



# Enabling the Training of Next-Generation Aviation Professionals

## ICAO NGAP

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### CAE: world leader in providing...

- - Modeling and simulation technologies
- - Integrated training solutions



TROPIS-6000 Visual System



Chinook 7000 Series Simulator



## CAE - A Few Facts

- Founded in Canada in 1947
- Global Reach, for solutions in all segments of aviation:
- 8,000 employees worldwide
- 23 countries, 100 sites
- Operating 32 training centers, using over 160 simulators
- CAE Global Academy: world's largest network of ab-initio flight schools
- Has produced over 1,000 civil and military full-flight simulators and training devices
- Over 80,000 civil and military pilots and maintenance technicians trained annually



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## CAE Civil Aviation Training & Services: The broadest global reach

- Training solutions innovator for aircraft OEMs
- Alliances with major airlines



### CAE in Latin America – Civil

- First contract in 1978
- 70 employees
- #1 in the market for installed FFS
  - 20 FFS sold in 7 countries
- Training centres in Brazil and Chile
- Upcoming centres in Peru and Mexico
- Long-term agreements with airlines representing 60% of market
- Expanding into helicopter and business jet training

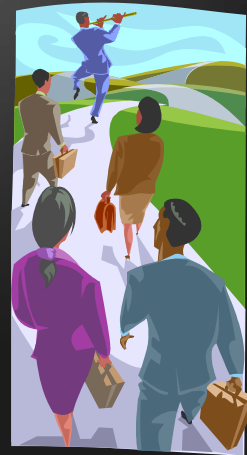
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### CAE Global Academy Global Footprint

- Alliance of 11 top flight schools with strategic global locations
- Committed to and delivering the highest safety and quality standards
- Innovative and efficient training methods & global best practice
- Direct line-of-sight to a job for graduates through strong industry relationships
- Delivering optimized ab-Initio ATPL, CPL and MPL programs
- Pilot's entry to unique CAE line of services – from cadet cradle to captain

## ICAO NGAP – Looking Beyond

- ▣ ICAO, regulators, academia, OEMs, airlines, and training industry to be commended for the NGAP initiative
- ▣ As aviation growth continues, the pool of pilots, maintenance technicians, cabin crew, and other qualified professionals will continue to be a challenge
- ▣ An infusion of new personnel



We must pave the path for the training of next-generation aviation professionals

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## Training the Digital Generation Professionals

- Next generation of aviation professionals is computer literate at a much younger age
- They expect modern and high-fidelity training tools, available anytime
- Intelligent adoption of new training technology... to help pilots become more competent



And their biggest roadblock!

How will they afford this training?

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## CAE's Goal for Training NGAP

1. Competent aviation professionals
2. Better training, at reasonable cost
3. Global standards: quality, efficiency, mobility
4. A safety culture



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## CAE MPL Program for Air Asia



- First Class—All phases successfully completed
  - Beyond expectations for all stakeholders
  - Base Training & Initial Operating Experience completed in Malaysia. All 12 line flying A320 First Officers
- Second class of 12 just completing Core & Basic

**CAE's MPL  
Program:  
successful and  
on-time**



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## CAE's MPL experience – A Few Observations

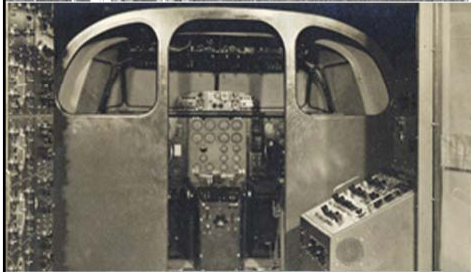
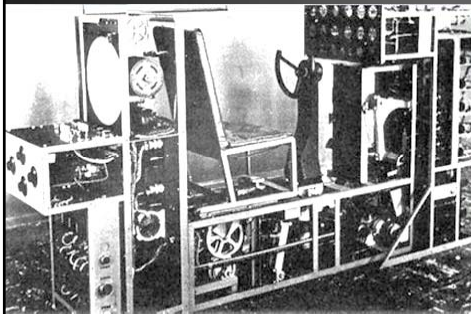
- ❑ Designing our CAE MPL program from a blank sheet using Instructional Systems Design (ISD) has proven to be successful
- ❑ Instructor qualifications and enhanced training are key
- ❑ Integrated CRM, TEM and leadership training throughout all phases works well
- ❑ Effective use of appropriate training devices at every phase is critical
- ❑ Approved Training Organization (ATO) requirements with an effective QMS & SMS are important for success
- ❑ Proficiency in Aviation English Language (AEL) to minimum entry level is critical to learning and MPL program success
- ❑ Integration of AEL training throughout the first three phases has proven successful



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## We've come a very long way...



