

A large Airbus A350-900 aircraft is parked on a tarmac. The aircraft is white with a blue tail fin featuring the Airbus logo and the text 'A350'. The registration 'F-YVMB' is visible on the rear fuselage. The aircraft's reflection is clearly visible in a large puddle in the foreground. In the background, another aircraft is visible, and the sky is filled with clouds and a bright sun.

Experiences Introducing CBTA

EASA CBTA and EBT Workshop

Capt. Christian NORDEN
Director Flight Operations & Training Policy
20., 21. May 2019

AIRBUS

CBTA





Design of Pilots Training for A350 started in 2009
Entry into Service 2014

Evolution in Training

Rationales to change

Training Standards in 2009:

Rulemaking has started to promote development of competencies in alternative training concepts:

Recurrent Training:

- AQP (since 1990)
- ATQP (since 2006)
- ICAO EBT under development by IATA ITQI

Basic Training:

- MPL (since 2006)

Type Training:

- **No regulation yet**



Focus on
Pilot's
Competencies

Decision to develop the A350 pilot training following a

NEW TYPE-RATING CONCEPT

- Competency Based Design
- Choice of training tools to develop competencies
- Evidence driven

State of the Art Training,
while staying compliant with current regulation *)

*) i.e. Appendix 9 PART-FCL

Today's Performance Standards for pilot training are Task Based

e.g. Appendix 9 PART FCL

3.3	Normal operation of systems and controls engineer's panel	P→	→	→	→			
	Normal and abnormal operations of following systems:						M	A mandatory minimum of 3 abnormal shall be selected from 3.4.0 to 3.4.14 inclusive
3.4.0	Engine (if necessary propeller)	P→	→	→	→			
3.4.1	Pressurization and air-conditioning	P→	→	→	→			
3.4.2	Pitot/static system	P→	→	→	→			
3.4.3	Fuel system	P→	→	→	→			
3.4.4	Electrical system	P→	→	→	→			

Height	
Generally	± 100 feet
Starting a go-around at decision height	+ 50 feet/- 0 feet
Minimum descent height/altitude	+ 50 feet/- 0 feet
Tracking	
on radio aids	± 5°
Precision approach	half scale deflection, azimuth and glide path
Heading	
all engines operating	± 5°
with simulated engine failure	± 10°
Speed	
all engines operating	± 5 knots
with simulated engine failure	+ 10 knots

How to assess?

PART FCL Flight Test Tolerance: "Demonstrate **Airmanship**"

Task Based Training

Today's standard

Airmanship is the comprehensive use of all competencies required to operate an aircraft safely, effectively and efficiently

Application of Procedures

Communication

Flight Path Management - Automation

Flight Path management – Manual Control

Leadership and Teamwork

Problem Solving and Decision Making

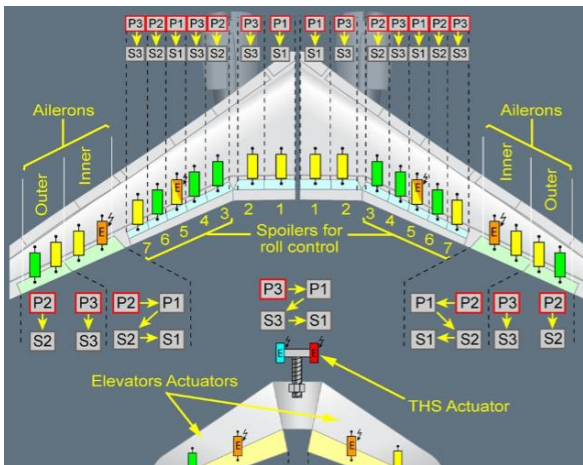
Situation Awareness

Workload Management

Knowledge *)

Pilot Competencies

The industry standard



Technical Knowledge

> 30h CBT (e.g. A320, A380)

