RMT.0599 Review of ORO.FC Evidence-Based Training

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2019

Your safety is our mission.

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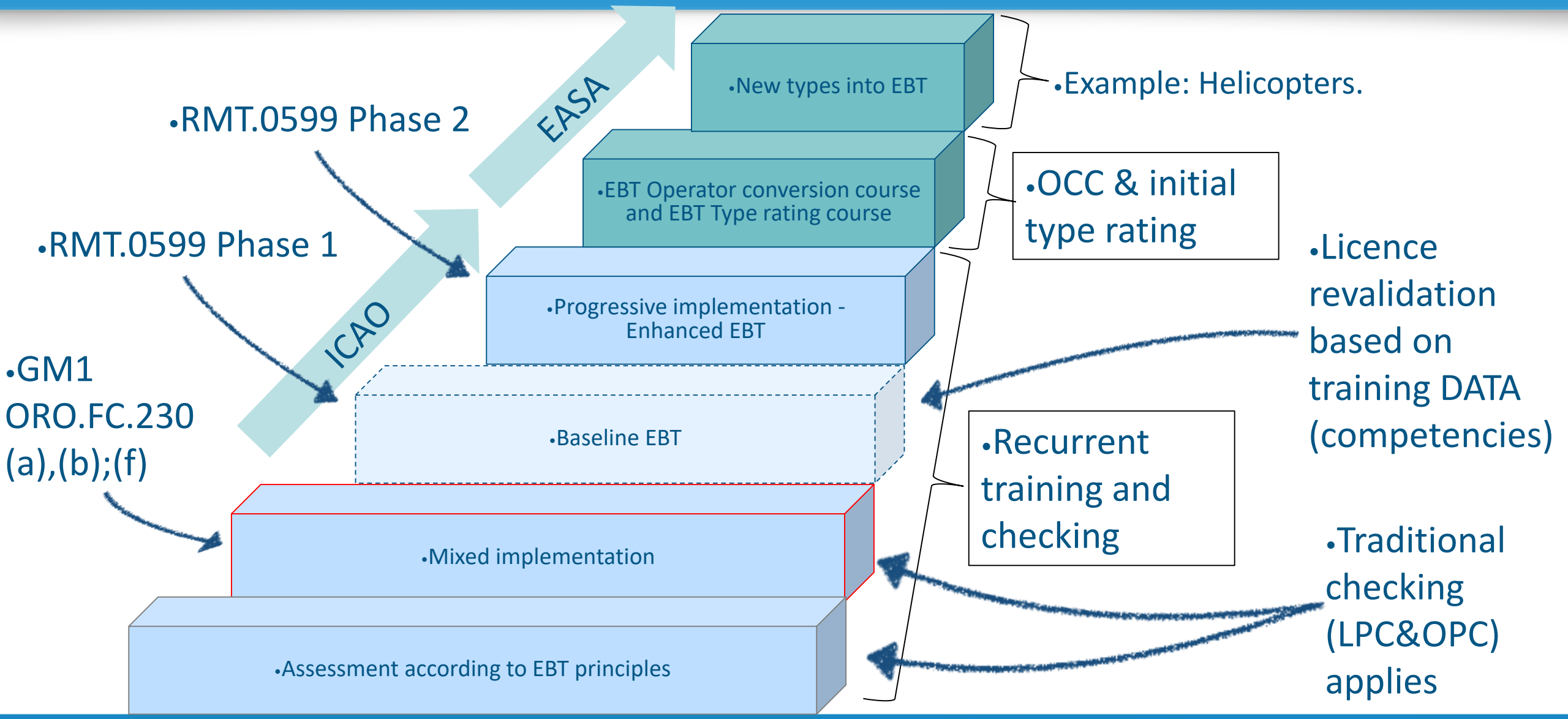
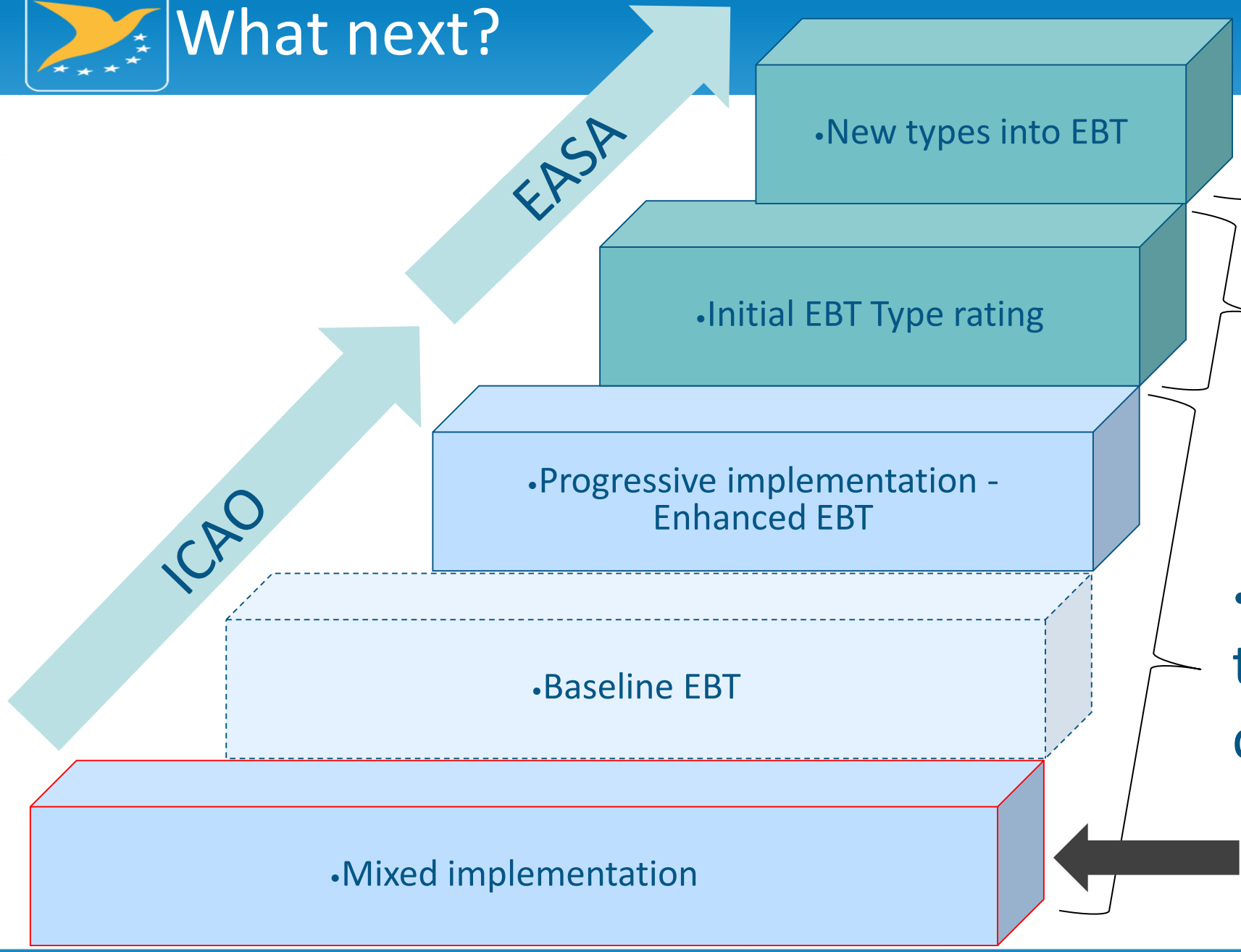
Advice to stakeholders

- Follow the official documentation of your regulator (NAA), ICAO, and EASA.
- If you use private consultants contact reliable organisations.
- EBT is a worldwide global initiative that-was created and developed by many organisations. No single organisation or person can claim the original idea or ownership of EBT and its principles.
- EBT is long journey: 1-2 years of EBT principles and 2-3 of EBT mixed.
  - Instructor training (emphasis on facilitation).
  - Instructor concordance.
  - Feedback loop.

