

Airbus Services

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# The Power of Effective Data in Training

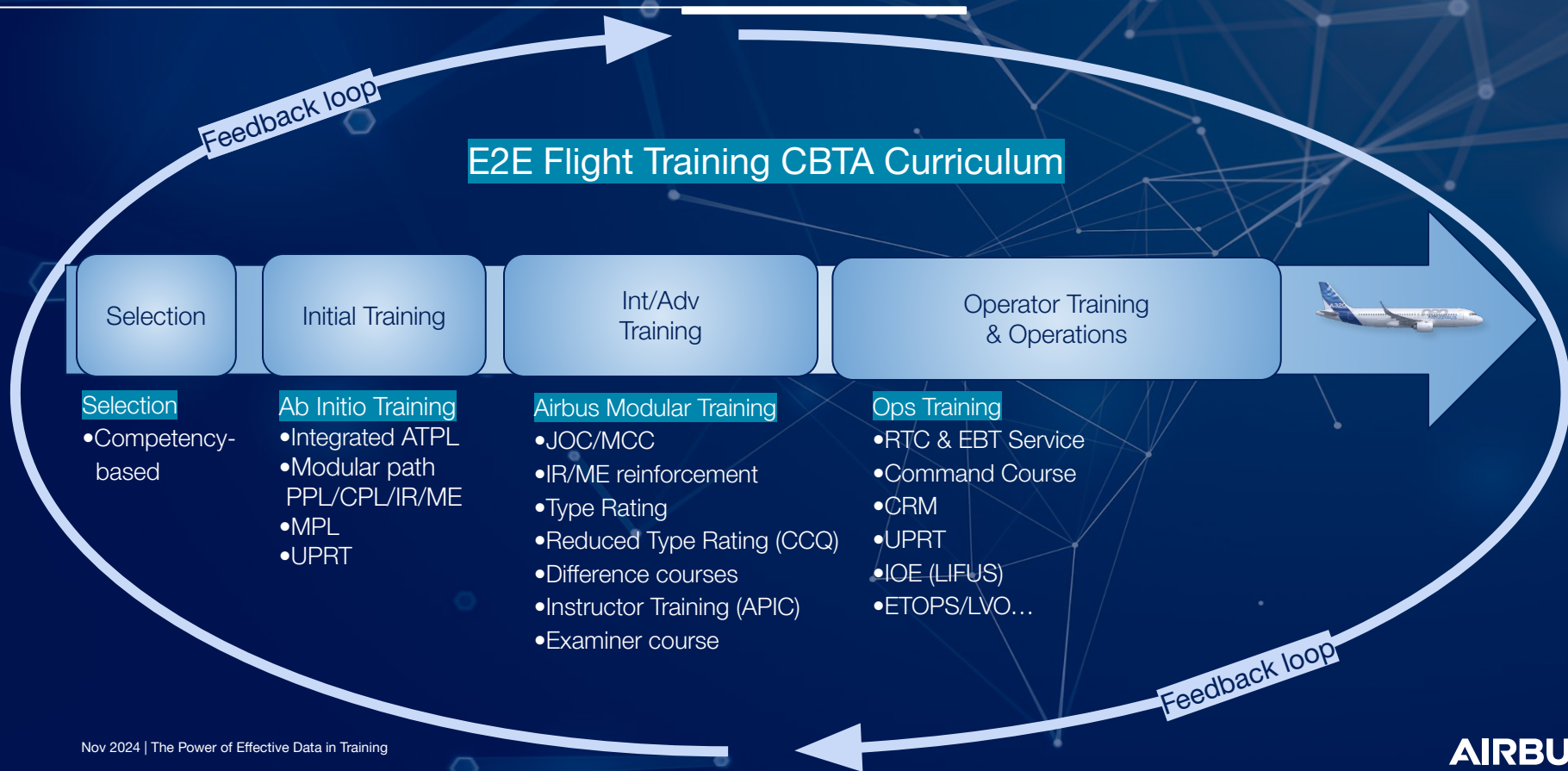


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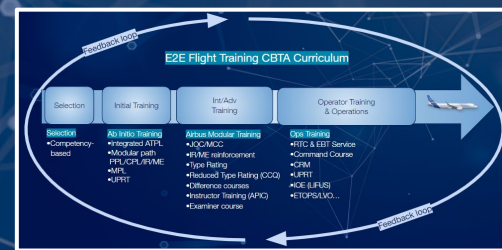
Captain Stéphan LABRUCHERIE | Airbus Head of Flight Training Worldwide  
Thomas BESSIERE | Hinfact CEO  
EATS Cascais, 7th November 2024

