




# CAMC Tools for SMS Implementation Challenges

Canadian Aviation Maintenance Council  
Robert Donald  
Executive Director



- 
- A Sector Council is not a Trade Association
  - Funding – from Canadian Government approximately 85% of total budget
  - Canadian Aviation Maintenance Council
    - a) Training/Skills Development
      - Curricula, Accreditation, Certification, Occupational Standards, etc.
    - b) Demographics/critical skills shortage

# Training Skills Development

## CAMC Certification of Individuals

- Provides national recognition of competencies and capabilities
- Provides credibility, a credential and proof of qualifications
- Enables portability of qualifications
- 26 Occupational Standards – many recognized by Transport Canada

## CAMC Accreditation of Training Organizations:

- Ensures Training Organizations have an integrated and standardized approach to training, which is documented in their TCM and validated by a CAMC audit.
- Every aspect of the training program is examined:
  - > Program Content
  - > Resources
  - > Facilities
  - > Administration
  - > Quality System
  - > Management and Organizational Structure
  - > Tools & Equipment
  - > Record Keeping
  - > Advisory Committee
  - > Faculty Qualifications and Evaluation
  - > Faculty Professional Development

## International Data: ICAO/IATA

### Pilot and Training demand

	2018	2026
Total new pilots (additional aircraft and retirement) needing <i>ab-initio</i> training	207,600	352,900
Total new pilots needing transition training on replacement aircraft	59,930	122,700

### Maintenance demand

	2018	2026
Total mechanics needed for additional aircraft	247,100	420,000
Total mechanics including retirement	405,500	739,000



## The Canadian Aviation Maintenance Council has developed:

- national occupational standards and trade certification to show evidence that employees are properly trained for their duties;
- a SMS benchmarking system;
- an enhanced safety culture across the industry by introducing new knowledge, skills, and attitudes for employees;
- workshops to assist with implementation of quality assurance standards as part of a Safety Management System;
- education products for all transportation modes, including air, marine, rail and road; and

The next step is to develop a **Multi-modal Integrated SMS**.



# SMS Skills Development Program

## Project Background

- CAMC was awarded a contract in 2007 to develop a suite of SMS learning and facilitation tools to be completed in three phases over approximately 36 months.
- The objective of this project was to help establish an enhanced safety culture across the industry by introducing new knowledge, skills and attitudes for current as well as future employees.



## SMS Steering Committee Members

- Carol Kavish, Porter Airlines
- Robert MacMillan, Air Canada
- Bruce Dwyer, Algonquin College
- Savik Ramkay, Contractor
- Karen Digenova, Aerospace Welding Inc.
- Sean Darcy, WestJet
- Mike Doiron, Consultant, DAC Safety
- Dave Ronson, StandardAero
- Dennis Doersam, Red River College
- France Labelle, Exeltech Aerospace
- Andy Vasarins, Canadian Airports Council





