

Integrating Safety & Training Data for EBT

Etihad Airways
Crew Training Department



Integration of Safety & Training Data

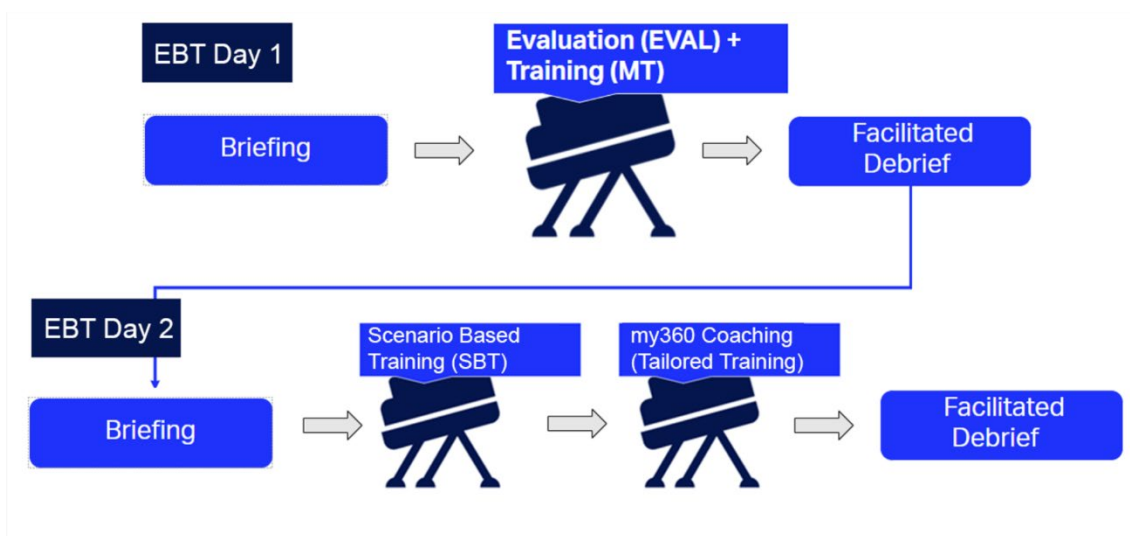
TRAINING IS #1 SAFETY INITIATIVE AT ANY ORGANIZATION

Data is essential to safely manage large, complex and/or dynamic organizations

EBT at Etihad Airways

Quick Facts

- Mixed EBT model along with a fully electronic grading system was first implemented in November 2015;
- 54,000+ EBT FFS sessions conducted throughout 13 EBT Semesters on 6 different fleets;
- In partnership with GCAA, Etihad received Baseline EBT approval in 2022;
- All TRE's fully standardized for the conduct of EBT Days 1 & 2 ;
- All Safety Investigators are fully trained on the use of the EBT Competency Matrix and Observable Behaviors for Safety Investigations.