**AIRBUS**

# Airbus Total System Approach



# Pilot Competency Development



	Selection	Initial Training				Int/Adv Training							Operator Training & Operations				
	Selection	Integrated ATPL	Modular Path PPL/CPL/IR/ME	MPL	UPRT	Difference Courses	Examiner Course	Instructor Training (APIC)	IR/ME Reinforcement	JOC/MCC	Reduced Type Rating (CCQ)	Type Rating	Command Course	CRM	ETOPS/LVO	IOE (LUFUS)	RTC & EBT Service
COM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FPA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FPM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
KNO	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
LTW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PRO	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PSD	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SAW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
WLM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

# Extract from regulation on 'Metrics'

## AMC1 ORO.FC.231(c) Evidence-based training

ED Decision 2022/014/R

### TRAINING SYSTEM PERFORMANCE — FEEDBACK PROCESS

- (a) Feedback process is the continuous process of collecting and analysing assessment and training data from an EBT programme.
- (b) The feedback process should use defined metrics to collect data in order to:
  - (1) identify trends and ensure corrective action where necessary;
  - (2) identify collective training needs;
  - (3) review, adjust and continuously improve the training programme;
  - (4) further develop the training system; and
  - (5) standardise the instructors (when the standardisation and concordance assurance programme is integrated into the training system performance).
- (c) The following defined metrics should be collected as a minimum:
  - (1) level 0 grading metrics (competent metrics): data metrics providing the information



*Easy Access Rules for Air Operations*

*ANNEX III (Part-ORO)*

*SUBPART FC: FLIGHT CREW*

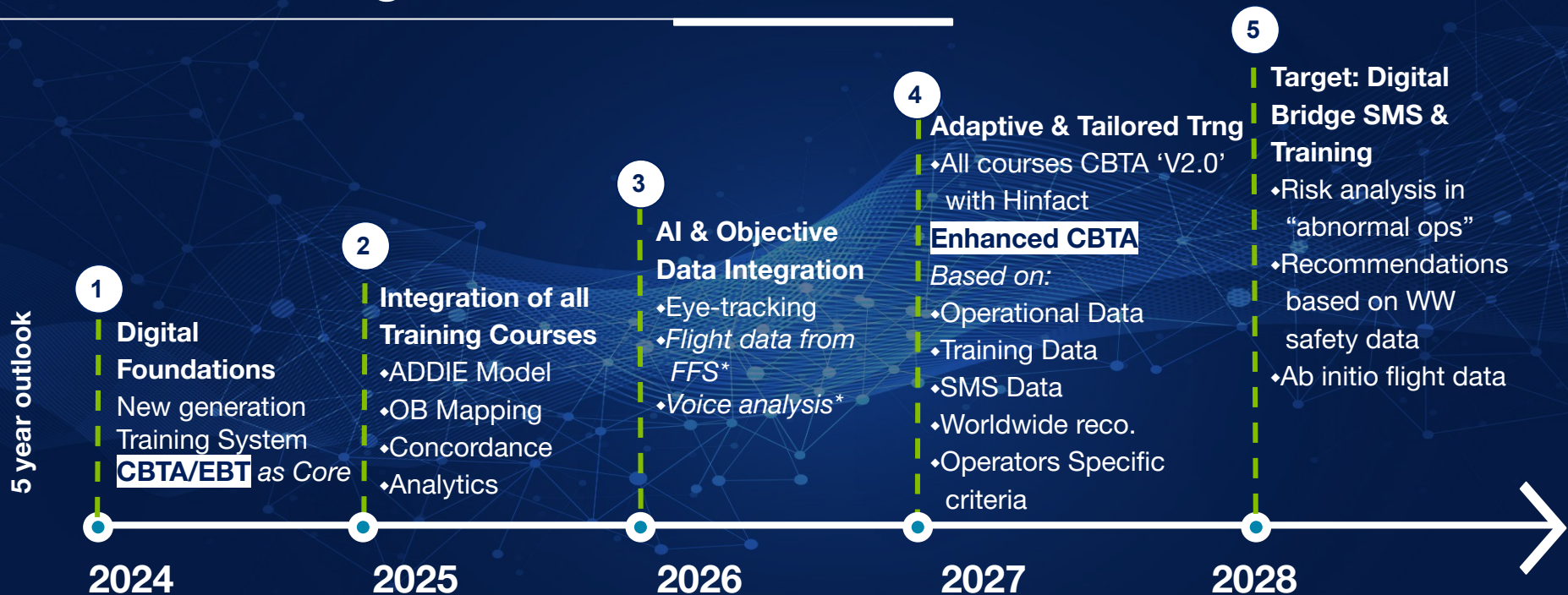
- (3) level 2 grading metrics (observable behaviour metrics): the instructors record predetermined OBs during the session;
- (4) level 3 grading metrics (other metrics): the instructors may record other data (e.g. abstract, specific tasks, actions, questions, etc.).
- (d) Alternatively, where a system for the measurement of training system performance already exists, the operator may use it and, if necessary, adapt it to meet the demands of EBT.

