

Process and Technology to aid in the Implementation of EBT in the European Context

Speaker_

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CAE is a **high technology** company with a mission and vision focused on **safety, efficiency and readiness**



Our mission

To lead at the frontier of digital immersion with high-tech training and operational support solutions to make the world a safer place







Our vision

To be the worldwide partner of choice in defence and security, civil aviation and healthcare by revolutionizing our customers' training and critical operations with digitally immersive solutions to elevate safety, efficiency and readiness



Global reach = Global data



-  Corporate head office
-  Civil Aviation Training Solutions
-  Defence & Security
-  Healthcare

160+
locations

35+
countries

10,000+
employees



Presentation is about EBT: what is E, 'evidence'?



Evidence is processed data...

- Corporate head office
- Civil Aviation Training Solutions
- Defence & Security
- Healthcare

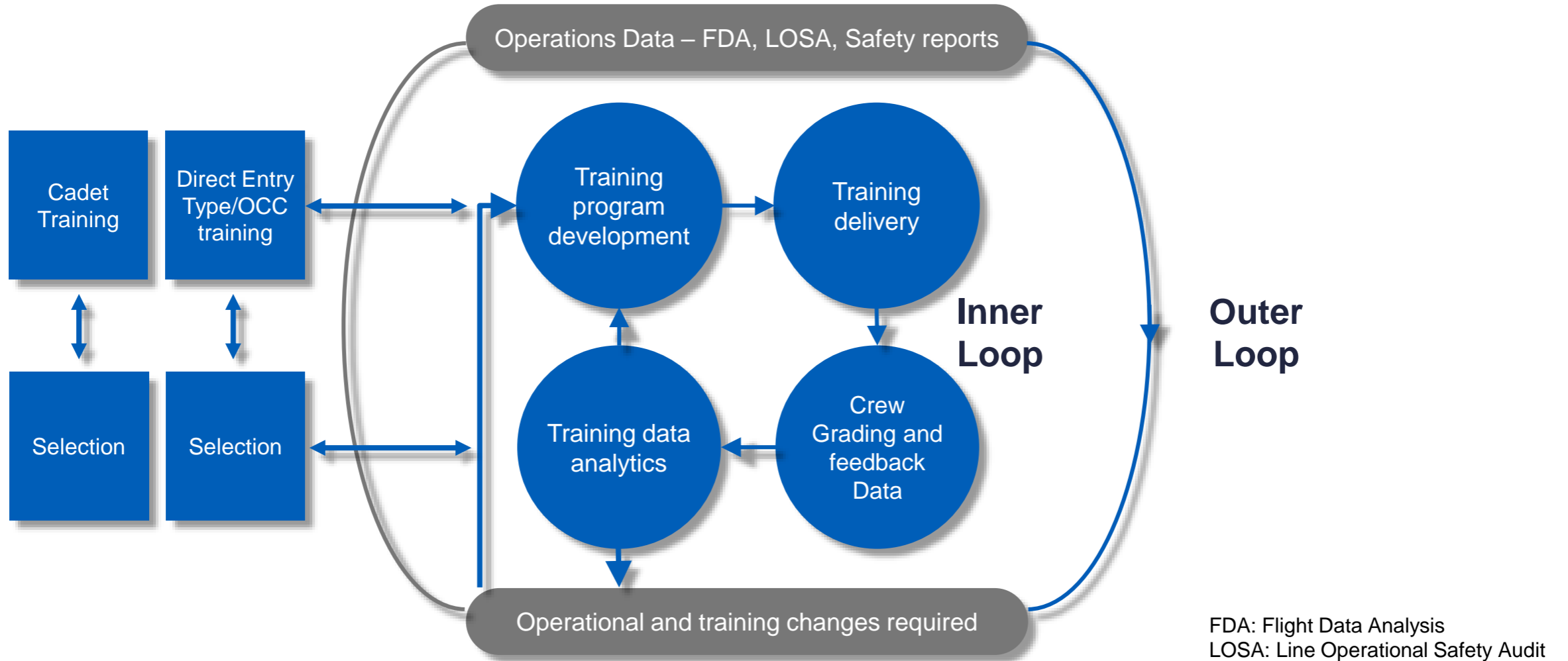
160+
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Measuring training effectiveness



'Safety + Efficiency' measurement and improvement needs a Total Systems Approach

How do we gather data?