EBT implementation. (Phases).



What next?



- Example: Helicopters.
- OCC & initial type rating
- Recurrent training and checking
- RMT 0696

What support we offer?

1. Documentation
2. Workshops and events
3. Operator and authority visit to EASA

SPT.012 see EPAS 2019-2023. How we support you?

1. Documentation

- ✓ Regulatory material,
- ✓ Explanatory notes,
- ✓ EBT checklist,
- ✓ EBT paper for Spanish speakers – partnership with ACSA.

Mixed implementation – RMT0696

- RMT0696 Implementation of evidence-based training (EBT) within the European regulatory framework.
  - Decision 2015/027/R published in Dec 2015.
    - GM1 ORO.FC.230 (a);(b);(f) & GM2 ORO.FC.A.245
      - Competency – Knowledge can be found in the explanatory note

Supporting material to RMT0696

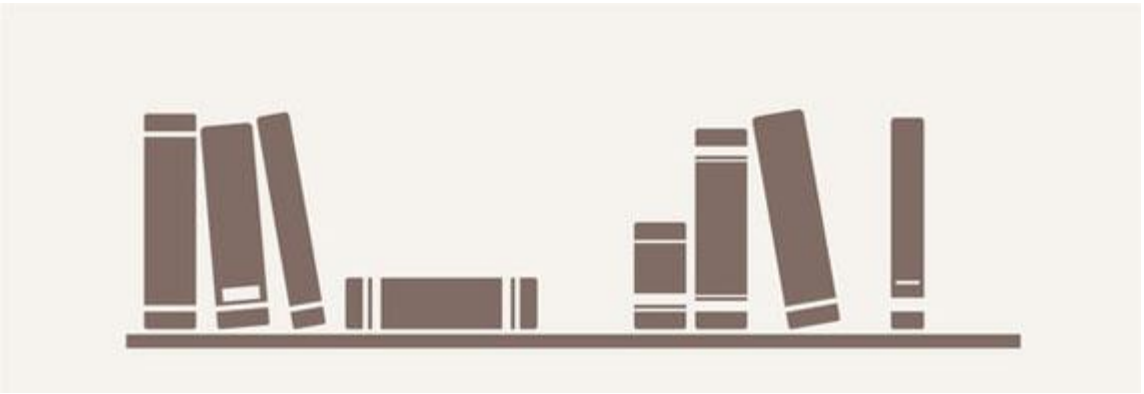
1- Explanatory note to ED Decision 2015/027/R (Dec 2015)

2- Oversight guidance for transition to EBT - EASA checklist V2.2 Jan 19.

– Highly recommended for CAA (also to operators).

3- ICAO Doc 9995

4- IATA EBT implementation guide



Oversight guidance for transition to EBT (EASA checklist)

– Highly recommended to CAAs and to operators.

Parts of the Checklist:

1- Introduction - Documentation reference

2- The 9 steps to implement mixed EBT (Operator & NAA)

3- Audit checklist

4- How to conduct certain Mandatory manoeuvres (OPC &LPC) in EBT

5- CRM integration into the mixed EBT programme.

- NEW VERSION (ver2.2). January 2019.

SPT.012 see EPAS 2018-2022. How we support you?

1. Documentation
2. Workshops
   - ✓ 1st EBT workshop Feb 2017 – EASA Cologne (+200 participants)
   - ✓ 4Q2017 workshop in Spain – AESA
   - ✓ Workshop in China 05.12.2018. EASA international cooperation.
   - ✓ Workshop in Iceland - ICETRA
   - ✓ 2nd Competency and EBT workshop 20&21 May 2019 – EASA Cologne

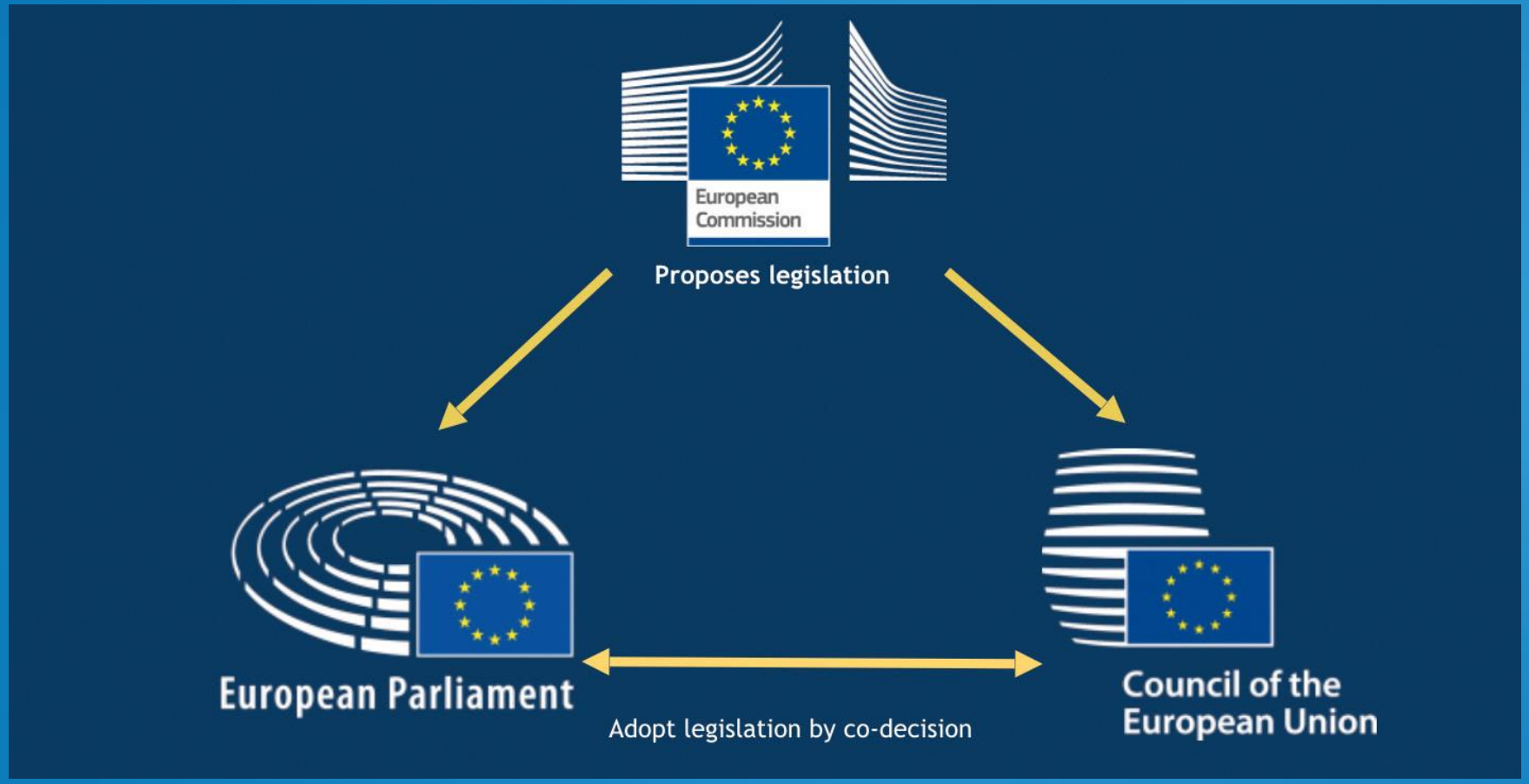
SPT.012 see EPAS 2018-2022. How we support you?