# Grading Metrics





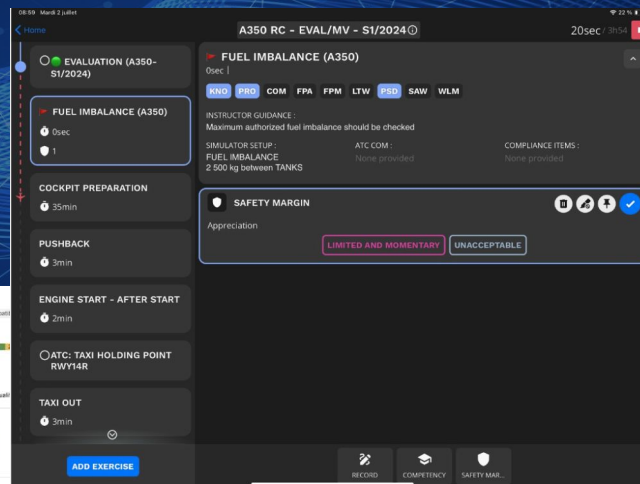
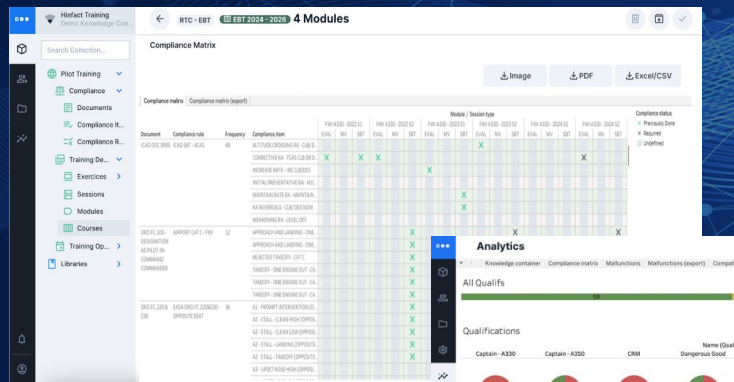
# Airbus Training & Data Milestones



\*Under study

# New Generation Training Management System

All-in-one, Data Driven, Instructor-Centric, Integrated, Highly Customizable



Ab initio

Type rating

Command

Recurrent

Instructors

Line checks

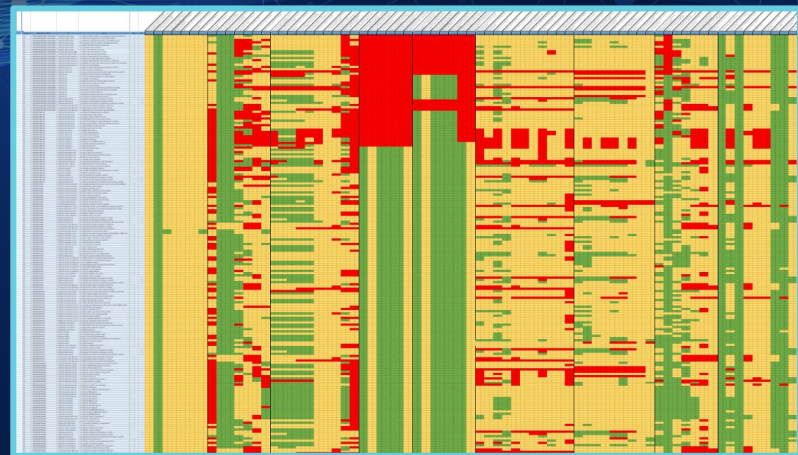
# Integration of Metrics in all courses

## TRAINING PLAN & ASSESSMENT PLAN DATA

## TRAINING EVENT DATA

[illegible]