Electronic Lesson Plan and E-Grading

Metrics Based Insights

Training Data Analytics



Powerful data gathering tools

Sources of crew performance data

Data Source → Data Characteristic ↓	FDA* 	LOSA** 	ASR*** 	Instructor Reports 	Simulator Telemetry 
What Triggers Analysis?	Usually Abnormal Event	All Line activity	Usually Abnormal Event	All Training activity	Targeted Training Event
What happened?	✓	✓	✓	✓	✓
Why it happened?		✓	✓	✓	
Captures “Positive” Crew behaviour?		✓		✓	
Captures “Natural” Crew behaviour?	✓	✓			
Sample Frequency	Continuous	Periodic or Continuous	Continuous	Continuous	Continuous



* Flight Data Analysis
 ** Line Operational Safety Audit
 *** Air Safety Reports

Each is a useful data source and provides a complementary perspective

CUSTOMISATION OF THE EBT PROGRAMME (SYLLABI)

70%



Type/Generation of Aircraft

Regs. / task analysis / EBT data report

- Operational environment
- Safety investigations
- Air Safety Reports
- FDA
- LOSA
- Crew surveys
- Academic and industry literature
- In-house research

20%



Generation of Pilots

Demographic learning patterns

- Experience on type
- Experience in seat
- Experience in total

10%



Individual Pilots

Pilot learning history

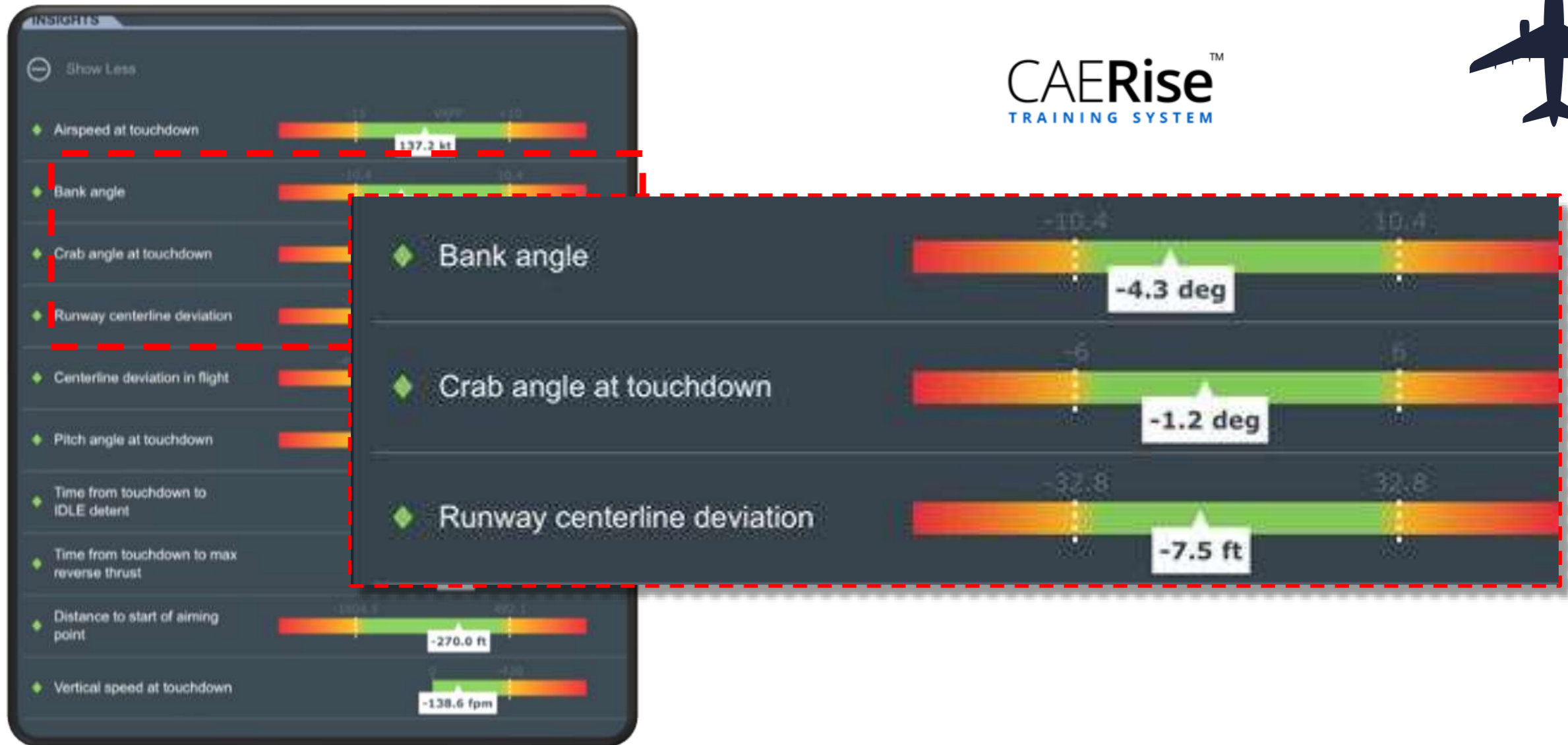
But sometimes data shows us things we weren't looking for

