Appendices

Appendix A
Sectoral Study Steering Committee

Co Chairs

Pat Kennedy, Pacific Flying Club, First Vice Chair, ATAC Board of Directors

Dennis Cooper, Sky Wings Aviation, Honorary Treasurer, ATAC Board of Directors

Secretary

Glenn Priestley, Air Transport Association of Canada

Committee Members

David Blackburn, Transport Canada

Michael Bland, Gander Flight Training, ATAC Director

Winston Clarke, Air Nova

Gerry Davis, Air Line Pilots Association

Mike Doiron, Moncton Flight College

Don Douglas, Northern Air Transport Association

Pat Doyle, First Air

Jim Dow, Transport Canada

Geoff Goodyear, Universal Helicopters

Michael Lynch, Air Line Pilots Association

Don MacPherson, Mitchinson Air Services

Iain McMeekin, Canada 3000

Jacques Monast, Centre Québécois de Formation Aeronautique — CEGEP

Mike O'Hanlon, Harbour Air

Kevin Psutka, Canadian Owners and Pilots Association

Judy Saxby, Keewatin Air

John Scholefield, Laurentide Aviation, ATAC Director

Perry Shindruk, Air Canada

Guy Smith, Helijet

Johnny Sorenson, Calgary Flight Training Centre

Doug Tweedlie, Air Canada Pilots Association

Joan Williams, Toronto Airways

Pat White, Exploits Valley Air Services

Tim Zarowski, Bearskin Airlines

Ex Officio Members

Larry Dupuis, Human Resources Development Canada

Eric Perreault, Human Resources Development Canada

Participating Associations

Alberta Aviation Council

British Columbia Aviation Council

Helicopter Association of Canada

Manitoba Aviation Council

North West Ontario Air Carriers Association

Appendix B
Individuals Interviewed

The Steering Committee would like to thank all interviewees for their valuable input into this study. The following is a partial list of those who were interviewed during the course of the study. Interviews ranges between 30–60 minutes per person.

Mr. Les Aalders — ATAC, Vice President, Engineering and Maintenance

Captain Haydn J. A. Acheron — Vice President of Operations, Canadian Airlines International Ltd.

Captain Kevin Beddome — Chief Pilot, Bearskin Airlines

Mr. Dave Blackburn — Transport Canada Flight Training

Mr. E. D. Blandford, Flight Operations Manager, Perimeter

Ms. Cindy Brown — General Aviation Team 2000 — "Be a Pilot" Program, U.S.

Captain Steve Burton — Manager, Flight Training and Standards

Mr. Bob Cameron —Operations Manager, Trans North Helicopters

Mr. Kip Caudrey — Chief Simulation Evaluation Pilot, Flight Safety Boeing

Ms. Adriana Collins — General Manager Airline Training Resources

Mr. Mike Deslisle — B727 Second Officer, First Air

Mr. John Deyell — Flight Training Specialist, Air Canada Flight Operations

Mr. Pat Doyle — Director of Flight Operations, First Air

Mr. Bruno Dubbler — Horizon Swiss Flight Academy, Zurich, Switzerland

Mr. Hal Dumbrille — Chief Ground School Instructor, Toronto Airways

Mr. Mark Eberl — Managing Director, Sunwesthome Aviation

Ms. Adel Fogel — Aviation International Flight Training

Mr. Wayne Foy — Chairman, Aircraft Operations Group Association

Captain Peter M. Foreman — Canada Central Air Safety Chairman, Air Line Pilots Association, International

Mr. Rich Gage — President, Canadian Business Aircraft Association

Mr. Geoff Goodyear — President, Universal Helicopters

Mr. Chris B. Hallamore — Labour Research Analyst, Air Canada

Mr. Patrick J. Heinke — Senior Director, Labour Relations, Air Canada

Mr. John Hudson — Senior Training Captain, Canada 3000

Captain Tom Jerrard, President — Air Canada Pilots Association

Mr. Harold Kamikawaji — Director of Human Resources, Kelowna Flightcraft Group

Ms. Janet Keim — Mitchinson Flying School

Mr. Tom Kenville — Director Marketing and Business Development, University of North Dakota Flight Training

Mr. Art Laflamme — Director General of Civil Aviation, Transport Canada

Mr. Tom Lawson — President, Empire Aviations

Captain Anthony MacKay — Chief Pilot DHC-8, Air Nova

Captain Arnie MacLeish — Director, Flight Operations, Sky service

Mr. Brad Martin — Director of Operations, Bearskin Airlines

Mr. Bob McGuire — Marketing Manager, Oxford Air Training School, Oxford, England

Mr. Rob McKenny — Director of Flight Operations, Knighthawk

Mr. George McRobbie — Director, Flight Operations Administration and Planning, Canadian Airlines International Ltd.

Mr. Chuck Montgomery — Assistant Director of Flight Operations, First Air

Mr. Simon Morton — VP Marketing, Canadian Helicopters Corporation

Mr. Brian Murdock — Helicopter Training, Transport Canada

Mr. Merlin Preuss — Director of Commercial and Business Aviation, Transport Canada

Mr. Kevin Psutka — President, Canadian Owners & Pilots Association

Ms. Judy Saxby — Alberta Aviation Council

Mr. Al Seibe — Northwest International Airways

Mr. Barry Stephens — Senior Labour Relations Consultant, Air Canada Pilots Association

Ms. Denise Tateyama — Director Passenger Operations, Kelowna Flightcraft Air Charter Ltd.

Dr. Claude Thibeault — Air Canada Medical Officer

Mr. Austin Thorne — Labour Relations Management, Bridges/AGT Consulting

Mr. Andrew C. Torriani — Manager, Labour Relations — Flight Operations, Air Canada

Mr. Doug Tweedlie — Chairman, ACPA Human Resource Factors

Dr. Jim Wallace — Transport Canada

Mr. Grant Warner — VP Operation, Air Nova

Mr. Lyle Watts — Heli College Canada

Ms. Sheila Whittaker — Vice President of School Operations, Coastal Pacific

Ms. Joan Williams — Chief Flight Instructor/Manager, Toronto Airways

Mr. Warren Wright — North Wright Air

Mr. Rick Wynott — Chief Flight Instructor, Brampton Flight Center

Appendix C
Publications, Journals and Studies Consulted

Adams, Rick. **Web of Intrigue.** Cat Magazine. Issue 4. 2000.

Air Line Pilots Association, International. **ALPA-Represented Airlines.**

Air Line Pilots Association, International. **What's a Pilot Worth?**

Airline Pilot Careers: The Future Airline Pilot's Magazine. On the Verge of Change. January 2000.

Airlines International. Volume 5 Issue 4. July–August 1999.

Airports Council International. **The Economic Impact of Canadian Airports.**

Alberta Aviation Strategy Discussion Paper. Alberta Aviation Strategy Steering Committee. January 12, 2000.

Aviation quarterly. Winter 1999/2000.

Aviation Today: Rotor & Wing's Editor's Notebook. March 2000.

Aviation Training Solutions Catalog 2000. Spring 2000 Edition. Wicat Systems, Inc.

Canada's National Wings Aviation Magazine. Issues 1, Volume 41. Feb/Mar 2000.

Canada's National Wings Aviation Magazine. Issues 2, Volume 41. Apr/May 2000.

CASA/AAAC Sub-Committee. **Review of the Australian Flying Training Industry.** Prepared for the Civil Aviation Safety Authority. September 1995.

Commercial Pilot Survey (1991), Levels III–VI, Air Carrier Operations, Transportation Safety Board of Canada.

Darby, Kit. **Dealing with the Pilot Shortage.** Frankfurt, Germany. Workshop presented by Kit Darby. Wednesday, April 26, 2000.

Darby, Kit. **RATS 2000 Regional Air Transport Training Convention & Tradeshow.** Cat Magazine and AIR, Inc. February 8–9 2000.

Earl L. Wiener, Rebecca D. Chute, and John H. Moses. **Transition to Glass: Pilot Training for High-Technology Transport Aircraft.** National Aeronautics and Space Administration. May 1999.

Feminier, Captain Didier. **Plugging the pilot brain-drain.** Cat Magazine. Issue 3. 2000.

Final Proceedings: International Aviation Training Symposium. "Aviation Training for the 21st Century". Hosted by the Federal Aviation Administration. September 28–30, 1999.

Flyer. The magazine for pilots. November 1999.

Habberfield, Jeff. **CAMC focused on excellence.** Cat Magazine. Issue 4. 2000.

Human Resources Development Canada/Canada Job Futures. **Air Pilots, Flight Engineers and Flying Instructors.** Job Futures 2000.

KPMG Consulting. **University of Western Ontario Aviation Program Overview, Findings and Conclusions.** January 26, 1999.

NATA. **Aviation Businesses And The Services They Provide.**

NAV CANADA. **Annual Report 1999.**

Reyno, Mike. **A Looming Shortage: Addressing the shortfalls in helicopter training.** Helicopters Magazine. Issue 1, 2000.

Spaven, Malcolm. **Prospecting for pilots.** Cat Magazine. Issue 4. 2000.