# TRAINING EVENT - OB MAPPING





# Integration of Metrics in all courses

TRAINING PLAN &  
ASSESSMENT PLAN  
DATA

CBTA - TRAINING PLAN & ASSESSMENT PLAN																														
Competency Development	Train & Assess	MILESTONE 1											RESULT	MILESTONE 2				MILESTONE 3				MILESTONE 4				LICENSING EVALUATION				
		MODULE TR					MODULE OCC							MODULE				MODULE				MODULE				FORMAL SUMMATIVE ASSESSMENT				
		EXAMINATION												FORMATIVE ASSESSMENT TE				SUMMATIVE ASSESSMENT				FORMATIVE ASSESSMENT TE				SUMMATIVE ASSESSMENT				
		TE 1.1	TE 1.2	TE 1.3	TE 1.4	TE 1.5	TE 1.6	TE 1.7	TE 1.8	TE 1.9	TE 1.10	TE 1.11		TE 2.1	TE 2.2	TE 2.3	TE 3.1	TE 3.2	TE 3.3	TE 3.4	TE 3.5	TE 4.1	TE 4.2	TE 4.3	TE 4.4	TE 4.5	TE 4.6	TE 4.7	TE 4.8	
		COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM		COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM	COM WLM
Train & Assess with Special Emphasis																														
	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO	KNO		
Minimum Level of Performance		80%	80%	80%	N/A	N/A	N/A	80%	N/A	80%	N/A	80%	N/A	80%	N/A	80%	N/A	80%	N/A	80%	N/A	80%	N/A	80%	N/A	80%	N/A	80%		
Conditions	Function	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	Training Platform	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	Maximum Level of Complexity	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	Operational Context	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	Environmental Context	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Expected Level of Instructor support		Low	N/A	Medium	Medium	Low	N/A	Medium	Medium	Medium	Medium	Medium	Medium	Medium	None	Medium	Low	Low	None	Medium	Medium	Low	Low	None	Medium	Medium	Medium	None		



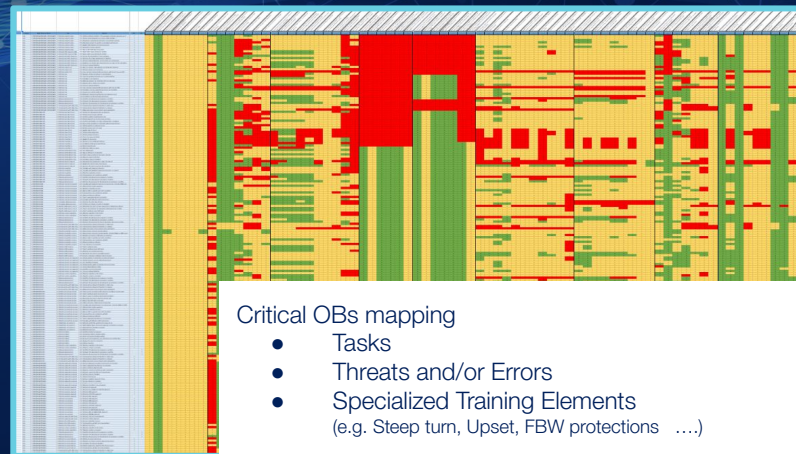
TRAINING EVENT DATA

Competency Development	Train & Assess	COM WLM	3. PERFORM TAKE-OFF	4. PERFORM CLIMB	5. PERFORM CRUISE	6. PERFORM DESCENT	7. PERFORM APPROACH	8. PERFORM LANDING	9. PERFORM AFTER LANDING AND POST-FLIGHT OPERATIONS
Conditions	Train & Assess with Special Emphasis	PRO	Request	Request	Request	Request	Request	Request	Request
LEGEND	Function	Training Platform	Maximum Level of Complexity	Operational Context	Environmental Context	Expected Level of Instructor support	Expected Level of Instructor support	Expected Level of Instructor support	Expected Level of Instructor support
LEGEND	Function	Training Platform	Maximum Level of Complexity	Operational Context	Environmental Context	Expected Level of Instructor support	Expected Level of Instructor support	Expected Level of Instructor support	Expected Level of Instructor support
LEGEND	Function	Training Platform	Maximum Level of Complexity	Operational Context	Environmental Context	Expected Level of Instructor support	Expected Level of Instructor support	Expected Level of Instructor support	Expected Level of Instructor support

## Level of Performance & Conditions

- Competency with Special Emphasis & Critical OBs
- Level of context complexity
- Relevant Flight Phases
- Level of Training Device
- Level of Instructor Support