It is now possible to use data analytics and AI to refine the design of training programs

Metrics based insights – One Engine ILS Approach



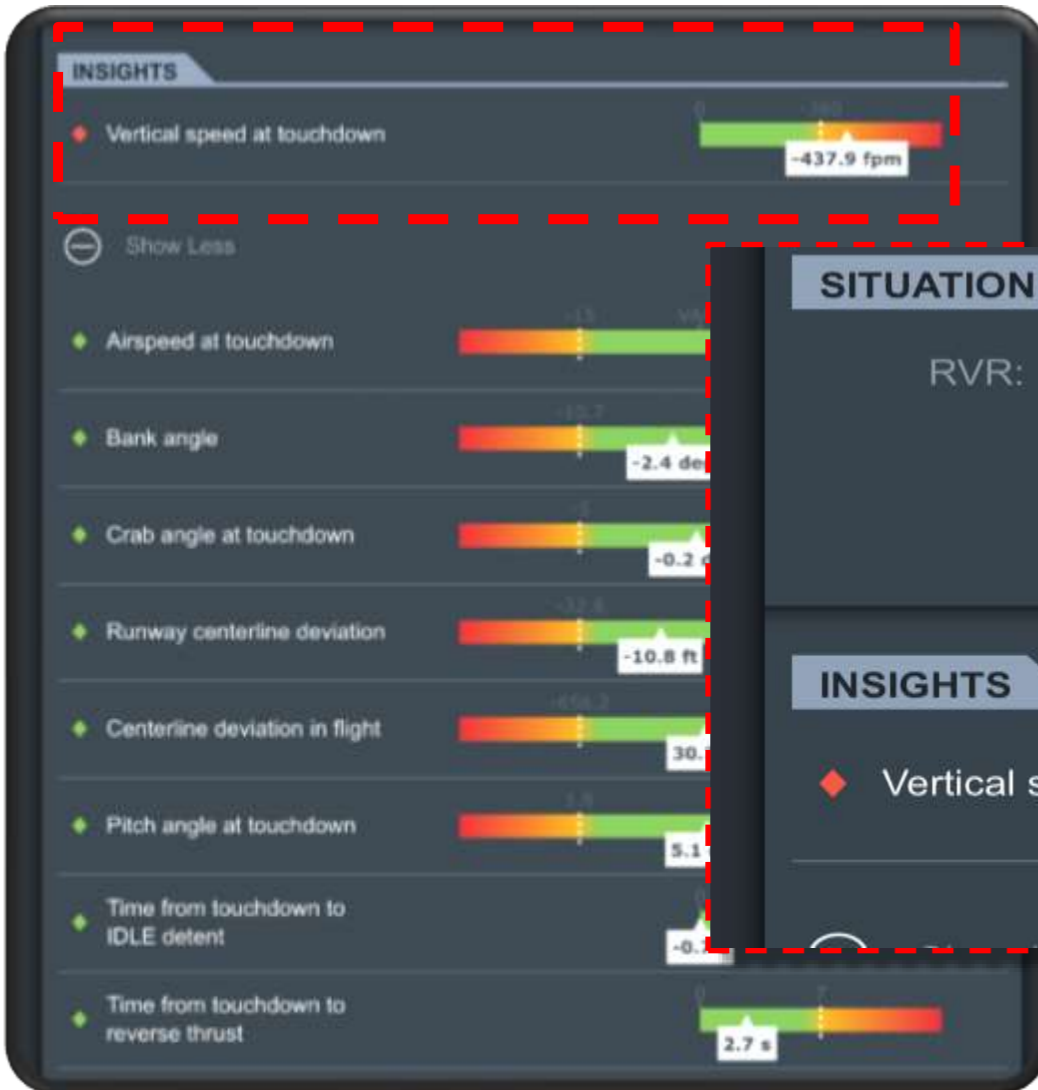
CAERise™
TRAINING SYSTEM



Real time in the sim to instructor

Metrics Based insights – landing

CAERise™
TRAINING SYSTEM



SITUATION

RVR: 3045 m

Tailwind: 0 kt

Crosswind:

Weight: 411410 lb

OEI: No

INSIGHTS

Vertical speed at touchdown



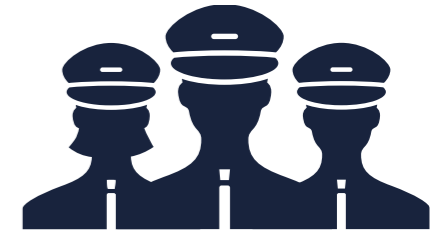
Flagged hard landing – did they notice?