3. SPT.012 -EBT mixed implementation day in EASA:

- ✓ 1 airline, and its flight ops inspector (authority).
- ✓ 1 video conference – preparatory webex.
- ✓ 1 day face to face in EASA headquarters
- ✓ 1 follow up video conference – webex.
- ✓ Intent: To addressed the individual needs of the individual airline and its competent authority – Flight operator inspector.
- ✓ Past participants: easyjet + Austrocontrol, KLM city hopper + ILT, Lufthansa + LBA, Eurowings +LBA, CargoLux + DGAC Lux, Vueling + AESA, Iberia + AESA, Alitalia + ENAC,

EASA
European Aviation Safety Agency

End slide



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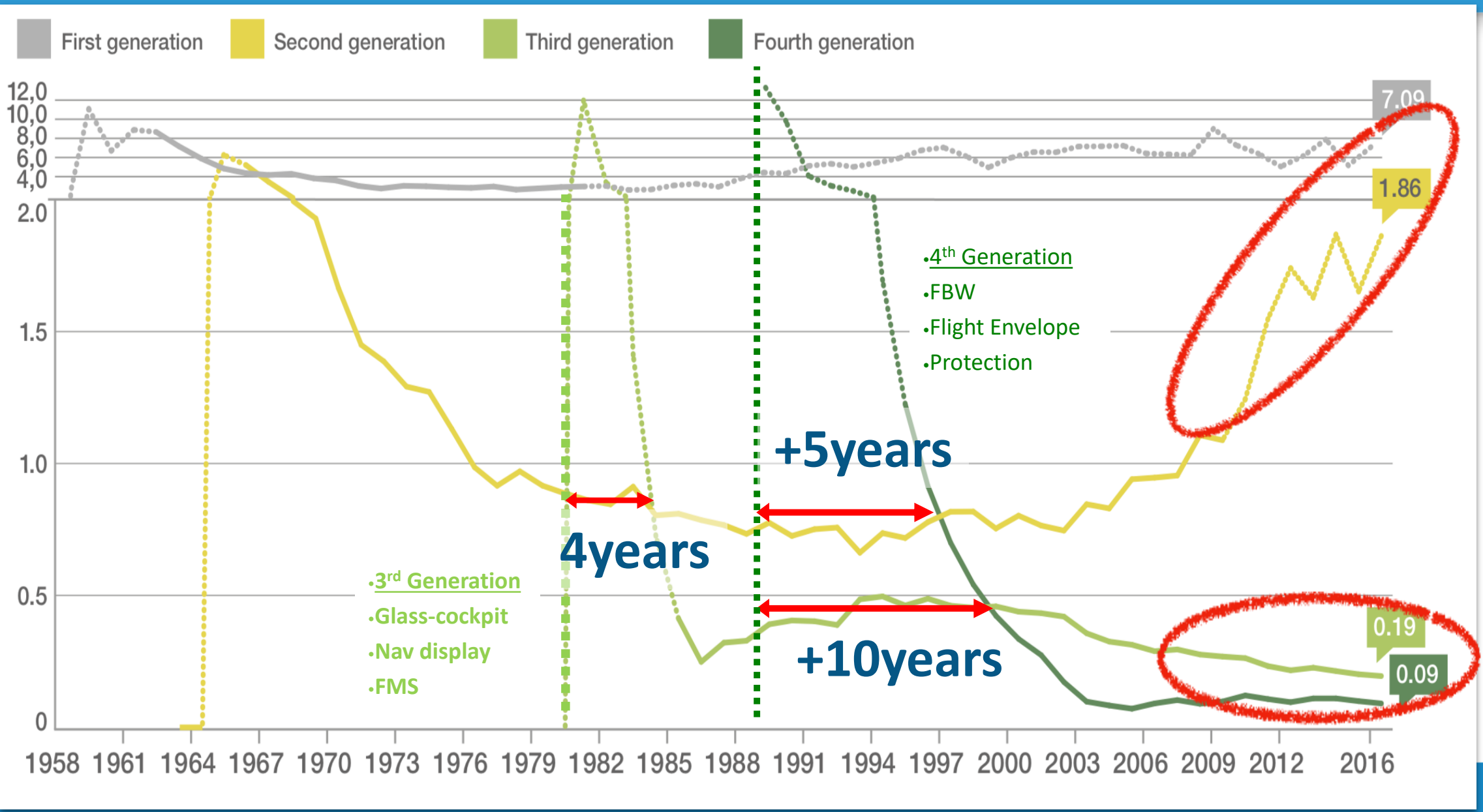
Do this aircraft look the same?...