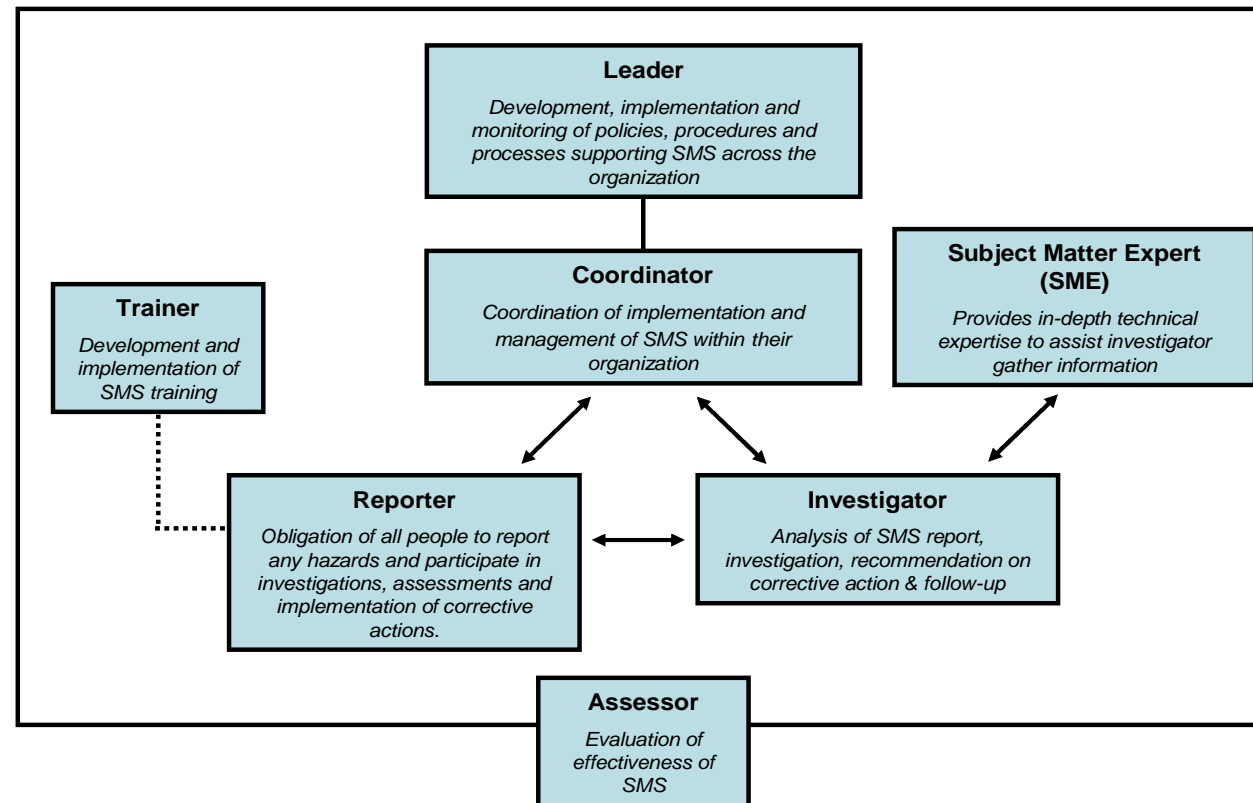
## Phase 1: Information Gathering Analysis, and Mentoring Program

- Phase 1 comprised the development of SMS occupational competency profiles, an analysis of current industry capabilities, and the development and delivery of the mentoring program.
- Between January 7 and March 5, 2009, 408 aviation and aerospace industry members attended 20 workshops that were held across Canada.

*This two-hour workshop is available on request.*

# Phase One: Gap Analysis, Skills and Competencies Profile

## SMS Functional Chart



# SMS Implementation Needs Survey

ISSUE	ATAC NATA	Industry BCAC	SAC	MAC	HAC/Heli	CAC/ Airports	CBAA/ BA
Information Sharing	X	X	X	X	X	X	
National HR/SMS Committee	X		X	X		X	
SMS Specialized Training:	X	X	X	X	X	X	X
Quality Assurance	X	X	X	X	X		X
Emergency Response Planning		X	X	X	X	X	
Fatigue Risk Management System		X	X	X	X	X	
Program Validation	X		X	X			
Message Delivery	X Workshops		X Convention workshop	X Convention Workshop	X Remote ops-distance learning	X Online learning	



## Phase 2: SMS training material for working-level employees and middle managers

### Key Findings from Phase One:

- Communications to all employees regarding roles and responsibilities as they pertain to SMS, sharing of results and information across the organization, progress made, etc.
- Training of all employees to understand SMS, its purpose and goals, how it works, and how it benefits the organization.