Statement of Captain Duane E. Woerth, President, Air Line Pilots Association, Int'l. Before the Subcommittee on Aviation Committee on Commerce, Science and Transportation, United States Senate on Pilot Shortages and the Effects on Rural Air Service. July 25, 2000.

Statistics Canada. **Service Bulletin.** Aviation Statistics Centre. November 1999.

The CAC training yearbook: 2000–2001. Halldale Publishing and Media Ltd.

The Journal of Professional Aviation Training. Volume 1 Number 7. September / October 1999.

Transport Canada, Safety and Security. **SATOPS.** Final Report: Spring 1998.

Transport Canada. **Transportation in Canada 1999: Annual Report.**

Transport Safety Board of Canada. **Commercial Pilot Survey (1991) Levels III to VI Air Carrier Operations.** Accident Prevention Branch.

U.S. Department of Labor. **Aircraft Pilots and Flight Engineers.** Occupational Outlook Handbook.

Various issues of CAC Magazine. The Journal for Civil Aviation Training.

World Air Transport Training Conference & Exhibition: Pre-Flight Briefing. April 26, 2000.

Written by pilots for pilots. **International Flight Training.** Issue 78. September 2000.

Appendix D
Web Sites

Associations

Air Canada Pilots Association	http://www.acpa.ca/index.html
Air Line Pilots Association	http://www.alpa.org
Canadian Seaplane Pilots Association	http://wwwcanadianseaplane.com
Canadian Owners and Pilots Association	http://wwwcopanational.org
Helicopter Association of Canada	http://www.h-a-c.ca
International Air Transport Association	http://www.iata.org
Air Transport Association of Canada	http://www.atac.ca
International Civil Aviation Organization	http://www.icao.org
Canadian Business Aircraft Association	http://www.cbaa.ca

Government

Transport Canada	http://www.tc.gc.ca/aviation/index_e.html
Federal Aviation Administration	http://www.faa.gov
Canada Job Futures	http://www.hrdc-drhc.gc.ca/jobfutures/
Human Resources Development Canada	www.hrdc.drhc.gc.ca/common/home.html
Workplace Information	http://labour-travail.hrdc-drhc.gc.ca/doc/widedimt/eng./index.cfm

Training

Be a pilot program	http://www.beapilot.com
WATS Conference	http://www.halldale.com/wats/watsfs1.htm

Appendix E
Aviation Industry Associations

The following aviation associations provided various levels of assistance during the study. The Steering Committee would like to thank each for their help and valuable input.

1. ATAC — Air Transport Association of Canada
2. HAC — Helicopters Association Canada
3. NATA — Northern Air Transport Association
4. CBAA — Canadian Business Aircraft Association
5. COPA — Canadian Owners and Pilots Association
6. ALPA — Airline Pilots Association / Canadian Branch
7. ACPA — Air Canada Pilots Association

Appendix F
International Licencing Requirements

With training standards in Europe now being standardized (30 member states in the Joint Aviation Authority), it is generally recognized that there are only two main pilot certification bodies in the world — Europe's Joint Aviation Authority (JAA) and the United States Federal Aviation Authority (FAA). Speculation and best estimates in the industry suggest that the training standards of the two authorities will move closer together, and in the future, there may be just one Flight Crew Licence in each of the pilot categories (Private, Commercial and Airline Transport). Nevertheless, there are presently differences, so in the following paragraphs a brief summary of the training standards in Europe, the U.S. and Canada is presented. For the purposes of this comparison, standards for aeroplanes and helicopters, and not other categories such as balloons, gliders, have been addressed. Where ground training and flight hours are indicated in the discussion, these are the minima specified in the various regulations and training programs. In actual practice, students may exceed these minima due to various circumstances.

Joint Aviation Authority

The European regulations (Joint Air Regulations or JAR) provide for two approaches to commercial pilot training under JAR FCL 1: the integrated program, which requires continuous flight training at an approved school, and a modular program. The minimum specifications for the ground school and flight time required for the approaches are provided below:

1. Aeroplanes

Private Pilot (PPL 1) — required for both commercial approaches:

- Ground school — no hours specified, just the topics to be covered and tested.
- Flight time — 45 hours, of which 5 can be on a flight simulator of FTD.

Integrated Commercial:

Two options are provided for in the regulations for the ab initio Integrated Commercial program:

- CPL(A) — without instrument rating (IR) — 300 hours ground school and 150 hours of flight time in one continuous course of training that must be completed in 9 to 24 months. Up to 50% of the required instrument time can be on simulators or ground instrument.
- CPL(A) / IR — with instrument rating — 750 hours ground school, including demonstrated capabilities in English, mathematics and physics, and 195 hours of flight time, including training in multi crew cooperation (MCC). Training must be completed in 12 to 36 months in one continuous course of training. Up to 50% of the required instrument time can be on simulators or ground instruments.

Modular Commercial:

- This is not an ab initio program, rather candidates must have a PPL(A) and no less than 150 hours of flight time in aeroplanes to participate in this approach. With no instrument rating the program requires 200 hours of ground school completed within 18 months, plus 200 hours of flight time. Attainment of an instrument rating would be in addition to the CPL and could require up to an additional 55 flying hours. Assuming multi-

engine training, up to 50% of the required instrument time can be on simulators or ground instruments.

2. Helicopters

Private Pilot (PPL(H)) — required for both commercial approaches:

- Ground school —no hours specified, just the topics to be covered and tested on.
- Flight time — 45 hours, of which 5 can be on flight simulator or FTD (10% or up to a maximum of 6 hours in other aircraft with moveable controls can be credited towards the total time required of 45 hours).

Integrated Commercial:

- Designed as an ab initio course for students with a PPL(H). This course must be completed in 9 to 24 months in one continuous course of training. Five hundred and fifty (550) hours of ground school are required to meet the exam standard for CPL (H) plus 135 hours flight time, of which 15 hours can be in airplanes and 10 can be ground instrument time.

Modular Commercial:

- Prerequsite is PPL(H) and 155 hours of flight time in helicopters, of which 50 must be p.i.c. Modular course includes 500 hours of ground school which must be completed within 18 months. Flight time is 185 hours, of which 10 can be ground instrument time, and 50 hours p.i.c. on helicopters if taken as modular training, or 35 hours p.i.c. if taken as part of an integrated course. The modular helicopter course must be completed in one continuous approved course of training.

Federal Aviation Authority

The United States authorizes commercial pilot training under two parts to the Federal Aviation Regulations — FAR Part 61, which is the traditional approach used and which is the total over-riding certification regulation, and the newer FAR Part 141, which is authorized as a sub-component of Part 61 and can be provided only by approved schools.

1. Aeroplanes

FAR Part 61:

- For a private pilot licence, ground school can be done by a designated instructor or by home study, up to a designated standard to pass the required written exam. Flying time required is 40 hours, which must include at least 20 hours dual and 10 hours solo flying.
- To upgrade to a commercial licence, ground school hours are unclear, apart from available information on the required subjects in the syllabus. Flying time, including the training undertaken in obtaining the PPL, is 250 hours and does not include a requirement to have obtained an instrument rating.

FAR Part 141:

- For PPL, the ground training requirement is 35 hours and flight training is also 35 hours, of which 30 hours must be dual and 5 hours must be solo. Twenty percent (20%) of the total flying time may be acquired in a flight simulator or FTD.
- Instrument rating: a candidate for Part 141 CPL must hold an instrument rating or be enrolled in an approved IR course, have 30 hours of ground

school and flying time of 35 hours, of which 50% can be in a simulator, or 40% in a FTD, or 50% can be in a combination of the two devices.

- Commercial certification course requires 35 hours of ground school, 120 hours of flight training, including 55 hours dual and 10 hours solo. Thirty percent (30%) of the total flying time can be done in a simulator, or 20% can be done in a FTD, or 30% can be done in a combination of the two devices. The U.S. requires that the CPL flight test under Part 141 be conducted on a complex aircraft (i.e., retractable undercarriage and constant speed propeller).
- The total minimum requirements therefore for the FAR Part 141 CPL are 100 hours ground training and 190 hours of flight training.

2. Helicopters

FAR Part 61:

- For a Private Helicopter Licence, ground school can be done by a designated instructor or by home study, up to a designated standard to pass the required written exam. In addition, 40 hours of flying time, which must include at least 20 hours dual and 10 hours solo are required.
- For a Commercial Helicopter Licence, ground school hours are unclear, apart from available information on the required subjects in the syllabus. Flying time, including the training undertaken in obtaining the PPL, is 150 hours including at least 100 hours in a powered aircraft, of which 50 hours must be in helicopters (does not include a requirement to have obtained an instrument rating).

FAR Part 141:

- For PPL(H), 35 hours of ground training are required. In addition, 35 hours of flight training, of which 30 hours must be dual and 5 hours must be solo are required. Twenty percent (20%) of the total flying hours may be in an approved helicopter flight simulator or FTD.
- The Commercial certification course requires 35 hours of ground school plus 115 hours of flight training, including 30 hours dual and 10 hours solo. Thirty percent (30%) of the total number of flying hours can be done in simulator, or 20% on FTD, or 30% in a combination of the two devices. (Note that Part 141 does not require the completion of an instrument rating for a helicopter commercial licence. The instrument rating is only mandatory for aeroplanes and “powered lift” vehicles, that is, tilt rotor technology.)
- The total minimum requirements therefore for the FAR Part 141 CPL Helicopter are 70 hours of ground training and 150 hours of flight training.

