

# Competencies, Diversity, and Inclusion in an Environment of Disruptive Technologies

Robert Donald, Executive Director, CCAA

Montreal April 16, 2018



Funded by the Government of Canada's  
Sectoral Initiatives Program

# The Council

- The Canadian Council for Aviation & Aerospace (CCAA) is a “not-for-profit” organization which is dedicated to assisting the aviation and aerospace industry ensure it has enough workers with the right skills to meet industry needs.
- CCAA has two main areas of focus: skills development and industry demographics (supply and demand for particular skills).
- CCAA is not a trade association – it is an industry resource.

# CCAA Labour Market Information Project

## Employer Surveys

- The first survey of employers was completed in the fall of 2015, with 153 respondents completing the survey. Employers who responded to this survey represent 52,000 workers across Canada, approximately 34% of the industry's workforce,
- The second survey of employers was completed in November 2017, with 132 respondents completing the survey, 48% of these from the Air Transport sector. Employers who responded to this survey represent 39,000 workers across Canada, approximately 25% of the industry's workforce.

# CCAA Labour Market Information Project

In addition to the surveys, CCAA incorporated data from:

- Key informant interviews by phone and in-person
- Statistics Canada
- Forecast models from Prism Analytics
- 10 validation focus groups across the country

# CCAA Labour Market Information Report

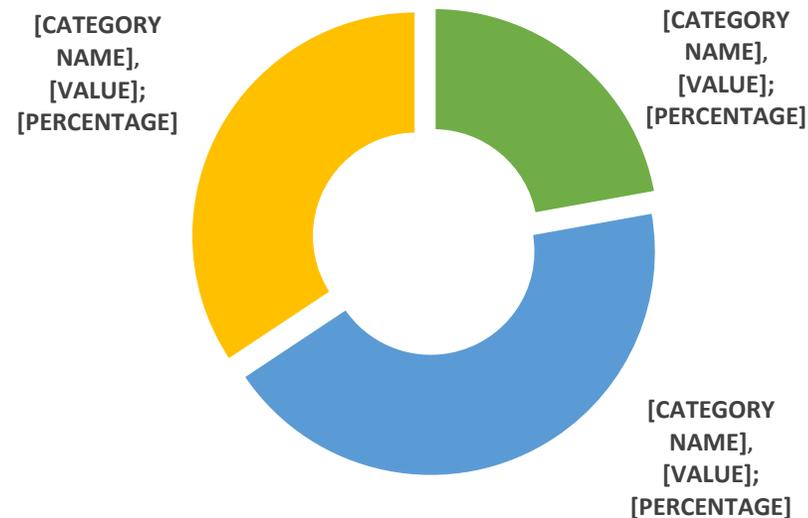
- Air Transportation, Aerospace Manufacturing, and Support Industries
- How many workers
- Most in demand occupations in the sector
- Regional distribution of employment
- Gender
- Educational attainment
- Age
- Immigration status
- Hiring requirements
- Labour and skill shortages

2018 Report Now Available through CCAA

# Aviation and Aerospace Employment

- Aviation and Aerospace employed an estimated 154,000 workers across Canada in 2016
- Air Transportation accounted for 44% of employment, followed by Aerospace Manufacturing providing 34% of employment, and Support Activities with 22%

