Follow-up to the Human Resource Study of COMMERCIAL PILOTS in Canada



2005



Review of Recommendations

"Follow-up to the Human Resource Study of Commercial Pilots in Canada"

Review of Recommendations

Prepared for the Canadian Commercial Pilot Industry through:

The Canadian Aviation Maintenance Council (CAMC)

in collaboration with the Air Transport Association of Canada (ATAC)

Prepared by:

Sypher:Mueller International Inc. 220 Laurier Ave., West, Suite 500 Ottawa, Ontario K1P 5Z9

November 2003

Acknowledgements

A special thanks is extended to those individuals who chaired the Executive Committee, for their uncompromising assistance and guidance.

The contributions of the following individuals are greatly appreciated:

Sherry Cooper, Vi Kalesnikoff, Rick Potter, Shirley Rose, Don Macpherson, Brian Dennis, Graeme Pepplar, Andrew McKenzie, Sherri Kantynir, Michel St. Pierre, Tom Lawson, Kevin Parker, Andreas Hofstaetter, Diane Damos, Jacques Monast, Larry Dupuis, Steve Dick, Jim Dow, John Scholefield, Henri Bureaud, Fred Petrie, K. Freum, Dave Menzies, Jean Larouche, Pat Kennedy, Ted Brown, Jay Notay, Bob Lamoureux, Michael Dupuis, Pat Martin, Terri Super, Janet Hebden, Marc Jerry, Kevin Hollands, Mark Eberal, Dennis Cooper, Rick Wynott, B. Connors, Frank Hoffman, Didi Fermier, Shandy Warraich, Joan Williams, I. Henley, G. McRae, Michael Gillespie, Michael Bland, A. Hunt, Brian Stewart, Glenn Priestley, Eric Culley, Wayne Gouveia.

The Executive Committee is also grateful to Andreas Hofstaetter of Human Resources Development Canada (HRDC) for his assistance and special mention and thanks to Larry Dupuis for his contribution to the discussion of the recommendations during the focus group.

Finally, the consulting team of Sypher:Muller International Inc. for the cross Canada and industry specific data collection and statistical analysis and special mention and thanks to David Biggs and Eric Culley.

The study is available in English and French on hard copy or electronically. For additional copies of the "2003 Follow-up to the Human Resources Study of Commercial Pilots in Canada - Review of Recommendations", please contact:

The Canadian Aviation Maintenance Council (CAMC)

155 - 955, Green Valley Cr., Ottawa, Ontario K2C 3V4 Phone: (613) 727-8272 Fax: (613) 727-7018 Or visit our website at www.camc.ca

Air Transport Association of Canada (ATAC)

255 Albert St., Suite 1100 Ottawa, Ontario K1P 6A9 Tel: (613) 233-7727 Ext. 309 Fax: (613) 230-8648 Cell: (613) 296-9466 Email: glennp@atac.ca

Cover images courtesy of :

Andy Vanderheyden, Gary R. Tinnes, Rich Hulina, Angus Wighton, Mike Kay, Chris Baxter, Serge Walczak

Table of Contents

Executive Summary_____i

1.	Overview	1
1.1.	Purpose of This Report	1
1.2	Overview of 2001 Report and Circumstances	1
1.3	Current Outlook: Continued Volatility of the Air Carrier Industry	2
1.4	Pressures for Change	3
2.	Demand and Supply for Pilots	
	- Carrier Survey	5
2.1	Recent Changes in Numbers of	
	Commercial Operators, FTUs and Pilots	5
2.2	Survey Overview	9
2.3	Demand and Supply of Pilots	10
3.	Review of Recommendations	_19
3.1	Introduction	19
3.2	Guiding Principles	20
3.3	An Industry Framework for Career Progression	20
3.4	Measures to improve performance of the Flight Training Sector_	22
3.5	Next Steps	25
4.	Conclusions	_27
4.1	Objectives for Phase 2	27
4.2	Issues for Further Development	28
4.3	Notes on Implementation	28
Re	ferences	31

List of Appendices

- A Pressures for Action
- B Operator Survey Questionnaire
- C Tabulation of Focus Group Scores and Scoring Guide
- D ICAO Reform of Pilot Licenses

Executive Summary

1 Overview

- 1.1 The purpose of this report is to contribute to the formulation of the "next steps" document to be prepared by the Executive Committee. The "next steps" will constitute Phase 2 of the "Follow-up to the Human Resource Study of Commercial Pilots in Canada" (HRSCPC) Project.
- 1.2 The issues being addressed in this report are:
 - Do we still have a problem?
 - What problem are we trying to solve?
- 1.3 The 2001 HRSCPC report was developed in a period of very strong growth. At the time, the industry was concerned about maintaining quality and about an emerging concern on the need for structural change.
- 1.4 The current outlook for the carrier industry is continuous volatility affecting the types of pilots required. At the present time there appears to be a structural change involving an increase in the demand for pilots of small aircraft due to changes in the types of aircraft operated by large carriers as well as the transfer of routes from large to small air carriers.
- 1.5 Currently, the pressure for change in the training industry is driven by changes in training technology and higher expectations of industry for new pilots. Entry level pilots will need to demonstrate competency with the new technology and work environment of the current fleet of aircraft. Further, there are increasing pressures for improvements in air transport performance on the part of insurers and regulatory authorities.

2 Demand and Supply of Pilots

- 2.1 Historic trends in the numbers of commercial operators, flight training units (FTUs) and pilots provided in the previous HRSCPC report were updated to include the latest available data. The number of commercial operators licensed to provide commuter and air taxi services has declined by about 20% over the two years 2001 to 2003. The number of licensed FTUs providing training for fixed-wing aircraft has declined, while those providing helicopter training have increased. The total number of commercial pilot licenses has decline since 1999 due to a decline in aeroplane licenses. The number of new commercial aeroplane licenses issued per year has also declined, but new helicopter licenses have increased since 1999.
- 2.2 A survey of commercial air operators was undertaken to obtain information on the demand and supply of pilots. Fifty-two responses were received covering a cross-section of operator types and a significant proportion of commercial aviation traffic.

2.3 The number of pilots employed by commercial operators was estimated to be about 11,350 distributed across the industry sectors as follows: jet carriers 4,200; regional carriers 1,670; commuter carriers 1,910; air taxi 2,630; flight training 930; helicopters 2,830. The operators surveyed indicated they expect to increase the number of pilots employed by about 2.8% per year over the next five years. About 2.5% of pilots are expected to retire per year over the next 5 years. The turnover rate of pilots varies from 10% to 15% per year for air taxi, commuter carriers and flight schools, to less than 2% per year for jet operators.

Most operators expect to hire pilots in the next 12-months, particularly the air taxi and helicopter operators, with expansion and pilots hired by other operators being the primary reasons given. Approximately a quarter of operators have been having difficulty obtaining the kinds of pilots they require and about a quarter have changed their hiring criteria. Operators of small aircraft more often hire pilots directly from FTUs and many of these operators have some affiliation with an FTU. Most operators conduct their re-current training of pilots in-house, but almost half contract out some portion to 3rd party FTUs, primarily for training on flight simulators.

The effects of the new security measures have been felt right across the industry and over half the operators indicated that the measures have affected the viability of their operations. Increased workloads and costs are the primary effects. Many operators indicated that structure changes are also occurring in the industry which will affect the future demand for pilots. The effects will differ between the different segments of the industry.

3 Review of Recommendations

- 3.1 Industry views were obtained from four focus group sessions held in April and May.
- 3.2 Industry agreed on the guiding principles to be adopted: promoting a safety culture and promoting the industry in terms of taking measures that support growth in the industry and its economic viability.
- 3.3 A need for "Student Screening and Counselling" and "A More Qualitative Emphasis in the hiring of pilots" were strongly supported.
- 3.4 Measures to improve the performance of the industry identified as key points included the following elements drawn from the HRSCPC recommendations:
 - Quality assurance (QA) programs with respect to pilot training;
 - Regulatory easement for schools with QA programs (performance-based monitoring) (qualified support);
 - Certification or rating systems (qualified support);
 - Developing and retaining quality (flight) instructors;
 - Greater use of simulators/flight training devices (FTDs); and
 - Reduce insurance premiums and facilitate bank loans.

- 3.5 "Next Steps" should include:
 - Formation of an effective national all-stakeholder organization to conduct the project (i.e. a Sector Council);
 - Promotion of a systemic approach to skills development and Quality Control;
 - Creation of a standing advisory committee on course content (qualified support).

4 **Conclusions**

- 4.1 The main concern of industry appears to be the quality of pilot training. Two main goals should be considered:
 - Industry-wide standards for pilot competency defining the knowledge, skills and attitudes (KSAs) required by pilots to do their job; and
 - Quality assurance programs with respect to pilot training, based on industry-wide KSA standards.

A number of HRSCPC recommendations identified by the focus groups are associated with these goals: student screening and coun selling, review of training philosophies, developing and retaining qualified (flight) instructors and greater use of simulators/FTDs. The linkages between these elements are shown in Exhibit 4.1 (page 29).

The focus groups supported other recommendations:

- Mechanisms to manage the costs of insurance premiums; and
- Promotion of skills development.
- 4.2 Two issues seem to require further discussion and elaboration:
 - An accreditation system, and
 - The extent of the need for recommended practices, guidance material and standards with respect to course development.
- 4.3 The issue as to how the industry might organize itself needs to be resolved before a meaningful program can be initiated; the proposal for a sector council was supported by a majority of the focus group participants.