Transport Canada

The traditional standards for commercial pilot flight training in Canada are specified in Canadian Air Regulation (CAR) 421, Section 26 (for the PPL Aeroplane), Section 30 (for the CPL Aeroplane), Section 27 (for the PPL Helicopter), and Section 31 (for the CPL Helicopter). This is generally referred to by Transport Canada as the “less structured” approach. As well, Canada is in the process of introducing a new integrated program for aeroplanes that leads candidates to either a CPL(A) — i.e., with no instrument rating — or a CPL(A)/IR — i.e., with a Group 1 instrument rating and multi-engine rating. At this time, there is no intention to introduce an integrated program for helicopters in Canada. The current

"less structured" approach specified in CAR 421 (Sections 27 and 31) will continue to apply. Basic requirements for Private, Commercial and Air Line Transport Licences are described in Chapter One of this report.

The requirements for the two proposed integrated training options for aeroplanes are outlined in the following table:

	CPL(A)	CPL(A)/IR
Ground School	**300 hours**	**400 hours**
Flight training:		
Phase 1	to first solo — 10 hours	same as for CPL(A)
Phase 2	to first solo cross country — 10 hours dual and 10 hours solo	same as for CPL(A)
Phase 3	to VFR navigation progress test — 30 hours dual and 58 hours p.i.c.	same as for CPL(A)
Phase 4	to CPL flight test — up to 30 hours dual	same as for CPL(A), except 60 hours p.i.c.
Phase 5		to multi-engine flight test and Group 1 instrument rating
Course length	Minimum 9 months, maximum 24 months	Minimum 9 months, maximum 36 months
Total minimum flying hours:	150 hours, including 80 dual and 70 p.i.c.	190 hours, including 100 dual and 90 p.i.c.

Other features of the proposed Canadian integrated program are:

- A course cannot be provided by a freelance instructor.
- An operator must submit operations and flight training manuals, to be approved by Transport Canada to provide the integrated training.
- There must be 5 hours of flight training in complex aircraft (retractable landing gear and a constant speed propeller).
- The student must have completed secondary school or the equivalent before beginning training.

Comments

Aeroplane Sector

Both JAA in Europe and the FAA in the United States have in place newer approaches to commercial pilot training that provide for a higher level of pilot qualification than was previously in effect. In the JAA, the regulations (JARs) provide for three approaches:

- Integrated: two ab initio approaches to the commercial licence:
  - CPL(A) — without an instrument rating.
  - CPL(A) / IR — with an instrument rating.
- Modular: can be completed over a longer elapsed time and an instrument rating is not required, but the candidate must have a PPL(A) and 150 hours of flight time to commence the training.

In the United States, the newer approach to training is authorized under FAA Part 141, but the traditional approach conducted under Part 61 continues to be used.

In Canada, legislation is now underway to officially authorize a new integrated approach to ab initio commercial pilot training:

- CPL(A).
- CPL(A)/IR.

Amendments to CARs have been drafted and the industry is awaiting approval to proceed. Two-thirds (63.6%) of respondents to the survey of training institutions conducted as part of this study (see section F of Chapter Five) indicated that they would offer this new approach to students. However, training institutions also identified a number of reasons for not participating in this approach (see Exhibit V-35). Some schools are already submitting required operations and training manuals to Transport Canada for approval. As in the U.S., hesitancy to participate in the integrated approach appears to be the result of training institutions feeling the cost is too high for registering the school's staff and program, along with the associated cost of maintaining the registration. In fact, our information suggests a number of schools are dropping out of the Part 141 and going back to teach under the Part 61 Provisions. This is apparently not only because of the costs to the schools, but also because the regulations are too inflexible in that they do not permit changes to be readily made. On the other hand, opinions received within the scope of this review indicate that the total cost of the integrated program may be less for the students when compared to the traditional approach — there will be less costly flight time, and with the required continuous flow of the course, the chances of having to re-take certain parts of the course due to interruptions will be eliminated.

In comparing the offerings in the three jurisdictions, the integrated proposal for Canada is closed to the integrated approach now used by the JAA:

- Minimum required flying hours are essentially the same.
- Both offer a licence with or without an instrument rating.
- Ground school (theoretical training) hours are similar, except in the case of the JAA CPL(A) IR in which the requirement is almost double (750 hours in the JAA as opposed to 400 in Canada).
- Both jurisdictions require that the training institution have approved operations and training manuals in place to ensure adequate operational control and program quality.

In the U.S., the flying component is very similar, but the ground school portion is much lower (100 hours). Both the JAA and FAA also require that the CPL flight test be conducted on complex aircraft (retractable landing gear and constant speed propeller). An instrument rating is also mandatory in the U.S. under Part 141 (either in place or in the process of being completed before starting the commercial certification phase).

There was discussion during the fact finding for this review as to the necessity of obtaining an instrument rating as part of the commercial pilot training. In the U.S. it is clear — the IR qualification is mandatory before commencing the commercial certification phase. In Canada, there is a belief that an IR is not required if the first job of the new commercially licenced pilot is going to be as a basic flight instructor or in bush operations where all flying is conducted under VFR conditions. As these are frequently the first jobs of pilots, the CPL(A) licence is adequate at the outset. In Europe, the JARs allow for a similar CPL(A), but there seems to be more of a sense that lack of the IR qualification could be a hindrance to employment in the European environment.

Helicopter Sector

The standards and approach to training vary widely between the European jurisdiction and North America. The JAA authorizes both the integrated and modular programs, while in Canada there is only the traditional regular or "less structured" approach. In the U.S., helicopter training is available under both Parts 61 and 141, although there does not appear to be too much difference between the two approaches. As well, not only are the required minimum total flight times for the JAA approaches slightly higher than in Canada (135–155 hours versus 100 in Canada), but also the ground school requirements are substantially greater (500–550 hours in the JAA vs. 40–80 in Canada). None of the jurisdictions requires an IR as part of the initial commercial helicopter qualification, but there are certainly numerous employment situations where an IR is required as part of the job (e.g., offshore oil rigs). At this time, it is understood that there are no plans by Transport Canada to change the approach approved for helicopter training. Helicopter training in Canada for foreign candidates appears to be a very active sector. This may be the result of several factors: the excellent reputation of Canadian operators in providing instruction, more favourable weather, the lower number of flying and ground school hours required to obtain the initial commercial qualification, and the impact of the Canadian dollar.

Appendix G
A Look at Training Institutions Outside of Canada

1. Oxford Air Training School (OATS)

- **Overall approach to pilot training:** OATS is reported to provide 80% of the ab initio commercial pilot flight training in the United Kingdom and 50% of the training in the rest of Europe. The program is designed so that after the initial 2–4 weeks of ground training in England, the students proceed to one of three satellite locations in the United States for the first four weeks of flying before returning to England. This use of U.S. locations is now permitted under a recent amendment to JAR FCL 1.
- **Review of curriculum and courses offered:** OATS offers both integrated and modular courses as permitted under JAR FCL 1.
    - *The Integrated Course* is an ab initio course that includes 800 hours of ground school and 166 hours of actual flying and 37 hours of simulator "synthetic" training. The total course length is 56 weeks.
- **Features used to attract students:** The first 4 weeks of actual flying is done at satellite bases in the U.S. to take advantage of superior weather. OATS also has a Boeing 737-400 simulator available, as well as a Frasca 242J simulator that emulates MD80 performance.
- **Skills taught include human resources/behavioural topics:** Multi-crew cooperation, that includes CRM.
- **Special delivery methods used, including Web/Internet, remote delivery, computer based training:** The modular courses are designed so that an initial portion of the ground school is completed using distance learning, but guided closely by each student's personal tutor; this is then followed by a concentrated classroom-based element in preparation for the exams.
- **Influence of the regulators:** OATS has worked closely with the U.K. CAA in research into, and implementation of, the JAR FCL.
- **Industry inputs/partnerships:** Many of the students on the integrated course are sponsored by airlines.
- **Program costs:** £53,800 for the integrated program to the level of a "frozen" CPL(A) with an instrument rating.[1] This means that the graduate does not have a type rating on a particular commercial aircraft. It would be up to the student's employer to provide the training for the type rating.
    - The Modular Course is not an ab initio course. To enroll in the modular commercial pilot training course, the student must come to OATS with a minimum of a PPL(A) and 150 hours of flight time as a pilot and have completed the ATPL(A) ground examinations. The course must be completed within three years. It involves 650 hours of ground school and includes an instrument rating, which is mandatory under the JARs.
    - The first step on enrolling at OATS for the modular course is to complete the mandatory ground school which will vary depending on the qualifications of the candidate upon starting. The cost for this ground school can vary between £2,150 and £3,950 depending on the choice of the student on the portion done by distant learning or in the classroom.[2]

[1] *As of September, 2000, £53,800 would be equivalent to about $120,000 Cdn.*

[2] *£2,150 is equivalent to about $4,750 Cdn., £3,950 is equivalent to about $8,700 Cdn.*

- The second step in the program is to complete the CPL skills test which involves the provision of training to enable the student to pass the JAA CPL skill test for the issue of a CPL(A). This training normally requires a minimum of 25 hours at a cost of about £4,485.
- This is followed by instrument rating training and qualification, which includes single and multi-engine flight and simulator training for a total of about 55 hours. The total cost for this component is in the order of £13,485.
- The final phase is the Multi Crew Cooperation (MCC) training for a minimum of 10 hours training on both the Frasca 242J jet simulator and B737 three motion simulator, at a cost of between £5,600 and £7,300.
- The total modular cost at OATS is in the order of £25,720 to £29,220, including VAT, depending on the extent of training indicated by previous entry point experience, and the option selected by the student for ground school training. In addition to this total cost, candidates will have spent a considerable sum of money acquiring the necessary entry minimums of a PPL(A) and 150 hours of flight time. In terms of total cost to the student, the modular course is more expensive than the integrated course.

