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CANADIAN AIR FORCE LOOKS TO IMPROVE TECHNICAL TRAINING EFFICIENCY WITH ADVISOR ENTERPRISE

> "Maintaining tasks, objectives, knowledge/skills, teaching points and costs for all technicians in a single, web enabled, easy to access database is highly beneficial for developing cost comparisons and forecasting return on investment."
>
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OVERVIEW

To develop highly competent aircraft technicians, the knowledge and skills of Aircraft Structures (ACS), Aviation Systems (AVN), Air Weapons Systems (AWS) and Avionics Systems (AVS) technicians are developed in three stages. In Basic Training background information and common procedures applicable to all aircrafts are covered. With the exception of ACS, upon graduation, technicians are relocated to a new base for on-type (specialty) training on specific aircraft, such as CF18 Hornet or CP140 Aurora. Formal training is further reinforced on-the-job to master concepts acquired at schools.
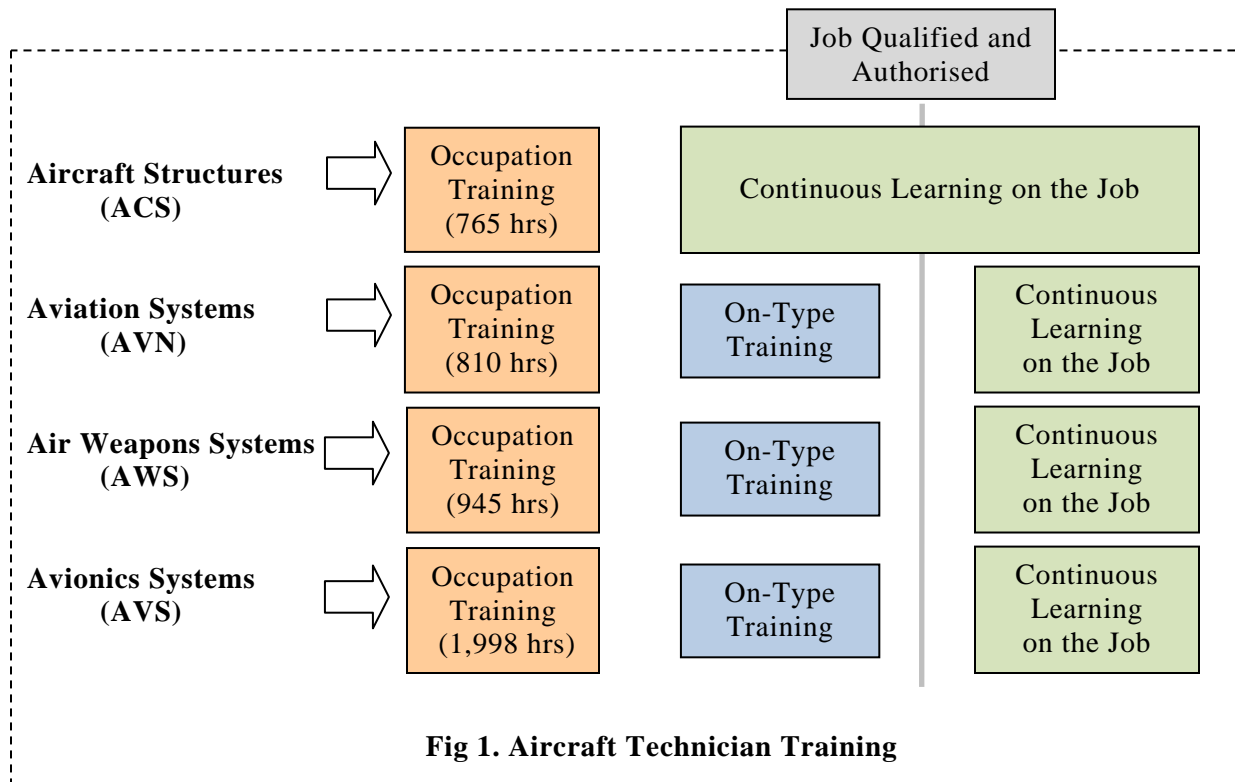