The two main goals identified in 4.1 should be pursued in parallel.

There is a need for alignment between the regulator and the body designated to act as the authority to conduct the Phase 2 work program.

The review of recommendations has focused on the key items to be addressed in Phase 2; amongst the remaining 45 recommendations are a number of actions that would be useful to the industry. It is suggested that the Executive Committee may wish to review these items and consider follow-up action, as required.

1 Overview

1.1 Purpose of This Report

This report forms part of a project being conducted by the Canadian Aviation Maintenance Council (CAMC) in collaboration with the Air Transport Association of Canada (ATAC). The objective of the overall project is to conduct a comprehensive review of the recommendations of the "Human Resource Study of Commercial Pilots in Canada" (HRSCPC) report, released on May 15, 2001. The purpose of this report is to contribute to the formulation of a "Next Steps" document to be prepared by the Executive Committee. The "next steps" will constitute Phase 2 of the Follow-up HRSCPC Project.

The research carried out in connection with this report has been focused on two generic issues:

- 1) Do we still have a problem?
 - Demand is greatly reduced in the short term; how urgent is the need for renewal now?
- 2) What problems are we trying to solve?
 - What problems should be addressed?
 - What issues remain outstanding?

In conducting the research, the authors have attempted to be as careful as possible to represent the views of industry as they were expressed in the survey of carriers and by the representatives of industry participating in the focus groups. However, the authors of the report are solely responsible for the contents of the report, including the interpretation and presentation of the views expressed by participants to focus groups and respondents to the survey.

In addressing the first of the generic issues, the research has been developed on the basis of the survey of carriers (Chapter 2) and a review of the apparent pressures felt by industry, drawn from discussions surrounding the focus groups (presented in Appendix A).

The second of the generic issues was addressed by the discussions and views expressed by the participants of the focus groups (presented in Chapter 3). The interpretation of the concerns of industry and the direction that might be considered by the Executive Committee is outlined in Chapter 4.

1.2 Overview of 2001 Report and Circumstances

At the time the HRSCPC report was being prepared, the air carrier industry was in the midst of a very vigorous expansion and the demand for pilots was growing strongly (4% to 5% annually). The apparent shortage of qualified pilots was resulting in accelerating turnover rates in

small carriers and the lowering of hiring criteria by carriers seeking to maintain, if not expand operations.

Industry was also concerned about long term problems related to new technologies requiring new pilot skills, regulatory change and the harmonization of licensing requirements and a significant raising of the bar of pilot proficiency.

The situation presented a challenge for the training units leading to restructuring, new arrangements for students and carriers, more professionalism for instructors and improved courses, training devices and aircraft. It was recognized that new thinking and innovation was required. In particular, a more cooperative, partnership-like approach for the industry was required.

A key component of the HRSCPC recommendations was the proposed formation of a Sector Council to act as a vehicle of industry action.

1.3 Current Outlook: Continued Volatility of the Air Carrier Industry

Since the preparation of the HRSCPC Report in 2001, there have been major challenges to the air carrier industry stemming from: the consequences of competition within the industry, economic conditions affecting the industry and the absorption of new costs and charges such as the Air Traveller's Security Charge (ATSC) and additional airport Air Improvement Fees (AIFs). The demand for air travel has been severely impacted by a series of external shocks including the tragic events of September 11, 2001, the war in Iraq and the outbreak of SARS in Toronto. Within the industry, the acquisition of Canadian Airlines International by Air Canada in early 2000 altered the structure of the industry from a duopoly to one dominated by Air Canada. Most recently, Air Canada entered into bankruptcy proceedings and faces major realignments and restructuring, particularly with respect to domestic services.

The merger of the two major Canadian carriers created opportunities for growth by smaller, more specialized air carriers. In particular, the rapid expansion of the low cost carrier Westjet into short haul and regional markets in Western and Central Canada (both before and after the merger) was remarkable both in terms of its speed and the sound financial situation of the carrier. Charter-based carriers such as Royal Aviation and Canada 3000 also found room for expansion into medium and long haul markets by offering services aimed at low fare, non-business travel markets. Operating out of Halifax, startup Canjet entered markets in Eastern Canada with low fares, in direct competition with Air Canada.

However, the ambitious expansion of the charter-based carriers was interrupted as Canada 3000 consolidated the main players through the acquisition of Royal and Canjet in April, 2001. Slowing economic growth in 2001 combined with the dramatic drop in demand following the events of September 11 brought about the collapse of Canada 3000 in November. This series of events left Westjet as the only strong competitor to Air Canada on a national level.

Air Canada's response to the new environment was initially to create two subsidiaries, Jazz and Tango, to provide management focus for regional and low price services. Jazz was the entity responsible for managing regional services throughout Canada, including those of earlier subsidiaries such as Air Nova, Air Ontario and Air BC, as well the remnants of Canadian Airlines subsidiaries and its affiliate Canadian Regional. Tango operated Air Canada's low fare services on flights where the aircraft was dedicated to discount fares.

During the summer of 2002, two new low cost carriers commenced operations, a renewed Canjet, and Jetsgo, operated by the former owner of Royal Airlines. Both these carriers had high load factors, were profitable over the peak summer season and have continued to expand in 2003. A further new entrant, Zip Airlines (a subsidiary of Air Canada) commenced service on September 21, 2002. At the present time, the future roles for Tango, ZIP and Jazz are unclear as the outcome of the restructuring of Air Canada is still unwinding. However, it should be noted that Jazz has been withdrawing service from a number of smaller communities across Canada, giving room for smaller carriers to grow. For example, in Newfoundland, reductions in service by Jazz have been accompanied by expansions by Provincial Airlines and Labrador Airways.

The dramatic swings in the fortunes of individual carriers have meant uncertainty in the circumstances of individual pilots and volatility in the demand and supply of professional airline pilots. It seems clear that there has been an overall reduction in the level of air transport activity; however, such a reduction in activity does not necessarily translate into a decrease in the required number of pilots. In fact, it would appear that an increase in the need for pilots on smaller aircraft may largely offset the decline in flights for large aircraft. This change in industry structure follows from the initiative of individual carriers as well as entry and exit from markets brought about by competition between carriers and the need to maintain financial viability. The current situation in the demand and supply of pilots is explored in Chapter 2 of this report.

1.4 Pressures for Change

Significant strides have been made in the quality of pilot training in recent years. For example, a number of Canadian flight training units (schools/training centres/colleges) have training programs that teach both ground courses and flight training in an integrated program of instruction and are close to developing their own set of essential pilot skills for their programs of instruction.

A large segment of the industry is challenged by developments in simulator and flight training device (FTD) technology and has expressed a

need for standards on which to develop new programs and courses. The pressure of competition also extends to courses offered over the internet, using computer based teaching methods.

The insurance industry has put pressure on the industry both from a cost perspective (insurance premiums have risen sharply in 2001 and 2002) and in terms of how they would like to see the industry develop. Insurers see Canadian aviation as an area of high loss, particularly with respect to operators of small aircraft, and would like to see more effort put into measures to improve industry performance.

There are also important areas of regulatory change. ICAO is in the midst of a program to reform and restructure pilot license requirements. For Canada, these changes will have important impacts on the way in which pilots are trained and conduct their careers.

Further, Transport Canada is strongly pushing its philosophy of delegating the regulation of pilot training to the industry through the adoption of performance-based monitoring. Industry would also like to see a more hands-off approach to monitoring and inspection.

2 Demand and Supply for Pilots – Carrier Survey

The purpose of this chapter is to provide an overview of recent changes in the number of commercial operators, flight training units (FTUs) and pilots in Canada, and to present the findings of the survey of carriers on issues concerning the demand/supply of pilots. The survey was conducted to:

- Determine the current number of pilots;
- Provide information for forecasting demand for new pilots; and
- Obtain information from operators on issues related to the demand for new pilots, the skill levels, hiring standards and structural changes in the industry affecting pilot hiring.

The chapter is structured as follows:

- Section 2.1 provides historic trends in the numbers of commercial operators, FTUs, and pilot licenses. The latter includes data on aeroplane and helicopter licenses, commercial licences and ATPLs, new and total licenses issued, and active commercial pilots.
- Section 2.2 provides a brief summary of the survey of commercial operators and the classification of industry segments used in the demand-supply analysis.
- Section 2.3 provides a summary of demand and supply based on the survey responses. The numbers of pilots employed by industry segment, the expected change in the numbers of employed pilots and expected retirement rates are presented and compared with recent production rates of new pilots. Turnover rates and issues related to hiring of pilots and factors affecting demand for pilot are then examined.

2.1 Recent Changes in Numbers of Commercial Operators, FTUs and Pilots

Historic trends in the numbers of commercial operators, FTUs and pilots provided in the previous HRSCPC report were updated to include the latest available data.

Exhibit 2.1 presents the number of air operators with air taxi (CAR 703) and commuter (CAR 704) operating certificates in Canada between 1996 and 2003. When considering the total number of operators, it should be noted than some operators have multiple operating certificates. The number of certified air taxi operators has dropped by 17% since the peak in 2001/02 and certified commuter operators have declined by 27% over the same period.

The number of air operators with flight training operating certificates (CAR 406) for aeroplane and helicopter training are presented for the years 1997-2003 in Exhibit 2.2. The number of FTU with certificates to

provide training for fixed-wing aircraft has decreased by 12% over the last three years, while the number with certificates to provide helicopter training have increased by 16% over that time period.