2. University of North Dakota (UND)

- **Overall approach to pilot training:** Four academic courses are offered that lead to university degrees plus commercial pilot licences based on the use of the FAR Part 141 standard.
- **Review of curriculum and courses offered:** The four courses offered are:
  - B.B.A. in Aviation Management — leads to CPL with instrument and multi-engine ratings.
  - B.S. in Air Transport — leads to CPL with instrument and multi-engine ratings, and a Certified Flight Instructor Certificate.
  - B.S. in Commercial Aviation — leads to a CPL with instrument and multi-engine ratings, and a Certified Flight Instructor Certificate with airplane and instrument ratings.
  - B.S. in Flight Education — leads to a CPL with instrument and multi-engine ratings, and a Certified Flight Instructor Certificate with instrument and multi-engine ratings.

  The ground school portion of the academic program covers strictly aviation subjects and ranges between 700 and 1,000 hours, depending on the course options selected.

  The flying component for each of the four options is summarized in the following table:

Course Options	Single Engine Hours	Multi-Engine Hours	Simulator
Commercial Aviation	181	26	43.5
Air Transport Option	171	54	52
Flight Education Option	181	42.5	46
Aviation Management Option	135	26	41

- **Features used to attract students:** The second largest university flight training program in the U.S. (after Embry Riddle) with a very active marketing program and extensive industry contacts, scholarships and internships.

- **Skills taught, including human resources/behavioural topics:** CRM and physiological aspects of high altitude training.
- **Special delivery methods used, including Web/Internet, remote delivery, computer based training, and simulators/flight training devices:** Extensive use of computer labs, as well as numerous flight training devices. All students are required to purchase a laptop computer that is pre-loaded with all of the course content and provides access to the training schedules.
- **Influence of the regulators:** Teach exclusively to FAR Part 141, in fact, the courses exceed the minimum standards required.
- **Industry inputs/partnerships:** Extensive partnerships with many aspects of the aviation industry, including airlines and manufacturers; includes scholarships and partnerships.
- **Program costs and support:** Costs are as follows, including flying, academic tuition, accommodation, and purchase of the computer notebook, based on a North Dakota resident, for the four course options in U.S. $:
  - Commercial Aviation Options — $62,800.[3]
  - Air Transport Option — $69,700.
  - Flight Education Option — $67,000.
  - Aviation Management Option — $62,700.

3. Western Michigan University

- **Overall approach to pilot training:** The College of Aviation Sciences runs two programs for training pilots to commercial standards; one program is based on the FAA's FAR Part 141, while the other is based on the training of foreign sponsored students to the JAR FCL 1 standard using the integrated approach.
- **Review of curriculum and courses offered:** The FAA program is a four year program that includes the granting of a Bachelor of Science Degree in Aviation Science. The students in the FAA program receive 230–250 flying hours, including 10 hours of multi-engine flying, and receive an instrument rating upon completion. The ground school in aviation subjects included in the overall FAA course academic curriculum amounts to the equivalent of 675 hours. The JAR training is conducted by the school's International Pilot Training Center (IPTC), using the integrated program. The course takes place over 56 weeks and includes 770 hours of ground school and 201 hours of flying made up of 156 hours of actual flight time in aircraft and 45 hours in Frasca 142 and 242 simulators. The required MCC is also taught using a combination of classroom and Frasca-built B737-400 simulator. The last two weeks of the JAR training are done in England for U.K. familiarization and the final IR test.
- **Features used to attract students:** The school owns 60 aircraft. Also assists foreign students in obtaining visas and other required documentation. The school has access to demonstration equipment, including piston and jet engine test cells, electronic and systems laboratories, and several complete airframes, including a B747-100.
- **Skills taught, including human resources/behavioural topics:** Teach CRM as part of the academic program, as well as MCC in the JAR program.
- **Special delivery methods used, including Web/Internet, remote delivery, computer based training, and simulators/flight training devices.** See above for simulators.

[3] *As of September 2000, $62,800 U.S. is equivalent to about $88,000 Cdn.*

- **Influence of the regulators:** Courses governed by the FAA and JAR regulations, in fact the content exceeds the requirements of these regulations.
- **Industry inputs/partnerships:** All IPTC students are sponsored by airlines at this time, such as, British Airways, Aer Lingus, and United Arab Emirates. As well, there are relationships with a number of aviation facilities in the local area, such as aircraft operators and the FAA air traffic control center.
- **Program costs and support:** For the FAA course, including the academic portion and flying, the total cost, excluding accommodation, is $45,000 (U.S.). The cost of the JAR training is higher, but the amount is confidential as the program is negotiated with each sponsor.

4. Central Washington University (CWU)

- **Overall approach to pilot training:** The flying program offered is a commercial pilot licence to Part 141 standard. This is coupled with academic studies leading to a university degree. All of the flying is conducted by a contractor (Mid State Aviation) at the local airport. The university does not own any aircraft or other aviation facilities, but there are four flight instructor-qualified associate professors on the academic staff that teach aviation subjects and monitor the flying program by flying with students and participating in other ways with the flight instruction program.
- **Review of curriculum and courses offered:** There are two courses that lead to a commercial pilot licence offered through the University's Flight Technology Program — Flight Officer Specialization (designed for leadership roles in the aviation community) and Aircraft Systems Management (focuses on aircraft flight operations). Both specializations lead to Bachelor of Science degrees. The total ground school/aviation-related academic hours range between about 800 and 1,000 hours.
- **Features used to attract students:** The exclusive use of Part 141 training, the attraction of the B.Sc. degree; the Flight Officer Specialty graduates with CPL, instrument rating, certified flight instructor rating, and multi-engine rating; the Aircraft Systems Management Specialization graduates with CPL, instrument rating, multi-engine rating, and certified flight instructor for airplane and instrument (CFII); allowances made for previous flight experience.
- **Skills taught, including human resources/behavioural topics:** CRM/Human Factors in Flight/Pilot Performance included in both specialties, through both classroom instruction and simulator training.
- **Special delivery methods used, including Web/Internet, remote delivery, computer based training, and simulators/flight training devices:** The University has Frasca 242 and 242T simulators.
- **Influence of the regulators:** Courses taught to Part 141 standards.
- **Industry inputs/partnerships:** Partnership with Horizon Airlines under their Direct Hiring Program, as well as internships with Alaska and Horizon Airlines.
- **Program costs:** Total cost approximately $60,000 (U.S.) over the four years, divided about equally between academic and flying costs.

5. Galvin Flying Service

- **Overall approach to pilot training:** Galvin teaches courses to both the Part 61 and 141 standards, depending on the requirements of the student, as well as his/her previous experience.

- **Review of curriculum and courses offered:** Private pilot licence, commercial pilot licence and instrument and multi-engine ratings are offered. Under the Part 61 approach, the flight time is 50 hours for the PPL and a total of 250 hours for the CPL, including an instrument rating and complex aircraft training. Under Part 141, total flight time is 190 hours, including 40 hours for the PPL, an instrument rating and complex aircraft training. Complex training is done using Mooney and Beechcraft Bonanza aircraft. Ground instruction time and syllabus meets FAR requirements, but does include 12 hours of classroom training for the PPL, 35 hours of classroom training for the commercial licence, and 35 hours of instrument training for the CPL.
- **Features used to attract students:** Fleet ranges from Cessna 152s to high performance twin engine aircraft; use of an integrated instruction program that uses top quality instruction materials, combined with training in full-colour visual simulators; job placement assistance; promote multi-engine training as part of the commercial training package to assist in initial job placement.
- **Skills taught, including human resources/behavioural topics:** Some CRM training is taught during multi-engine components of the package.
- **Special delivery methods used, including Web/Internet, remote delivery, computer based training, and simulators/flight training devices:** Galvin has a computer lab that uses the Cessna Pilot Center Program, the Jeppesen Ground Instruction Course and MS Flite Simulator 2000. The lab includes computers with yoke and joystick; simulators include the AST 300 multi-engine and PC ATD, which can be programmed with different aircraft software.
- **Influence of the regulators:** Use both Part 61 and Part 141 standards.
- **Program costs:** $30,000 (U.S.) for a CPL under the Part 141 program.