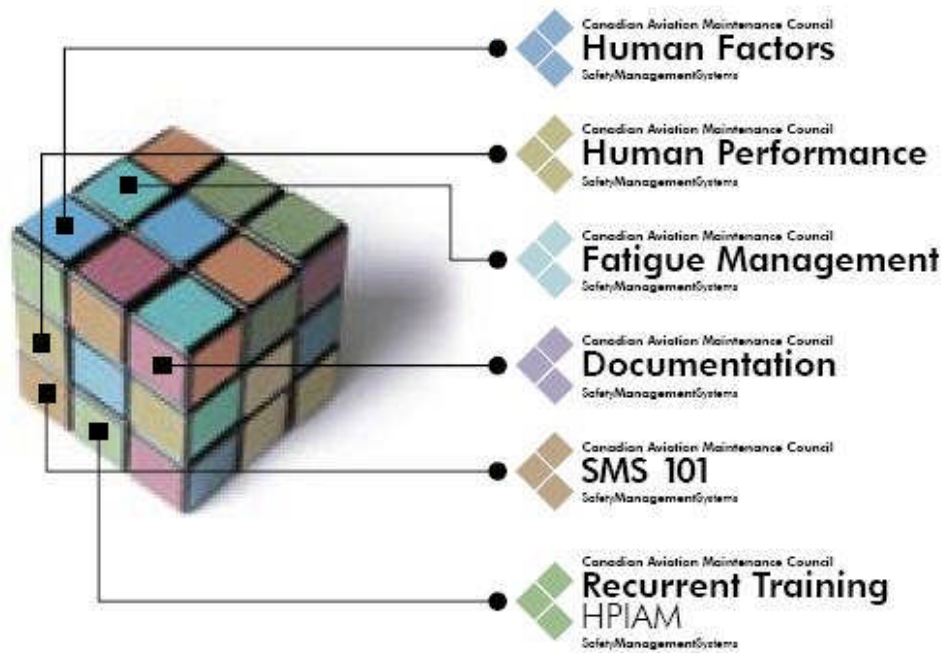


# Transport Canada SMS Components and Elements

- Safety Management Plan
  - **Safety policy**
  - Non-punitive SMS disciplinary policy
  - Roles, responsibilities and employee involvement
  - Communication
  - **Safety planning, objectives and goals**
  - **Performance measurement**
  - **Management review**
- **Document Management**
  - Identification and maintenance of applicable regulations
  - SMS documentation
  - Records management
- Safety Oversight
  - Reactive processes
  - Proactive processes
  - **Investigation and analysis**
  - **Risk management**
- Training
- **Quality Assurance**
- Emergency Preparedness

**Boldface type** indicates topics for which industry requested CAMC to facilitate workshops

# CAMC's Suite of SMS Products and Services



# Basic SMS Orientation for AMOP High Schools



Aviation safety bank x +  
http://www.aviation-safety-bank.com/index.html  
New Tab CPAC - Home page Training for Transport... Yahoo! Babel Fish - T... The Aviation Herald www.aero-lingo.com Other



- Intro for reviewers
- Gen Y
- Teaching SMS Concepts
- Catalogue of tools
- SMS Resources
- SMS & Culture Change
- SMS Video

## The Aviation Safety Bank - a Bank of Resources for SMS Trainers

### Why start up an aviation safety bank website now?

- SMS implementation is on the horizon for flight schools
- Commercial operators want applicants to be trained in SMS prior to applying
- Recent Canadian aviation studies support the fact that SMS trainers and flight schools need more resources for teaching SMS
- Sharing SMS teaching resources is more efficient than each school re-inventing the wheel



### Who can use the safety bank?

Resources in this bank are freely available for any SMS trainer who wants to "withdraw" them. By the same token, we hope that over time many people will "deposit" their own tips and resources.

### What's in the vault of the bank so far?

If you are teaching Safety Management in flight training units, or about to, please browse through the aviation safety bank.

Here's what you'll find in the vault:

- [A lesson plan for teaching a basic SMS course introducing SMS concepts, \(with video aids\)](#)
- [Why SMS requires a culture change](#)
- [A description of Gen Y and their](#)





# National SMS Training and Education Best Practices Survey and Report



Best Practices In Teaching  
**Safety Management Systems**  
(SMS)

**FINAL REPORT**

**Prepared for:**  
The Canadian Aviation  
Maintenance Council (CAMC)

**Prepared by:**  
R.A. Malatest & Associates Ltd.  
And  
Oasis Consulting Services

**March 2010**



## Phase 3: Development and Production of SMS learning and evaluation tools for all levels of employees

- The Quality Audit Procedures workshop is now available on request and available in French as well through partnership with CQFA (Centre québécois de formation aéronautique)
- The SMS Components and Elements Question Bank is complete and available on request.
- Evaluation workshops have been developed for the following SMS components:
  1. Fatigue Risk Management
  2. Risk Assessment
  3. Documentation and PVI Response



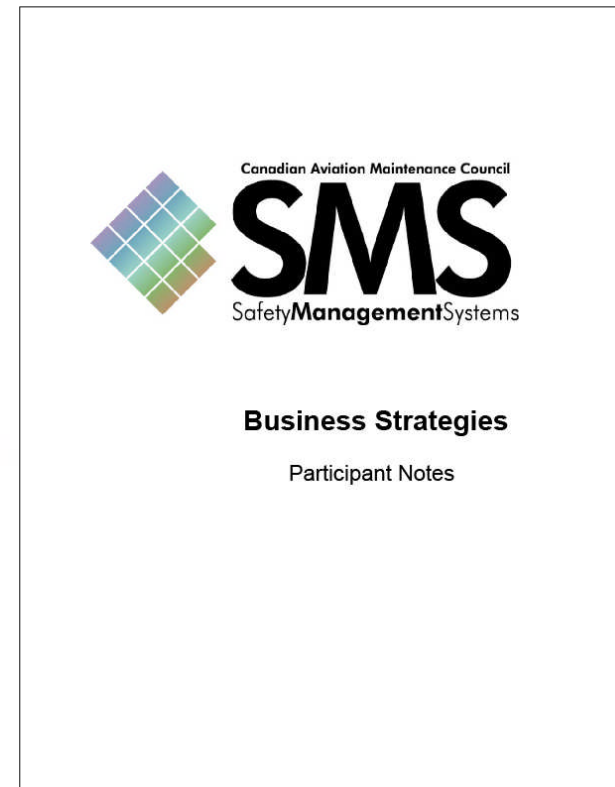
# Quality Systems Auditor Occupational Standard — SMS Implementation Workshops