TRAINING EVENT  
- OB MAPPING



## 2

# Integration of Metrics in all courses

			Monitors and assesses the state of the aeroplane and its systems	Monitors and assesses the aeroplane's energy state, and its anticipated flight path	Monitors and assesses the general environment as it may affect the operation	Validates the accuracy of information and checks for gross errors	Maintains awareness of the people involved in or affected by the operation and their capacity to perform as expected	Develops effective contingency plans based upon potential risks associated with threats and errors	Responds to indications of reduced situation awareness
Flight Phase	Task	Subtask	SAW 7.1	SAW 7.2	SAW 7.3	SAW 7.4	SAW 7.5	SAW 7.6	SAW 7.7
3. PERFORM TAKE-OFF	3.1 Perform pre-take-off and pre-departure preparation	3.1.2 Checks correct runway selection	I	I	R	I	C	C	C

*I= Irrelevant, the OB is not supposed to be demonstrated*

*R= Relevant, the OB demonstration is required*

*C=Conditional, the OB demonstration depends on the context*

## 3

# Integration of **AI** and Objective Data

## Instructor Observations

Flight Data  
(Simulator)

Sensors Data  
(Eye-tracking, voice)

Expertise  
(OEMs or Experts)

### LEVEL 3

*Other metrics*

Pilot calculated the landing distance

✦ **Speed not Checked Before V1**

Failure to verify systems in critical phase

✦ **Lack of visual scanning after go-around**

Unplanned throttle variations

Steps omitted in the checklist

•  
•  
•

### LEVEL 2

*Observable Behavior metrics*

8.1 Exercises self-control in all situations

8.4 Offers and gives assistance

8.5 Delegates tasks

8.5 Delegates tasks

•  
•

*Missing required OB **detected***

**7.1 Monitors and assesses the state of the aeroplane and its systems**

### LEVEL 1

*Competency metrics*

1

2

3

4

5

COM

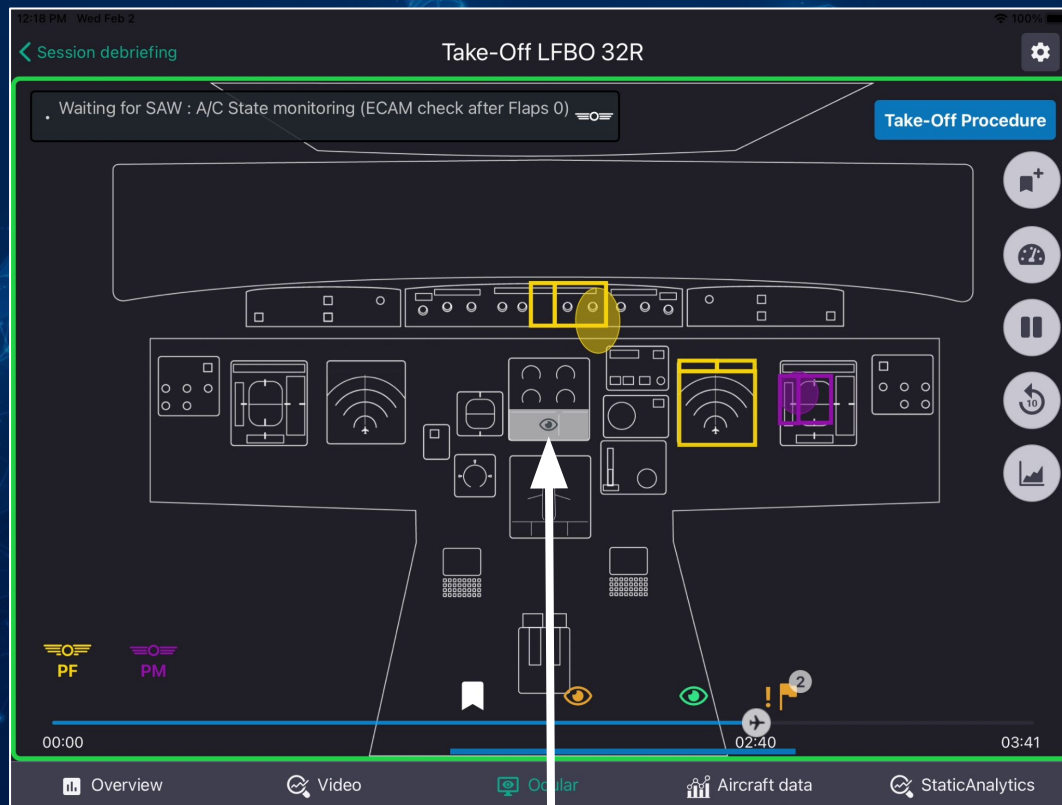
KNO

**SAW** ✦

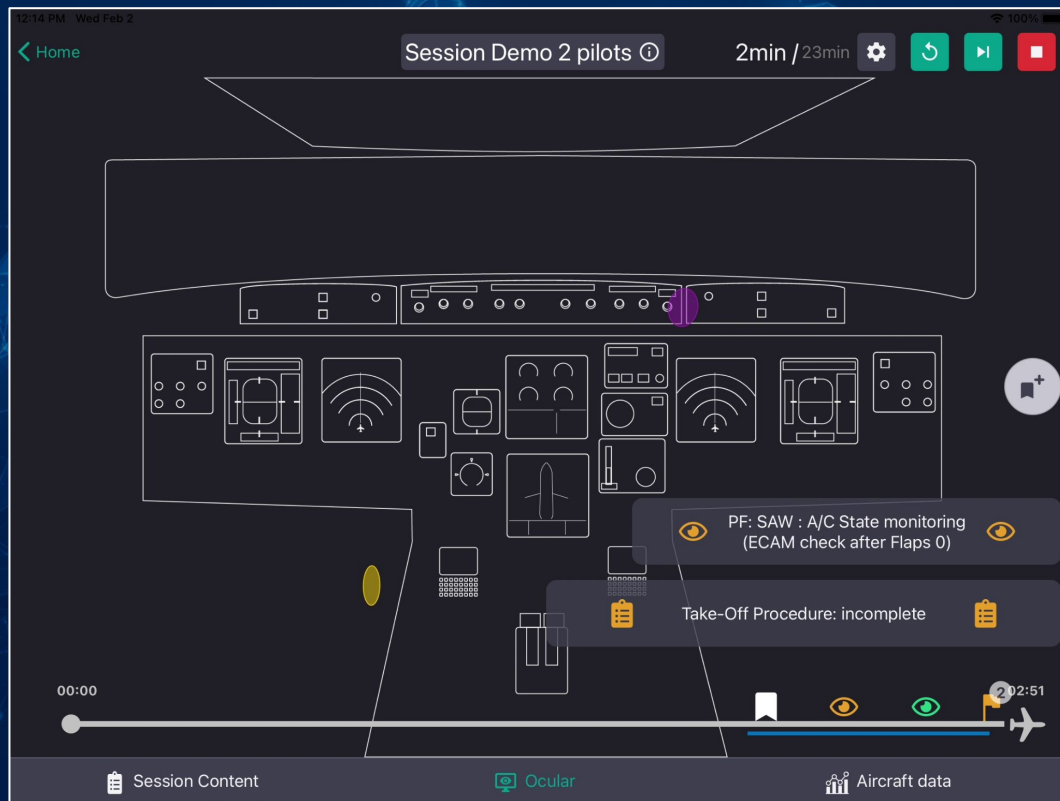
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FOCAL TARGET

