

Micro-credentialing for the Canadian Aviation and Aerospace Industry



PARTNERS

Canadian Council for Aviation & Aerospace



LOCATIONS

British Columbia
Nova Scotia
Ontario



INVESTMENT

1,400,035



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Executive Summary

The Canadian aviation and aerospace industry currently faces challenges recruiting, training and retaining a qualified workforce. To address this issue, the Canadian Council for Aviation and Aerospace (CCAA) developed and tested a digital learning resource and a stackable micro-credential framework – a framework where smaller learning units or certifications can be accumulated or ‘stacked’ to build up to a larger qualification over time – to help train workers to transition to or progress further in a career in this sector.

Between 2021 and 2023, CCAA tested their new digital learning offerings with 34 participants across eight employers. Results showed strong satisfaction with the content, with 85% expressing overall satisfaction. Additionally, 88% reported acquiring new knowledge, and 82% noted improvements in their skills directly resulting from the training. Many applied their new-found skills in their work, and most believed these skills would significantly benefit their job and career growth. Feedback on the course structure and design was also overwhelmingly positive, underscoring the effectiveness of the framework and the platform for the digital offering.

This initiative not only enhanced individual career prospects but also showcased the value of micro-credentials and on-the-job learning as promising solutions to support the industry in meeting current and future skills and training needs.

KEY INSIGHTS

- 1** The program content has an 85% satisfaction rate, including 41% who were highly satisfied with the offering.
- 2** Eighty-eight percent of participants reported gaining new knowledge, and 82% noted direct improvements in their skills due to the training.
- 3** Ninety-four percent of participants expressed a desire to pursue further courses through digital platforms.

▶ The Issue

The Canadian aviation and aerospace industry faces significant human resource challenges, including recruiting, training, advancing and retaining a qualified workforce. Companies cannot grow and take on new contracts when they cannot upskill their workforce for new technologies quickly and without significant loss of production time. These challenges are being exacerbated by an aging workforce, few entry-level programs, insufficient specialized education and training programs, and international competition for skilled workers. Collectively, these elements threaten the sector's competitiveness and production levels.



According to the [CCAA national report on the aviation and aerospace labour market](#), the sector currently employs 154,000 workers and anticipates needing 55,000 new workers by 2025 to meet growth objectives and replacement demand. However, the national training system is estimated to produce 14,000 workers from secondary and postsecondary institutions by then, leaving a significant projected gap of approximately 41,000 workers who will need to be trained to meet the skill demands in the sector.

Despite the demand for high education and experience levels in fields like engineering and technology within the aviation and aerospace industry, pathways to attain these qualifications are limited and face intense competition from other sectors.

🔧 What We Investigated

Responding to this need, the CCAA developed and tested stackable micro-credentials to expedite in-the-flow-of-work training — an approach that emphasizes seamless, on-the-job learning where training is integrated into the daily tasks of workers. The project aimed to provide accessible, industry-driven training that can be done during regular work activities to address gaps in competencies and minimize the time workers were away from production. This approach included self-directed learning, virtual training and competency certification, aligning with regulatory standards and supporting continuous improvement for both workers and employers.

✔ What We're Learning

During the prototyping of the micro-credentials and the on-the-job, 'learn while you work' delivery structure, CCAA engaged 34 workers across eight different industry employers.

The on-the-job approach to learning helped participants gain new skills and overcome barriers

Eighty-five percent of participants reported they were satisfied with the content, including 41% who were highly satisfied. An impressive 88% reported acquiring new knowledge from the lessons, and 82% noted skill improvement due to the training. Moreover, 76% successfully applied their newly acquired skills in their work, and 65% believed these skills would greatly benefit their job and career growth. After their experience with the offering, 94% of participants expressed interest in pursuing more courses via digital platforms. On-the-job learning can mitigate barriers such as inaccessibility due to geographic location, cost, redundancy and significant time commitments that traditional training and learning initiatives usually include.

The course structure and content were strong

Seventy-five percent of participants found the framework and core content to be comprehensive and 76% found the order and structure of the offering to be "very" or "extremely" effective. The design of the digital offering was also well received, with high satisfaction from participants on elements such as the dashboard layout and effectiveness, overall layout and design, and the graphics and visuals used.

Company-specific, customized training benefits trainees

While it is useful to have a standard format and curriculum for any in-the-flow-of-work training, differences in company-specific equipment required content developers to tailor instruction and learning units for each environment. Employers had to engage deeply in this customization, choosing course-related activities to focus on specific pieces of equipment or processes. This tailored approach resulted in higher engagement and more immediate application of the skills learned, thus speeding up the upskilling process.

The learning management system must be adaptable and robust

Midway through the project, the project team had to switch to a more flexible and user-friendly system, LearningCart, which significantly improved the management and delivery of content. This switch underscored the importance of selecting adaptable and robust digital tools in executing industry-wide training initiatives.

Why It Matters

CCAA's micro-credentials and functional learning delivery framework provide a promising solution that could help address the sector's pressing need for skilled workers and new ways to support their training and education. The developed solution not only enhances individual career prospects but also bolsters the industry's ability to meet current and future demands for expertise in fields like engineering and technology.

One of the key lessons from this initiative is that integrating training directly into the workflow is effective. It allows for immediate application of new skills, thereby enhancing learning retention and reducing downtime. This approach could inform broader educational policies by encouraging the adoption of micro-credential frameworks that recognize and certify skills in real time, offering a more dynamic and responsive training model than traditional educational pathways.

Project partners emphasized that it was easier to cultivate interest and engagement from employers when there are subsidies, rebates or tax credits that support the development of in-house training. Support of this kind can encourage employers to focus on upskilling existing workers and new hires rather than expecting workers to come with the skills needed.

▶ What's Next

The [Canadian Council for Aviation and Aerospace](#) continues to offer training and certification programs. With support from the Future Skills Centre, CCAA was also able to join the Excellence in Manufacturing Consortium, BioTalent Canada, Canadian Agricultural Human Resource Council, and Information and Communications Technology Council in developing a cross-sectoral, industry-driven framework and methodology for researching, developing and delivering micro-credentialed, rapid reskilling and upskilling training for the manufacturing, agriculture, aviation and aerospace, biotechnology and IT sectors. Results of this work will be shared more widely in the fall of 2024.

Have questions about this report? Contact us communications@fsc-ccf.ca.

How to Cite This Report

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