Pilot Training:
Departing From The Script
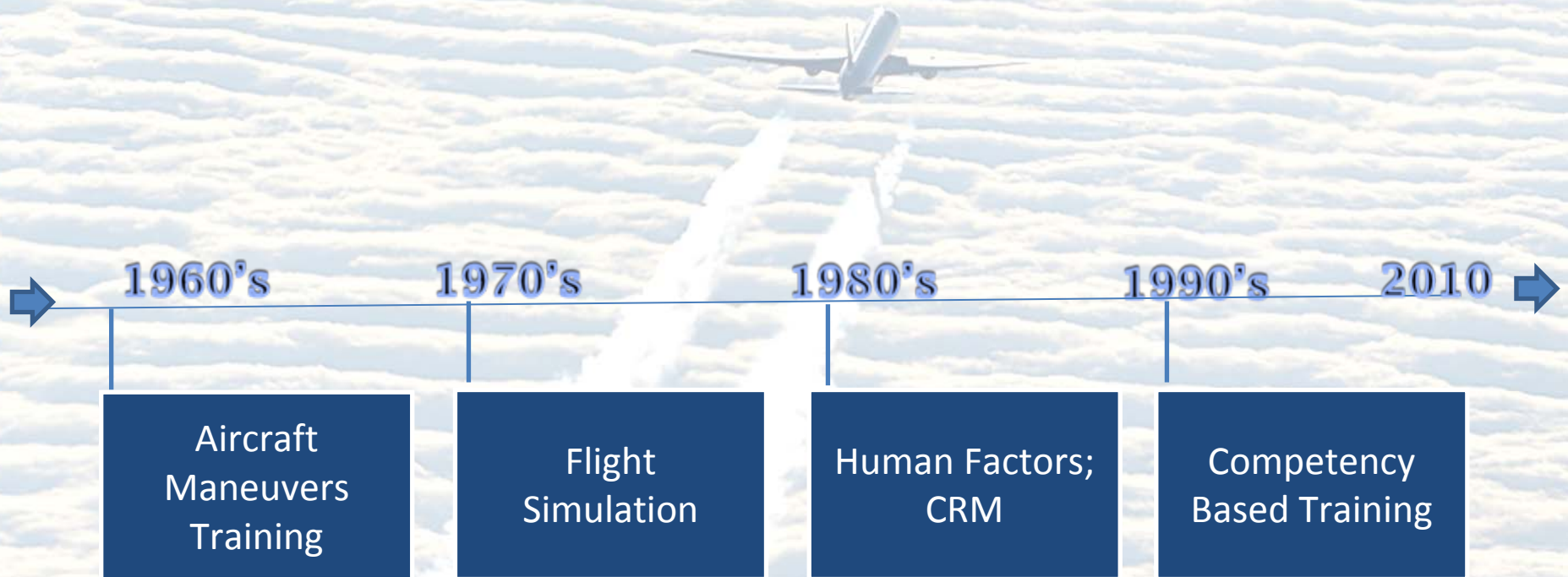
Captain Charles Hogeman
Air Line Pilots Association International

European Aviation Safety Agency
24 November 2009

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WHAT IS THE SCRIPT?

THE SCRIPT

1960's — 1970's — 1980's — 1990's — 2010

| Aircraft Maneuvers Training | Flight Simulation | Human Factors; CRM | Competency Based Training |

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AIRCRAFT MANEUVERS TRAINING

AIRCRAFT MANEUVERS TRAINING

- Actual aircraft training.

- Individual proficiency.

- Harmony between ATPL licensing requirements and airline training requirements.

- On-going need to consider the relevance of today's training maneuvers.

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TRANSFERENCE OF SKILLS ?

- Define maneuvers where there is high transference and the ability to apply learning.

- Application success is measured by ability during spontaneous events.

- Consider "Fluency" over "Proficiency" in training such as upset training.

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HANDLING "BLACK SWAN" EVENTS?

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FLIGHT SIMULATION

FLIGHT SIMULATION

- Improved maneuvers proficiency and systems knowledge.