Exhibit 2.1 Number of Air Operators with Air Taxi (CAR 703) and Commuter (CAR 704) Operating Certificates - 1996-2003





Exhibit 2.2 Number of Air Operators with Flight Training Operating Certificates (CAR 406), 1997/98 – 2003/04

Source: AARRE Transport Canada

Exhibit 2.3 shows the number total of aeroplane and helicopter pilot licenses held in Canada, by type, in selected years between 1960 and 2002. Since 1999, the latest year the previous HRSCPC report, the number of private licenses has increased by 12%, the number of ATPLs has increased 2.4%, but the num-







ber of commercial licenses had decreased by 3%. This decline is due entirely to a decrease in aeroplane licenses, which declined by 4% over the period.

The number of new licenses issued annually by type provides an indication of the flow of new pilots into the system. Exhibit 2.4 shows the number of new licenses issued over the period 1989 to 2002. The numbers of new aeroplane licenses issued in 2002 for commercial and ATP licenses are 11% and 15% lower than in 1999, while the number of new helicopter licenses issued has increased by 10-11% since 1999.

Exhibit 2.5 compares the number of active professional pilots with the total number of professional licenses (commercial and ATPL). The number of active com-



Exhibit 2.4 Number of New Licenses Issued Annually by Type, 1989-2002





Exhibit 2.5 Number of Professional Licenses Held verses Number of Active Commercial Pilots

Source: AARRE Transport Canada, and Statistics Canada Note: Census data includes professions: air pilots, flight engineers and flight instructors

mercial pilots is estimated from Canadian census data. The ratio of number of active pilots to number of licenses was 60% in 2001, down slightly from 63% in 1996 and 1991. Over the 5 years between 1996 and 2001 the number of active pilots increased by 16%, while the number of professional licenses increased by 23%.

The number of aeroplane instrument ratings held by commercial license holders and ATPL license holders is presented in Exhibit 2.6 for the years 1989 to 2002. The number of commercial pilot licenses with instrument ratings has increased by 8% since 1999, while the proportion of ATPLs with instrument ratings is already high and has increased by only 3% over that period.

Exhibit 2.7 presents the number of helicopter instrument ratings held by commercial license holders and ATPL license holders. The number of commercial licenses instrument ratings has dropped by 8% since 1999, while the number with ATPL instrument ratings has increased by 16% over the same period.





Source: AARRE Transport Canada



Exhibit 2.7 Helicopter Instrument Ratings Held by **Commercial License and ATPL License** Holders, 1989-2002



2.2 Survey Overview

A survey questionnaire was sent to over 100 commercial air operators. Operators were selected with the assistance of ATAC to cover the range of types of commercial operators in Canada. In addition, the questionnaire was sent to provincial aviation councils. ATAC contacted each operator personally via e-mail, introducing the consultant and requesting their assistance. The questionnaire, given in Appendix B, was then e-mailed to respondents who either returned the completed questionnaire by e-mail or fax. Respondents were assured their individual responses would be kept confidential.

Responses were received from 52 operators, a response rate of 50%. This is a very good response rate indicating their interest in the issue. The responses covered the full range of operations. Flight schools had a particular interest in the topic and were overly represented in the responses received. In the analysis, the industry was broken into eight segments to provide a better picture of the HR requirements and how issues vary across the industry. Responses were weighted so as to provide a better indication of the demand in each segment over the industry . Air Canada was not surveyed due to the difficulty of obtaining information following its filing for bankruptcy protection. However, information from Jazz was received and information from recent press releases on Air Canada's plans was used in developing an overall picture of the HR requirements.

The eight industry segments and the numbers of respondents allocated to each groups are as follows:

- Jet Operates passenger and/or cargo services with jet aircraft (6 operators)
- Regional Operates primarily 20-50 seat fixed-wing aircraft on scheduled passenger service (3 operators)
- Commuter Large Aircraft Operates primarily 10-19 seat turbo-prop aircraft on scheduled service (5 operators)
- Commuter Small Aircraft Operates primarily 6-9 seat fixed-wing aircraft on scheduled service (5 operators)
- Flight training All, or predominantly, flight training operations (19 operators)
- Air taxi Predominantly air taxi, specialty flying or aerial work using fixed wing aircraft (8 operators)
- Other Includes aircraft and engine manufacturers (4 operators)
- Helicopter All types of helicopter operators (3 operators)

It should be noted that many operators conduct a number of different types of operations which may cover a number of these segments. The numbers therefore do not correspond exactly to the numbers of pilots that work in the corresponding type of flight operation.

The operators responding to the survey operate 830 aircraft which make-up 20% of the total active commercial fixed-wing aircraft fleet and 7% of commercial helicopters in Canada. The survey therefore represents a significant portion of the total commercial aviation activity. However, only three responses were received from helicopter operators, and these were not particularly

Weights were based on the numbers of aircraft by type (engine type and number and fixed/rotary wing) operated and the numbers of those types of commercial aircraft in the Canadian Civil Aircraft Register. Given the high overlap of piston aircraft in the air taxi and flight training segments, the weighting also allowed for the number of air taxi and flight training operators relative to those registered with Transport Canada.

representative of the industry as half their fleet was 2-engine turbo-shaft helicopters. This type comprises only 11% of the total helicopter fleet in Canada. Demand and supply characteristics for helicopters are not presented where it is felt that the characteristics of the sample unduly affected the results.

Only three regional carriers responded to the survey, but they operate 38% of the fixed wing twin-engine turbo-prop fleet and therefore provide a reasonably good representation of that sector.

2.3 Demand and Supply of Pilots

The numbers of full and part-time commercial pilots in Canada estimated from the survey are presented in Exhibit 2.8. The total number of 14,311 pilots is close to that reported in the 2001 census of 14,435. The number with ATPL licenses is 9,862, 16% less than the number of valid ATPL licenses reported by Transport Canada (TC) in December 2002. The lower number is partly explained by the survey including only employed pilots while the number of licenses includes unemployed pilots and some pilots no longer actively flying.

	Number in Sample	Estimated from Sample Excl. Air Canada	Total Including Air Canada	Reporte Source
Full-time Part-time	3,072 373	9,861 1,300	13,011 1,300	
Total	3,445	11,161	14,311	14,435 2001 Census
No. with ATPL	2,981	6,712	9,862	11,838 TC ATPL Dec 2002*

Exhibit 2.8. Number of Employed Pilots in Canada

Source: Operator Survey, Statistics Canada, Transport Canada Notes: * Includes unemployed pilots and some pilots no longer actively flying

The estimated numbers of pilots in each segment of the industry are presented in Exhibit 2.9 and a breakdown by ATPL/non-ATPL and full/part-time provided in Exhibit 2.10





Source: Operator Survey

Segment	Total	ATPL	Non- ATPL	Full- time	Part- time
Jet	4,200	4,186	14	4,200	0
Regional	1,670	1,663	7	1,670	0
Commuter Large aircraft	1,370	825	545	1,238	132
Commuter Small aircraft	541	306	236	518	23
Flight training	931	488	443	523	408
Air taxi	2,629	1,467	1,162	2,034	595
Other	140	120	20	96	44
Helicopter*	2,830	808	2,023	2,730	100

Exhibit 2.10 Numbers of Full/Part-time and ATPL Pilots by Industry Segment

Source: Operator Survey

Notes: * ATPL pilots estimated from total for helicopter from survey and proportion of helicopter licenses holders with ATPL

Operators were asked whether they expected any change in the total number of full-time pilots they will employ during the next 12 months and during the next five years. Based on their responses, the change in the number of pilots during the next 12 months and over 5 years was estimated for each segment and is presented in Exhibit 2.11. For Air Canada (excluding Jazz), a 16% reduction in pilots over the next 12 months based on press releases, and a 20% reduction over five years was assumed. The operators are generally optimistic about growth in the industry after the downturn over the last two years. They indicated they expect the numbers of pilots employed overall to increase by 175 (1%) in the next 12 months, and 2,200 (15%) over the next 5 years. This is equivalent to 440 pilots per year over 5 years, or an average annual growth rate of 2.8%. Growth is expected in all segments except the regional carrier segment. However, if the operation of much of Air Canada's regional jet fleet is transferred to Jazz, the "Jet" segment may contract and the "Regional" segment could see very modest growth.



Exhibit 2.11 Expected Change in Total Full-time Pilots by Industry Segment

The numbers of aeroplane pilots expected to retire in each segment, based on the survey, are presented in Exhibit 2.12². Overall, approxi-

² Results not presented for the helicopter segment due to the small number of respondants from that segment and their characteristics.

11

Source: Operator Survey

mately 240 aeroplane pilots are expected to retire in the next 12 months, 2.1% of the all employed commercial aeroplane pilots. Over the next 5 years about 1,130 (10%) are expected to retire.





Source: Operator Survey, Air Canada pilots from HRSCPC Report, 2001 Note: Helicopter segment not presented due to the small number of respondents and their characteristics. Retirements for Air Canada were estimated by the total retirements for Air Canada and Canadian Airlines for each year, 2003 to 2007, (from Exhibit VI-8 of HRSCPC report) reduced by 115 pilots (3.5% of total pilots) to allow for early retirements that have already taken place following the merger.