Fig 1. Aircraft Technician Training

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CHALLENGE

With growing demand for experienced aircraft technicians in the field, the Canadian Air Force increased practical exercises at the schools in order to minimize on-the-job training. In addition to straining training personnel and resources at the schools, the current instructor-led and hands-on approach could not keep up with the increased demand for field ready technicians without a continuing unsustainable investment.
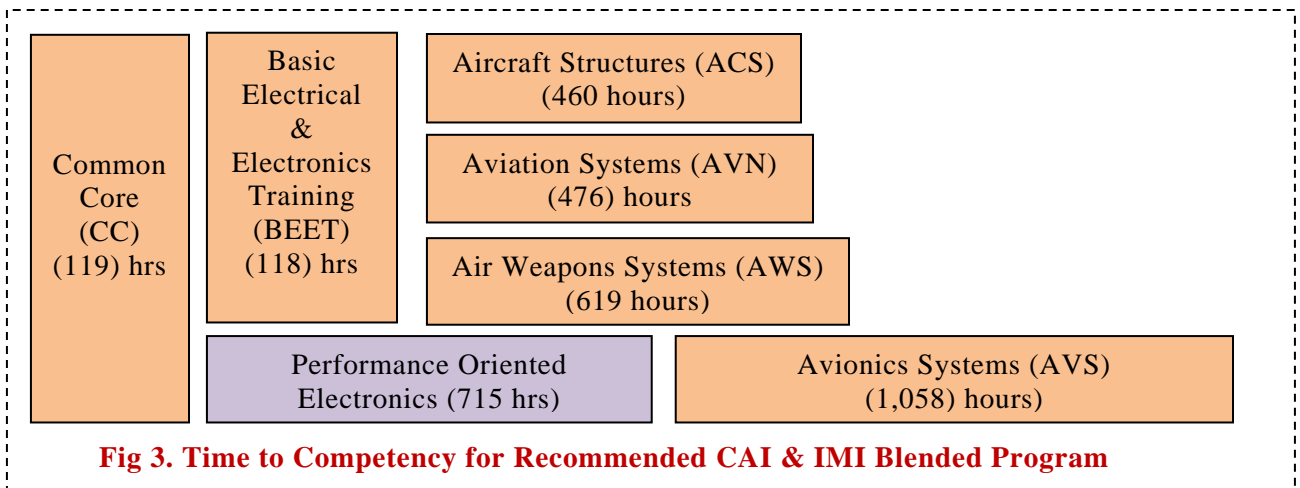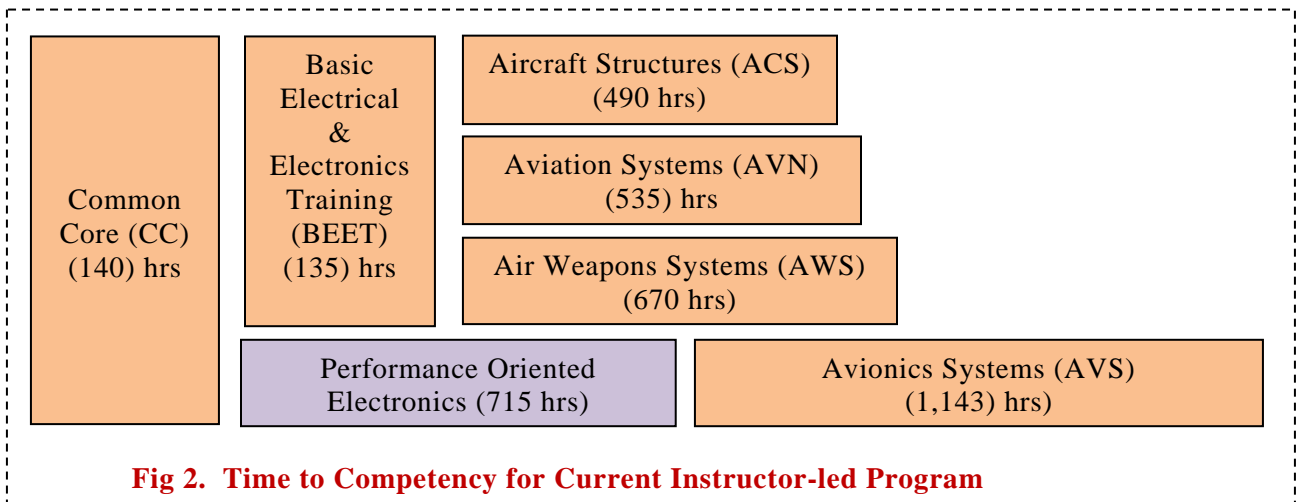
SOLUTION

A new training strategy is needed that preserves the quality of training and allows for an increase in the number of graduates with minimal impact on training personnel and costs. To attain this goal, the following steps were undertaken:

1. Develop "A Primer on Methods and Media Selection for Air Force Technical Training" to analyze teaching points and identify the most effective delivery options. Dr. Ruth Clark's construct for categorizing the different types of knowledge and skills was adopted. Based on teaching point statement, the outcome is first classified as Knowledge (Remember) or Skill (Apply), and further categorized as Fact, Concept, Process, Procedure or Principle. Definitions and examples were provided to guide the analyst in the process.