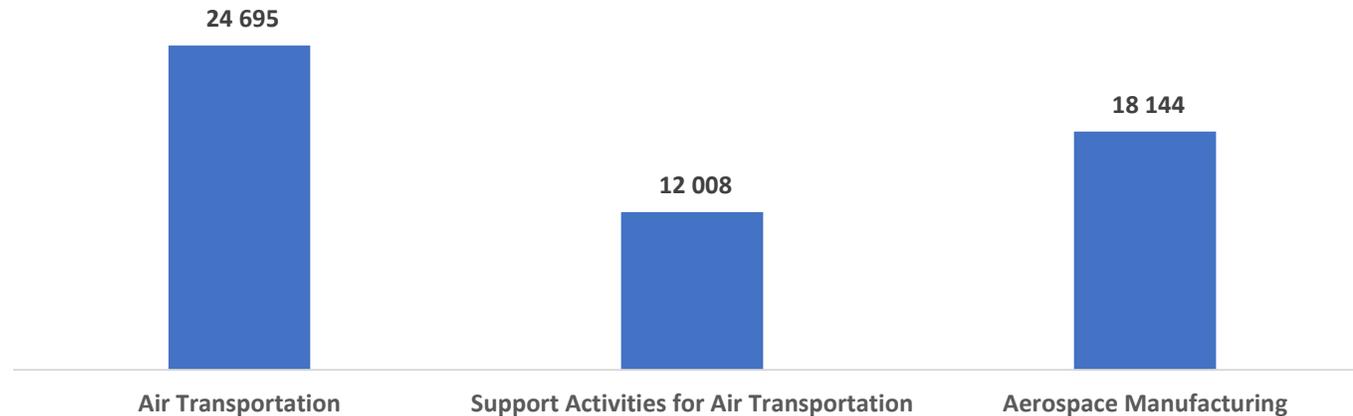
**Aviation and Aerospace Employment Distribution, 2016**



# Hiring Requirement by Industry, Canada, 2017-2025

Aviation and Aerospace industries would need to attract a total of 55,000 workers from 2017 to 2025 across the three sub-sectors.

**Hiring Requirement by Industry, 2017-2025**



Industry	Total Hiring Requirement 2017– 2025	Share of 2015 Employment
Air Transportation	24,695	37%
Support Activities for Air Transportation	12,008	35%
Aerospace Manufacturing	18,144	34%

Note: Hiring requirement is comprised of expansion demand (additional jobs as a result of industry growth), and replacement demand (workers needed to replace exits from the labour force due to deaths and retirements)

# Occupations Most in Demand in Aviation & Aerospace, Canada

Hiring Requirements 2017 to 2025:

Technical occupations, engineers and senior managers are in greatest demand

- 7,300 Air pilots, flight engineers and flying instructors
- 5,300 Aircraft mechanics and aircraft inspectors
- 4,500 Purser and flight attendants
- 2,700 Aircraft assemblers and aircraft assembly inspectors
- 2,000 Aircraft instrument, electrical and avionics mechanics, technicians and inspectors
- 2,000 Air traffic controllers and related occupations
- 1,900 Air transport ramp attendants
- 1,600 Managers in transportation
- 1,400 Machinists and machining and tooling inspectors
- 1,300 Aerospace engineers

# Educational Attainment

Employees with post-secondary education make up the majority of the industry's workforce with 72.3%.

*This share is only 54.3% in the Canadian workforce.*

These numbers indicate that the workforce of the industry is more educated than the Canadian workforce.

<b>Educational Attainment</b>	<b>% Share in the Aerospace Industry</b>	<b>% Share in Total Workforce</b>
Less than High School Education	5.2%	20.1%
High School Education	22.6%	25.6%
Post-secondary Education	72.3%	54.3%
Total	100%	100.0%

Source: Statistics Canada, National Household Survey, 2011

# Gender Distribution

69.8% of the industry's workforce is composed of male workers

*This ratio is 48.8% for the total workforce*

Gender	% Share in Aerospace Industry	% Share in Total Workforce
% Male	69.8%	48.8%
% Female	30.2%	51.2%

# Age Distribution

Employees over the age of 45 make up a slightly higher percentage of the industry's workforce compared to the national workforce.

*45.6% in the Aviation and Aerospace industry vs. 44.4% in the total workforce.*

These numbers indicate that the workforce of the industry is slightly older than the Canadian workforce.

Age distribution	% Share in the Aerospace Industry	% Share in Total Workforce
< 25 years old	6.5%	13.1%
Between 25 and 45 years old	47.9%	42.4%
> 45 years old	45.6%	44.4%
Total	100.0%	100.0%

# Immigration Status

These numbers indicate that the workforce of the industry is composed of about the same share of immigrants as the overall Canadian workforce.

Immigration Status	% in the Aerospace Industry	% in the Total Workforce
Non-immigrants	72.9%	75.4%
Immigrants	25.9%	23.5%
Non-permanent residents	1.2%	1.2%
Total	100.0%	100.0%

Source: Statistics Canada, National Household Survey, 2011

# Disruptive Technologies

## **A Disruptive Technology**

A disruptive technology is one that displaces an established technology and shakes up the industry, or a ground-breaking product that creates a completely new industry.