The numbers of new pilot licenses issued each year must cover increases in demand for pilots, retirements of existing pilots and pilots leaving the industry. In 2002, the numbers of new aeroplane licenses issued were:

- 1,198 Commercial licenses (13% of commercial licenses); and
- 507 ATPLs (5% of ATPLs).

The current supply of commercial pilots exceeds the retirement rate by about 960 pilots per year. If the current attrition rate remains constant, the number of commercial pilots will meet the expected increase in demand of about 440 pilots per year. However, it is important to consider that the supply of pilots will meet the demand, provided a significant proportion of pilots do not leave the industry.

In the last four years, 500 to 660 commercial pilot licenses were issued per year. Projections for the next 5 years indicate that retirement of ATPL pilots are expected to be around 150 pilots per year. Therefore the number of potential commercial pilots to achieve ATPLs licenses is significantly greater than the demand. Production rates of 100 to 200 new ATPLs per year should be sufficient to meet the expected increase in demand over the next five years.

In summary, the demand for ATPL's is being influenced by the number of ATPL pilots leaving the industry. Currently there are sufficient commercial pilots entering the system to meet a possible ATPL shortage, provided the opportunity and training are available for existing commercial pilots to upgrade to ATPL's.

The small number of helicopter operators responding to the survey indicated a high proportion (29%) of their pilots will be retiring over the next 5 years. While this is not considered to be representative of the helicopter segment as a whole, a closer examination of the retirement characteristics for this segment and its implications on HR planning is recommended. The number of new helicopter licenses issued in 2002 was equivalent to 10% of the commercial licenses and 7% of the ATPLs.

Segment	Pilots Resigning	Turnover Rate
Jet *	18	1.7%
Regional	86	5.2%
Commuter Large aircraft	127	9.2%
Commuter Small aircraft	81	15%
Flight Training	109	12%
Air Taxi	282	11%
Other	0	0%
Helicopter**	84	3.0%
Total	787	5.9%

Exhibit 2.13 Number of Pilots to Resign in the Past 12 Months and Average Turnover Rate

Source: Operator Survey

Note: * Air Canada not included

** Helicopter segment approximate due to the small number of respondents and their characteristics

Pilot turnover rates were estimated for each industry segment from responses to the survey and are provided in Exhibit 2.13. Turnover rates are highest for the commuter, air taxi and flight training operators where it averages from 10% to 15% per year, and lowest for the jet operators. Overall, the turnover rate is 787 pilots (almost 6%) per year.



Exhibit 2.14 Percentage of Operators Indicating they will be Hiring Pilots in the Next 12 Months

As indicated in Exhibit 2.14, most operators expect to hire pilots in the next 12 months. Jet and regional air carriers are the least likely to be hir-

Source: Operator Survey



Exhibit 2.15 Reasons Given For Hiring Pilots in the Next 12 Months



Note: Helicopter segment not presented due to the small number of respondents and their characteristics



Exhibit 2.16 Percentage of Operators Experiencing Difficulties in Obtaining the Kinds of Pilots They Want and Who Have Changed Hiring Criteria

Source: Operator Survey

* Air Canada not included

ing, while air taxi and helicopter operators are the most likely to hire pilots. The reasons cited for hiring new pilots are presented by industry segment in Exhibit 2.15. Expansion of their business and replacing pilots hired by other operators are the most likely reasons for hiring.

Operators were asked whether they were experiencing, or expected to experience, difficulty in obtaining the kinds of pilots they want in terms of skills and experience. They were also asked to indicate whether they have changed hiring criteria over the last 2 years, or expect to change hiring criteria to obtain the number of pilots required. Their responses are summarized in Exhibit 2.16. Over a quarter of the operators are experiencing difficulties in obtaining the kinds of pilots they want. The problem is most common among helicopter, small commuter and air taxi operators. A quarter of operators indicated they had changed hiring criteria, some more stringent, some less stringent. Half of the air taxi operators increased both hours flown and other criteria, with half of these operators citing changes in insurance clauses as the reason for the increase. Some jet and commuter operators and manufactures have reduced hours flown criteria. Some examples of the changes given include:

- Owners of Jet aircraft have lowered minimum flying hours from 5,000 hours to 4,000 hours.
- Some air taxi operators now require an IFR rating for pilots in aerial application and fire suppression roles.
- Other air taxi operators have increased minimum time putting more emphasis on PIC experience. They conduct at least two interviews, a simulator assessment, and require the candidate attend an initial ground school, prior to offering employment.
- A commuter operator reduced minimum hours for captains; first officer minimums remained at 1,000 hrs.
- An FTU now requires all instructors to have a multi-engine IFR rating, and all employees must have first aid when applying for a job.

The sources from which operators hire pilots vary greatly by the type of operator. Based on the responses from the survey, the sources of new hires in order of importance (and expected number of pilots to be hired in next 12 months) are as follows:

- Jet (161) Other operators, National Defense and foreign
- Regional (31) Other operators
- Commuter Large aircraft (117) Other operators, flight colleges, flights schools and foreign
- Commuter Small aircraft (54) Other operators, flight colleges, flights schools
- Flight Training (190) Flight schools, flight colleges, other operators
- Air Taxi (497) Other operators, flight school, flight college
- Other (33) Other operators, National Defense and flight schools
- Helicopter (406) Other operators, flight schools, National Defense and foreign

A quarter of the operators surveyed indicated that they had an affiliation with a flight training centre. The proportions in each category are presented in Exhibit 2.17. The linkage is most prevalent among small operators, particularly those operating small aircraft and who hire directly from FTUs. The linkage is used mostly for initial hiring of pilots and to a lesser extent for recurrent training.

Most carriers provide recurrent training for their pilots in-house, only a very small proportion use affiliated FTUs (see Exhibit 2.18). However, about a quarter indicated that they contract out to third party FTU, primarily for the use of simulators operated by the FTUs. Over 40% of those operators providing in-house training indicated that they would consid-









Exhibit 2.18 Percentage of Operators with a Linkage to a Flight Training Unit and the Type of Affiliation

Source: Operator Survey

er using third party training. Common reasons cited by operators for using their own program were:

- Our own instructors can incorporate our own culture;
- Better quality control, more consistent program;
- Train pilots to our own high standards;
- Our training staff has more experience and depth than most 3rd parties; and
- More cost efficient.

The effects of the events of September 11, 2001, and the increased security measures implemented have severely affected many operators in terms of extra pilot demands, changes to operations, decreased traffic, higher costs, etc. The percentage of operators indicating that the new measures have affected the viability of their operations is presented in Exhibit 2.19 for each industry segment. The effects have been felt across the industry and are not confined to the larger carriers. Some of these effects cited by operators include:

- U.S. and Canadian Customs procedures have changed, increasing the workload for operational personnel and pilots. Canadians now require a special bond for charter to the USA;
- Greater workload on flight crews and other staff, trying to meet new security measures;

• Increased insurance costs;



Exhibit 2.19 Percentage of Operators Indicating the New Security Measures have Affected the Viability of their Operations

Source: Operator Survey

Note: Helicopter segment not presented due to the small number of respondents and their characteristics.

- Increased costs and training, getting pilots into the USA for initial type training with simulators;
- Higher costs, and scheduling problems due to longer station time, screening of passengers already on board aircraft, through stations where no security is available; and
- Higher costs have decreased demand for air travel, encouraging people to drive further distances. The result is an increase in short haul costs and greater passenger frustration.

A helicopter operator noted "the helicopter industry has not been affected to any great extent by recent events and reductions in travel. The demand for our products is based more on natural resource issues than security issues, and while we are very sensitive to swings in the economy, we are protected somewhat from security issues, SARS and the like. If these issues eventually affect the general health of the economy, then we will notice a difference, but for the time being, it appears to be business as usual, complete with an inherent demand for skilled pilots". Operators were asked if they foresee structural changes, which could significantly change the demand for pilots in their segment of the industry. A third of the operators indicated structural changes were occurring, most indicating that the changes would decrease the demand for pilots. Their responses, broken down by segment, are presented in Exhibit 2.20. Examples of the structural changes given include:

- The use of new emerging technologies, have reduced the need to travel in order to conduct business;
- The federal government levies of charges and taxes have made the short haul air travel sector overly expensive. This has resulted in reduced air travel and a shift in modes of travel.
- Terrain avoidance warning system (TAWS) introduction, increased NAV CANADA costs, airport rents and user fees, and costs for operators now that TC is no longer operating airports;
- The development and growth in capacity of low cost carriers affects demand in other segments; and
- An increasing demand for discount air travel.

Opinions of operators on how large the effect of these structural changes will be were mixed and many were uncertain of the magnitude of their effect. One operator noted that that there will be a greater demand for pilots who have recently attained their ATPL to fly the new smaller jets.







Note: Helicopter segment not presented due to the small number of respondents and their characteristics.

3 Review of Recommendations

3.1 Introduction

The purpose of this chapter is to report on the views of the focus groups on the relative importance of the 45 recommendations contained in the "Human Resource Study of Commercial Pilots in Canada" (HRSCPC) report.

The recommendations were discussed at four focus group meetings in Montreal on April 13 just prior to the CASS meetings, again on May 12, 2003 just prior to the WATS meeting, in Calgary on May 5, 2003 and on May 16 in Ottawa, as part of the ATAC Training Conference. Extensive discussion took place that required three to four hours at each session. A presentation of each of the 45 recommendations was made with time for clarification and discussion; there was no attempt to reach consensus. Participants were asked to score each of the recommendations against the following question: "How do you feel about the recommendation?" and in the context of a scoring guide. (Please refer to Acknowledgements for the list of participants and Appendix C for the scoring guide).