6. A&M Aviation

- **Overall approach to pilot training:** Due to the high cost of maintaining FAA certification to offer the Part 141 approach, A&M will now offer training only under Part 61, although the Part 141 standard will be offered where it can be applied practically. The greater number of flight hours required by the students under Part 61 does not appear to be an issue as many students start the CPL training component with more total flight hours of experience than required for a PPL.
- **Review of curriculum and courses offered:** Offer PPL, instrument rating, CPL, multi-engine, flight instructor ratings; ground school follows the Part 61 criteria (a great portion of it is self-study with progress monitored one-on-one by the instructors). Total flight time to CPL is 250 hours, including 45–50 hours for PPL and 40–50 hours for an instrument rating.
- **Features used to attract students:** Offer fleet of new aircraft, as well as excellent aircraft for multi-engine (Cessna 310) and complex aircraft training (Cessna 172RG).
- **Skills taught, including human resources/behavioural topics:** CRM is taught, including a test.
- **Special delivery methods used, including Web/Internet, remote delivery, computer based training, and simulators/flight training devices:** Have a very old FTD (ATC 610) so simulation does not play a large part in the curriculum; have computer testing, as well as flight planning computers and computers on which students can load their own flight training programs for practice.

- **Influence of the regulators:** Cost of maintaining Part 141 accreditation for the instructors has resulted in this school ceasing to teach under the Part 141 standard.
- **Program costs:** Cost of CPL, with flight instructor instrument (CFII) and multi-engine ratings are in the range of $27,000 to $30,000 (U.S.) depending on the previous experience of the student.

Comment

The sample of flight training institutions available in this review was not sufficiently large to formulate comprehensive conclusions on the various approaches and methods used. However, several general findings are suggested:

- In North America, there is an increasing trend towards combining flight training that leads to a commercial pilot licence, with a university degree (e.g., Bachelor of Aviation Science). With this approach, the scope of the flight and ground school training tends to be broader and more comprehensive than that provided by traditional commercial flying schools. For example, the total flight hours provided in a university program may be as high as 230–250 and include additional qualifications and ratings, such as multi-engine, aeroplane flight instructor, and instrument (CFII) ratings. In addition, the total aviation academic component in with university-based training frequently exceeds the highest licencing minimum (e.g., 700–1,000 hours at a university-based program vs. 300 or 400 hours for the proposed Canadian CPL(A) or CPL(A) IR.
- The university-based programs also tend to have certain financial advantages over the traditional commercial flight training schools. Not only do universities have a greater capacity for marketing and promotion to attract students, they can collaborate with offshore airlines to attract students to be trained under contract, and partner more effectively with industry (airlines, manufacturers) to provide scholarships and internships, and subsidize the acquisition of more advanced training devices.
- Educational institutions use different approaches in aligning or partnering flying programs with academic requirements. In some cases, the complete program is operated by the academic institution. It owns its own aircraft and employs its own flight instructors (e.g., University of North Dakota). In other cases, the institution provides only the academic component and contracts out the flight training to a local operator (e.g., Central Washington University). In still other cases, the university forms joint ventures with airlines for ab initio training thus providing a steady flow of students for the airlines.

There are of course examples of partnerships in Canada as well. A few for illustrative purposes are listed below.

- Flying Colors Pilot Training of Winnipeg is partnering with Utah State College for a two-year bachelor degree program with the flight training component based on the Canadian Integrated Commercial Program.
- The University of Western Ontario is offering a four-year Bachelor Degree in Administrative and Commercial Studies in Aviation. The flying component is contracted to Empire Aviation in London, which will provide commercial flight training to the integrated standard.
- Moncton Flight College is offering commercial pilot training in conjunction with New Brunswick Community College; the students will receive a commercial pilot licence based on the integrated program, which will

include a multi-engine rating, an IR on multi-engine aircraft, and CRM and safety supervisor training.

  - Seneca College in Toronto offers a science diploma course coupled with training as a commercial pilot. For the initial phase of the flight training to PPL, Seneca has contracted with Toronto Airways.
  - Waterloo Flight Centre and Conestoga College in Kitchener have teamed up to provide a professional pilot training program coupled with a two-year aviation diploma program.

- In the U.K., Oxford Air Training School has partnered with several educational institutions through the School's Department of Professional Studies, to provide students with the opportunity, should they choose, to obtain additional educational qualifications beyond the flight training program. This offering is not an integral part of the flight training program, but is designed to provide students with the opportunity to obtain additional qualifications in preparation for a career in commercial aviation. Examples of these joint venture opportunities are a B.Sc. in Air Transport Operations with City University, and an MBA at Oxford Brookes University.
- Simulation and the use of FTDs is becoming more widespread and advanced. Although fairly rudimentary devices have been in use for some time, the offerings are now, even at the basic flight training level, becoming more sophisticated and capable. Evidence from this review suggests that it is more advanced in Europe and with the university programs in the U.S. where such devices as the Frasca 242T (turboprop), Frasca 242J (jet) and B737-400 3-motion simulators are in more common use. In Canada, the use of simulators and modern FTD's do not appear as widely used and where they are, the sense is that they are generally older technology devices. However, recent information received indicates that at least two Canadian schools have ordered new FAA Level III qualified FTDs from Vector Training Systems in the U.S.
- The use of complex training aircraft for a portion of the training is becoming more common. Under the new integrated approaches, Canada will simply require experience (5 hours) on such aircraft, but in the U.S. (and perhaps the JAA), these aircraft must be used for the CPL test flight.
- Distance learning, including Internet-based, and computer-based training (CBT) are used frequently. In the university-based programs, computer learning labs are often available. For example, distance learning is highly promoted as a tool by Embry Riddle in their advertisements to attract students, and Oxford Air Training School uses it as a key component of the ground school in the JAR FCL CPL(A) modular training program. An important example of extensive aviation computer labs for teaching and for the control and management of the overall training program can be seen at the University of North Dakota.
- Retention of instructor pilots, particularly at non-university-based training institutions, is still a problem in the U.S., but does not appear to be as pronounced at universities as at commercial flight schools. The university-based programs have the capability of offering other employment benefits that can assist in instructor retention, such as making the instructors assistant professors, providing increased public status because of the association with the university, offering higher pay and participation in broader employee benefits packages.

Appendix H
The British Columbia Certification Program

The B.C. registration and accreditation program is separate and distinct from the provincial student loan program. The Ministry of Advanced Education established the provincial Private Post Secondary Education Commission (PPSEC) approximately 8 years ago. Under the original legislation, each private career college (e.g., flight trainers, hairdressing schools, business colleges, etc.) was required to register with PPSEC. Currently there are about 1,100 registered schools. In the flight training field, institutions providing either helicopter or aeroplane flight training must belong to this program (all flight training institutions must be registered, only the accreditation is optional).

Accreditation is done through a voluntary certification process with PPSEC. It began approximately 3 years ago. The program involves two self-study components conducted by the school and requires a great deal of administration. Very specific policies and procedures concerning both staff and students are expected and the school is audited against PPSEC expectations and what has been submitted in the self-studies. A short financial compliance audit is conducted and ratios are checked. Once accredited, the institution must follow the self-study closely and submit quarterly and annual reports.

Technically, the institution is obligated to notify PPSEC each time there is a change in employee or rates. Flight training institutions have managed to have the accreditation process streamlined so that PPSEC does not audit equipment and programs fully, since this is Transport Canada's responsibility. The yearly costs of compliance can be high given the stringent procedures required.

The requirement for accreditation is now expanding to cover any monies advanced to institutions by the federal government.

Costs

The cost of registration is approximately $850 per year, a significant sum for a small flight training institution operating on small margins. Institutions must submit financial statements, program information, student contracts, and policies on dismissals, refunds, and complaints. The direct costs of accreditation comprise approximately $4–6,000 accompanied by an annual fee of $1,100.

The direct cost reported by one B.C. flight training institute was approximately $5,000. Additional, indirect cost associated with the program to cover such things as salaries and procedural documentation came to $15,000. The general manager for this institute believes strongly that the added rigor imposed by the program make the school more effective.

Financial assistance

Government student loans are administered through the Student Loans Branch of the Minister of Advanced Education. Effective August 1, 2000, student loans for flight training will only be available to accredited schools. To date, only 5 flight training institutions in B.C. are accredited. An additional two schools will potentially be accredited by August 1st. The students in the remaining schools will lose the ability to obtain student funding. Some schools rely heavily on student loans for their students. Another issue with the funding model is the amount of funding (maximum of $4,420 for a CPL; $3,445 for either a multi IFR or Instructor rating) available to students. The cut-off date for access to funding is a contentious issue amongst British Columbia flight training institutions.

Challenges

The complaint from the flight training industry regarding PPSEC focussed on the high cost associated with the accreditation process, the requirement to submit duplicate information on an annual basis and the whole concept of the province trying to regulate all institutions using the same model. The concept of a student contract in flight training is a problem because most people work on a "pay-as-you go" basis.