Lockheed C-121C Super Constellation

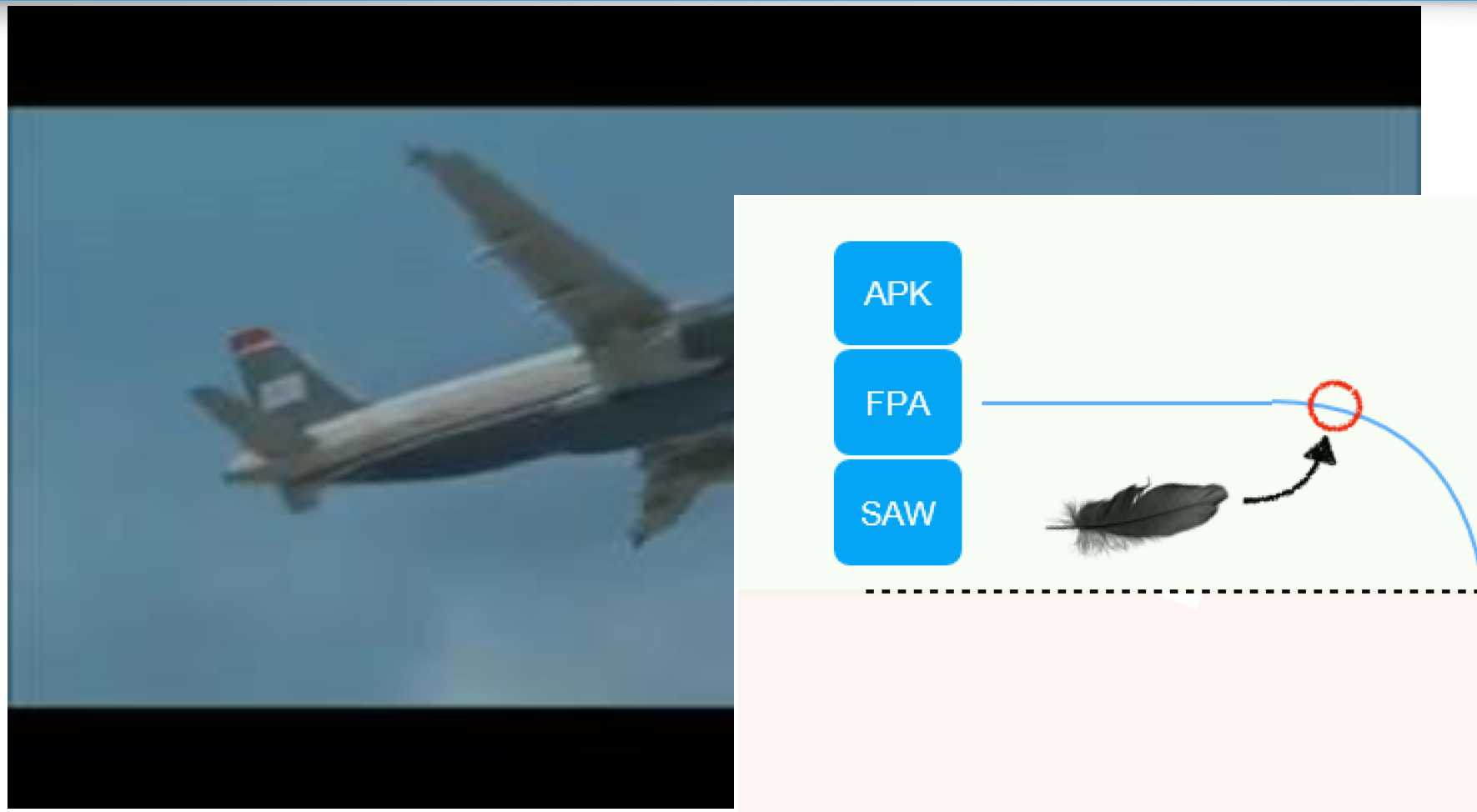
Do this aircraft look the same?…

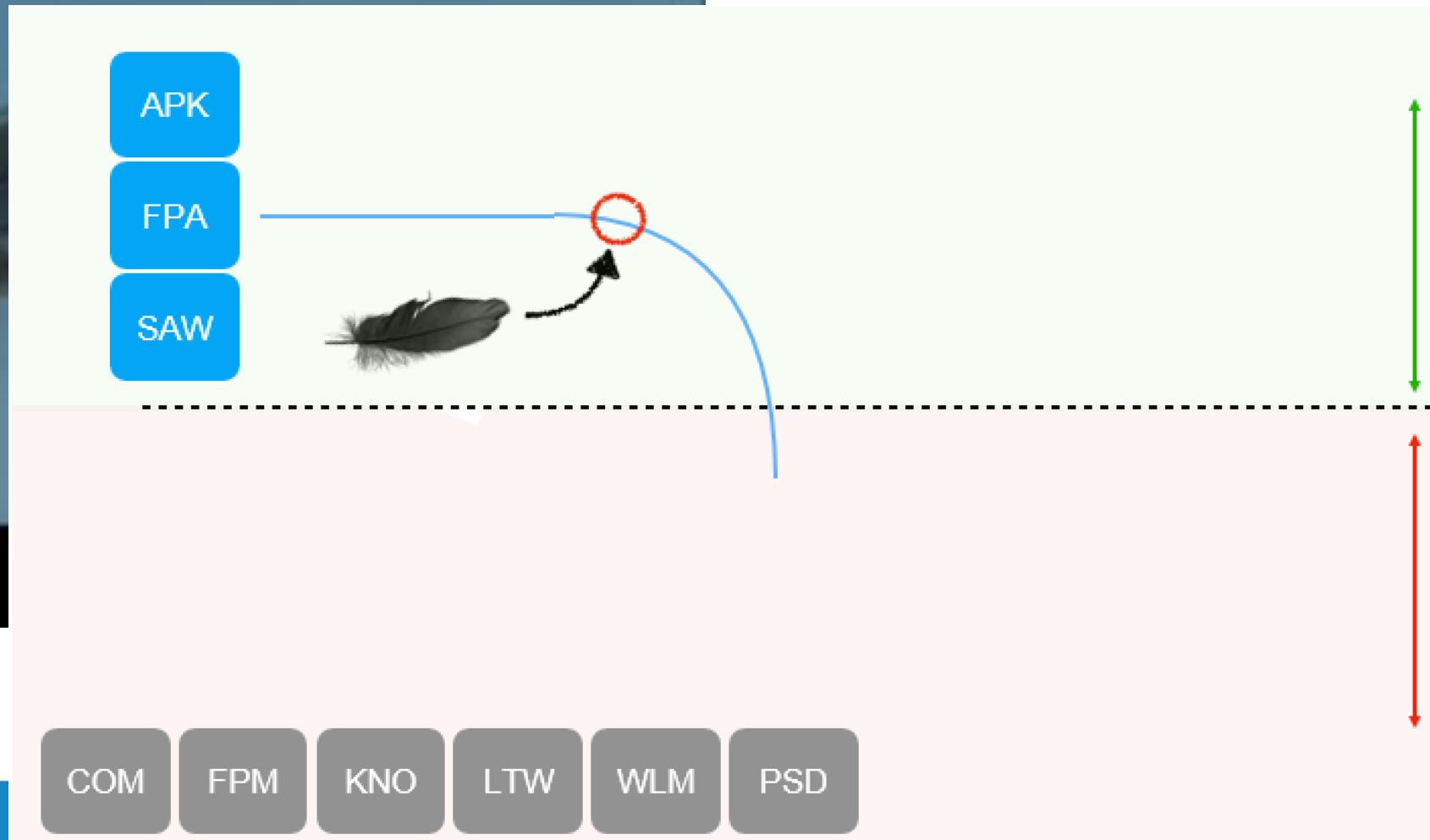
So…, why do we train and check our pilots in the same way?

Evidence: Fatal accidents per million hours per generation



What is Resilience?..... to bounce back from this.





15 January, 2009. Airbus-320-214 DUAL ENG FAILURE

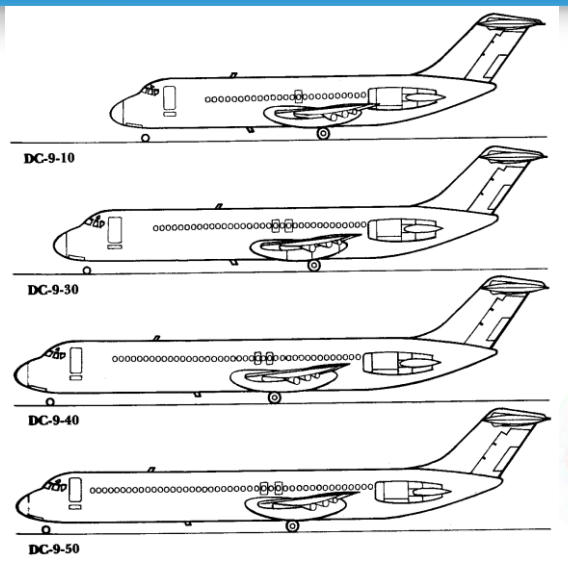
- Experience crew
- 4th day together
- 3rd flight of the day
- Afternoon (day light)
- Good weather conditions
- Domestic flight

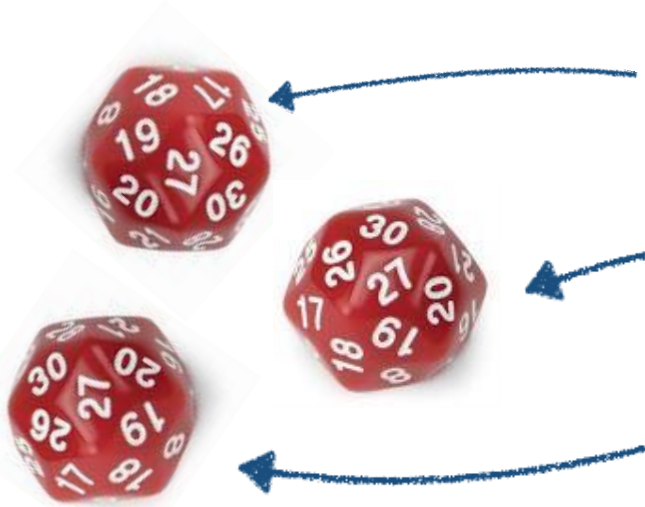
In the good old times….. GENERATION 1 & 2