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## Complete Suite for all Segments of Aviation

### Tailored to Your Training Requirements



## CAE is Co-operating & Participating with...

- **ICAO**
  - NGAP initiatives
  - ICAO Doc 9625 - Airplanes and Helicopters
  - Multi-crew Pilots License (MPL)
  - Competency-based training
  - Evidence-based training
  - Harmonized Instructor Training Standards
  - Upset Prevention & recovery Training
  - SRVSOP for LARS
- **National Aviation Authorities** - throughout the world via participation in task forces, consultations, rule making committees, etc.
- **International Associations:** IATA, FSF, RAeS, etc.



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## Recent ICAO FSTD Types - Qualification Criteria

Existing		IWG	Recent (ICAO 9625 Edition 3)	
FAA	JAA		ICAO Device Type	Application
A	A	7	Type Rating, Recency of T-off & Landing, Recurrent Operational & License, MPL4	
B	B	6	MPL3	
C	C	5	Type Rating*, Recurrent Operational*	
D	D	4	MPL2	
FAA	JAA	3	Class Rating*	
PC ATD	BITD	2	Instrument Rating*	
NG DSD		1	Private Pilot* & Commercial Pilot License*, MPL1*	
Basic ATD	?			
Adv ATD	?			
FTD 1	FNPT I			
FTD 2	FNPT II			
FTD 3	FNPT MCC			
FTD 4	FTD 1			
FTD 5	FTD 2			
FTD 6				
FTD 7	?			

\*Training only, else Training + Checking & Testing

**Global Harmonization now possible for FSTDs; Airplanes & Helicopters**

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## Global Harmonization

- Not just for Flight Simulation Training Devices
- Principles of harmonization also apply to training standards and licensing for pilots, technicians and other aviation professionals

Global Harmonization will bring benefits to our industry.



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# LACAC Harmonization

CAE salutes the efforts by the LACAC in its efforts to harmonize the regulations of the States of the Latin American Civil Aviation Commission and other States of North America, Central America, South America and The Caribbean

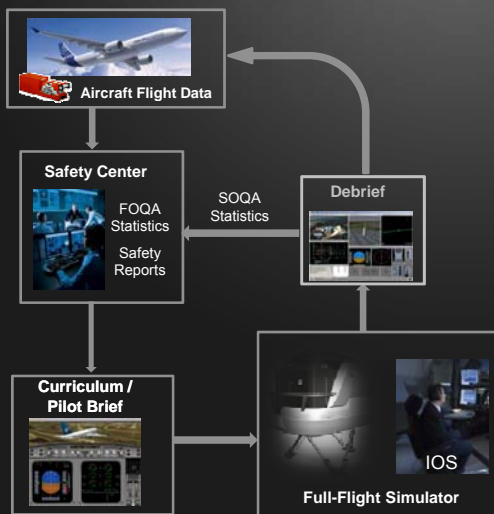


And ICAO's NGAP *Trainair Plus* effort to spread word of the advances in training and technology throughout the world

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# Closing the Loop Between Training and Operations



Use of operational data  
 ▶ FOQA and Safety reports

Simulator FOQA (SOQA)  
 ▶ Use same analysis tools to confirm training impact  
 ▶ Automated pilot assessment

Advantages  
 ▶ Link training to operational safety & efficiency  
 ▶ Targeted training content

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## In Conclusion

- Simulator technology continues to make significant progress
  - ▶ To make the overall immersive simulator experience truer-to-life...and cost effective.



**More fidelity for less**

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## Conclusion, (cont.)

- We need and can go further to bring next generation of pilots safely on line
  - ▶ By leveraging Flight Data Monitoring (FDM) technologies for evidence-based training
  - ▶ By providing the instructor better insight into the crew's performance
  - ▶ Through automated evaluation and closed-loop adaptive training
- Continued development and use of new training methodologies: Competency-Based Training, MPL, EBT, etc.

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**In Conclusion, (cont.)**

By smart use of technology and  
new training methodologies...

We have an opportunity for  
more effective, efficient and  
safe training!

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Colegas de la aviación, muchas gracias



one step ahead

22

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