Some examples of problems arising from the program over the past few years are provided below:

- One flight training institution in the interior challenged the validity of the contract requirement indicating school liability for a full refund if a student did not actually obtain the licence at that particular school.
- PPSEC's focus, however, is on consumer protection. Approximately 8 years ago a flight training institution closed and all the students who had loans there lost their money.
- PPSEC has also just introduced a tuition assurance program whereby all registered and accredited schools must pay into this insurance fund to reimburse students whose school may close prematurely. Previously, schools were responsible for arranging their own bonds.
- Schools that are currently accredited indicated that they did so primarily to continue to offer their students accessibility to the provincial student loan program. To do so, however, training institutions indicate that the associated costs and record keeping requirements are prohibitive.

Note

For the past few years, B.C. flight training institutions, together with ATAC have been advising training institutions in other provinces to expect a similar provincial model. At present the Ontario Ministry of Education, under the auspices of the student loan (OSAP) program is reviewing the B.C. model.

Appendix I

Provincial/Territorial Funding Grid

Overview of Provincial Contributions to Student Pilots

Province	# receiving aid 97/98 and total amount	# receiving aid 98/99 and total amount	# receiving aid 99/00 and total amount	Average per student 97/98	Average per student 98/99	Average per student 99/00
Alberta						
British Columbia						
Manitoba						
New Brunswick	55 $454,288	55 $579,993	45 $470,712	$8,259.78	$10,545.3	$10,460.2
Nova Scotia						
Newfoundland & Labrador						
Ontario	195 $536,313	209 $428,780	144 $296,043	$2,750.32	$2,051.57	$2,055.85
P.E.I.			8 Unavailable			
Quebec						
Saskatchewan	41 $133,238	55 $153,797	52 $207,704	$3,250.34	$2,796.31	$3,994.30
Yukon	1 $3,060.00	4 $0.0	1 $2,810.00	$3,060.00	$0.0	$2810.00
Nunavut	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

- Figures for New Brunswick are combined Federal and Provincial. Separated figures are not available.
- Data for some provinces was not available at time of printing.
- All figures are for the provincial portion of student aid.
- Bursary information is not included as only one province has available records.
- Federal contributions show an average of $4,000.00 per student for the western provinces and $6,000.00 for Ontario students. Quebec and Atlantic Canada are not available at this time.

Overview of Readily Available Government Funding for Commercial Pilots Licence

Province	Amount*	Married Allowance	P.P.L.** Allow	Flight Component Expenses***
Alberta	$297.00	Yes	No	Zero other than standard tuition fees
British Columbia	$260.00	$435.00/wk	No	Zero other than standard tuition fees
Manitoba	$275.00	$40.00/wk for 1–2 children $60.00 /wk for over 3, per child.	No	Zero other than standard tuition fees
New Brunswick	$325.00	As Manitoba	No	Zero other than standard tuition fees
Nova Scotia	$315.00	As Manitoba	No	Zero other than standard tuition fees
Newfoundland & Labrador	$315.00	As Manitoba	No	Zero other than standard tuition fees
Ontario	$275.00	$500.00/wk	No	Zero other than standard tuition fees
P.E.I.	$275.00	As Manitoba	No	Zero other than standard tuition fees
Quebec	$330.00	Unavailable	No	Zero other than standard tuition fees
Saskatchewan	$275.00	As Manitoba	No	Zero other than standard tuition fees
Yukon	$242.50	?	?	Zero other than standard tuition fees
Nunavut	No information available			

Notes:

- *All amounts are weekly.
- ** While some schools allow a student to incorporate the P.P.L. training into a C.P.L. program, provincial governments do not recognize it as a separate program.
- *** Actual flying time is not considered part of the loans process, so if a student were to require extra air time, this would not be considered for extra funding, whereas classroom time for extra credit would be.
- Information for the following provinces: Newfoundland & Labrador, P.E.I., Nova Scotia, Quebec, Alberta, and Manitoba was supplied directly from each provincial ministry and verified with institutional student assistance officers.
- I could not find any evidence of a national Canada study grant for Commercial Pilot training. This was verified with several Institutions and several aviation schools in Ontario, Alberta and Quebec.
- While I believe accurate figures exist for all the provinces, it is apparent that they are not readily available.

Appendix J
Approaches to Labour-Management Relations

Three Concepts Being Used by Leading Organizations

1. High performance work organizations

The following characteristics are associated with high performance organizations.

- **Employment security** — Employment security does not necessarily mean "no lay-offs". Instead, it should be interpreted as working in an environment that is relatively secure — for a corporation that is not likely to "go under" in the immediate future. When employees are not concerned about whether they will have a job next week or next month, they are more likely to be innovative, collaborative, and committed. Higher levels of performance are more likely to be sustained over time.
- **Selective hiring** — High performance organizations ensure that they recruit the right people the first time. This requires development of a sufficient labour pool from which to draw. When recruiting, the organization must be clear about the critical skills and attributes sought in the applicant pool. These skills and attributes must be consistent with specific job requirements and the organization's approach to its marketplace. The skills and attributes are then assessed through the selection process.

  Although a number of skills / attributes may be "nice to have" upon hire, high performance organizations screen primarily on important attributes that are difficult to obtain and emphasize qualities that differentiate applicants in the pool. Such selection processes tend to produce a "cultural fit" when final hiring decisions are made. Research shows that the degree of cultural fit and value congruence between the job applicant and the organization predicts subsequent turnover and job performance.
- **Self-managed teams** — Much of the literature on organizational health attests to the effectiveness of teams as a principle of organization design. Teams substitute peer-based control for hierarchical control of work. Employees overall, not just senior management, feel accountable for the operation and success of the organization. This increased sense of responsibility stimulates more initiative and effort as people pool their ideas to develop creative solutions to problems.
- **Contingent compensation** — Compensation systems based on organizational and individual performance can motivate employees. Employees recognize that their personal contributions will result in high pay levels. Compensation contingent on performance can take a variety of different forms including gain-sharing, profit-sharing, stock ownership, individual and team bonus incentives. High performance organizations are more likely to have contingent compensation schemes rather than straight salary or wage plans.
- **Extensive training** — Learning is an essential component of high performance work organizations because knowledge and skill are critical. Relying on front-line employees to identify and resolve problems, initiate improved work methods, and take responsibility for quality service requires a skilled and motivated workforce with the knowledge and the capacity to perform. Learning and development can be a form of competitive advantage and must be part of an overall management process. Return on investment can only be measured through an intrinsic belief in the organization that an investment in people results in increased profits.

- **Reduction of status differences** — High performance organizations are able to capitalize on the ideas, skills, and effort of all their people. This is accomplished through a reduction in status distinctions that make some groups feel less valued. Achieving this change is done primarily through language and labels and reduction of wage and benefit inequality across levels. When status differences are reduced, a sense of "common fate" can be developed.
- **Sharing information** — Information-sharing is an essential component of any high performance organization. Sharing of vital information relevant to both the organization and its people establishes a climate of mutual trust and respect. However, information-sharing works only when appropriately skilled people are able to interpret and use the information received.

How can high performance practices be implemented?

Achieving profits and building success through people takes time to accomplish. Emphasis on short-term results does not help organizations do the "right thing". Organizations, however, often reward for short-term / annual results. Implementing and seeing results from many of these practices takes time and commitment. It takes time and money to upgrade skills and more time to see the benefits in enhanced performance. It takes time to share information, accept suggestions, and produce results. It takes time to generate trust and produce higher levels of innovation and effort. Consequently, a long-term view of development and growth is essential to implement high performance. Making a single change, although perhaps a good first step, cannot solve all the problems. Effective leadership and management requires a comprehensive and systematic approach. The key to leadership, managing to get the best out of your people, is to see them as the fundamental resources upon which organizational success is founded and the primary means of differentiation from the competition.

A large part of the strategy required is to help business leaders of all sizes of enterprise become agents of change. Peer-to-peer interaction fosters the type of exchange required to move ahead. The move to high performance requires courage, ingenuity, and commitment coupled with a shared sense of responsibility for the industry as a whole. In this new era of doing business, the threat is not just tenacious competition, but also obsolete ways of working. The new focus must be on making employees increasingly valuable and valued and ensuring that managers, workers and labour leaders are all agents of change.

An example — Southwest Airlines

Herb Kelleher's leadership at Southwest Airlines illustrates the role of the leader in a high performance work organization in aviation. He believes that his employees are the key to success. Through extensive training, information-sharing, innovative compensation plans, and employee involvement, he gives his people the opportunity to shape the company around a vision of quality, flexibility and customer service. Southwest puts a lot of money into learning and development and fills 80% of higher-level jobs through internal promotion. Between 80–90% of the company is unionized and they own over 10% of Southwest. Annual turnover is among the lowest in the industry. Southwest is noted for its unusual employee loyalty and high ratings for customer service.

2. Interest-based negotiation

The need to find mutually agreeable solutions to build future relations between labour and management in the Canadian aviation industry is an important consideration as the industry moves toward a more global model based on the formation of alliances, increased consolidation of airlines, the emergence of new technologies, and new ways of doing business.

