industry.

A cluster strategy is a pro-active position to leverage new opportunities.

It is a willingness to do better collectively than what could be done individually.
3. Why Montréal is considered has having an « aerospace cluster »
Greater Montreal’s Aerospace Concentration

- Aerospace capital, with Toulouse and Seattle;
- $11.7 billion in sales in 2011;
- 42,040 jobs;
- 50% of the Canadian workforce;
- 55% of Canadian aerospace sales;
- 70% of Canadian R&D.

Source: SECOR 2010

Source: MDEIE 2012
Industrial Concentration

- 4 Primes
- 15 Tier 1 Suppliers
- 215 Tier 2-4 Suppliers

Source: MDEIE 2011
Collaborative Organisations - Human Resources Development

**HR Sectoral Committee**

Universities
Aerospace Engineering Institutes

Continuous Education

Trade School and Aerotechnical College
Collaborative Organisations - Innovation

<table>
<thead>
<tr>
<th>Pre competitive R&amp;D</th>
<th>Technology Demonstration</th>
<th>Green Aviation R&amp;D</th>
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<tr>
<td>CRIAQ</td>
<td>SAGE</td>
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**Universities**

- Concordia University
- École Polytechnique Montréal
- Université du Québec à Chicoutimi
- INRS
- Université Laval
- McGill
- Université de Montréal
- UQAC
- UQAM
- Université du Québec à Trois-Rivières
- Université de Sherbrooke

**Public Research Centers**

- CNRC-ARC
- CTA
- CIRAIG
- CHARSETON
- Valcartier
- CDCQ
Proximity

98% of Québec aerospace activities take place in Greater Montréal.

Almost all the parts of an aircraft manufactured within a 30 km radius.
4. Last piece of the puzzle
Comité Aérospatiale Québec

Willingness and commitment of industry leaders to:

- speak of one voice for the industry
- to mitigate redundancies

PHASE 1
Pre-feasibility
March June 05

PHASE 2
Business plan / Governance
July-Dec. 05

PHASE 3
Implementation
January-May 06

PHASE 4
Start of Operations
August 06

Go/ No Go Decision
May 15, 06
Launch
Aéro Montréal’s Launch

May 15, 2006
Montréal Metropolitan Community Cluster Policy

- Six strategic clusters

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<tr>
<th>Aerospace</th>
<th>Life Sciences</th>
<th>ITC</th>
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<td><img src="image" alt="Invivo" /></td>
<td><img src="image" alt="Techno Montréal" /></td>
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<th>Clean Technologies</th>
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<td><img src="image" alt="Montréal TV, Télévision" /></td>
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<td>Grappe financière du Québec</td>
<td>Bureau du cinéma et de la télévision du Québec</td>
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- Funding by the three levels of government (3 year cycles)

- Independent non-profit organisations
Aéro Montréal, the aerospace cluster

• FOUNDED IN 2006, AÉRO MONTRÉAL IS A STRATEGIC THINK-THANK THAT GROUPS ALL THE MAJOR DECISION MAKERS IN QUÉBEC’S AEROSPACE SECTOR INCLUDING:
  • companies;
  • educational institutions;
  • research institutions;
  • associations;
  • unions.

• ITS MISSION: to mobilize industry players around common goals and concerted actions to increase the competitiveness, growth and expansion of the cluster.
Board Members

Tier 2-3 & MROs

Governments
Canada
Québec
Unions
Research Centers

OEMs

BOMBARDIER
Sub-contractors
Merged with Aero Montreal

Associations

Academia

Grappe aérospatiale du Québec
Québec’s Aerospace Cluster

MDA
Rolls-Royce
Safran
Safran
Sonaca
Sonaca

Esterline
CMC Électronique
Thales
Thales
EMER Crédit

Université de Sherbrooke
École de technologie supérieure

Université de Montréal
École nationale d’aérotechnique
Viscount
Viscount

Centre National de la Recherche Scientifique
National Research Council of Canada
CNRC·NRC

CNRC·NRC
Aéro Montréal, the aerospace cluster

SIX STRATEGIC COMMITTEES:

1. BRANDING AND PROMOTION OF THE CLUSTER
2. INNOVATION
3. SUPPLY CHAIN
4. HUMAN RESOURCES DEVELOPMENT
5. DEFENCE AND SECURITY
6. COMMERCIALIZATION AND BUSINESS DEV’T - SMEs
1. BRANDING AND PROMOTION OF THE CLUSTER

- MyAerospaceSector.org
- Aerospace Days in Quebec City
- Aerospace Days in Greater Montreal
- Social Networks
- 1st Communication Plan
- 2nd Communication Plan
- CROP Poll & Survey
- Aerospace Journal
3 COMMITTEES
• Competitiveness
• Integrators
• Long term development of the SC

BEST PRACTICES GUIDE TO BECOME A CLASS SUPPLIER

INTERNATIONAL BENCHMARKING

STRATEGY TO DEVELOP INTEGRATORS

INDUSTRY DIRECTORY 2010

INDUSTRY DIRECTORY 2012

MACH 2nd ROUND

1st round

2007 08 09 10 11 12
## The MACH Excellence Framework

<table>
<thead>
<tr>
<th>PROCESSES</th>
<th>MACH 1</th>
<th>MACH 2</th>
<th>MACH 3</th>
<th>MACH 4</th>
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<tr>
<td>1.1 - Strategic Planning &amp; Positioning</td>
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<td>1.2 - Performance &amp; Management systems</td>
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<td>1.4 - Innovation</td>
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<td>1.5 - Corporate Social Responsibility</td>
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<td>2.1 - Workforce Planning</td>
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<td>2.2 - Hiring, Workforce Mobilization &amp; Retention</td>
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<td>2.3 - Workforce Training</td>
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<td>2.4 - Individual Performance Evaluation</td>
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<td>3.1 - Supply Chain Management</td>
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<td>3.2 - Customer Relationship Management</td>
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<td>3.3 - Manufacturing Control &amp; Management</td>
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<td>3.4 - Continual Improvement</td>
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<td>3.5 - Engineering, Methods &amp; New product/program introduction</td>
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<td>3.6 - Quality Management</td>
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The Process