# Emerging Technologies

**Taken from the responses to CCAA's LMI survey question:**

Which emerging technologies have affected the skills/occupations that your organization requires?

- 3D scanning and 3D printing
- 5 and 7 axis machining
- Additive machining
- Automatic Dependent Surveillance-Broadcast – leading edge avionics and engine monitor systems
- Automation, robotics
- Big data

# Emerging Technologies

- CAD/CAM software applications for CNC machining
- Computer aircraft needing more IT skills to troubleshoot aircraft
- Flight simulation training
- Glass cockpit technology
- Increased demand for aircraft upgrades and modifications
- Industry weight requirements
- I pads, online manuals and electronic charts
- Laser Technology
- New environmentally friendly processes requiring new equipment

# Emerging Technologies

- New lightweight composite structures and new composite manufacturing methods
- New navigation systems
- New wireless communications - mobile device applications design
- Integrated systems
- Radio technology
- Software for design and modeling
- Software programs and processes driving business and computer literacy
- Unmanned aircraft design, and manufacturing

# What CCAA is Doing to Address Labour Market Challenges

## National Labour Market Strategy Days

- Gathering of Industry, Government and Educators to identify challenges
  - Working group and the three sub-committees
  - Development of a National Strategy Workshop
  - National strategy output report
- 
- October 3, 2018 at the Canadian War Museum in Ottawa

## 4 Year Wage Subsidy to Hire Students

- CCAA has partnered with the government of Canada to administer a new wage subsidy program
- Employers receive up to 50% of the student's salary (to a maximum of \$5,000) each time they hire a student. So, if a student is hired back the following year, the employer would qualify for another wage subsidy.
- In certain cases, the subsidy is even higher. For first-year students and under-represented groups including women in STEM, Indigenous students, persons with disabilities and recent immigrants, the subsidy is up to 70% of the salary (to a maximum of \$7,000 for every work term).
- This program runs for another 3 years allowing you to implement a structured plan for your workforce.
- The subsidy is extremely flexible, and applies to co-op placements, internships, field placements, or applied projects to solve particular problems for employers.

# SWILP Funding for 2018

- Students must be registered as a full-time student in a post-secondary education (PSE) institution; be a Canadian citizen, a permanent resident, or a person to whom refugee protection has been conferred under the Immigration and Refugee Protection Act 2; and, be legally entitled to work in Canada in accordance with relevant provincial or territorial legislation and regulations.
- Major aviation players like Air Canada and Jazz are already on board – we encourage you not to miss out!
- Upcoming Funding – number of placements to fill, and dates

Contact Theresa Davis-Woodhouse, Director of Project Management

1 613 727 8272 Ext. 247

# Multi Disciplinary Technicians

- CCAA is working with a consortium of companies and colleges to develop an innovative training program which will combine skills for Maintenance Technicians with those of Avionics and Interior Technicians, together with soft skills and business skills, to produce “Multidisciplinary Technicians”.
- Partners: Air Canada, Air Georgian, Avianor, Hope Aero Propeller and Components, Jazz Aviation, KF Aerospace, Les Services Airbase Inc., and M1 Composites Technologies Inc.