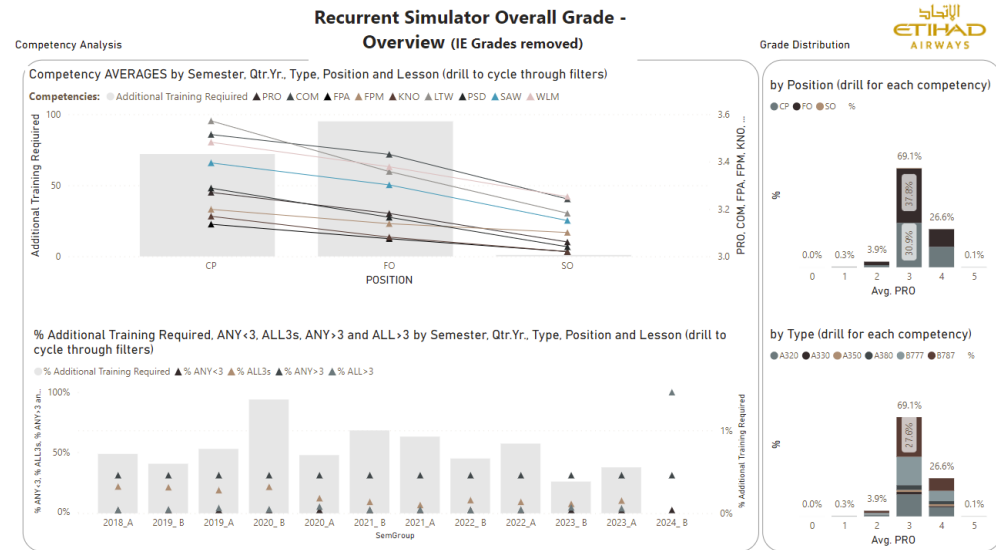


EBT Principles

- Competency-Based Training framework to train the Crew:
 - Anticipate 'Threats'
 - To handle 'unforeseeable events' by focusing on the underlying competencies and performance indicators, rather than on specific events;
 - For 'Resilience'
- Focused on specific training needs through data-driven insights and targeted interventions:
 - Industry data;
 - Airline data;
 - Individual data.




Data Driven Approach – Inner Loop



Requires accurate route cause analysis and reliability.

Training Performance Data Sources – Inner Loop



EBT Day 1

Evaluation

First look at competencies and observable behaviors in a line-oriented scenario.



EBT Day 2

Scenario Based Training

Demanding Scenario which requires to deal with complex situations under increased workload and demand resilience



Training Performance

- Scores utilized for failures, development programs and grading
- Previous EBT module records to see gaps in graded competencies

PRO	COM	FPA	FPM	KNO	LTW	PSD	SAW	WLM	AVE in session	OVERALL ASSESSMENT
3	3	3	3	3	3	3	3	3	3.0	COMPETENT
2	3	3	2	3	3	3	3	3	2.8	COMPETENT
3	2	3	3	3	2	3	2	3	2.7	COMPETENT
3	2	3	3	3	3	2	3	3	2.8	COMPETENT
1	3	3	3	2	3	3	2	3	2.6	Additional Training Required

Safety Events Data Source – Inner Loop

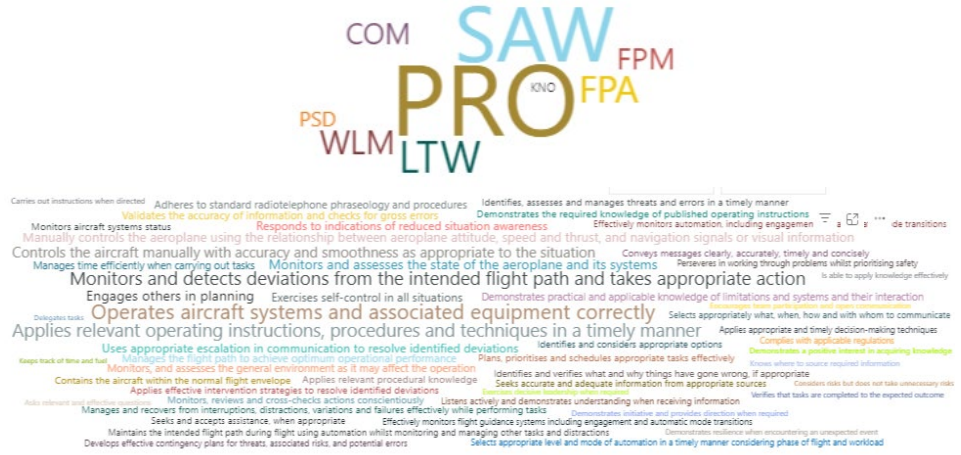


Flight Safety Events

FS Investigations

- All Flight Safety Investigators trained to assess observable behaviors that formed the causal factor for the event using Root Cause Analysis
- Scores assigned for minor, moderate or significant safety events
- This recorded data is fed back to training for tailored coaching and future program development