2. Available media for Air Technician Training Renewal (ATTR) were documented and defined, and a matrix identifying the media best suited for each type of teaching point was developed.

3. Since in most cases multiple media are equally effective for certain types of training [for example, Computer Aided Instruction (CAI) and Interactive Multimedia Instruction (IMI) may be used for knowledge based teaching points] other factors including time to competency, costs, resource requirements and scalability should be considered in the media selection process.

4. To minimize duplication and reduce the cost of converting instructor-led training material to IMI or other media, knowledge and skills common among the 4 basic training streams were identified and divided into the following two groups: Common Core Training (140 hrs – common to all) and Basic Electrical & Electronics Training (135 hrs – common to all but AVS, since they undertake 715 hrs of Performance Oriented Electronics Training prior to Occupation Training).

5. To maintain consistency, ensure reliability, as well as facilitate the process of identifying plausible media, estimating time to competency, forecasting costs and resources required by each option, and assessing the impact of an increase in trainees' throughput on budget and resources; a robust software tool that can be customized in line with ATTR's requirements is needed. Following a comprehensive evaluation by Gladstone Aerospace Consulting, ADVISOR Enterprise was recommended.

6. To preserve quality, simplify and speed instructional and cost analysis, as well as facilitate the process of running multiple what if scenarios, the ATTR method and media selection matrix was embedded in ADVISOR Enterprise along with several templates that reflected the Air Force's experience in developing, delivering, managing and supporting CAI and IMI.

7. Current Training Plans for ACS, AVN, AWS and AVS technicians are uploaded into ADVISOR Enterprise and analyzed.

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RESULTS

Preliminary analysis of the ACS, AVN, AWS and AVS technicians Basic Training streams yielded the following results:

1. **Time to Competency:** A blended instructor-led with IMI training solution can reduce Occupation Training time between 4% and 17%, depending on the course, at the very least while maintaining or improving quality.

Common Core (CC) (140) hrs	Basic Electrical & Electronics Training (BEET) (135) hrs	Aircraft Structures (ACS) (490 hrs)
		Aviation Systems (AVN) (535) hrs
		Air Weapons Systems (AWS) (670 hrs)
	Performance Oriented Electronics (715 hrs)	Avionics Systems (AVS) (1,143) hrs

Fig 2. Time to Competency for Current Instructor-led Program

Common Core (CC) (119) hrs	Basic Electrical & Electronics Training (BEET) (118) hrs	Aircraft Structures (ACS) (460 hours)
		Aviation Systems (AVN) (476) hours
		Air Weapons Systems (AWS) (619 hours)
	Performance Oriented Electronics (715 hrs)	Avionics Systems (AVS) (1,058) hours

Fig 3. Time to Competency for Recommended CAI & IMI Blended Program

2. **Development Effort & Costs:** The effort and costs needed to convert Common Core, Basic Electrical & Electronics and each of the 4 streams into a blended CAI/IMI program was estimated to facilitate multi-year budget planning, prioritizing actions and the development of an implementation plan.

3. **Impact on Personnel/Resources**. The number of instructor days needed for the delivery and support of Common Core, Basic Electrical & Electronics and each of the 4 streams was also estimated for the blended CAI/IMI program and compared to current effort as an estimate of the increase in training capacity for the blended approach.

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FINAL REMARKS

Maintaining the tasks, performance objectives, knowledge/skills, teaching points and costs for all Air Force technicians in a single, web enabled, easy to access database is highly beneficial and cost effective – since the analyses are data intensive, interrelated and require continual updating. In addition to identifying plausible media for each teaching point, estimating time to competency, forecasting development effort and assessing the impact of media on personnel and resources, ADVISOR Enterprise greatly reduced the effort needed to run multiple what if scenarios (such as impact of an increase in trainees' throughput on budget and resources) as well as generate up to date training plans as requirements change.

CONTACT INFORMATION

For more information on this project, or how ADVISOR can assist you in managing training budgets and resources as well as clients' needs and expectations, please contact:

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