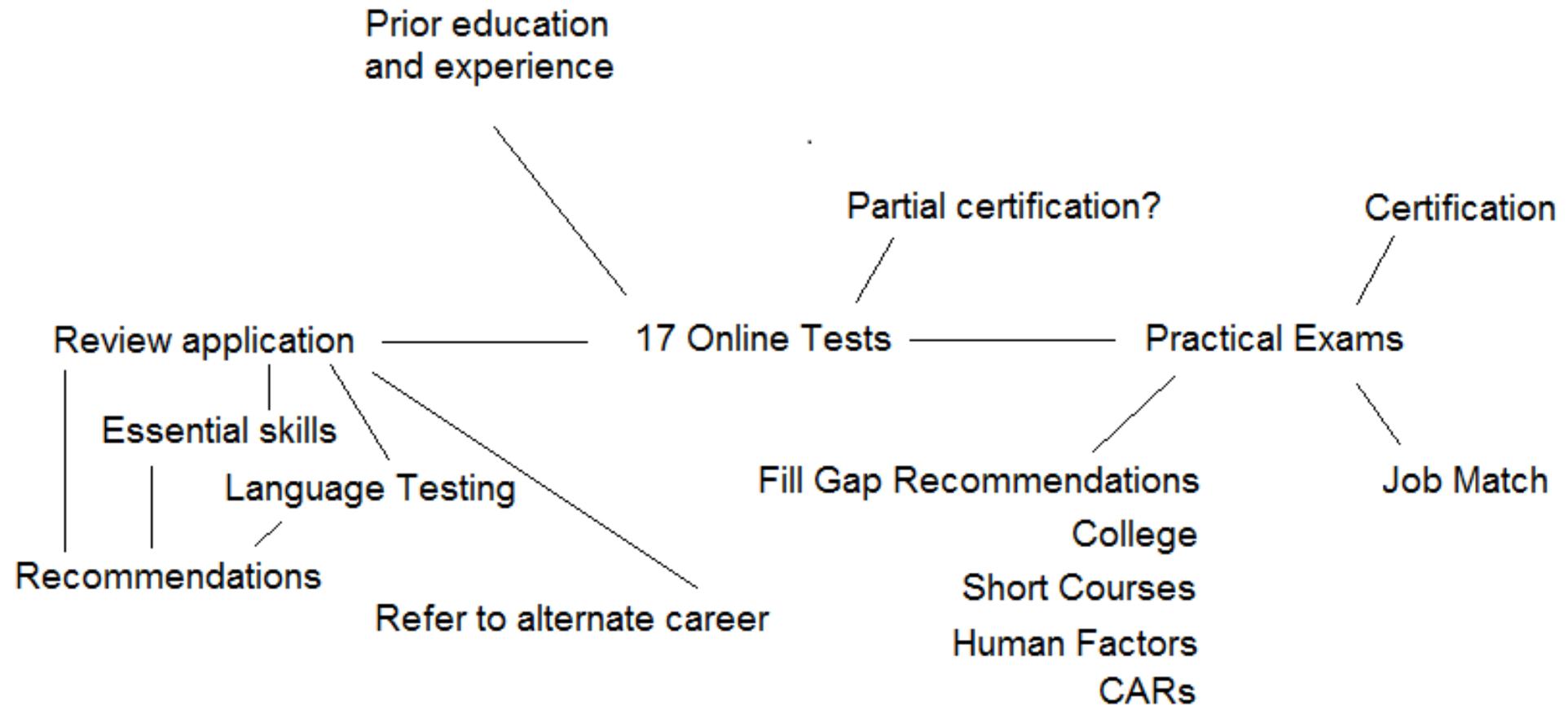
# Accelerated Assessment, a Process

How do we qualify skilled personnel for positions in Canadian Aviation & Aerospace who have been trained in other countries, or other industries within Canada?

- 17 Occupational Self Assessments Online
- Practical Examinations for 7 Occupations
- Links to immigration, aviation colleges, high-schools, essential skills books, career guide, etc.

# Accelerated Assessment, a Process

A view of the overall process



# Magnet

Magnet is a collaborative network powered by a data-rich, job-matching technology that quickly and accurately connects job seekers to the right opportunities based on skills and qualifications.

## Join

- Use the Job Magnet link on the CCAA Website [ [www.avaerocouncil.ca](http://www.avaerocouncil.ca) ]

or

- Google CCAA Job Magnet

# Update and Digitization of Occupational Standards

- CCAA will review and update the current OS's
- Examine whether some should be combined to reflect the more multidisciplinary workforce
- Examine whether some need to be further segmented to reflect increasing specialization
- Digitize the standards

For additional information on any of the foregoing, contact:

Robert Donald, Executive Director at 613 727 8272 ext. 222, or  
[rdonald@avaerocouncil.ca](mailto:rdonald@avaerocouncil.ca)

Or

Theresa Davis-Woodhouse, Director of Project Management at  
613 727 8272 ext. 247, or [tdaviswoodhouse@avaerocouncil.ca](mailto:tdaviswoodhouse@avaerocouncil.ca)

**Thank you**