- System
- Environment
- Operation

- Repetitive & foreseeable
- Evidence
- What we know

GENERATION 2 & 3





- System
- Environment
- Operation

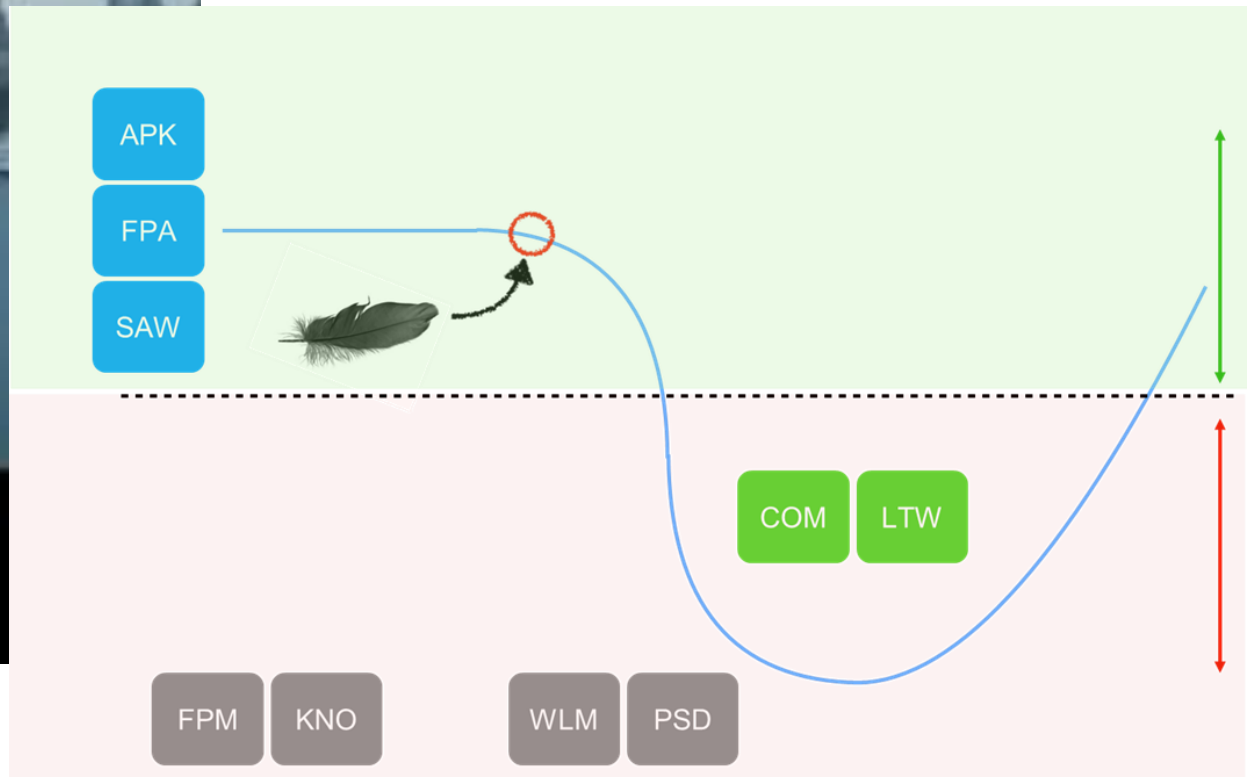
- **Repetitive & foreseeable**
- Evidence
- What we know

Regulator Paradox

- System
- Environment
- Operation

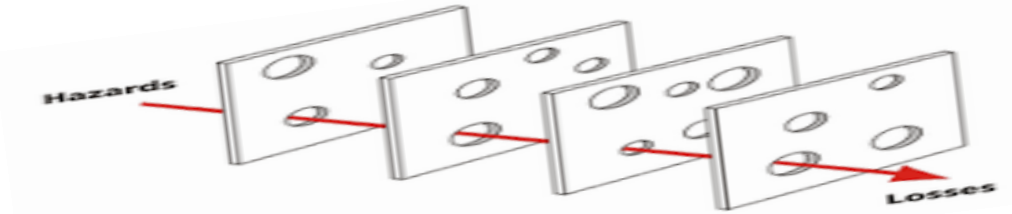
- Unique & unforeseeable
- No Evidence
- We don't know

Dual engine failure followed by ditching



Why EASA introduced EBT for Recurrent training?

- Accidents/incidents investigations show that pilots had a valid LPC at the time of the accident.
  - We need to improve – Reduce the wholes



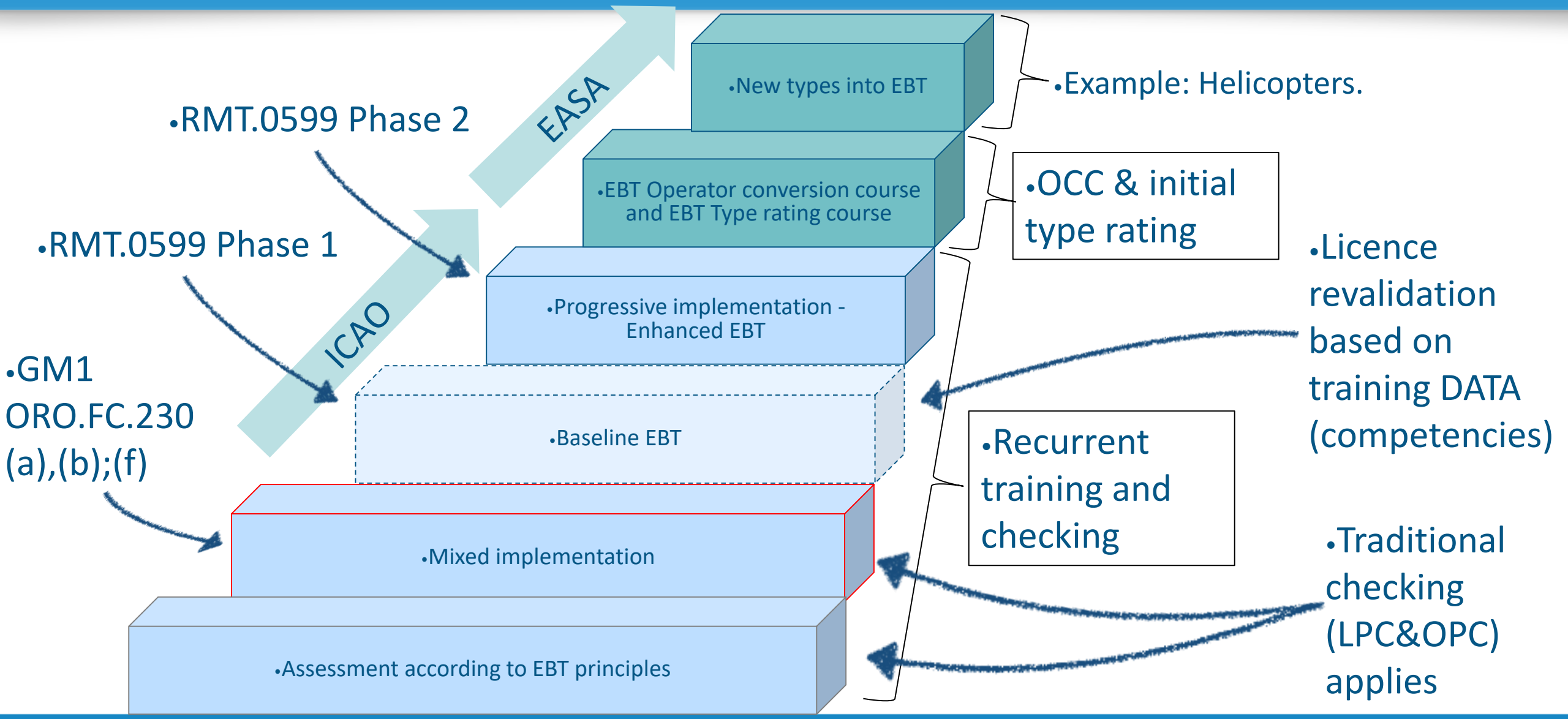
- One of the contributing factors in most of the accidents nowadays is deficiencies in NON-TECH competencies
  - More than 50 % of fatal aircraft accidents worldwide accidents have a causal factor action of the flight crew
    - flight crew handling skills were a factor in 14 %
    - non-technical skills were a factor in more than twice (32 %)

      Source: (UK, CAA)

More details of the reasons to move to EBT

- Traditional recurrent training
  - has not kept up with development and new challenges
  - does not reflect the operational risks of todays technology and environment
- Improve efficiency and effectiveness.
- There is the need for a data driven training system
  - Meaningful data! – standardise training data collection.
  - Note: ensuring just culture and data protection.