- Ottawa — December 3-4, 2009, in partnership with **First Air** (Beta Test)
- Winnipeg — January 12-13, 2010, in partnership with **MAC**
- Saskatoon — January 14-15, 2010, in partnership with **SAC**
- Halifax — March 9-10, 2010, in partnership with **NSCC**
- Whitehorse/Yellowknife — February 15-16/18-19, 2010, in partnership with **NATA**
- Hamilton — February 24-25, 2010, in partnership with **Cargojet**
- Quebec City — April 11-13, 2010, in partnership with **HAC**
- Vancouver — May 19-20, 2010, in partnership with **BCAC/BCIT**
- Brampton, Ontario — June 2010, in partnership with **Brampton Flying Club**
- Buttonville/Toronto — June 9-10, 2010, in partnership with **AvAd/Toronto Airways**
- Dawson Creek, BC — June 19-20, 2010, in partnership with **Northern Lights College**
- Ottawa — August 10-11, 2010, in partnership with **Transport Canada**
- Montreal — August 23-24, 2010, in partnership with **CQFA** (translated workshop)
- Calgary — August 24-25, 2010, in partnership with **SAIT Polytechnic**

# Quality Assurance Management Workshops

## Risk Assessment Workshop for Managers

- This workshop was designed for owners or senior managers of aviation organizations with the responsibilities to assess risk and establish standards. It would be useful for accountable executives, as well as persons responsible for maintenance or for flight operations.
- Based on the Quality Assurance Manager Occupational Standard, this workshop was presented in Toronto on August 24 and 25, 2010, and the student material and examination was validated as satisfactory.



# Industry Best Practices Review and Evaluation Tools Development

DRAFT: Safety Management System  
Best Practices Review and  
Sample Exam Questions



strategic  
transportation  
& tourism  
solutions



Prepared for  
Canadian Aviation Maintenance Council

Prepared by  
InterVIZAS Consulting Inc.

20 August 2010

- Several surveys and encounter sessions identified there were scarce evaluation resources.
- A data bank of 200 questions was developed on the components and elements of Safety Management Systems.
- This data bank will be made available in an on-line forum to create custom examinations.


# Fatigue Risk Management System Implementation Workshop

- One of the goals of the SMS Project was to harmonize with Transport Canada's efforts in the implementation of the components and elements that compose a Safety Management System. This was also a workshop "missing" from CAMC's Suite of SMS products, so its development was timely and appropriate.

Designed in three modules:

1. A two-hour intro that could be offered to potential corporate partners;
2. A half-day workshop based on Transport Canada's developed material;
3. And a full-day Train-the-Trainer program for companies that are large enough to require in house training capability.

LESSON TITLE AND NUMBER: <b>Fatigue Risk Management Module 1</b>	
<b>Lesson Title and Number:</b> Fatigue Risk Management Module 1	Date Prepared: July 30, 2010 Date last updated:
<b>Terminal Objective:</b> Without reference or assistance the candidate will be able to define fatigue and list consequences of unmanaged fatigue	
<b>Enabling Objectives:</b> EO #1 Without reference or assistance the candidate will define fatigue EO #2 Without reference or assistance the candidate will explain why fatigue is an issue in today's work environment EO #3 Without reference or assistance the candidate will explain the potential consequences of not properly dealing with fatigue	
<b>Total Training Time:</b>	<b>Theory: 35 min    Application: 0 min</b>
<b>Equipment and Aids:</b> Screen Computer PowerPoint presentation	<b>References:</b> <ul style="list-style-type: none"> <li>• Fatigue in Aviation – Caldwell and Caldwell</li> <li>• TC Document TP 14573E April 2007</li> <li>• TC Document TP 14578E April 2007</li> </ul>

  
**C A M C C C E A**  
Conseil Aviation Maintenance Canada / Conseil canadien de l'entretien des aéronefs

This lesson plan prepared by Domain Aviation Consulting (DAC) exclusively for the Canadian Aviation Maintenance Council.