Competencies Wordmap



CM1	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Monitors, and assesses the aeroplane's energy state, and its anticipated flight path	34	1.97%	5	0.29%	18	1.04%	47	2.72%
Follows SOPs unless a higher degree of safety dictates an appropriate deviation	36	2.09%	8	0.46%	9	0.52%	43	2.49%
Operates aircraft systems and associated equipment correctly	11	0.64%	4	0.23%	10	0.58%	33	1.91%
Applies relevant operating instructions, procedures and techniques in a timely manner	18	1.04%			2	0.12%	33	1.91%
Confidently says and does what is important for safety, resolving deviations identified while monitoring using appropriate escalation of communication	19	1.10%	1	0.06%	2	0.12%	11	0.64%
Controls the aircraft manually with accuracy and smoothness as appropriate to the situation	6	0.35%			4	0.23%	23	1.33%
Monitors and detects deviations from the intended flight path and takes appropriate action	18	1.04%	2	0.12%	3	0.17%	7	0.41%
Exercises self-control in all situations	8	0.46%	2	0.12%	9	0.52%	9	0.52%
Monitors and assesses the state of the aeroplane and its systems	11	0.64%			8	0.46%	9	0.52%
Engages others in planning	6	0.35%			1	0.06%	16	0.93%
Responds to indications of reduced situation awareness	2	0.12%	1	0.06%	1	0.06%	19	1.10%
Monitors aircraft systems status	7	0.41%	1	0.06%	3	0.17%	11	0.64%
Monitors, and assesses the general environment as it may affect the operation	6	0.35%	2	0.12%	2	0.12%	9	0.52%

Line Operations Data Sources – Inner Loop

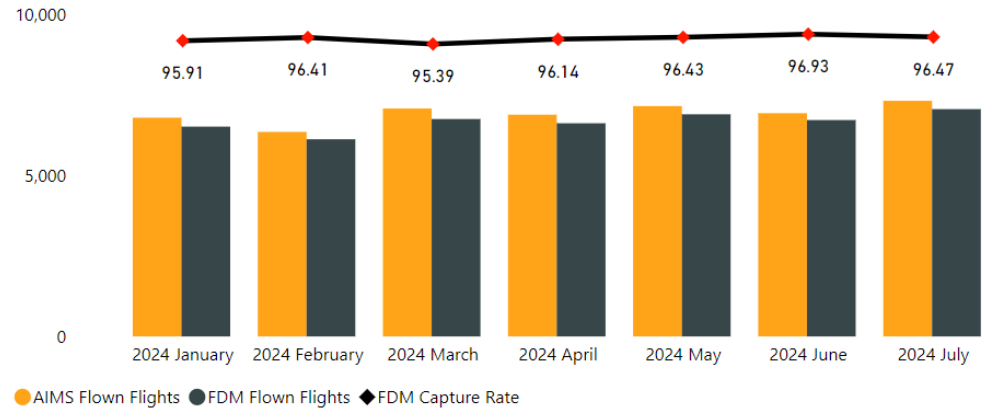


FDM Monitoring

FDM data is fed back to training for tailored coaching and development of future programs. E.g.

- Landing Performance Monitoring
- Unstable Approaches
- Altitude Busts
- Deviations from cleared flight path

Flight Collection Rate



Key Data Sources



Training Performance

- Previous EBT modules
- Day 1 EVAL
- Day 2 SBT
- Monitoring program



Safety Events Analysis

- Incident Data
- Root Cause Analysis
- Observed deficiencies (OBs)



Line Operations

- FDM analysis for outliers
- Landing Performance Monitoring

my
360
Coaching

COACHING MODULES: Individualized Tailored Training

09 my 360 Coaching



At Etihad we provide each pilot with individualized training modules.

We don't just utilize a single program to train all our pilots, we have dedicated coaching modules to further enhance the quality and effectiveness of our training – just like a personal coach would do.