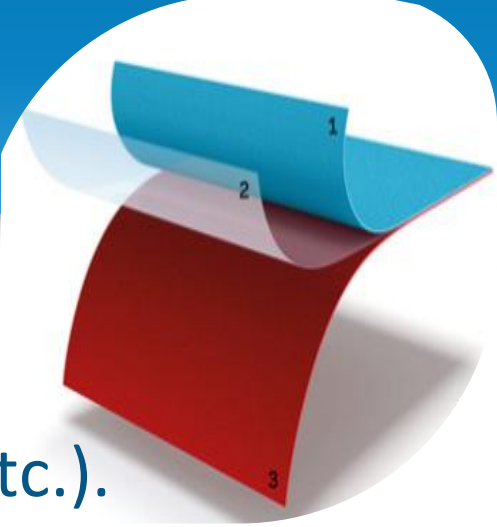
EBT implementation. (Phases).



QUESTIONS?

- WHAT'S NEXT?
- - DATA in EBT – Lawyers of data.
- -Building blocks for EBT implementation.
  - Competencies
  - Instructors
  - EBT programme

EBT: 3 layers of DATA



1. Regulator: accidents, studies, surveys,…etc.
   - ❑ Data report for Evidence-based training (IATA/ICAO/EASA…etc.).
2. Operator: operators operational data + training data
   - ❑ Recurrent training and checking programme.
3. Instructor: assessment of crew competencies and behaviour indicators
   - ❑ Tailored training

World wide DATA report

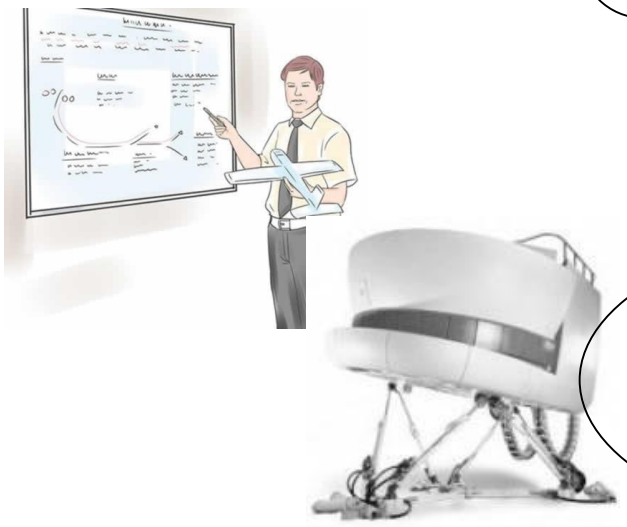
Regulator

Generic program:
Training topics frequency A,B,C (6months,1,3 years).

Operator's EBT program (airline specific)

Operator

Operator's data (training, SMS etc)