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# Human-Resource Solutions for Airports

- The CAMC-HRSDC project called the *Airport Occupations Rationalization Study* identified a similar SMS implementation challenge experienced by air operators.
- A workshop with evaluation tools was developed as a service to the airport community.

HR and Training Solutions for Small Airports:  
Workshop Lesson Plan



strategic  
transportation  
& tourism  
solutions



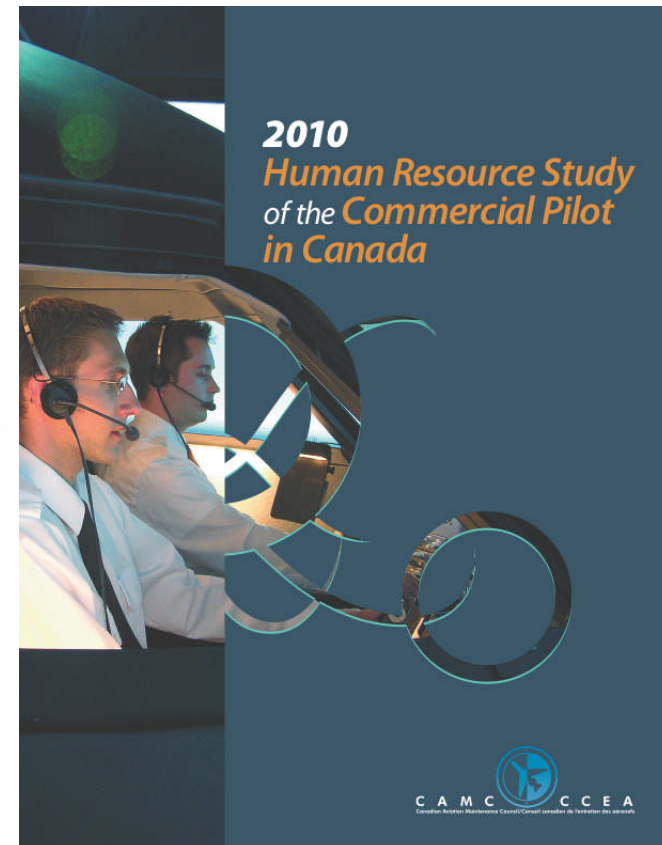
Prepared for  
Canadian Aviation Maintenance Council

Prepared by  
InterVISTAS Consulting Inc.

30 August 2010

# Human-Resource Study of the Commercial Pilot in Canada — Update Project

- Now completed and available on-line
- Provided the research for the development of SMS products
- Confirmed the need for occupational standards for pilots





# Professional Pilot Occupational Standard Development Project

- The need and want for Occupational Standards have been identified in three studies.
- The recent update project identified considerable interest from the aviation community.
- Project Duration: June 7, 2010 to June 30, 2011
- A contractor has been selected: Human Resources Systems Group.
- A work plan has been developed.
- Executive Committee has been established.
- Invitations to become a Working Group member have been distributed.
- An executive committee meeting and a helicopter pilot focus group were held September 28 and 29, 2010 in Vancouver at the CAMC Forum
- Due to the complexity of this project, extra meetings and a survey have been added.



# Professional Pilot Occupational Standard Development Project — Executive Committee

- Wayne Gouveia, Air Transport Association of Canada
- Kevin Psutka, Canadian Owners and Pilots Association
- Mark Gallant, First Air
- David Coles, College of Professional Pilots
- Bruce Dwyer, Algonquin College
- Lynn McMullen, Seneca College
- Jacques Monast, Centre québécois de formation aéronautique
- Mike Doiron, Consultant, DAC Safety
- Stephen Nourse, Northern Air Transport Association
- Bob Lamoureux, Alta Flights
- Janet Keim, Mitchinson Flying Services
- Fred Jones, Helicopter Association of Canada
- Al Ogilvie, Airline Pilots Association of Canada
- Judy Saxby, former president, Manitoba Aviation Council/  
Keewatin Air

# Airport Occupations Rationalization Study

- Report now available on on-line
- First report listing airport occupations
- National survey started October 2009 with 31 airports completing the survey
- As a result of this study, a series of workshops for smaller airports is being facilitated by CAMC in partnership with InterVISTAS and affiliated associations



# Airport Occupations Rationalization Study





# Canadian Council for **Aviation & Aerospace**

*For a skilled workforce*



**ccaa**



# Thank You

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