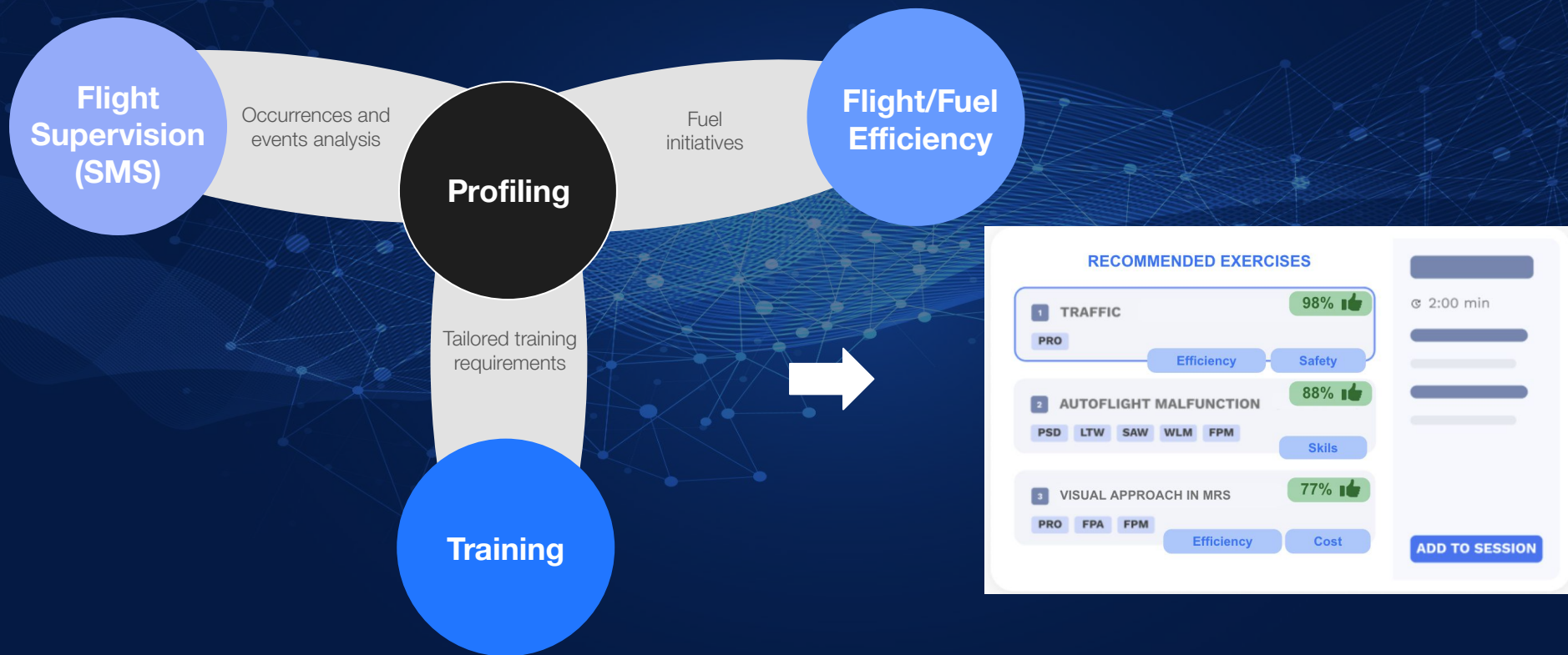


The screenshot displays the HINFACT training interface during a "Session Demo 2 pilots" session. The top status bar shows the time as 12:15 PM on Wednesday, February 2, and the session duration as 3min / 23min. The interface is divided into several sections:

- Left Sidebar:** Contains a list of exercises with their durations and status (HUD, AP, LIVE).
  - TAKE-OFF LFBO 32R:** 3min / 10min, status: HUD, AP, LIVE.
  - DOWNWIND:** 5min, status: HUD, AP.
  - INITIAL APPROACH 32R:** 5min, status: HUD, AP.
  - APPROACH 32R:** 8min, status: HUD, AP.
  - GO-AROUND:** 3min, status: HUD, AP.
- Main Content Area:**
  - Task List:** A horizontal bar at the top of the main area shows the current task "TAKE-OFF LFBO 32R" and a list of sub-tasks: KNO, PRO, COM, FPA, FPM, LTW, PSD, SAW, WLM. The "SAW" sub-task is highlighted.
  - Task Detail View:** A modal window titled "SAW : A/C STATE..." is open, showing the "Who?" field with "PF CM1" and "PM CM2" options. Below this, the "SAW" sub-task is selected, and the "Appreciation" section shows three buttons: "UNSATISFACTORY" (highlighted in orange), "PARTIALLY SATISFACTORY" (highlighted in yellow), and "SATISFACTORY" (highlighted in green). The "Observable behaviors" section lists seven items: 7.1 A/C STATE, 7.2 ENERGY STATE, 7.3 ENVIRONMENT, 7.4 CHECK INFORMATION ACCURACY, 7.5 MAINTAINS OTHERS AWARENESS, 7.6 CONTINGENCY PLANS WITH TEM, and 7.7 RESPONDS TO REDUCED SAW.
  - Bottom Section:** A card titled "TAKE-OFF PROCEDURE: INCOMPLETE" shows the status "Take-Off Procedure: incomplete".
- Right Sidebar:** Contains three icons: a pencil for "OBSERVATIONS", a graduation cap for "COMP. OBS", and a bookmark for "BOOKMARK".
- Bottom Navigation Bar:** Includes three icons: a document for "Session Content", a camera for "Ocular", and a bar chart for "Aircraft data".

5

# Target: Bridge between SMS and Training





# Meet the Instructor: Arthur Intel

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Restricted visibility...



# Meet the Instructor: Arthur Intel

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Restricted visibility...

## **HISTORICAL DATA**

Data from previous  
sessions



# Meet the Instructor: Arthur Intel

Restricted visibility...