Evaluation FSTD session

instructor

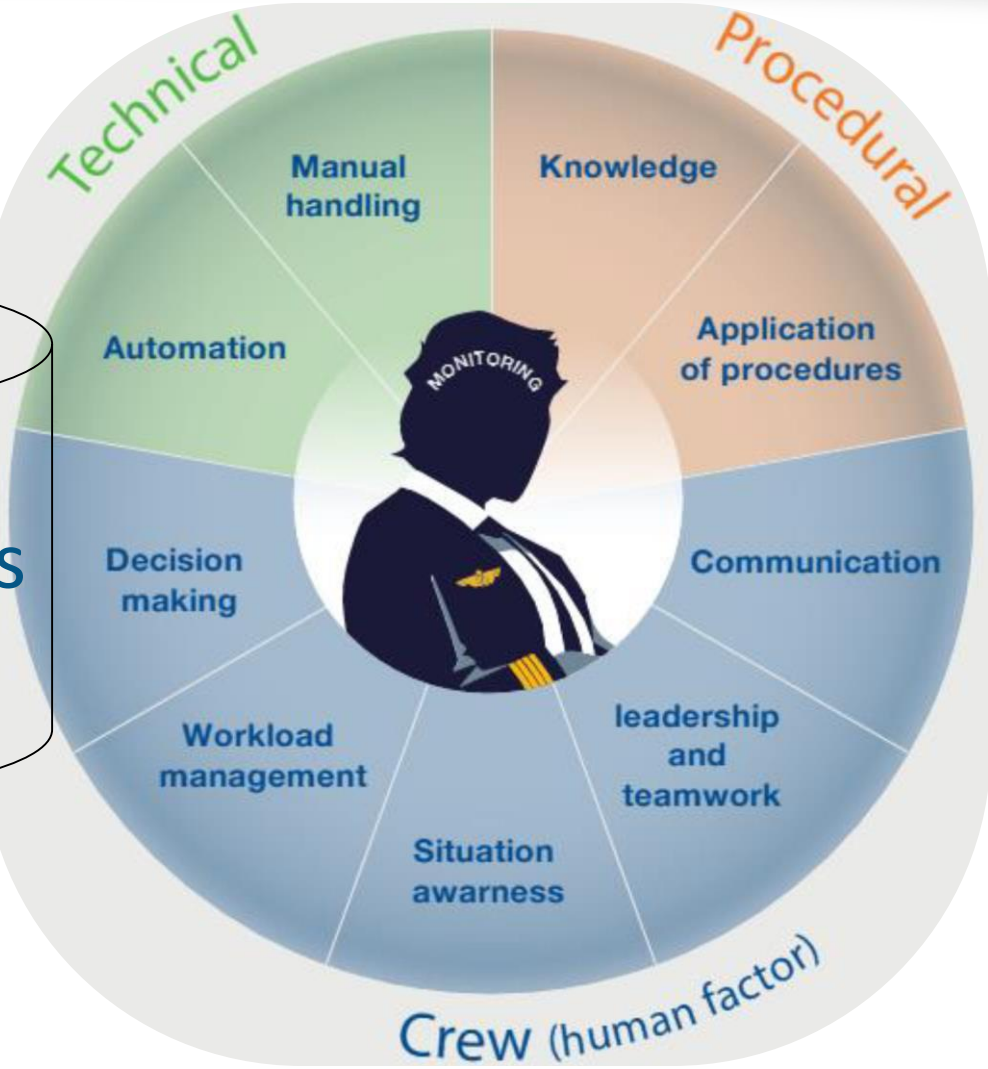
Training adapted to a particular crew

Building blocks. EBT components

EBT programme

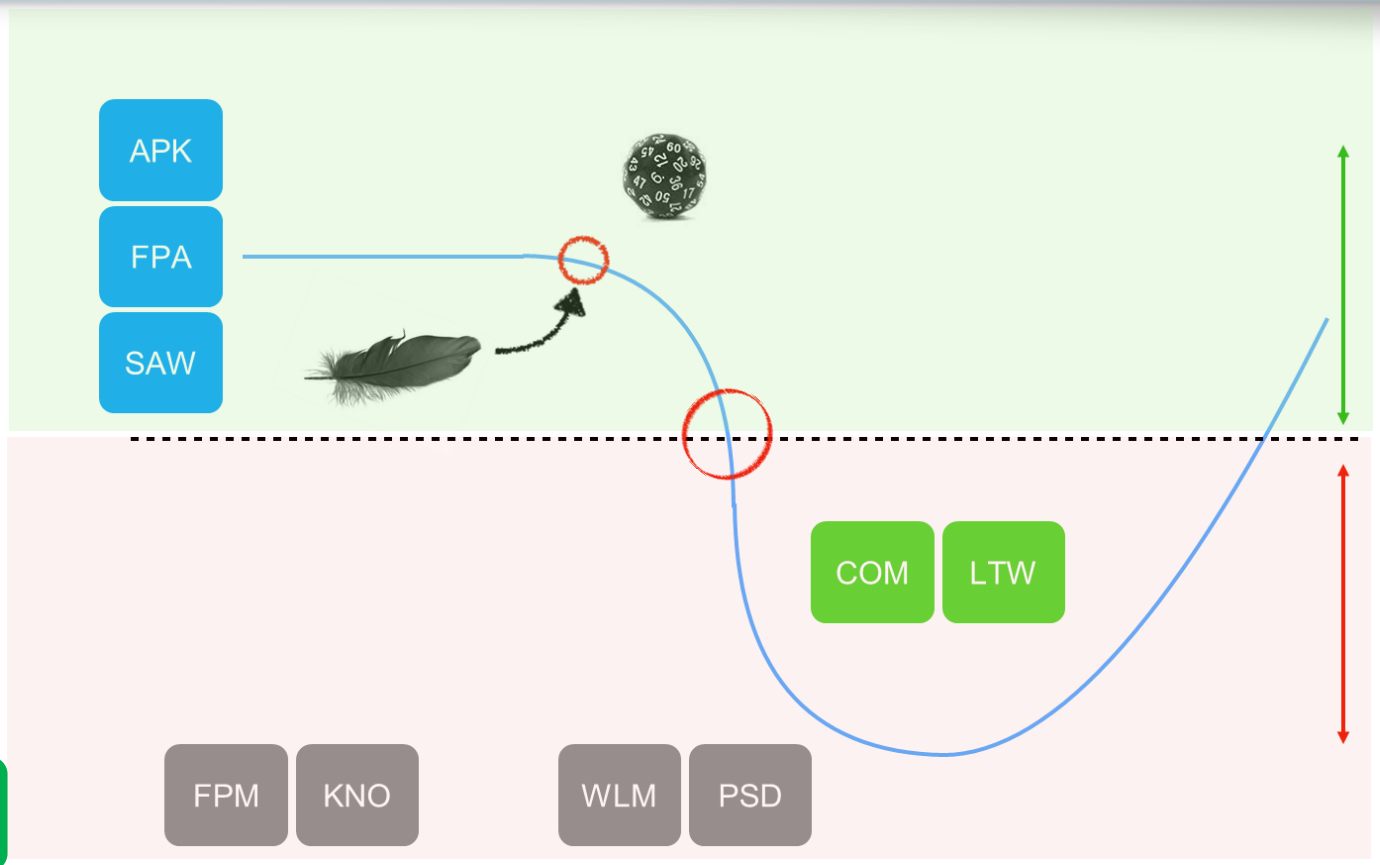
INSTRUCTORS

EBT competencies & grading



EBT competencies

- Resilience Tool Kit



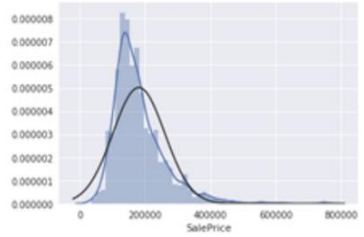
- Don’t forget to grade your competencies!!

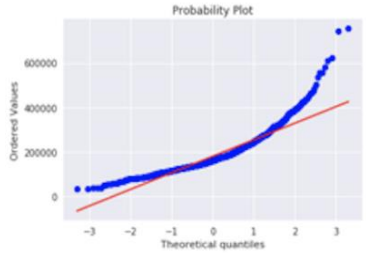
Instructors (ensure facilitation debriefings).

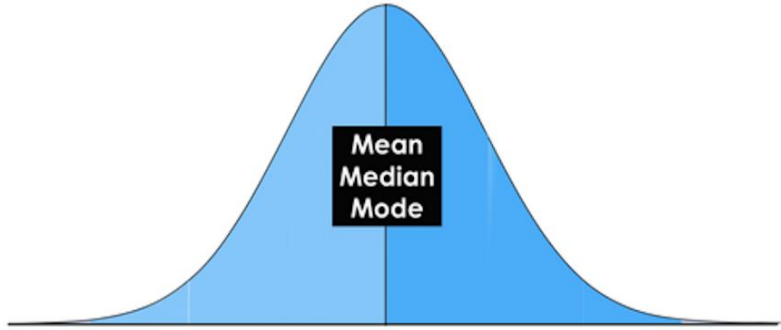
•INSTRUCTORS

•EBT BASE

•EBT BASE







- EBT Mixed: train your trainers.
- NO formal requirement on the content of that training.

•CONCORDANCE

Operator's EBT programme

- Training data:
  - 9 competencies
  - Grading 1 to 5
- by standardised instructors (concordance)

- Operational data: to contextualised the example scenario elements:
  - SMS
  - FDM…etc.

EBT programme

- Generic program: Training topics. ICAO Appendix II Doc9995 or EASA Appendix II to Part-ORO

Appendix II – Generation 4 – Generic programme.

1

2

3

	Assessment and training topic	Frequen	Flight phase for	Description (includes type of topic, being threat, error or focus)	Desired outcome (includes performance criteria OR training outcome)	Guidance material (GM) Example scenario elements	APK	COM	FPA	FPM	LTW	PSD	SAW	WLM	KNO
							Competency map								
Evaluation and scenario-based training phases	Engine failure	C	TO	Any engine failure or malfunction, which causes loss or degradation of thrust that impacts performance. This is distinct from the engine-out manoeuvres described in the manoeuvres training section above, which are intended only for the practice of psychomotor skill and reinforcement of procedures in managing engine failures	Recognise engine failure Take appropriate action Apply appropriate procedure correctly Maintain aircraft control Manage consequences	Take-off low speed	x			x		x	x		
			TO			Take-off high speed below V1	x			x		x		x	
			TO			Take-off above V1	x					x	x	x	
			TO			Initial climb	x					x	x		
			APP			Engine malfunction	x					x		x	
			CRZ			Engine failure in cruise (with autopilot)	x		x				x		
			LDG			On landing				x					
	Fire and smoke management	C	GND	This includes engine, electric, pneumatic, cargo fire, smoke or fumes	Recognise fire, smoke or fumes Take appropriate action Apply appropriate procedure correctly Maintain aircraft control Manage consequences	Fire in cargo or cabin/cockpit at gate	x	x				x		x	
			GND			Fire during taxi	x	x				x		x	X
			GND			Fire with no cockpit indication	x	x				x		x	X
			TO			Take-off low speed	x			x	x	x			X
			TO			Take-off high speed below V1	x			x	x	x			
			TO			Take-off high speed above V1	x				x	x			
			TO			Initial climb	x				x	x			
			CRZ			Cargo fire						x	x	x	
			APP			Engine fire in approach (extinguishable)		x				x			
			APP			Engine fire in approach (non-extinguishable)		x			x	x			
			APP			Flight deck or cabin fire		x			x	x			X
	Loss of communications	C	GND	Lost or difficult communications. Either through pilot mis-selection or a failure external to the aircraft. This could be for a few seconds or a total loss.	Recognise loss of communications Take appropriate action Execute appropriate procedure as applicable Use alternative ways to communicate Manage consequences	Loss of communications during ground manoeuvring	x	x							
			TO			Loss of communications after take-off	x					x			X
			APP			Loss of communications during approach phase, including go-around	x	x				x	x		X
	Managing loading, fuel, performance errors	C	ALL	A calculation error by one or more pilots, or someone involved with the process, or the process itself, e.g. incorrect information on the load sheet	Anticipate the potential for errors in load/fuel/performance data Recognise inconsistencies Manage/avoid distractions Make changes to paperwork/aircraft system(s) to eliminate error Identify and manage consequences	This can be a demonstrated error, in that the crew may be instructed to deliberately insert incorrect data, for example to take off from an intersection with full-length performance information. The crew will be asked to intervene when acceleration is sensed to be lower than normal, and this may be part of the operator procedures, especially when operating mixed fleets with considerable variations in MTOM.	x	x						x	