1 year cycle

- Formal engagement (Supplier and mentor)
- MACH framework of excellence processes maturity evaluation (audit)
- Performance gaps identification
- Validation Committee: Plans and projects approval
- Elaboration of personalized improvement plan and workforce competencies development plan
- MACH performance certification attribution or revision
- Execution of improvement projects and training program
The MACH performance label

- 4 SMEs
- 11 SMEs

Allocated Funds to Date: $860 K
In Kind Contributions: $205 K

World class supplier
Round #1 – 20 suppliers and their sponsors

Launch of 2nd round at the Farnborough Airshow
HUMAN RESOURCES DEVELOPMENT

Signing of agreements with 3 local “School Perseverance” Organisations

Bridge between ENA and EMAM

“The sky is the limit!” in Mirabel

HR White Paper

“The sky is the limit!” in Montreal

Pilot Project in Longueuil
Student Perseverance

• Signature of 3 collaboration agreements in the Greater Montreal area

• « The Sky is the Limit! » project:
  • Longueuil - 900 students from grades 5 and 6
  • Mirabel – 4,500 students
  • Montreal (Sept. 2012) – 9,000 students

• Partnership with
  • SAE Foundation Canada and CLSM

• Support for other initiatives:
  • Business Class (MR3)
  • Academos
  • Mobilys Foundation
A Strategic Plan for the Quebec Defence Sector

3 Committees:
- Governmental relations
- Industrial capability
- Infrastructure capability

Written submission to CADSI

Incoming and outgoing trade missions

Quebec Defence Industry Strategic Plan

Defense Industry Directory
5. Clusters in other jurisdictions
Clusters under other jurisdictions

- Montréal
- Toulouse
- Shenyang
- Komsomolsk-on-Amur
- Sacheon
- Nagoya
- Seattle
- Wichita
- São José dos Campos
Clusters around the world

- 2005-2006 Period: launch of most aerospace clusters

- Mature Aerospace Countries
  - UK (FAC, NWAA, Midland Aerospace Alliance)
  - France (Aerospace Valley, Astech, Pegase)
  - Germany (Hambourg/Hanse Aerospace, BavAIRia, ASIS Saxony)
  - US (PNAA, ADRC, Ohio Aerospace Institute)
  - Brazil (CECOMPI)

- Resurgence in Japan (Nagoya, Hiroshima), Korea (Sacheon, DGFEZ)

- Newcomers
  - Mexico (RIIAQ)
  - China (Tianjin)
  - India (Bangalore)
  - Russia (UAC)
European Aerospace Cluster Partnership
European Aerospace Cluster Partnership

- Government driven
  - Pôle de compétitivité – France
  - Kompetenznetze – Germany
  - Distretto Policy- Italy

- Mostly if not entirely focused on innovation

- Access to generous European research funding
6. Success factors
In Summary

- Proximity
- Concentration
- Industry leadership
- Inclusiveness
- Culture of collaboration
- Collaborative organisations – Structuring projects for the sector
- Strong Public-Private Partnership
Measure of Success

Evolution of the mobilization

<table>
<thead>
<tr>
<th>Year</th>
<th>Mobilization - persons</th>
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<tr>
<td>2006</td>
<td>55</td>
</tr>
<tr>
<td>2007</td>
<td>75</td>
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<td>2008</td>
<td>110</td>
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<td>2009</td>
<td>132</td>
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<tr>
<td>2010</td>
<td>190</td>
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<tr>
<td>2011</td>
<td>220</td>
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Measure of Success

Evolution of total contributions

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<tr>
<th>Year</th>
<th>Industry</th>
<th>Public</th>
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<tr>
<td>2006</td>
<td>35%</td>
<td>65%</td>
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<tr>
<td>2007</td>
<td>42%</td>
<td>58%</td>
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<td>2008</td>
<td>38%</td>
<td>62%</td>
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<tr>
<td>2009</td>
<td>51%</td>
<td>49%</td>
</tr>
<tr>
<td>2010</td>
<td>42%</td>
<td>58%</td>
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<tr>
<td>2011</td>
<td>46%</td>
<td>54%</td>
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7. A partnership proposal
Québec-Ontario Life Sciences Corridor

- Objective:
  - Attraction of investments in Canada

- Projects:
  - Exchange of best practices
  - Common public statements
  - Conferences: « Connecting the corridor »
A Quebec – Ontario Aerospace Corridor
Upcoming Event for Collaboration
Global Supply Chain Summit 2012

- September 27 and 28, 2012
- Palais des congrès de Montréal
- Day 1: Sustainable Aerospace Supply Chains
  - Conferences
  - B2B: Bombardier and its tier 1 suppliers
- Day 2: Defence Procurement & Supply Chain Management Strategies
  - Conferences
  - B2B: Tier 1 suppliers
THANK YOU!

ANY QUESTIONS?

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