COACHING MODULES: Individualized Tailored Training

CM1 Coaching

- Training / Safety / Line
- New Command Upgrades
- New Joiners
- Experienced



CM2 Coaching

- Training / Safety / Line
- Low Experience (Cadets)
- New Joiners
- Experienced (Command development)



COACHING MODULES: Individualized Tailored Training



RECURRENT FLIGHT TRAINING MODULE LESSON PLANS

EBT - Day 2 Scenario Based Training + In Seat Instruction

EVIDENCE BASED

TRAINEES

Enter Staff number	Trainee names
CM1 <input type="text" value="12345"/> Eligible for my360 Coaching Safety	<input type="text" value="John Brown"/> <input type="text" value="JBrown@etihad.ae"/>
CM2 <input type="text" value="54321"/> Eligible for my360 Coaching Low EY Experience	<input type="text" value="Harry Brown"/> <input type="text" value="HBrown@etihad.ae"/>

Enter trainee names my360 Coaching TM

COACHING MODULES: Individualized Tailored Training

Recommend

my360 Coaching Safety TCAS TA/RA / ATC conditions Events

Show History

SBT CM 1 Coaching

The scenario starts 20 nm to ROVOS into Abu Dhabi. This scenario will allow the trainee to demonstrate correct TCAS manoeuvre and conditional clearance by ATC. 00:40

my360 Coaching Low EY Experience Runway change / FMS error entry Events

Show History

SBT CM2 Coaching

The scenario starts in descend and approach in demanding weather condition. ATC will issue Runway and STAR changes on arrival during high AOV requiring crew to avoid FMS entry error 00:40

Recommend

my360 Coaching Safety COM Takeoff Competency

Show History

SBT CM 1 Coaching

This is a flight from EDDM to LIMC. The following scenario will occur during takeoff: A low speed RTO due to a predictive windshear followed by a high speed RTO due engine fire resulting in an evacuation. 00:40

my360 Coaching Low EY Experience COM Takeoff Competency

Show History

SBT CM2 Coaching

The scenario starts in descend and approach in demanding weather condition. ATC will issue Runway and STAR changes on arrival during high AOV requiring crew to avoid FMS entry error 00:40

COACHING MODULES: Individualized Tailored Training



243
my360 Coaching Listed

72
my360 Coaching Conducted

61
Satisfactory

13
Recommended to remain

2
Not conducted due lack of time

Staff#	Route	Incident Summary	Recommendations for Training	my360 Coaching Status
██████	TRV-AUH	Safety Event: CRM Issues	Event requiring escalation of communication to resolve a discrepancy in individual pilot station cues.	Recommended to remain in my360 Coaching programme
██████	AUH-HKG	Safety Event: Mismatched Approach	Increased workload and distraction during approach with focus on task management and execution.	Recommended to remain in my360 Coaching programme
██████	AUH-BLR	Safety Event: Mismatched Approach & Go Around	Glideslope intercept from above with late go-around involving revised missed approach altitude.	Recommended to remain in my360 Coaching programme
██████	RKT-DBB	Safety Event: Mismatched Approach & Go Around	Late change of approach type from instrument to visual followed by go around to visual circuit.	Recommended to remain in my360 Coaching programme
██████	NBO-AMS	Safety Event: Runway Incursion	Increased workload and distraction during taxi out/approach with no clearance for Lineup/T/O/Landing issued.	Recommended to remain in my360 Coaching programme
██████	AUH-HYD	Safety Event: TCAS RA (Incorrect SOP)	Event incorporating strong startle factor and requiring continued flightpath e.g. TCAS with same trajectory, temporary engine stall, engine fire on approach at 400ft AAL, temporary underspeed/overspeed in cruise.	Recommended to remain in my360 Coaching programme
██████	AUH-IAD	Safety Event: Unstable Approach Continue to Land (Flap)	High workload on approach with required speed control and changing environmental conditions.	Recommended to remain in my360 Coaching programme
██████	HKT-BKK	Safety Event: Unstable Approach Continue to Land (Flap)	High workload on approach with required speed control and changing environmental conditions.	Recommended to remain in my360 Coaching programme
██████	AUH-IAD	Safety Event: Unstable Approach Continue to Land (Flap)	Reduced flap approach involving high workload with increasing (reported) tailwind at 1500ft AAL.	Recommended to remain in my360 Coaching programme

Observable Behaviours (Recommended to remain in program)

Identifies and considers appropriate options. Carries out instructions when directed. Demonstrates initiative and provides direction when required.