19h SKM A350

System Knowledge Modules (SKM)
are Quick User Guides for initial knowledge base

Consolidation of Knowledge continues throughout the course

New style of knowledge acquisition

Quick
User
Guide



ACE



“Airbus Cockpit Experience “

- Part Task Trainer
- Training Device Level C

ACE

- Cockpit Simulator on Laptop or Tablet
- ACE is used from Day 1 throughout the whole course - also for preparation of e.g. FFS sessions
- System Knowledge modules and ACE modules are intermixed
- “Learning by Discovery”
- Includes SOP training

Training Tools



Training Tools

Better use of tools

Shift training from **FFS** to **APT+**
Shift training from **APT+** to **ACE**

More training
time in the FFS



Start with Manual Flying



More training
time in the FFS

Scenario Based Training



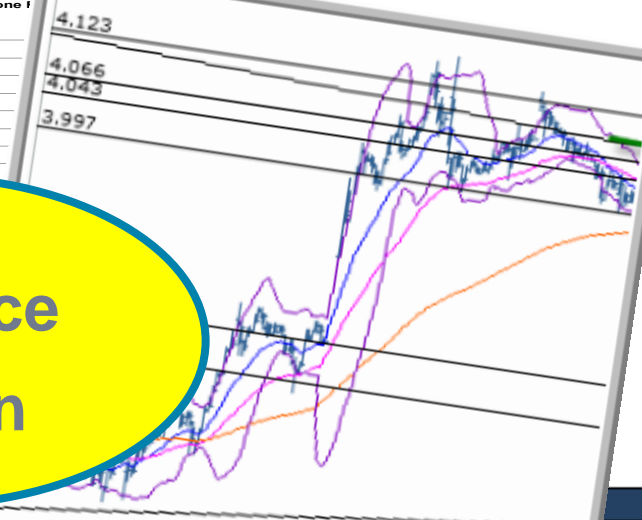
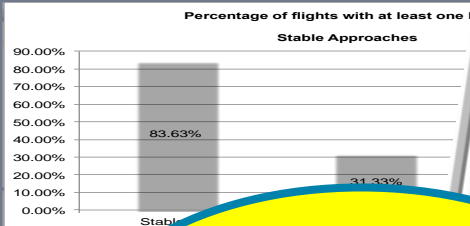
Surprise as a training element
to enable resilience



Training Design

Natural
development of all
Competencies
needed

Evidence Driven



Event	Description
1008	Speed Above VLE
1009	Speed Above VLO Extension
1016	Speed Above VFE
1017	Speed Above Recommended Turbulence Speed
1025	Speed Low
1028	Speed High in Climb (below 1000ft)
1032	Speed Low in Climb (100ft - 1500ft)
1038	Pitch High at Take Off
1100	Pitch Rate High at Take Off
1101	Pitch Rate Low at Take Off
1102	Pitch High in Climb
1103	Pitch Low at Landing
1104	Roll Rate High at Landing
1105	Braking Questionable at Landing
1108	Pitch Input cycling at Landing (below 100ft)
1109	Pitch High at Touch Down
1111	Pitch Low at Touch Down
1200	Pitch Rate High at Landing
1205	Bank High in Approach (below 100ft)
1210	Roll input cycling (below 200ft)
1210	Bank High during Flare (below 10ft)

1008	Speed Above VLE
1009	Speed Above VLO Extension
1016	Speed Above VFE
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Gen4 Jet Training Topics

A

Adverse weather

Automation management

Competencies non-technical (CRM)