Training analytics – EBT dashboards

Instructor Reports



Recurrent Simulator Overall Grade

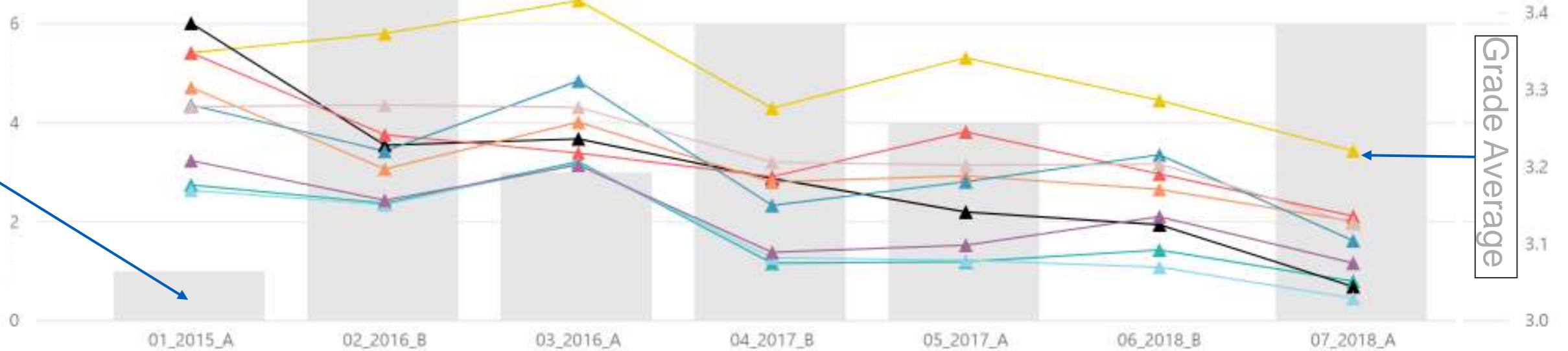


Competency Analysis

Competency AVERAGES by Semester, Qtr.Yr., Type, Position and Lesson (drill to cycle through filters)

Competencies: ● Additional Training Required ▲ APK ▲ COM ▲ FPA ▲ FPM ▲ KNO ▲ LTW ▲ PSD ▲ SAW ▲ WLM

Additional Training Required %



6 month training cycle

How are all my pilots performing over time? What about my instructors?