Having shared the pain of the early 1990's recessionary period, pilot groups are looking for a share of the gains of recent years and greater parity with the international marketplace. Apart from a desire for increased compensation and better retirement benefits, additional issues that could be part of future negotiations include the immediate and long-term effects of domestic and international alliances, especially as it relates to job security.

a) Interest-based positional bargaining

The more traditional method of labour-management negotiation is found in a model of position-based bargaining. This model is power-based, where each side takes a position, argues for it, and makes concessions to reach a compromise. When negotiators bargain over positions, they tend to lock themselves into these positions and the more they defend these positions against attack, the more committed they become, thus reducing the possibility of changing those positions. As negotiators focus more on their positions, less attention is paid to meet the underlying concerns of each party. Agreements become more difficult and final positions may end up just "splitting the difference" rather than meeting the interests of all players. Positional bargaining often becomes a contest of will. Each side tries through its power base to force the other to change its position. This type of negotiation can often result in anger and resentment, which can strain and even shatter relationships.

b) Interest-based negotiation

An alternative to positional bargaining and adversarial negotiation is interest-based negotiation (IBN), a practice of note in the area of labour-management relations.

Interest-based negotiation grew out of a Harvard study on dispute resolution. IBN can be described as a problem-solving approach to bargaining/negotiation. Interest-based negotiation focuses on principled negotiation, negotiation of an agreement based on the merits.

The classic IBN model is based on four key points:

- **People** — Separate the people from the problem. This point acknowledges that in negotiation situations, strong emotions often surface. Negotiators often have radically different perceptions and high emotion levels often prevent clear communications.
- **Interests** — Focus on the interests, not the positions. The second point focuses on getting negotiators away from stating positions when it is their underlying interests which are the object of the negotiations.
- **Options** — Generate a variety of possibilities before deciding what to do. This point responds to the need to avoid designing solutions under pressure. Setting aside a designated time to develop a series of options that advance shared interests can contribute to more creative ways of reconciling differences.
- **Criteria** — Insist that the results be based on some objective standard.[1] Using objective criteria to negotiate provides a fair standard that is acceptable to all parties. Discussing the criteria can help parties to achieve solutions that do not require either party to "give in" to the other.

Although relatively new in the airline industry in the U.S.A., the list of IBN-led contracts is growing particularly amongst regional and specialty carriers. Examples include Atlantic Coast Airlines, American Eagle, Alleghany, and

[1] *Fisher, R. & URY, W. Getting to Yes: Negotiating Agreement Without Giving In, Second Edition, Penguin Books, 1991.*

Piedmont, FedEx, and some smaller unions at Northwest and DHL. Reaction has been positive and negotiators have found this method more productive, meaningful, and less confrontational than traditional bargaining. However, to make it work, negotiations must be built on a foundation of mutual trust and respect. Interest-based negotiation efforts are being spearheaded in the U.S.A. by the Chair of the National Mediation Board, Magdalena Jacobsen, a former employee of Continental Airlines. There appears to be optimism on both sides that this method may help to reduce the lengthy negotiating process and simplify contract complexity. The method has yet to be adopted by both sides at the major carrier level, but United Airlines pilots have been considering it and ALPA President Duane Woerth may be willing to give the process a chance.

Since the principles of interest-based negotiation are based on accepted principles, the process can also be applied successfully in non-unionized work environments to solve problems, resolve conflict, and address the interests of both employers and employees. Training in negotiation skills and tools is required in order to achieve the optimum results from the process.

3. Labour-management alliances

Another trend in labour relations emerging today in both unionized and non-unionized environments is labour-management alliances. This trend reflects a growing awareness that autocratic management styles and confrontational labour relations do not assist an organization in working effectively. As well, strategic focus on the importance of human resources and the need to build sustainable relationships is increasing. These labour-management relationships are established initially to facilitate change. The challenge then becomes to develop permanent structures that will perpetuate continuous improvement and survive subsequent generations of management and labour. Labour-management alliances are built on three premises: shifting of emphasis from rights to relationships; development of joint decision-making on an ever-expanding range of issues; and a principle-centred process based on mutual gain. This approach results in a more competitive and successful organization, employees who are better off, and a strong union (if the environment is organized).

Some key "lessons learned" are highlighted in the literature.

- **Restructuring/redesign** is a key driver of changing labour relations practices. Redesign initiatives involve the reorganization of work along with the creation of innovative practices to promote employee involvement.
- **A gap** can arise between the desire to change labour relations practices and the ability to operationalize goals.
- **An increase in management sensitivity** to key employee concerns develops. Greater emphasis is placed on recognizing seniority rights in unionized environments and ensuring union/employee representation on committees/teams.
- **Commitment to principles** of trust, respect, and mutual gains requires the formalization of process/procedure. Without the discipline of procedure, clear principles, and mutually agreed objectives, sustainability will be threatened.
- **A need to use a variety of techniques** to build relationships is key. These include natural work group teams, cross-functional problem-solving task forces, and joint committees.

These alliances help labour and management with a wide range of issues affecting the workplace. These initiatives, however, do require a complete change in mindset as to the rights and roles of employees in making decisions.

Four basic elements underpin the sustainability of the alliance model. These include:

- **Cultivating mutual gain principles** — Both labour and management must accept the fundamental principle that greater cooperation should benefit all. This principle should drive all strategy and action. Trust is the most fragile part of an alliance because it is difficult to build and sustain. Trust can only be earned over time by consistently modeling behaviours reflecting a commitment to mutual gain. Levels of trust are best exemplified by the extent to which substantive information is shared in an uncensored form.
- **Establishing formal commitment** — Though behavioural change is a key component in establishing alliances, formalizing the process through policies, memoranda of understanding, explicit mandates, etc., symbolize commitment to the alliance. This formal commitment enhances stability and provides a clear understanding that the process is larger than the "individuals" within it.
- **Fostering support of key players** — Effective leadership is critical to the ongoing support of all shareholder groups. Leaders must secure support from all levels of the organization. Education and training are key to promoting understanding and effecting both personal and cultural change. As well, changes in organizational structure can promote greater line management accountability for employee relations.
- **Adhering to procedure** — Process / procedure refers to the jointly determined ground rules established to achieve mutual gain. Procedures keep all parties focused. These procedures, to achieve optimum results, should be developed within the organization and reflect its unique environment.

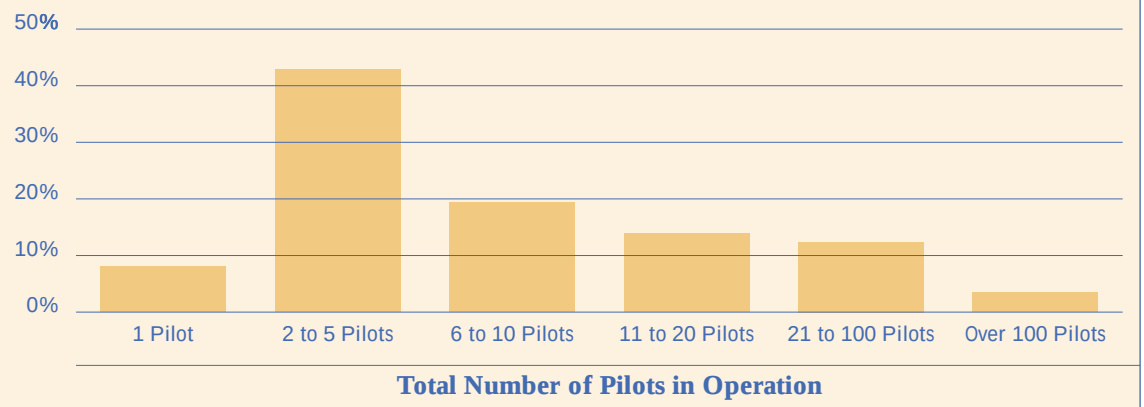
These ground rules also force participants to understand and internalize what they are doing and why they are doing it, essential elements of sustainability.

Appendix K

A Profile Of Operator Survey Respondents

Based on the 201 responses received to the operator survey, by far the largest representation came from operations with between two and five pilots (42.8%), when full-time, part-time, contract, seasonal, and casual/periodic employment types are considered. Only 3.5% of respondents employed 100 pilots in their operations. These findings are shown in Exhibit I-1.

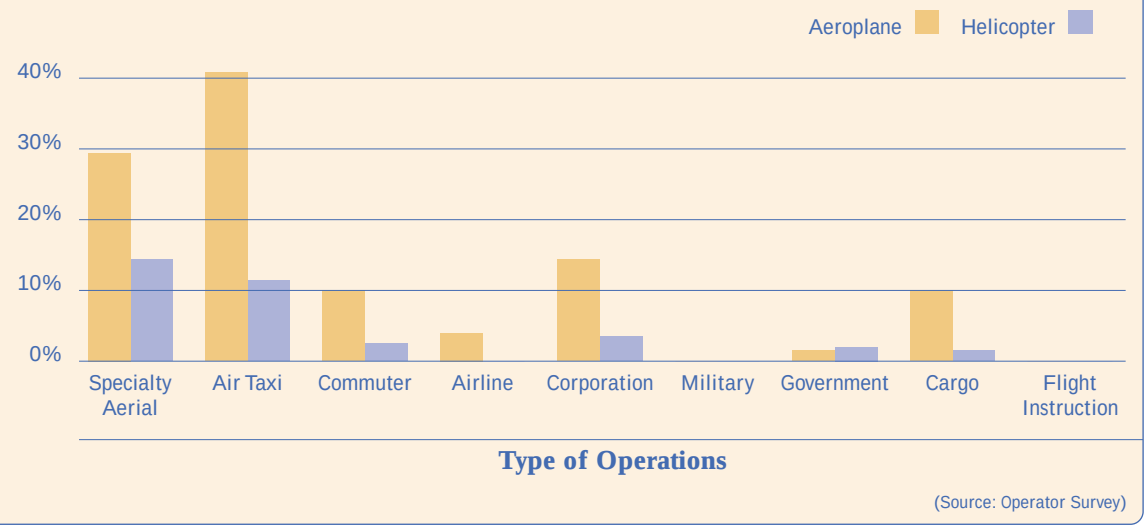
K-1 Number of Pilots per Air Operator, by Percent of Operators



(Source: Operator Survey)

As seen in Exhibit I-2 below, respondents to the survey represented mostly aeroplane air-taxi (40.8%), and specialty aerial (29.4%) types of operations, with airlines representing only 4.0% of the total number of respondents.