Compliance

Error management

Go-Around management

Manual aircraft control

Mismanaged aircraft state

Monitoring & cross-checking

Unstable approach

ATC

Engine failure

Fire and smoke management

Loss of communications

Managing loading, fuel, performance errors

Navigation

Operations or type specific

Pilot incapacitation

Traffic

Upset recovery

Windshear recovery

programme

1995

Use of Data

IATA Data Report
was published in
2013

Application of Procedures

Communication

Flight Path Management - Automation

Flight Path management – Manual
Control

Leadership and Teamwork

Problem Solving and Decision Making

Situation Awareness

Workload Management

Knowledge

Competencies drive training

- Design
- Execution
- Assessment


Performance Indicators define the desired outcome

Grading System

Strong fundament
of Competency
development

6 APPENDIX 2 - AIRBUS PILOT COMPETENCIES AND ITS INDICATORS

Competency	Competency Description	Performance Indicators
Application of Procedures	Identifies and applies procedures in accordance with published operating instructions and applicable regulations, using the appropriate knowledge.	<ul style="list-style-type: none">- Follows SOP's unless a higher degree of safety dictates otherwise- Identifies and applies all operating instructions in a timely manner- Correctly uses aircraft systems, controls and instruments- Safely manages the aircraft to achieve effective and efficient operation, concerning fuel, environment, passenger comfort and punctuality- Identifies the source of operating instructions
Communication	Demonstrates effective oral, non verbal and written communication in the cockpit and with the cabin crew.	<ul style="list-style-type: none">- Knows what, how, where, when, how much and with whom he or she needs to communicate- Ensures the recipient is ready and able to receive the information- Conveys messages and information clearly, accurately, timely and adequately- Confirms that the recipient correctly understands important information



Remedial

Session type
(select none)

Session date
From/To

Trainee's details

Customer
Lastname
Firstname
Position
Course Number
Course Type

Customer
Lastname
Firstname
Position
Course Number
Course Type

Pilot Training

Competencies

	1	2	3	4	5	N/D	Competent
Application of procedures							Not yet Competent
Communication							
Flight path management - Automation							
Flight path management - Manual							
Knowledge							
Leadership and teamwork							
Problem solving and decision making							
Situation awareness							
Workload management							

Instructor's name
Name
Code

Free text

Validate
Save without validation
Unprotect

☐ I confirm that all the required manoeuvres and exercises for this session are either completed or listed in the free text box

☐ I confirm that the reporting has been presented to the trainee and validated in his/her presence

Note - Any misinterpretation of exercises will be notified to the next instructor

6



Com

Pilot Training

Appl
Proc
☐ Remedial

Session type

(sélectionnez)

Session date

Trainee's details

Customer

Lastname

Firstname

Position

Captain

Course Number

EUR16-5501706

Course Type

VF2HA2

From/To

15MAR2016-20APR2016

Com

Appl

Proc

Competencies

Competency Grading

1

2

3

4

5

N/O

Competent

Not yet Competent

Application of procedures

Communication

Flight path management - Automation

Flight path management - Manual

Knowledge

Leadership and teamwork

Problem solving and decision making

Situation awareness

Workload management

Instructor's name

Name

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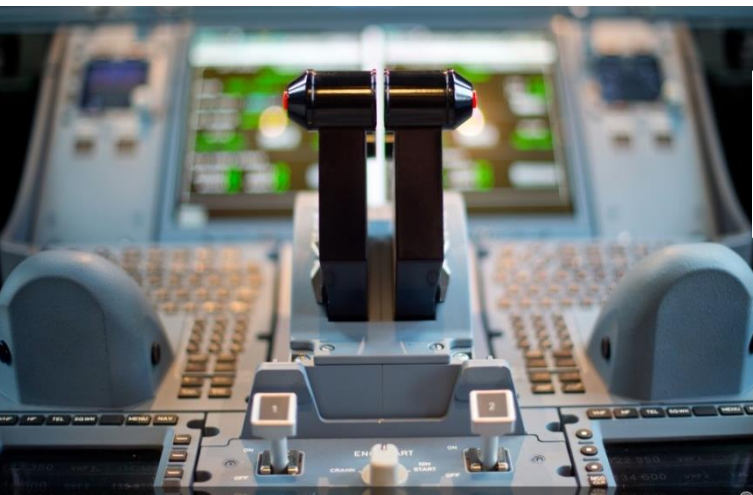
ironment, passenger comfort and punctuality