A number of individuals provided a scoring of the recommendations on invitation by the consultant. A tabulation of the scoring results appears in Appendix C.

Overall, the focus groups supported the majority of recommendations: only eight recommendations received a median score of 5.0 or less and ten recommendations received a median score of 8.0 or more. However, it should be noted that unanimity was not achieved with respect to any recommendation and there was always room for debate and variances in perspective.

The recommendations are segregated into key points and other recommendations. The key points are constituted from those recommendations where a majority of the participants scored them at 8.0 or above³ (i.e. where the median score was at least 8.0). Three recommendations were added to the list of key points because they provide a good point of discussion on a framework for further action (HRSCPC Recommendations 22, 23 and 31.).

The discussion presented below focuses on the key points discussed above. It is recognized that a number of the "other" recommendations are very important to the industry and should be considered for follow-up. However, this judgement is left to the Executive Committee.

³ A score of 8.0 or above means that the participant considered the recommendation to be "a required element of the program" or "a key factor for success".

(19)

3.2 Guiding Principles⁴

Promoting a Safety Culture (HRSCPC Rec. 12)

The promotion of a safety culture received a large amount of support at all focus group sessions including participants affiliated with both carriers and training institutions.

	Median Scores (by affiliation of respondants)				
HRSCPC Recommendation	Carriers	<u>Colleges</u>	<u>Schools</u>	<u>All</u>	
12 Promoting a Safety Culture	10.0	10.0	9.0	10.0	

The management approach of promoting a safety culture underpins Transport Canada's regulatory policy of implementing Safety Management Systems as a way in which industry and the regulator can work together.

The principle is seen as applying in two ways:

- Safe operation of flight operations at flight training units; and
- Improving the safety of the air transport system through the provision of more good pilots.

In other words, more good pilots will result in fewer accidents and lower economic losses for the air transport system as a whole.

Industry Promotion of Flying (HRSCPC Rec. 26)

Promotion of flying, strongly supported by the focus groups was described in the HRSCPC report as an advertising campaign promoting flying in general and aimed at increasing the market for pilot training.

Median Scores (by affiliation of respondants)				
HRSCPC Recommendation	<u>Carriers</u>	<u>Colleges</u>	<u>Schools</u>	<u>All</u>
26 Industry Promotion of Flying	8.0	9.0	8.0	8.0

In this review, recommendation 26 is taken as a guiding principle in the sense that we need to take measures that are supportive of growth in the industry and its economic viability. This interpretation was shared with the focus groups as part of the presentation.

3.3 An Industry Framework for Career Progression

Student Screening and Counselling (HRSCPC Rec. 20)

The HRSCPC report recommended a screening mechanism be utilized to evaluate applicants for flight training as part of an on-going career counselling program for students and pilots. The screening of students is not seen as a raising of the bar for entry nor as applicable to training for a Private Pilot License (PPL).

⁴ Author's note: It is noteworthy that none of the recommendations dealt directly with the need for quality training at the lowest cost. The cost effectiveness of training programs will be an issue due to the competitiveness of the training industry and the freedom of students to select the program of their choice. It is suggested that the Steering Committee might wish to consider adding cost effectiveness of training programs as an associated goal.

The need for screening/counselling related to training for the Commercial Pilot License (CPL) was strongly supported by the focus groups.

	Median Sc	ores (by affilia	tion of respon	idants)
HRSCPC Recommendation	<u>Carriers</u>	<u>Colleges</u>	<u>Schools</u>	<u>All</u>
20 Student Screening and Couselling	8.5	9.0	8.0	8.0

Screening procedures have already been implemented by a large number of flight training units and significant research been conducted to determine appropriate tests based on the skills needed by professional pilots, independent of government (e.g. the WOMBAT tests). However, it is apparent that further work in this area would benefit greatly from industry-wide standards on testing and essential skills of pilots with a standardized approach

The benefits of screening and counselling flow mainly to the students in terms of the value of feedback and advice concerning their careers. More broadly, screening and counselling should lead to a more efficient training industry in terms of lower costs and more consistency in the quality of pilot training.

A More Qualitative Emphasis in the Hiring of Pilots (HRSCPC Rec. 13)

There was and is considerable criticism over the current industry practice of basing a pilot's competency and qualifications on the number of hours of flying with little apparent attention to the essential skills and knowledge required. There was very strong support from the focus groups for change in this area.

	Median Scores (by affiliation of respondants)					
HRSCPC Recommendation	<u>Carriers</u>	<u>Colleges</u>	<u>Schools</u>	<u>All</u>		
13 A more qualitative emphasis in the hiring of pilots	9.0	10.0	8.0	8.0		

Other than the number of hours flown, there is no source of consistent information on pilot competency or training quality. The consequences of this paucity of information are higher costs across the system. For example, in order to minimize risk exposure, insurance underwriters may require pilots hired by air carriers to satisfy minimum experience criteria, expressed as the number of hours flown as pilot or co-pilot. If hours are a poor predictor of potential risk, then the current regime is unnecessarily costly for carriers, insurers and pilots.

In the presentation to CASS on April 14, 2003, Diane Damos outlined a methodology for air carriers to screen and select pilots. The methodology is based on the determination of the set of knowledge, skills and attitudes (KSAs) required of pilots by individual carriers (See reference No. 5).

In this review, it is suggested that an industry-wide standard on pilot competency (to define the essential KSAs) would encourage the refinement of programs of instruction aimed at training professional pilots in the skills they need for the job. Such improvements would benefit carriers directly by making available a larger number of qualified applicants (defined in terms of KSAs) from which to select candidate pilots and thus lead to lower training costs on the part of carriers.

More consistency in the quality of pilot training would also benefit the performance of the air transport industry in terms of both improved safety and economic efficiency.

3.4 Measures to improve performance of the Flight Training Sector

Quality Control (HRSCPC Rec. 21)

The HRSCPC report recommended that each flight training unit review its system of evaluation and, where advisable, make adjustments. This proposal received strong support from focus group participants.

	Median Scores (by affiliation of respondants)				
HRSCPC Recommendation	Carriers	<u>Colleges</u>	<u>Schools</u>	<u>All</u>	
21 Quality Control (QA for training institutes)	9.0	8.0	8.0	8.0	

The presentation to the focus groups interpreted this item as a reference to the need for quality assurance (QA) programs with respect to the quality of flight training. Suitable QA programs would provide:

- a management framework for continuous improvements and adaptation by the training industry;
- the foundation for performance-based regulation, when based on industry-wide standards on pilot KSAs; and
- the foundation for accreditation of flight training programs.

A number of flight training units have implemented QA programs on their own using the ISO model and without the benefit of industry standards on pilot KSAs.

Regulatory Easement for schools with Quality Control Program (HRSCPC Rec. 22)

While this HRSCPC recommendation was not scored as highly as some others, it was included as a key point because it closely follows from HRSCPC recommendation 21 and generates significant benefits for the industry.

	Median Scores (by affiliation of respondants)				
HRSCPC Recommendation	<u>Carriers</u>	<u>Colleges</u>	<u>Schools</u>	<u>All</u>	
22 Regulatory Easement for schools with quality control systems	8.0	6.0	7.0	7.0	

This recommendation is interpreted to refer to performance-based monitoring whereby the regulator inspects against the entity's manuals and procedures, rather than against rules and regulations. QA programs based on industry-wide standards would be required for implementation.

Performance-based monitoring provides benefits to the training units (reduced compliance costs) and the regulator (reduced costs for supervision/ inspection/ audit), compared to the present regime of regulatory enforcement. Performance-based monitoring also generates benefits by encouraging innovation on the part of training units.

Certification or Rating System (HRSCPC Rec. 23)

While this HRSCPC recommendation was not scored as highly as some others, it was included as a key point because it closely follows from HRSCPC recommendation 21 and would generate significant benefits for the industry.

	Median Scores (by affiliation of respondants)				
HRSCPC Recommendation	<u>Carriers</u>	<u>Colleges</u>	<u>Schools</u>	<u>All</u>	
23 Certification of Rating Systems	8.0	5.5	7.0	7.0	

This recommendation is interpreted to mean the accreditation of courses of study offered by flight training units, not the units themselves. QA programs for the flight training units administering the courses of study would be required for implementation of an accreditation or rating system.

A number of benefits would flow from such a regime:

- Students in particular would benefit from the recognition of their credentials earned at flight training units, including greater transferability of learning;
- Flight training units would benefit from the increased confidence on the part of students and air carriers, as well as the general public and a greater ability to expand their business to new clients; and
- Air carriers and insurers would benefit from greater predictability in the quality of candidate pilots.

Review of Training Philosophy and Approaches (HRSCPC Rec. 19)

This recommendation was given wide support.

	Median Scores (by affiliation of respondants)				
HRSCPC Recommendation	<u>Carriers</u>	<u>Colleges</u>	<u>Schools</u>	<u>All</u>	
19 Review of Training Philosophy and Approaches	7.5	8.0	8.0	8.0	

Industry-wide standards on pilot KSAs would be required to make meaningful progress.

Developing and Retaining Quality Flight Instructors (HRSCPC Rec. 39)

The need to revisit the role and a professional career path for instructors was widely shared. It was recognized that instructors in general are central to the process of change and qualified instructors would play a key role in regard to changes in flight training as well as in the expanded role for simulators and flight training devices anticipated for the future.