1

## **DIGITAL FOUNDATIONS**

New gen training system  
CBTA/EBT methodology as  
Core

## **HISTORICAL DATA**

Data from previous  
sessions



# Meet the Instructor: Arthur Intel

Less restricted visibility...

1

## DIGITAL FOUNDATIONS

New gen training system  
CBTA/EBT methodology as  
Core

## HISTORICAL DATA

Data from previous  
sessions

2

## E2E TRNG COURSES

ADDIE Model  
OB Mapping  
Concordance  
Analytics





# Meet the Instructor: Arthur Intel

Less restricted visibility...

1

## DIGITAL FOUNDATIONS

New gen training system  
CBTA/EBT methodology as  
Core

## HISTORICAL DATA

Data from previous  
sessions

2

## E2E TRNG COURSES

ADDIE Model  
OB Mapping  
Concordance  
Analytics

## INSTRUCTORS

Instructor Policy  
Concordance  
Mindset & acceptance  
Invest in instructor



# Meet the Instructor: Arthur Intel

Increased visibility

1

## DIGITAL FOUNDATIONS

New gen training system  
CBTA/EBT methodology as  
Core

## HISTORICAL DATA

Data from previous  
sessions

2

## E2E TRNG COURSES

ADDIE Model  
OB Mapping  
Concordance  
Analytics

## INSTRUCTORS

Instructor Policy  
Concordance  
Mindset & acceptance  
Invest in instructor

3

## AI & OBJECTIVE DATA INTEGRATION

Eye-tracking  
*Flight data*  
*Voice analysis*



# Meet the Instructor: Arthur Intel

Highly increased visibility...

1

## DIGITAL FOUNDATIONS

New gen training system  
CBTA/EBT methodology as  
Core

## HISTORICAL DATA

Data from previous  
sessions



2

## E2E TRNG COURSES

ADDIE Model  
OB Mapping  
Concordance  
Analytics

## INSTRUCTORS

Instructor Policy  
Concordance  
Mindset & acceptance  
Invest in instructor

## AI & OBJECTIVE DATA INTEGRATION

Eye-tracking  
*Flight data*  
*Voice analysis*

3

## ENHANCED CBTA

Operational Data  
Training & SMS Data  
Worldwide reco.  
Operators Specific criteria

4



# Meet the Instructor: Arthur Intel

Full 360° visibility

1

## DIGITAL FOUNDATIONS

New gen training system  
CBTA/EBT methodology as  
Core

## HISTORICAL DATA

Data from previous  
sessions

## AUTOMATIC

Realtime analysis + historical  
data: propose recommended  
exercises or e-learning based  
on individual & operational  
metrics

2

## E2E TRNG COURSES

ADDIE Model  
OB Mapping  
Concordance  
Analytics

## INSTRUCTORS

Instructor Policy  
Concordance  
Mindset & acceptance  
Invest in instructor

## AI & OBJECTIVE DATA INTEGRATION

Eye-tracking  
*Flight data*  
*Voice analysis*

3

## ENHANCED CBTA

Operational Data  
Training & SMS Data  
Worldwide reco.  
Operators Specific criteria

4





# Total System 360° Approach

Full 360° visibility

1

## DIGITAL FOUNDATIONS

New gen training system  
CBTA/EBT methodology as  
Core

## HISTORICAL DATA

Data from previous  
sessions

## AI, ADAPTED & TAILORED TRAINING

based on historical data

## AUTOMATIC

Realtime analysis + historical  
data: propose recommended  
exercises or e-learning based  
on individual & operational  
metrics

2

## E2E TRNG COURSES

ADDIE Model  
OB Mapping  
Concordance  
Analytics



**360° VIEW**  
**CAPTURE THE INVISIBLE**  
**EXTENSIVE TRAINING & SAFETY**  
**IMPACT**

## INSTRUCTORS

Instructor Policy  
Concordance  
Mindset & acceptance  
Invest in instructor

## AI & OBJECTIVE DATA INTEGRATION

Eye-tracking  
*Flight data*  
*Voice analysis*

3

## ENHANCED CBTA

Operational Data  
Training & SMS Data  
Worldwide reco.  
Operators Specific criteria

4

# Impact of Effective Data in Training

Thanks to the **effective use of data**, big changes are to come with some **impact...**

## Be prepared!



The **role of the Instructor** will change greatly



**Detect** the unexpected threats that progress and countermeasures can bring



Use the **right tools** to capture the right data, flight... SMS... data

1

TRAINING AND  
SAFETY ARE ONE





**HINFACT**

Thank you

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**AIRBUS**