- Allows for integrated CRM/TEM approach in simulator training.

- The use of LOFT as a training environment in 1980's.

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FLIGHT SIMULATION (CONT.)

- Line operational evaluation (LOE) in the simulator.

- Motion is necessary for an objective evaluation of performance.

- Motion is necessary for application of skills and behaviors.

- Need to examine the effects on new airline pilots.

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HUMAN FACTORS; CRM

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HUMAN FACTORS; CRM

- Since 1980; five generations of CRM.

- Presently, Threat and Error Management (TEM) is the defined environment.

- Now includes flight attendants, dispatchers, maintenance.

- Need to agree on central concepts and terms, but allow operators to tailor their CRM programs.

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APPLICATION OF CRM/TEM

- Must be able to convert theoretical markers and observable behaviors into practical cockpit tasks.

- A need to define specific skills that can be integrated into standard operating procedures (SOPS).

- Flight proficiency and crew technical performance are benchmarks for CRM/TEM competencies.

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AIRLINE SAFETY CULTURE

Reason's Swiss Cheese Model
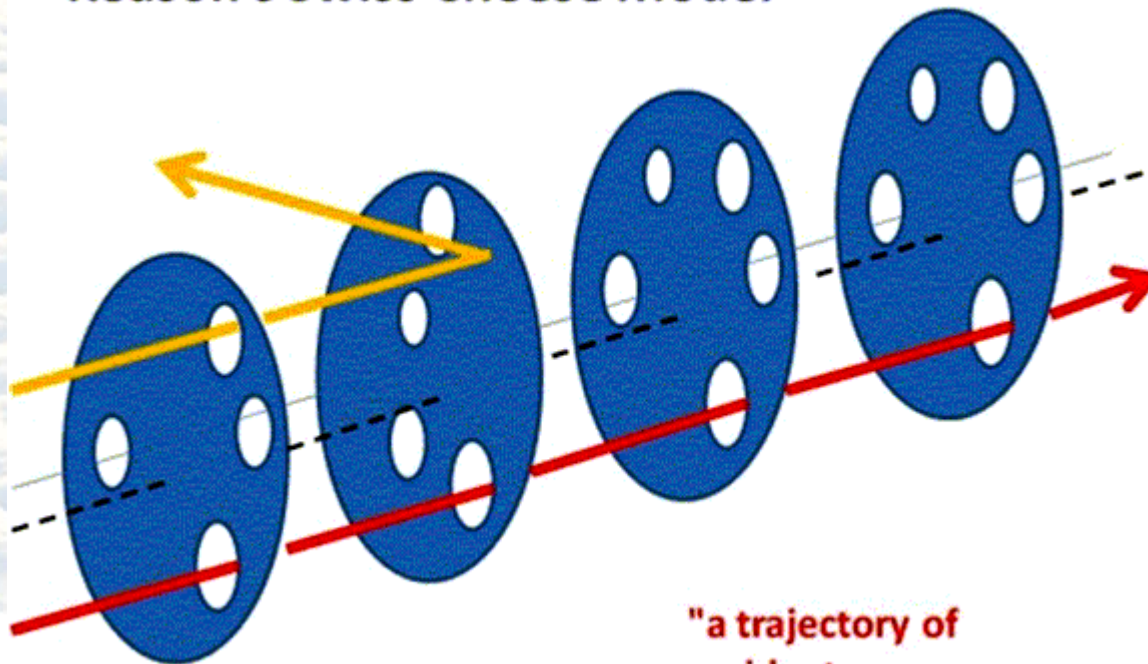
"a trajectory of accident opportunity"