	Median Scores (by affiliation of respondants)				
HRSCPC Recommendation	<u>Carriers</u>	<u>Colleges</u>	<u>Schools</u>	<u>All</u>	
19 Developing and Retaining Quality Flight Instructors	8.0	9.0	8.0	8.0	

Greater Use of Simulators/FTDs (HRSCPC Rec. 41)

It was generally agreed that much greater use would be made of simulators and flight training devices (FTD) in the future.

	Median Scores (by affiliation of respondants)				
HRSCPC Recommendation	<u>Carriers</u>	<u>Colleges</u>	<u>Schools</u>	<u>All</u>	
41 Greater Use of Simulators/FTDs	7.0	8.5	9.0	8.0	

At the present time, the use of simulators is limited by regulatory concerns over inappropriate use of equipment with inadequate functionality. Further, it is recognized there is a lack of specific information concerning the KSAs related to specific tasks that could be taught by simulators/FTDs.

It would appear that a number of training units have developed extensive and successful programs of training based on the use of simulators/FTDs. In a related area, mention was made of computer based training, particularly web-based courses that were being offered on a very competitive basis.

Insurance Premiums and Bank Loans (HRSCPC Rec. 33)

The HRSCPC suggested that there were areas where the industry might take joint action to reduce insurance premiums and provide security for financing. The focus groups supported these concepts and pointed to a number of instances where joint action by operators resulted in significant savings.

	Median Scores (by affiliation of respondants)				
HRSCPC Recommendation	<u>Carriers</u>	<u>Colleges</u>	<u>Schools</u>	<u>All</u>	
33 Insurance Premiums and Bank Loans	9.0	6.5	8.0	8.0	

It has been suggested by insurer underwriters that adoption of QA models and certification or rating systems for course programs could have a positive impact on insurance premiums.

3.5 Next Steps

Formation of a Sector Council (HRSCPC Rec. 2)

This HRSCPC recommendation was supported by a majority of the participants to the focus groups. However, it should be noted that views concerning the formation of a sector council were quite differentiated: just over half of the participants scored the recommendation very highly and just under half gave a low score. Thus, a consensus of views did not appear to emerge from the scoring exercise.

	Median Scores (by affiliation of respondants)				
HRSCPC Recommendation	<u>Carriers</u>	<u>Colleges</u>	<u>Schools</u>	<u>All</u>	
2 Formation of a Sector Council	7.0	9.0	7.0	8.0	

It is clear that the development of a program based on industry standards for pilot competency (KSAs) will require a concentrated effort by a team with the required expertise, authority and resources. The issue of how this will be established is of fundamental importance to Phase 2 and Recommendation (2) was the only one that addressed this issue. It was suggested by some participants at the focus group meetings that the recommendation implied an extension of the CAMC mandate to include pilot training.

Promote Skills Development (HRSCPC Rec. 27)

The HRSCPC report recommended the industry develop a promotional campaign to encourage pilots to develop new skills in a wide range of areas. This was strongly supported by the focus groups.

	Median Scores (by affiliation of respondants)				
HRSCPC Recommendation	<u>Carriers</u>	<u>Colleges</u>	<u>Schools</u>	<u>All</u>	
27 Industry should promote upgrading of skills	8.0	8.0	8.0	8.0	

It is suggested that a promotional campaign be preceded by a survey of pilots and carriers on the potential demand for existing and new courses.

Standing Advisory Committee on Course Content (HRSCPC Rec. 31)

The HRSCPC report included a recommendation for the formation of a Standing Advisory Committee on an industry basis to monitor the shifting skill needs of air operators. Members of the Committee would be drawn from industry (air carriers, operators and flight training units) and Transport Canada. There was support for this idea, particularly from the focus group members affiliated with the schools.

Median Scores (by affiliation of respondant				
HRSCPC Recommendation	Carriers	<u>Colleges</u>	<u>Schools</u>	<u>All</u>
31 Standing Advisory Committee on Course Content	7.0	6.5	8.0	7.5

The major needs arising from the focus groups involved the development of industry standards on pilot competency that sets out the KSAs required by pilots to do their job (i.e. occupational standards). Recommendation 31 speaks to the question of how changing skill needs should be monitored in the future —- to ensure they are updated and adapted to changing job requirements and technology.

There was less clarity in the meetings on the related issue of the extent of the need for standards, recommended practices and guidance on teaching methods and course development. In fact there was no HRSCPC recommendation that dealt specifically with this issue.

4 Conclusions

This Chapter provides a summary of the main issues and recommendations identified by the authors of the report for input to Phase 2.

4.1 Objectives for Phase 2

It would appear that the industry agrees on two main guiding principles which are discussed in Section 3.2. The promotion of a safety culture received a large amount of support at all focus group sessions, including participants affiliated with both carriers and training institutions. The second principle, promotion of the industry, says we need to take measures that are supportive of growth in the industry and its economic viability.

Quality of Pilot Training

Based on the focus group discussions, it is suggested that the overall objective of industry is to improve the quality of pilot training in Canada. Two main goals for Phase 2 should be considered:

Development of industry-wide standards on pilot competency defining the knowledge, skills and attitudes (KSAs) required of professional pilots; and

Adoption of quality assurance programs with respect to pilot training programs offered by flight training units, based on industry-wide standards of pilot competency (KSAs).

Industry recognized the importance of the following additional elements of the process of reform concerning the quality of pilot training at flight training units:

- Student screening and counselling;
- Review of training philosophies and approaches;
- Developing and retaining quality instructors; and
- Greater use of simulators/FTDs.

"A More Qualitative Emphasis in the Hiring of Pilots" (HRSCPC Recommendation 13) is closely linked to improved quality of training because of the need to bring consistency to the careers of pilots. Action on this element would require the direct involvement of air carriers and insurance underwriters.

The linkages between the goals and key points related to quality of training and the parties to the process are illustrated in Exhibit 4-1 on page 29.

Other Actions

The focus groups identified two other actions they would like see happen:

- Mechanisms to manage the costs of insurance premiums; and
- Promotion of skills development.

4.2 Issues for Further Development

It should be noted that adoption of an accreditation system with respect to flight training programs is closely linked to general goals for the industry and the accrual of certain benefits. However, more work seems to be required to articulate a suitable program meeting the needs of the industry.

The views of industry were also less clear on the need for recommended practices, guidance material and industry-wide standards on training methods and course development. It is noted that many schools and colleges have invested considerable resources to develop their own program of courses. It is suggested that further work is needed to articulate industry needs in this area.

The focus groups were unclear on how a program for **industry action** might be organized and funded.

4.3 Notes on Implementation

As noted earlier, the issue as to how the industry might organize itself needs to be resolved before a meaningful program can be initiated. The recommendation for the formation of a Sector Council was supported by a majority of participants to the focus groups. Alternatives to a Sector Council were not discussed.

It is suggested that the two goals of developing (1) industry-wide standards and (2) quality assurance programs at flight training units be addressed in parallel rather than sequentially. While the QA programs will take account of new industry-wide standards, there are immediate benefits to be gained from adoption of the QA process itself. For institutions that already have a QA program or are close to implementing one, the process would involve adaptation of the existing process to new industry-wide KSA standards.



Exhibit 4-1 Improving the Quality of Pilot Training

There is a need for alignment of programs and goals between the authority established for implementing industry-wide KSA standards and Transport Canada. Note that the accrual of the benefits associated with performance-based monitoring requires agreement and collaboration with the regulator. Further, an early start on an industry program would facilitate more effective input by Canadian industry on the ICAO process of license reform.

The review of recommendations has focused on the key items to be addressed in Phase 2; amongst the remaining 45 recommendations are a number of actions that would be useful to the industry. It is suggested that the Executive Committee may wish to review these items and consider follow-up action, as required.

References

- 1) 2001 Human Resource Study of Commercial Pilots in Canada Report: Chapter 8 Recommendations
- 2) ATAC's Code of Ethics and Best Practices and Accreditation Manual, May, 2003
- 3) Preuss, Merlin, Paper presented at the CASS, April 15, 2003.
- 4) Decision Record of Flight Training Conference and Committee meeting of May 16/03
- Damos, Diane, Pilot Selection Systems Help Predict Performance, Workshop presentation at the CASS meeting, April 14, 2003.

Appendix A

Pressures for Action

Introduction

The purpose of this appendix is to provide a context for the consideration of the recommendations of the "Human Resource Study of Commercial Pilots in Canada" (HRSCPC) report, in terms of the pressures currently at play. The selected items were drawn from discussions of the focus groups, and the discussions surrounding the CASS in Montreal April 14–16, 2003 and follow-up exchanges with individuals.

Insurance Issues and Premium Costs

On the basis of discussions with insurance underwriters and carriers, it would appear that insurance premiums and rates have increased dramatically in the last few years, particularly since Sept 11/2001. Increases in insurance costs of 60 to 70% were not unusual. In 2003, it seems that pressure on insurance rates has eased due to a reduction in losses and competition in the industry.

It was emphasized by underwriters that the central equation in establishing premiums is the need to balance premiums against the potential for claimed losses. If losses increase, then so will premiums.

Canadian aviation is seen by the insurance industry as an area of high loss, particularly with respect to operators of small aircraft. In general, whatever can be done to improve safety and lower the level of loss will be supported. In particular, the insurance industry is looking for the systems of internal controls within an operator that ensure safety.