Training analytics – EBT dashboards

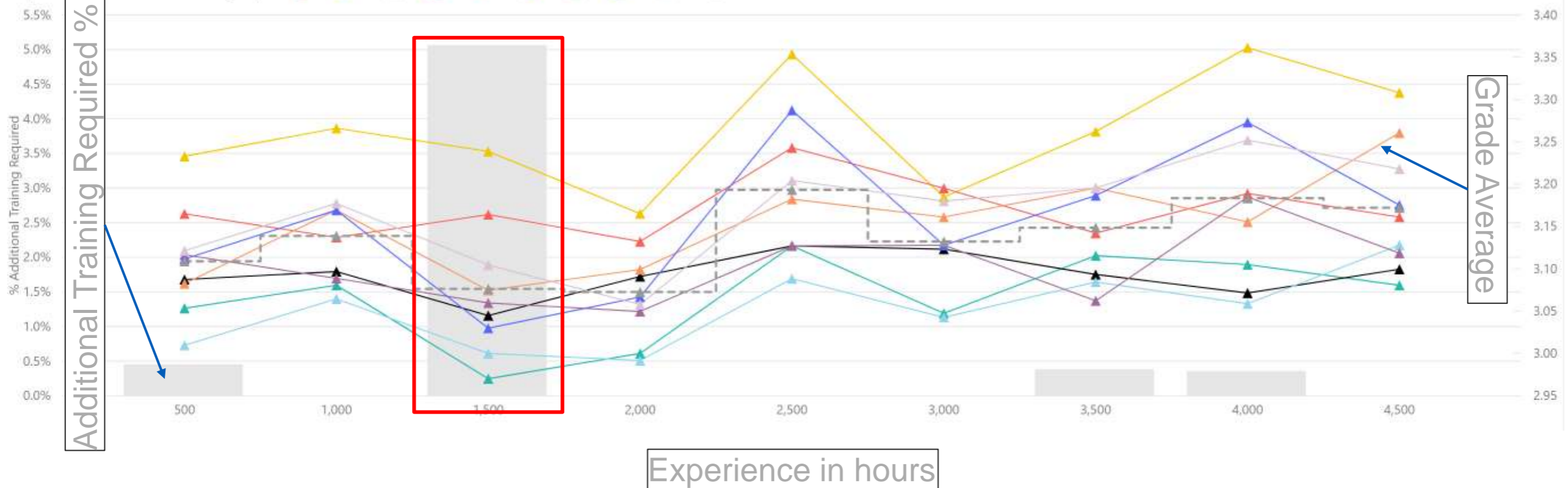
Instructor Reports



Competency AVERAGES by Total Flying Hours

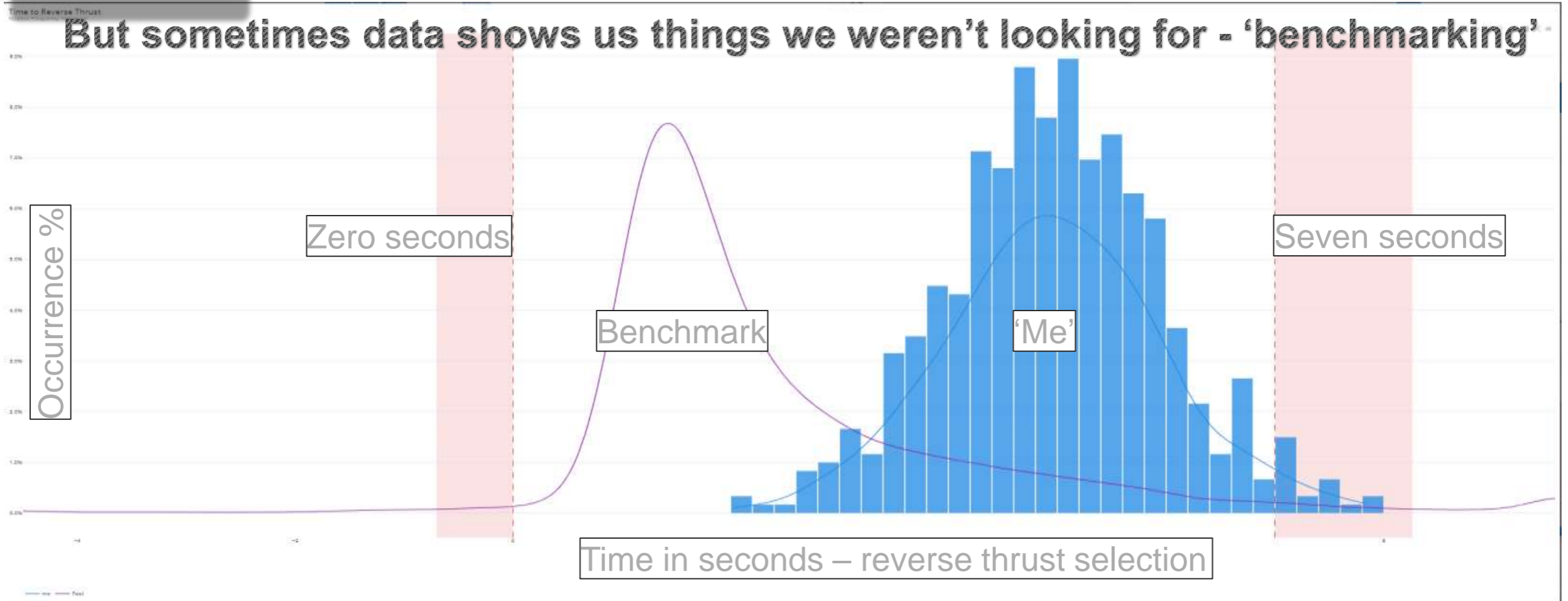
Competencies: % Additional Training Required ▲ APK ▲ COM ▲ FPA ▲ FPM ▲ KNO ▲ LTW ▲ PSD ▲ SAW ▲ WLM ▲ ALL