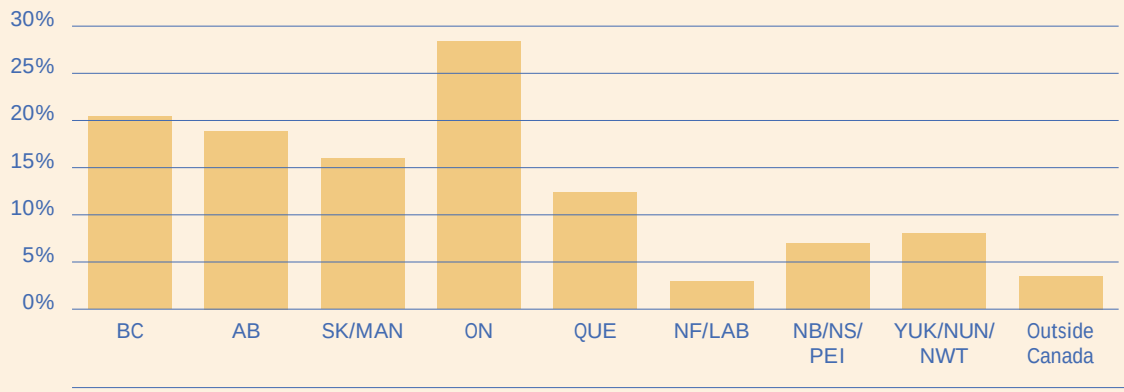
K-2 Percent of Operators, by Type of Operations



(Source: Operator Survey)

Air operators represented in the survey were operating primarily out of Ontario (28.4%), followed by British Columbia (20.4%), and Alberta (18.9%). This is shown in Exhibit I-3 below.

K-3 Location of Main Flight Operations, by Pecent of Operators



(Source: Operator Survey)

The type of aircraft used in operations was primarily single-engine piston aircraft (used by 49.3% of operators), followed by multi-engine turbine aircraft (41.3%), single-engine turbine aircraft (29.4%) and multi-engine piston aircraft (28.4%). Most operators surveyed are also using between two and five aircraft in their operations, as shown in Exhibit I-4 below.

K-4 Number and Type of Aircraft Used by Air Operators

	SE-Piston (n=99)	SE-Turbine (n=59)	ME-Piston (n=57)	ME-Turbine (n=83)
Over 20	1	2	1	4
11–20	4	2	5	5
6–10	9	6	5	12
2–5	53	25	27	36
1	32	24	19	26

Type of Aircraft

(Source: Operator Survey)

The single-engine piston aircraft were the oldest (28.05 years) based on average age of fleet identified by operators, followed by multi-engine piston aircraft (27.04 years), multi-engine turbine (19.88 years) and the newest being single-engine turbine aircraft (17.14 years).

Though airline representation in the air operator survey was small in absolute numbers, it is important to note that the overall number of airline operators is relatively small in relation to the overall number of operators in Canada. Consequently, the survey respondents representation is a fairly accurate reflection of the real situation. This is also true for the regional distribution (Ontario being the major source of air operations in Canada, followed by British Columbia).

Appendix L
Sector Council

Definition of a Sector Council

A Sector Council is a joint employer-employee organization that provides a neutral decision-making forum for labour and management to determine human resource issues within a sector and to develop and implement a sectoral human resource strategy. With representation from both management and labour, sector councils provide the infrastructure necessary for long-term sectoral human resource planning.

Key elements of a sector council are:

- Partnership among employers and employees.
- Board of directors representative of those involved within the sector.
- Board members with authority to make decisions and commit money on behalf of their constituency.
- A specific organizational focus on human resources.
- An emphasis on facilitating action to be undertaken by the sector as a whole.
- A commitment to continuity of engagement in planning and action.

How Sector Councils are established

1. Diagnostic study

Prior to forming a sector council, a diagnostic study on the sector is typically completed. Human resource issues are analyzed under the direction of a steering committee comprised of management, employees, education and government representatives. The process brings together industry representatives to build consensus around key issues and recommendations as to how the industry might solve sector-wide human resource problems. (The Human Resource Study of Commercial Pilots in Canada fulfills the requirements of step 1.)

2. Reaching a consensus to form a council

Following the diagnostic study, the sector must decide what it would like to do next. The options boil down to doing nothing, companies or regions doing things individually, or opting for collective action on some or all of the study recommendations. If the steering committee involved in the sector study senses the need or desire for a human resources sector council, work must be undertaken to get the sector ready for, and committed to, a council. This involves:

- The industry learning to work collaboratively.
- Getting industry buy-in for the sector study results through such mechanisms as industry roundtables, conferences, etc.
- Getting agreement in the sector to proceed with the creation of a sector council. Agreement should come from major industry/associations or companies and major employee associations.

The process of consensus building usually takes from three to six months. A proposal may be submitted to Human Resources Development Canada for funding to achieve these objectives. If approved, the contribution agreement would be on a cost-shared basis between industry and Human Resources Development Canada. The value of the agreement would depend on the activities to be undertaken and

the ability of the sector to cover the associated costs, along with cash contributions, in-kind contributions. For example, time and travel costs are considered to be valid contributions by industry.

3. Developmental activities

Once consensus has been reached in a sector to form a human resource sector council, developmental activities essential to the establishment of the council must be undertaken. A steering committee or interim board of directors assumes responsibility for the developmental phase and leads the process. Steering committee / interim board members are usually drawn from those involved in the sector study. The developmental activities include:

- Developing a plan to attract a board of directors — one which will be representative of developing and staffing the interim board of directors and secretariat. It is essential to attract the right players to the board, those who can speak on behalf of sub-sectors, associations, unions, etc., and who can commit funds on behalf of their constituency. It is important that all major players are represented in some way.
- Developing the mission and mandate statement for the council.
- Developing a five-year business plan based upon a strategic plan, an operational / action plan, and a financial plan for self-sufficiency, as well as an employment equity statement and a communications strategy. All the major industry players should be involved in this process, usually through the steering committee or interim board of directors.
- Developing the decision-making structure and procedures of the council.
- Developing and / or implementing a plan to ensure support by the sector / industry for the establishment of a permanent council.
- Developing and implementing a plan for the council to become a legal entity.
- Getting industry buy-in for the business plan and organizational structure. This could require more roundtables or conference, or could require letters of support from the major players. This step should be completed two months before the anticipated start date of the operational phase to allow for final review and approval by Human Resources Development Canada if the department is to be approached for further funding.

The developmental phase usually lasts from nine to twelve months. Once again, a proposal may be submitted to Human Resources Development Canada for funding to carry out the developmental activities. If approved, the contribution agreement would be on a cost-shared basis between industry and Human Resources Development Canada and the value of the agreement would be dependent on the ability of the sector to cover the costs of the activities; along with cash contributions, in-kind contributions.

4. Operational activities

Following the completion of the developmental activities and indication from the sector that supports the business plan and council structure, the steering committee or interim board is ready to begin the operational activities of the council which include:

- Implementing the business plan activities.
- Implementing the financial plan for self-sufficiency.
- Developing and implementing a communication plan.
- Incorporating the council as a legal, not-for-profit entity.

- Putting in place a formal board of directors.
- Updating information on human resource issues in the sector on a periodic basis.
- Reviewing the business/strategic plan on an annual basis.
- Updating board/secretariat structure as required.

Operationalizing the business plan may involve, but is not limited to, the following activities:

- Developing training.
- Developing curriculum.
- Developing occupational standards.
- Improving the image of the industry/sector.
- Undertaking measures to enable the retention of skilled workers.
- Addressing equity issues.
- Liaising with federal and provincial government departments on various issues.
- Developing databases.
- Working with educational institutions to ensure that training is responsive to industry needs.
- Rationalizing existing training.
- Updating the sector study.
- Implementing a plan to avoid duplication of activities within the sector.
- Working with other sector councils to share information, etc.

A proposal may be submitted to Human Resources Development Canada to carry out the operational activities of the sector council. If approved the contribution agreement would be for a maximum of three years and would be cost-shared between industry and Human Resources Development Canada. Human Resources Development Canada's contributions would be based on a declining scale over the three-year period. (Note — the three-year maximum and the policy of declining contribution scale are currently being reviewed by HRDC.)