Manages the flight path to achieve optimum operational performance

Applies relevant operating instructions, procedures and techniques in a timely manner

Applies relevant procedural knowledge

Monitors and detects deviations from the intended flight path and takes appropriate action

Follows SOPs unless a higher degree of safety dictates an appropriate deviation

Confirms that the recipient demonstrates understanding of important information

Controls the aircraft manually with accuracy and smoothness as appropriate to the situation. Manages and recovers from interruptions, distractions, variations and failures effectively while performing tasks.

Demonstrates the required knowledge of published operating instructions. Monitors and assesses the aeroplane's energy state and its anticipated flight path.

Develops effective contingency plans for threats, associated risks and potential errors.

Maintains the intended flight path during flight using automation whilst monitoring and managing other tasks and distractions.

Safely manages the aircraft to achieve best value for the operation including fuel, the environment, passenger comfort and punctuality.

Selects appropriate level and mode of automation in a timely manner considering phase of flight and workload.

KNO COM LTW
PSD WLMFPM
PRO FPA

COACHING MODULES: Individualized Tailored Training



Staff#	Route	Incident Summary	Recommendations for Training	my360 Coaching Status
██████	AUH-IST	Safety Event: TCAS RA (Incorrect SOP)	ATC-requested high ROC/ROD prior to multiple traffic threats with subsequent RA requiring order reversal.	Coaching satisfactory
██████	AUH-CMB	Safety Event: TCAS RA (Incorrect SOP)	ATC-requested high ROC/ROD prior to multiple traffic threats with subsequent RA requiring order reversal.	Coaching satisfactory
██████	AMD-AUH	Safety Event: Unstable Approach & Mismanaged G/A	Glideslope intercept from above with late go-around involving revised missed approach altitude.	Coaching satisfactory
██████	DEL-AUH	Safety Event: Unstable Approach & Mismanaged G/A	Glideslope intercept from above with late go-around involving revised missed approach altitude.	Coaching satisfactory
██████	AUH-MLE	Safety Event: Unstable Approach & Mismanaged G/A	Glideslope intercept from above with late go-around involving revised missed approach altitude.	Coaching satisfactory
██████	GVA-AUH	Safety Event: Unstable Approach & Mismanaged G/A	Glideslope intercept from above with late go-around involving revised missed approach altitude.	Coaching satisfactory
██████	AUH-DAC	Safety Event: Unstable Approach & Mismanaged GA	Glideslope intercept from above with late go-around involving revised missed approach altitude.	Coaching satisfactory
██████	HYD-AUH	Safety Event: Unstable Approach and G/A	Increased workload and distraction during approach with focus on task management and execution.	Coaching satisfactory
██████		Safety Event: Unstable Approach Continue to Land (AOB)	Offset non-precision approach with focus on permissible bank angles.	Coaching satisfactory

Observable Behaviours (Recommended to remain in program)

Identifies and considers appropriate options
 Carries out instructions when directed
 Demonstrates initiative and provides direction when required

Manages the flight path to achieve optimum operational performance
Applies relevant operating instructions procedures and techniques in a timely manner
Applies relevant procedural knowledge
 Plans priorities and schedules appropriate tasks effectively
 Follows SOPs unless a higher degree of safety dictates an appropriate deviation

Monitors and detects deviations from the intended flight path and takes appropriate action
 Confirms that the recipient demonstrates understanding of important information

Controls the aircraft manually with accuracy and smoothness as appropriate to the situation
 Demonstrates the required knowledge of published operating instructions

Manages and recovers from interruptions distractions variations and failures effectively while performing tasks
 Monitors and assesses the aeroplane's energy state and its anticipated flight path

Develops effective contingency plans for threats associated risks and potential errors
 Maintains the intended flight path during flight using automation whilst monitoring and managing other tasks and distractions
 Safely manages the aircraft to achieve best value for the operation including fuel the environment passenger comfort and punctuality
 Selects appropriate level and mode of automation in a timely manner considering phase of flight and workload

KNO COM LTW
 PSD **PRO** SAW FPA
 WLMFPM

Thank You