Recurrent Simulator Overall Grade - By Experience



How are my pilots performing as they gain more experience?

CAE Rise - Data Analytics



What does data like this tell us about the instructor? Good Grade?

Verifying the accuracy of instructor grades

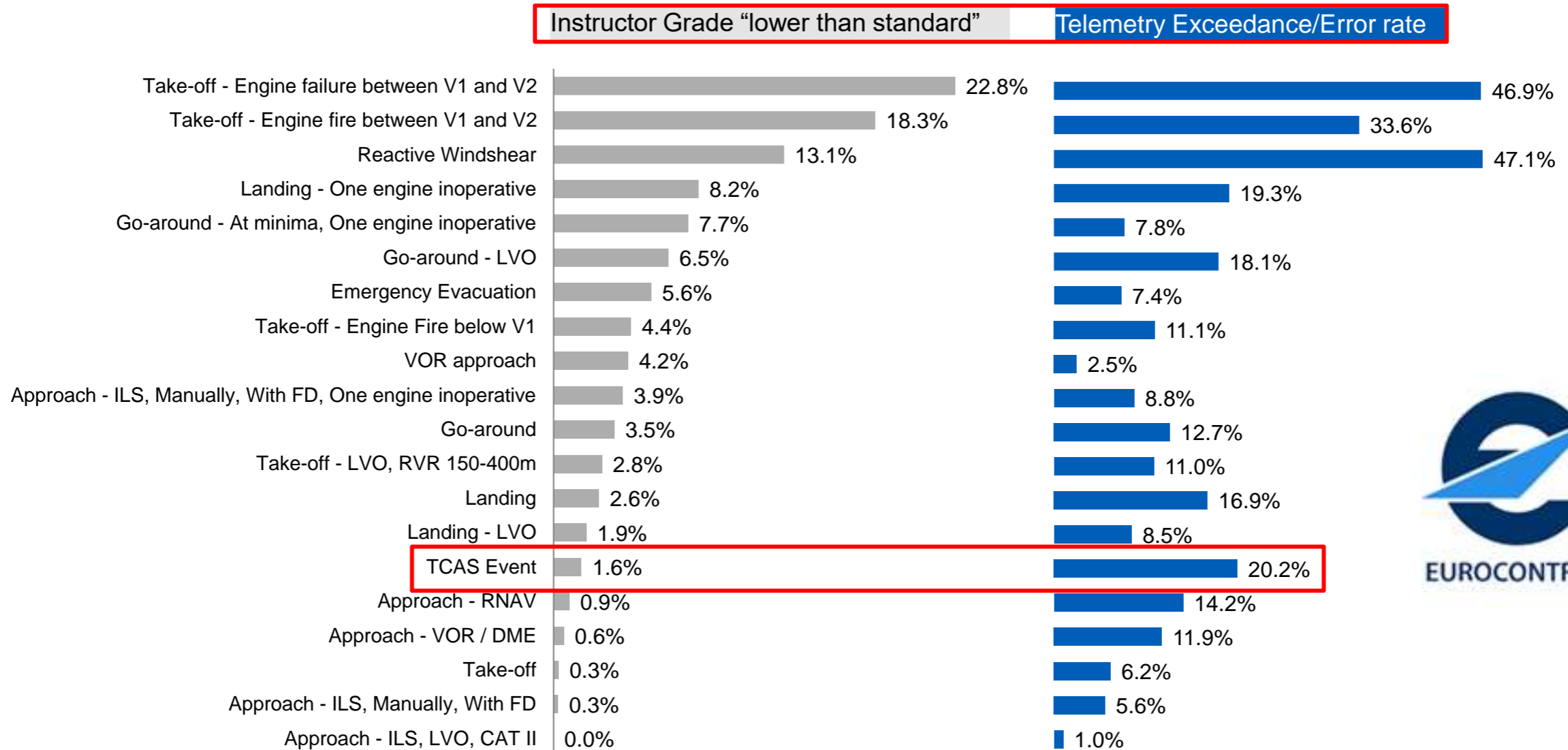
AMC1 ORO.FC.231(a)(1) Evidence-based training - EXPERIENCE IN MIXED EBT TO SUBSTITUTE ORO.FC.230

