



CAE

CAE Helicopter Training Solutions

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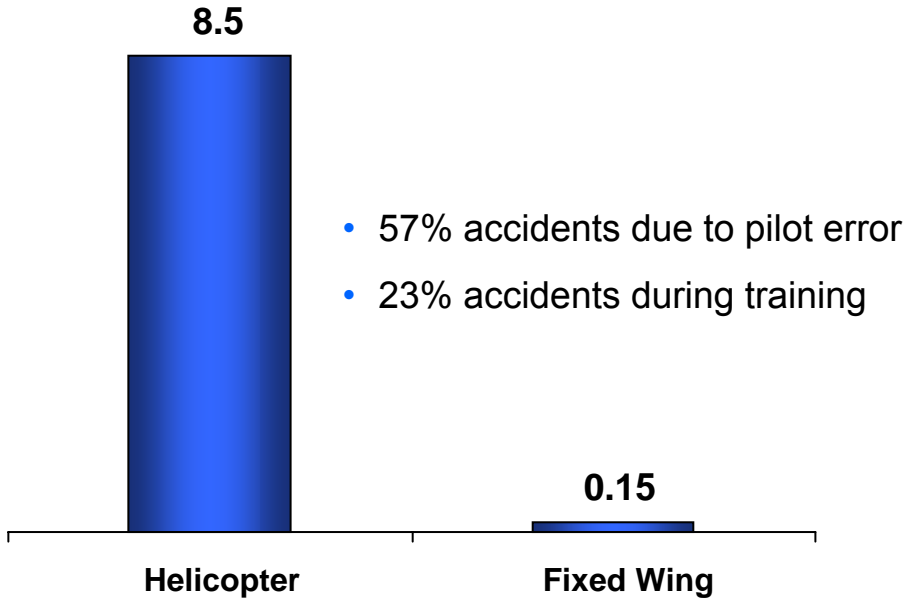
CAE

one step ahead

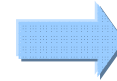
IHSS 30 Sept 2009

Strategic context – Helicopter Flight Safety

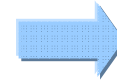
Accident Rates per 100,000 hours



Industry initiatives



International Helicopter Safety Team: Goal to reduce accidents by 80% by 2016



H-International Working Group: Redefining standards for helicopter synthetic training by 2010



Created incentive program of rebate to be applied toward approved recurrent training



Users require synthetic type and recurrent training for contracted helicopter operators

Unacceptable safety record is driving change

Adoption of simulation



Piston



Light Single



Light Twin



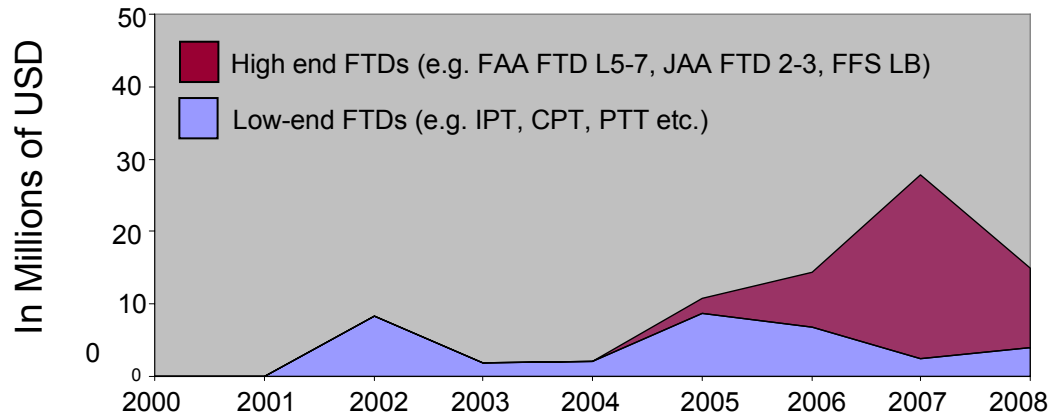
Medium



Heavy

# of Helos	>4,000	>12,000	~3,000	~2,000	~750
# of Level D FFS	0	0	2	16	14
# of High End FTDs	0	5	9	5	3

Very low usage of simulators in light segment due to cost but...



Voice of Customer:

- ❑ **Could be training much more in simulators**
- ❑ **Affordability is the biggest barrier**
- ❑ **Training needs to transition from task-based to mission-specific**

...there is increasing adoption of high end FTDs and...

...with right cost and capability, industry ready to shift more training onto simulators

CAE HAB - Voice of the Customer

- ▣ Need cost effective synthetic training:
 - ▶ Cutting edge visuals
 - ▶ Mission scenarios with intelligent players (using AI implant)
 - ▶ High fidelity weather simulation
 - ▶ Motion as an option
 - ▶ High quality vibration cueing
 - ▶ Recirculation effects over water, snow, and sand
 - ▶ High resolution databases

CAE Visual



Increased realism under all conditions

CAE Visual



3D scattered cloud model

CAE Visual



Storm front with rain effect

CAE Visual



Storm front with rain shaft



Recirculation Effects

Detailed “New York” Database Standard for EMS

- ❑ Fifteen mile radius database centered in the Manhattan area:
 - ▶ Five insets of airports with helipads:
 - ◆ Teterboro; JFK; La Guardia; Newark; and Linden
 - ▶ Three insets of heliports
 - ▶ Three high-resolution medical centers with landing pads
 - ▶ Accurate 3D representation of the Manhattan area.
 - ▶ Representative 3D models of bridges
 - ▶ Major landmarks
 - ▶ Features include rotor downwash and dynamic rotor tip path
 - ▶ Confined and elevated area landing sites
 - ▶ High-resolution area for EMS accident scenarios
 - ▶ 3D effects to enhance low level flight:
 - ◆ Modeled houses, trees, power lines
 - ◆ High obstruction models with appropriate navigation lights

Mission Training – EMS – OGP – Law Enforcement – Utility

- ❑ Visual system augmented by mission scenarios
 - ▶ Artificial implant (AI):
 - ◆ COTS software solution widely used in the gaming industry
- ❑ Dynamic scenarios :
 - ▶ People and vehicles behave relative to each other and the approaching helicopter
 - ▶ Behavior-based visual simulation exposes personnel to situations difficult or impossible to train for in real life
 - ▶ AI supports a variety of outcomes for the same environment.

These scenarios provide more realistic training versus pre-defined and scripted scenarios

Mission Training - EMS

- ❑ Configurable Scenarios:
 - ▶ Scenario populated with different levels of detail for more complex and challenging training sessions
 - ▶ Instructor adds or removes pre-defined 3D content from the scene in a real-time environment:
 - ◆ Eg - Accident scene 3D content, including trees, road signs, and wires may be added or deleted to provide the appropriate level of complexity
- ❑ Typical EMS scenes include one accident - reducing training benefit
- ❑ CAE solution allows every flight to be different - even when to the same area as on a previous sortie

Enhancing the realism and making every sortie unique

Mission Training - OGP

- ❑ 3D ocean with realistic wind effects
- ❑ Representative oil platforms – as found in operation
 - ▶ Includes realistic wind effects at the platform
 - ▶ Various oil field rigs represented
- ❑ Customized, detailed airports provided
- ❑ A.I. implant populates with lifeforms, simulating rig personnel and providing real-life environment



Thank you, Come visit us at our booth