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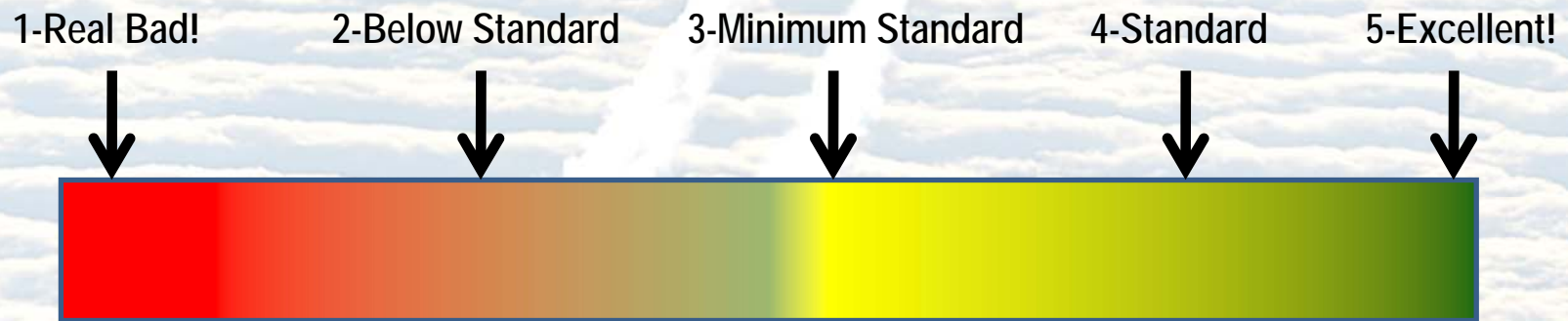# COMPETENCY BASED TRAINING

COMPETENCY BASED TRAINING

- 20 years of experience in AQP and recently ATQP (EU 1.978).

- Detailed job-task analysis and performance based approach.

- Instructional systems design.

- Involvement of Subject-Matter-Experts (SMEs).

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COMPETENCY BASED TRAINING (CONT.)

- Useful in establishing a "gold standard" for technical performance.

- A need for "calibrated" instructors and evaluators.

- Inter-rater Reliability and Rater Reliability methodologies.

- Data driven program.

- Sensitivity of grading scales.

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A SENSITIVE GRADING SCALE

1-Real Bad!   2-Below Standard   3-Minimum Standard   4-Standard   5-Excellent!

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COMPETENCY BASED TRAINING (CONT.)

- Can we ensure fidelity of data collection (complex grading systems)?

- Generalized information from de-identified LOSA, ASAP, and FOQA data.

- Can we apply lessons from AQP/ATQP to MPL or other new training initiatives?

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TRAINING LOW EXPERIENCE PILOTS

DEFINITION:

"A low experience pilot is one learning in **two** or more **new** environments simultaneously."

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TRAINING LOW EXPERIENCE PILOTS (CONT.)

- How do we apply lessons learned to a new generation of pilots?

- A need to "train experience."

- What does the learning curve look like out on the line?

- Safety concerns as simulator training is being consolidated during "expanded" line familiarization.

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WE CAN TRAIN

- Motor skills and technical systems knowledge.

- Application of crew management skills to achieve technical proficiency.

- Application of training over a wide-range of circumstances.

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WE *CAN'T* TRAIN

- Motivation for study and achievement.
- A strong desire for self-improvement.
- A sense of personal responsibility.
- A commitment to the airline pilot profession.

These must reside within the candidate and be nurtured by a robust airline safety culture.

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BEFORE WE DEPART FROM THE SCRIPT...

- Let's strive to improve our present training process before we re-invent the wheel.

- Let's not confuse interesting concepts with viable regulatory change.

- Changes to regulations and standards must be based on well-vetted scientific evidence.

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BEFORE WE DEPART…(CONT.)

- Define terms of reference…a clear understanding of goals.

- Engage all stakeholders…disagreement can be GOOD when it eventually leads to consensus.

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- **Measure with a micrometer…**
- **Mark with chalk…**
- **Cut with an axe…**

"MEASURE TWICE….CUT ONCE."

OUR GOAL AS AN INDUSTRY

Within each aircraft, we install the best designed and most reliable safety feature …

….A WELL TRAINED FLIGHT CREW.

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THANK YOU