cate

Day1	Day 2	Day 3	Day 4	Day 5
CREW registration SYSTEM KNOWLEDGE & PTT	SYSTEM KNOWLEDGE & PTT	SYSTEM KNOWLEDGE & PTT	SYSTEM KNOWLEDGE & PTT	SYSTEM KNOWLEDGE & PTT
Day 6	Day 7	Day 8	Day 9	Day 10
SYSTEM KNOWLEDGE & PTT + SYSTEM TEST	SOP PTT	FFS 1	APT+ 1	APT+ 2
Day 11	Day 12	Day 13	Day 14	Day 15
APT+ 3	FFS 2	FFS 3	FFS 4	APT+ 4
Day 16	Day 17	Day 18	Day 19	Day 20
APT+ 5	APT+ 6	FFS 5	FFS 6	FFS 7
Day 21	Day 22	Day 23		
FFS 8	FFS 9	SKILL TEST		

Footprint

Driven by trainee's needs



Decision by Airbus to extend the new training paradigm to A320 and A330 and Ab-Initio Training

October
2014

March
2017

- **Very positive feedback** from the start
- Noticeable: **accelerated learning especially in short courses**
- **More competent crews** with fewer remedials
- **Better integration** in operation

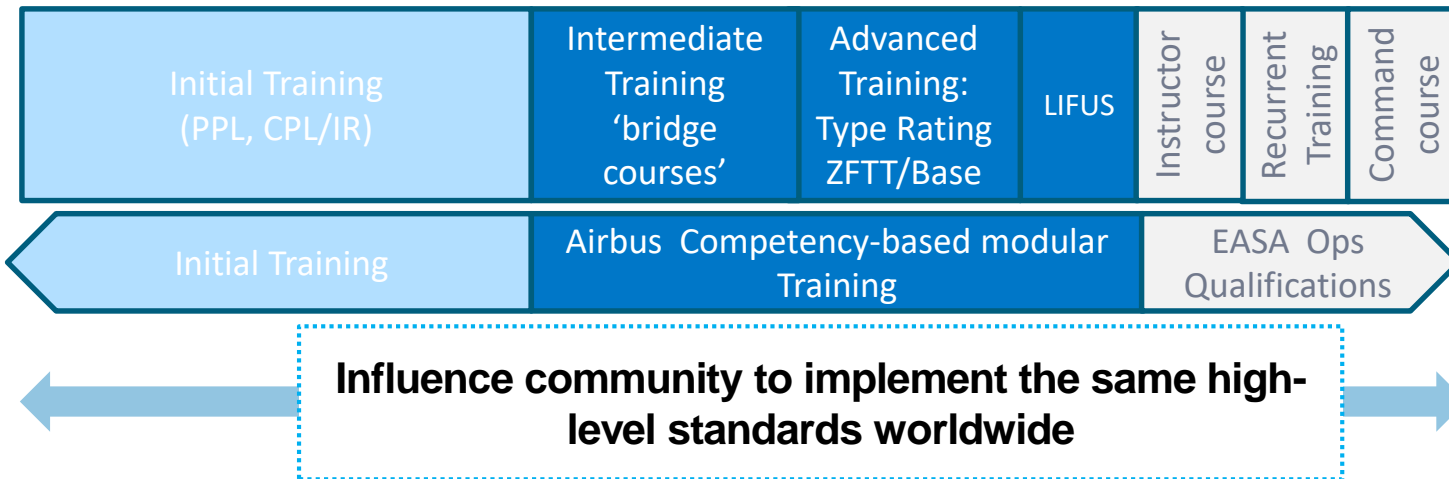
Worldwide Review

After 2 ½ years
New A350 training

NEW

A320 Competency Based Modular Training

New Training by Airbus



- Raises **quality** in flight training worldwide
- **Harmonises training standards globally**
- Ensures **competent pilots** in the cockpit of Airbus A/C
- Improves **safety**
- Contribute to airlines' **profitability**



Airbus Training

Airbus Customer Services

Lessons Learned

October
2014

May 2019

- **Very strong results**
- **Good feedback** by trainees
- **Instructor standardization** for **Competency** based training is an ongoing challenge
- **Training design** is straight-forward if keeping the principles in mind especially with complex **Regulatory material**

5 Years CBTA...

... in Airbus