Positive measures for pilot training would include:

- industry-wide standards;
- recommended practices for training units;
- some form of oversight; and
- an accreditation process for training units.

Development of Integrated Flight Training and Quality Assurance Programs

A large number of Canadian flight training units⁵ (schools / training centres / colleges) have developed training programs that teach both ground courses and flight training in an integrated program of instruction. Integrated training programs (as distinct from a modular approach to training) is the preferred method to organize pilot instruction as a program of learning, leading to the Commercial Pilot License (CPL), including other elements required by employers and students seeking the ATPL.

These integrated programs are important to the ab-initio training of commercial pilots because they provide a properly sequenced set of courses and enhanced training to provide more complete and powerful set of skills. It would

33

⁵ According to the 2003 Directory of Flight Training Units published by Wings Magazine, there were 209 units operating in Canada offering advanced pilot training. Of these, 18 were appeared as providing Specialized Pilot Training and 13 offered pilot training as part of a Community College or University degree program. Transport Canada places the number at 227 fixed wing and 43 helicopter units.

also appear that a number of training units are close to developing their own set of KSAs for their programs of instruction. Transport Canada has made regulatory provision for integrated training programs; however, so far out of the many units with integrated programs, only 4 institutions have been approved.

Development of FTD and Simulator Requirements and Systems

In recent years, there has been rapid development in simulator technology and computer based learning systems. The capability coming on stream has the potential to lower the costs of existing instruction and to fulfill some of the requirements of new competency based training at reasonable cost.

There is wide recognition of the value of training based on the use of simulator/FTDs, particularly for some tasks such as, flight management, decision making, weather conditions, situational awareness where flight based training is impractical. In fact, the new license requirements being developed by ICAO could well require simulator training with respect to a number of competencies.

A rapidly developing area involves the development of web-based ground training courses using computer based training technology. This development could provide an attractive opportunity for flight training units to expand their services at relatively low cost to clientele interested in the convenience of such a service. On the other hand, the increased accessibility provided by the internet could pose a problem for establishing quality control in the industry.

Reform of Commercial Pilot Licenses by ICAO

At the present time, ICAO is in the process of reforming its licensing requirements for pilots. In addition to defining license requirements, the work of the Panel involves the development of new definitions, associated training objectives, the allocation of the number of flight hours and synthetic hours to knowledge attributes, instructor competencies, training needs analysis, assessment techniques and criteria and Guidelines for course development by training organizations. Please refer to Appendix D for an outline of the program.

TC Policy of Increased Delegation and Performance-based Monitoring

In a paper presented at the Canadian Air Safety Seminar (CASS) on April 15, 2003, Mr. Merlin Preuss, Director General of Civil Aviation set out Transport Canada's policy in regard to the safety framework being developed for the Flight 2005 safety targets. The paper emphasized the importance for programs to be jointly developed and implemented by Government and industry.

The presentation pointed to:

- 1. The challenge faced in pilot training and indicated his intention of reviewing the training regulations to ensure that we are providing training in the most effective and least expensive way;
- 2. The implementation of Safety Management Systems in aviation organizations was described as the cornerstone for improving the safety and economic performance of the industry;

3. Increased delegation of regulatory powers and implementation of the concept of self-management. The example of the delegation of regulatory powers to the Canadian Business Aviation Association (CBAA) with respect to business aircraft operations was cited an indicator of the direction of Transport Canada's policy.

The commitment to a future safety framework whereby the industry operates at the maximum level of delegation is important to this study. In particular, the paper said "regulatory framework must be increasingly performance-based to permit the implementation in the industry of systematic approaches to provide continuous improvement in safety performance."

This statement of policy is taken as applying to the training industry at two levels:

- 1. the implementation of Safety Management Systems in flight training units to ensure continuing improvements in the safety of flight operations; and
- 2. the implementation of Quality Assurance systems with respect to training quality to ensure the availability of good pilots and thereby improve the safety and economic performance of the industry.

ATAC Code of Ethics and Best Practices and Accreditation Manual, May, 2003

ATAC has prepared a draft manual concerning suggested policies for flight training units as well as procedures for accessing student funding and preferential insurance. The manual is divided into four sections:

- Code of Ethics;
- Operational Best Practices;
- Accreditation Procedures; and
- Risk Management Processes and Due Diligence.

The manual has been developed by the Flight Training Committees of ATAC and the National Air Transport Association (US). It is published by ATAC as a living document and will be reviewed by the Best Practices and Accreditation Sub Committee of the ATAC Flight Training Committee. Copies are available from the Air Transport Association of Canada.

Professional Flight Training Conference, May 16, 2003

The ATAC flight training conference was held in Ottawa on May 16, 2003 under the auspices of the meeting of ATACs Flight Training Committee. A number of decisions were taken concerning the work of the Aviation Careers Curriculum Standards and Development Sub Committee, the Simulation Sub Committee and the Instructor Certification Sub Committees. The record of decision is available from Glenn Priestley of ATAC.

Appendix B Operator Survey Questionnaire

1. Name of Operator:

Name of Contact: Pho	one:
----------------------	------

2. Please indicate which of the following categories best describes your type of operation, <u>if more than one category</u>, please indicate the approx. % of your operations (hours flown) in each type:

	<u>Op. certificate</u>
% Jet carrier (scheduled or charter service)	705
% Regional airline (scheduled service primarily using 20-50 seat aircraft)	704
% Commuter airline (scheduled and charter service primarily using 10-19 seat aircraft)	703
% Commuter airline (scheduled and charter service primarily less than 10 seat aircraft)	703
% Small charter/Air taxi	703
% All Cargo	703/704/705
% Flight training	406
% Specialty flying/aerial work	702
% Other, please specify:	

3. How many of the following types of fixed and rotary wing aircraft do you operate?

		Fixed	d Wing Rotary W	Ving	
		Jet Turbo-prop/shaft, 1 engine Turbo-prop/shaft, 2 engine Piston			
		Are these all registered as "Commercian If not, please indicate how many in each	al"? (Y/N) ch category are r	not.	
4.	How many	/ pilots do you currently employ? Ful Pai T	II-time rt-time Γotal	(note, "pilots" in this questionnair refers to both pilots and co-pilots	e)
5.	How many,	v, or what percentage, of these pilots have #	ve an Air Transp OR	oort Pilot License (ATPL)? %	
6.	Do you exp the next five	pect any change in the total number of f ve years? (Y/N)	ull-time pilots that	at you will employ in	
	<u>If yes</u>	Will the number: Increase	OR	Decrease appropriate box)	
		By how much (enter either the change In next 12 months: # In next 5 years (best estimate) #	in the # of pilots OR OR	or % change)?	
7.	How many	of your current pilots do you expect to In next 12 months: # In next 5 years: #	retire:		

8.	How many	pilots have resigned in the past 12 months (excluding retirements)? #
9.	Do you ex; <u>If yes</u>	bect to hire new pilots in the next 12 months? (Y/N) How many - Full-time # Part-time #
		Reasons - Mre pilots required (check all that apply) Pilots retiring
10	Have you in terms c	been experiencing, or do you expect to experience, difficulty in obtaining the kinds of pilots you want f skills and experience? (Y/N)
	<u>If yes:</u>	Please give details of skills or experiences that are in shortage or need improvement
11	. Have you number of	changed hiring criteria over the last 2 years, or do you expect to change hiring criteria to obtain the pilots requized? (Y/N)
	<u>lf yes:</u>	is criteria for number of hours - OR OR OR OR OR OR Appropriate box)
	<u>If yes:</u>	Please give examples of changes in criteria
12	. Where do	you draw your pilots from? a) Direct from flight training school/club b) Direct flight training college check all c) Other Canadian air operators d) Foreign air operators e) National Defense f) Other, please specify:
13	. Do you ha	ve any linkage of affiliation with a third party flight training unit? (Y/N)
	<u>If yes:</u>	Do you use this flight training unit for: a) Recruiting initial hires? check all b) Recurrent training programs? that apply
14	Where do	your pilots receive recurrent training: a) In house b) Affiliated flight training unit (as above) c) Contract out to 3rd party flight training unit
	<u>If in house</u>	: Would your company consider third party training? (Y/N)
	Please exp	blain

15. Have the new security measures affected the viability of your operations (e.g., extra demands on pilots, changes to operations, decrease in demand, higher costs, etc.) Answer (Y/N)

If yes:	How?

16. Do you foresee structural changes which could significantly change the demand for pilots in your segment of the industry? For example, changes due to changes in travel demand patterns (e.g., greater use of auto for short trips, more point-to-point service), regulatory requirements (e.g., TAWS for 6-seat aircraft), evolving technologies, etc. Answer (Y/N)

If yes: What will change and why?

How much will activity in your segment and demand for pilots be affected?

Other Comments

Appendix C

Tabulation of Focus Group Scores and Scoring Guide

Approach to Focus Group Sessions

The objective of the focus group sessions was to gather the views of the participants concerning the recommendations set out in the 2001 HRSCPC Report. These views were used to establish priorities in conducting the follow-up study.

Views were sought on each recommendation. Participants were asked to score each recommendation according to a 1 to 10 scale (please see the Scoring Guide below).

Recommendations were introduced individually. A short discussion occured to ensure clarity concerning the importance of the recommendation. However, the intention was not to explore the merits of the recommendations nor to seek a consensus.

Once the recommendation was fully understood, the group was encouraged to score their sheets quickly and move on to the next item given the short time period available.