Steeps to develop an EBT programme

1. Take the appendix II to Part ORO (see EASA NPA 2018-07(B))
2. Select your aircraft generation (e.g A320 Generation 4)
3. Take the training topics applicable to your Generation (e.g GEN4) and distribute them in your 3 year programme with the correct frequency (e.g. A every 6 months, B every 1 year, C every 3 years)
4. For each training topic, choose the example scenario element depending on the competency/ies you want to trained (some training topics do not have all the competencies in the example scenario elements).
5. Contextualised your example scenario element with your operational data

QUESTIONS?

- WHAT'S NEXT?
  - Advice to stakeholders
  - Recommended documentation
- Coffee

Advice to stakeholders

- Follow the official documentation of your regulator (ICETRA), ICAO, and EASA.
- If you use private consultants contact reliable organisations such IATA.
- EBT is a worldwide global initiative that-was created and developed by many organisations. No single organisation or person can claim the original idea or ownership of EBT and its principles.
- EBT is long journey: 1-2 years of EBT principles and 2-3 of EBT mixed.
  - Instructor training (emphasis on facilitation).
  - Instructor concordance.
  - Feedback loop.

Supporting documentation to RMT0696 – EBT mixed

GM1 ORO.FC.230 (a);(b);(f)

1- Explanatory note to ED Decision 2015/027/R (Dec 2016).

2- ICAO Doc 9995.

3- IATA EBT implementation guide.

4- Transition to EBT - EASA checklist.

Documentation

- Primary documentation

- EASA EBT checklist: https://www.easa.europa.eu/sites/default/files/dfu/EBT%20Checklist%20V2.0.pdf
- ED Decision 2015/027/R Implementation of evidence-based training (EBT) within the European regulatory framework https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015027r. It includes:
  - Annex I to ED decision 2015/027/R: GM1 ORO.FC.230 (a); (b); (f). Recurrent training and checking to Part-ORO – Issue 2, Amendment 4; and
  - Explanatory Note to the ED Decision 2015/027/R.
- EASA Notice of proposed of Amendment 2018-07(B): https://www.easa.europa.eu/sites/default/files/dfu/NPA%202018-07%28B%29.pdf
- ICAO Doc 9995 AN/497 Manual of Evidence-based Training First Edition – 2013.

- For info:

- ToR RMT.0696 Implementation of Evidence-Based Training within the European regulatory framework https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0696.
- ToR (+ Concept Paper) RMT.0599 Evidence-based and competency-based training https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-concept-paper-rmt0599.
- IATA Data Report for Evidence-Based Training August 2014 1st edition.
- ICAO PANS Training DOC 9868.
- IATA Evidence-Based Training Implementation Guide July 2013.

EASA
European Aviation Safety Agency

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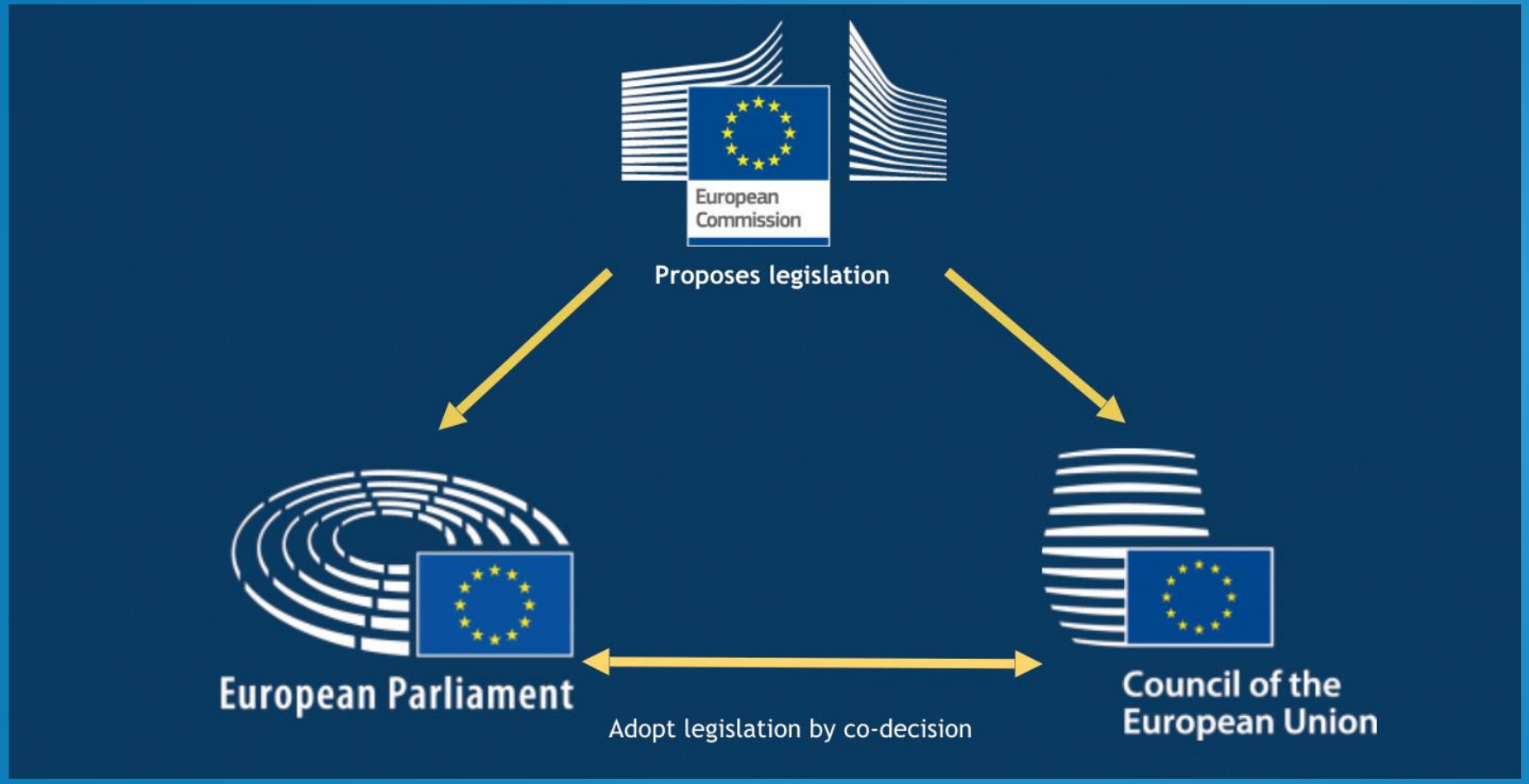

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