...The operator should demonstrate that there is a **verification of the grading system** and feedback is provided to the training system performance and to the instructor standardisation concordance assurance.

However all training data inputs to training design are only valid if we are confident the Instructor or Evaluator grading data is accurate.

Concordance agreement between instructors may be high; however, the whole community of instructors may be grading too low or too high (accuracy).

Evaluator grades vs exceedance/error rates



Comparison from independent sources can provide increased confidence of grading data quality.

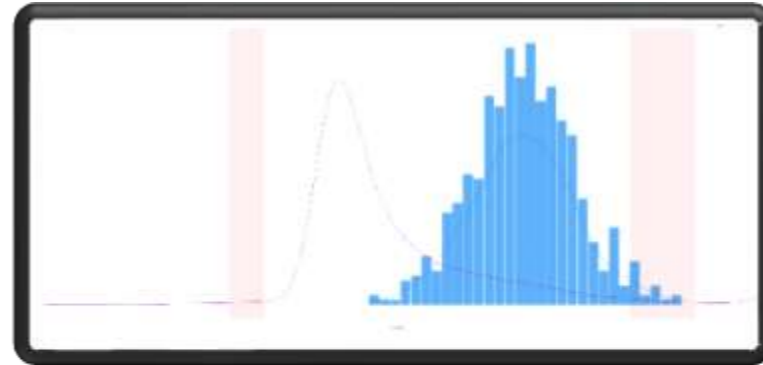
Conclusion

Q What do we do with the data? We want to keep it and look for patterns

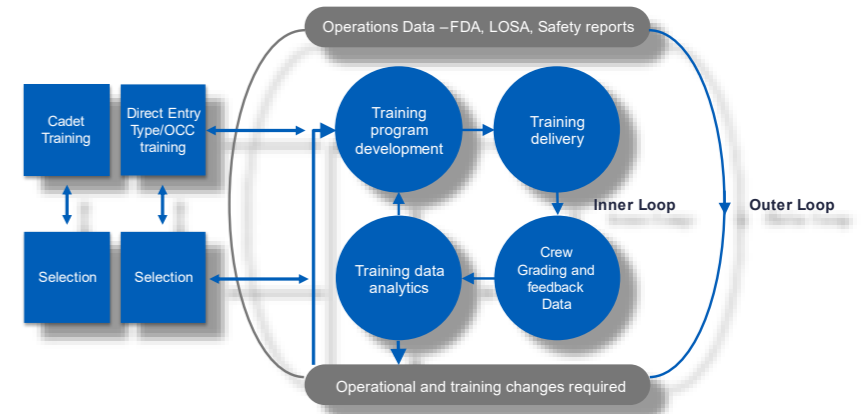
Q But what about the individual and their patterns, keep identified data?

Q Instructor data?

Q Should it be like FDM?



Intern



Regulations??

Conclusion



Come and talk to us ...



Thank You!