In order to streamline the discussion, the recommendations relating to problem definition were categorized by topic as follows:

- 1. Guiding Principles
- 2. An industry framework for career progression
- 3. Measures to improve performance in the flight training sector
- 4. Measures to Improve Financial Viability
- 5. Next Step Recommendations
- 6. Assumptions

Scoring Guide: How do you feel about the recommendation?

- 0 No value in pursuing, now or in the future.
- 1
- 2 Insufficient payoff now.
- 3
- 4 Put on the back burner for now.
- 5 A potential payoff, consider after higher priorities.
- 6 Keep it on the list of priorities.
- 7
- 8 A required element of the program.
- 9
- 10 A key factor for success.

The following Table is a tabulation of the focus group scores as they relate to the recommendations.

Tabulation of Focus Group Scores

#	Re	commendations	Median Scores			
			Carriers	Colleges	Schools	Overall
1	Gu	iding Principles		-		
	12	Promoting a Safety Culture	10.0	10.0	9.0	10.0
	26	Industry Promoting of Flying	8.0	9.0	8.0	8.0
	_					
2	An	Industry Framework				
	for	Career Progression				
2.1	For	Students				
	16	Increasing the Number				
		of Aboriginal Pilots	3.0	3.0	5.0	3.5
	20	Student Screening and Counseling	8.5	9.0	8.0	8.0
	30	Career Development				
		Opportunities for Training Institutes	7.0	80	60	7.0
	37	More emphasis on the Range of	7.0	0.0	0.0	7.0
	52	Career Choice Available to Pilots	5.0	6.0	6.0	6.0
	34	Student Financial Aid	5.0	9.0	8.5	7.0
	38	Visits by Alumni	7.0	6.0	6.0	6.0
	44	Better Access to, and Knowledge	,	010	0.00	0.0
	•••	of, Regulatory Information	8.0	6.0	6.0	6.0
	Ð					
2.2	Du 13	ring Flying Career				
	15	Hiring of Pilots	9.0	10.0	8.0	9.0
	14	Reducing Excessive Turnover Rates	6.0	6.5	6.0	6.0
	43	Further Studies between emerging				
		technologies and human factors	6.5	8.0	7.5	7.0
3.3	Lat	oour Management				-
	11	Labour-Management Relations	7.0	6.0	4.0	5.0
	15	Pension and Benefit Coverage	5.0	5.0	3.0	4.0
3	Ме	easures to improve				
	per	formance in the Flight				
	Tra	ining Sector?				
3.1	Aco	reditation. Recognition				
5.1	ofe	xcellence				
	21	Quality control				
		(QA for training institutes)	9.0	8.0	8.0	8.0
	22	Regulatory Easement for schools				
		with quality control systems.	8.0	6.0	7.0	7.0
	23	Certification of Rating Systems	8.0	5.5	7.0	7.0
3.2	Im	proving and Developing of				
	Pro	duct Lines				
	18	Helicopter Regulatory				
	_	Iraining Requirements	-	-	-	-
	19	Review of Training Philosophy	75	0.0	0.0	0.0
	27	and Approaches	7.5	8.0	8.0	8.0
	3/	Marketing/People skills for Flight Training Centres	80	60	7.0	75
	20	Developing and Poteining	0.0	0.0	/.0	1.5
	57	Quality Flight Instructors	8.0	9.0	8.0	8.0

Tabulation of Focus Group Scores (continued)

#	# Recommendations		Median Scores			
			Carriers	Colleges	Schools	Overall
3.3	Sim	ulators and				
	Flig	ht Training Devices				
	40	Market Assessment and				
		implementation Plan Prior				
		Training Technology	6.5	6.0	6.0	6.0
	41	Greater Use of Simulators/FTDs	7.0	8.5	9.0	8.0
4	Measures to Improve Financial Viability / Integration / Harmonization / New Relationships					
	24	Formation of Partnerships				
		and Alliances	5.0	8.5	7.5	7.0
	25	Foreign Students.	6.5	4.5	7.0	7.0
	28	Targeting Specialized Markets	7.0	6.0	6.0	6.5
	29	Providing Training Services	65	65	65	65
	22	to Air Operators	0.3	0.3	0.3	0.3
	33	Bank Loans	9.0	65	80	80
	36	Training Cost	8.0	6.0	7.5	7.5
	50		0.0	0.0	7.5	7.5
Ne	ext S	tep Recommendations				
1.1 A Vehicle for Meeting the Challenge						
	1	Dissemination and				
		Promotion of Report	-	-	-	-
	2	Formation of a Sector Council	7.0	9.0	7.0	8.0
	4	Mechanism for Supply/Demand Forecasting	7.0	5.0	5.0	5.5
	5	Information System (Website)	5.5	5.5	6.0	6.0
	6	Expert Panels	6.0	8.0	7.0	6.0
	17	Review of CARS (Canadian Aviation Regulations)	5.0	6.5	5.0	6.0
	31	Standing Advisory Committee				
		on Course Content	7.0	6.5	8.0	7.5
	42	Industry Advisory Committee on Training Technology	()	18	7.0	7.0
	45	and Software.	0.0	0.5	7.0	7.0
	45	Career Development Circles.	7.0	1.5	7.0	7.0
1.2	.2 Information collection and dissemination 7 Capturing and Disseminating					
	8	Information from Conferences	5.0	6.0	6.0	6.0
	0	Studies and Research Projects	4.0	6.0	7.0	6.0
	9	Development of a Pilot Data Base	4.5	3.0	6.0	5.0
	10	Annual Report	5.0	7.0	5.5	5.5
	27	Industry should promote upgrading of skills.	8.0	8.0	8.0	8.0
	35	Promoting Careers in Flying through Government Programs	6.0	10.0	8.0	7.0

Appendix D

ICAO Reform of Pilot Licenses

At the request of the Air Navigation Commission (ANC), ICAO has established the Flight Crew Licensing and Training Panel (FCLTP) to review the Annex 1 of the ICAO Personnel Licensing Standards, first issued in 1948. Since the last full-scale review twenty years ago, there have been many changes in training methods and technology and in aircraft operating environments. There was a concern that the use of competency based training methodologies and simulation technology was not reflected in flight crew specifications. Further, States reported continuing difficulty in implementing both flight crew licensing Standards (Annex 1) and training Standards (Annex 6) with regards to the competency of flight crew.

The Panel consists of 19 members from 15 States. The scope of the review includes all flight crew licenses and training specifications, approval of training organizations, the structure of flight crew licenses and ratings, particularly in regard to single- and multi-pilot competencies and the role of synthetic training devices.

The work program includes the development of (1) a set of licensing and training competency based standards generally, and (2) a package of standards specifying the competencies required for a new CPL (MC) or commercial pilot license (multi-crew). The new license would be aimed at qualifying new pilots as co-pilots on turbine-powered commercial air transport aircraft and would not allow the holder to exercise PIC (pilot-in charge) privileges. The thinking is that the CPL (MC) could be introduced in parallel with existing licenses and training schemes. It is recognized that a method will need to be developed for holders of the CPL (MC) to obtain qualifications for PIC privileges.

The introduction of the CPL (MC) in Canada will fundamentally change the pattern of supply and demand for commercial pilots in Canada⁶. Currently, graduating students from colleges or schools with a CPL (Commercial Pilot License) are generally employed by small carriers or air taxis or as instructors at the flight schools themselves. Holders of the CPL qualify for PIC privileges through experience on single engine and light twin propeller-driven aircraft operated by small air carriers. With the introduction of the CPL (MC), the expectation is that the careers of professional pilots may develop along two streams: one aimed at careers in airlines flying turbine powered aircraft, based on the CPL (MC) and the second aimed at the operation of propeller-driven aircraft for both air carriers and other air operators.

⁶ It should be noted that training programs to develop qualified co-pilots are the norm in European jurisdictions (where the airlines are responsible for pilot training) and are being developed in Canada.

Although still in the early stages of development, the thinking is that competencies would be structured around the tasks associated with the phases of flight. At the present time, seventeen core competencies have been defined:

- 1. aircraft pre-flight operations
- 2. engine start
- 3. taxi out
- 4. take-off
- 5. rejected take-off
- 6. climb
- 7. cruise
- 8. descent
- 9. holding
- 10. precision approach
- 11. non-precision approach
- 12. circling approach
- 13. visual approach
- 14. landing
- 15. go-around
- 16. taxi in
- 17. aircraft post-flight operations

Each of the competencies may be elaborated into subtasks and would systematically set out the knowledge, skills and attitudes (KSAs) defining the overall ability of the candidate to perform the pilot's job (technical, procedural and interpersonal). The set of required skills would include the cognitive skills required for strategizing, planning, prioritizing, discriminating, and problem solving. In particular, each competency would be framed by the environmental conditions under which the tasks might have to be performed in the real world. For example, an instrument rating competency would include the IFR conditions under which the associated tasks would need to be performed (such as an IFR approach under poor weather conditions).

The work of the Panel involves the development of new definitions, associated training objectives, the allocation of the number of flight hours and synthetic hours to knowledge attributes, instructor competencies, training needs analysis, assessment techniques and criteria and Guidelines for course development by training organizations. Since the training of a number of competencies may require the use of simulators or other synthetic devices (to better replicate the real world), there is a requirement for a new set of definitions for synthetic training devices and other instructional aids.

The first meeting of the FCLTP took place in the fall of 2002 and the present schedule is to complete the work for consideration by the ANC in 2004.