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Resilience: A Regional Safety Focus

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ACCELERATING SUSTAINABLE CONNECTIONS

Resilience: A Regional Safety Focus

- Intro
- Context
- Mitigations
- Way forward

Resilience : a regional safety focus

Silent endurance

“How can we distinguish “**resilient performance**” from “**silent endurance**” before the tragedy occurs?”

Flight Safety on a global scale

~200
operators/lessor

~100
countries

Various operations: Regional Airlines, Network Carriers, LCC, Charters, Cargo, VIP, Special Mission

Regional Airlines open routes.

Regional Airlines are operating in a specific market segment, with 1 flight hours to cycle ratio.

Regional Airlines have to be very creative, find ways to achieve the same standard, not the same implementation.

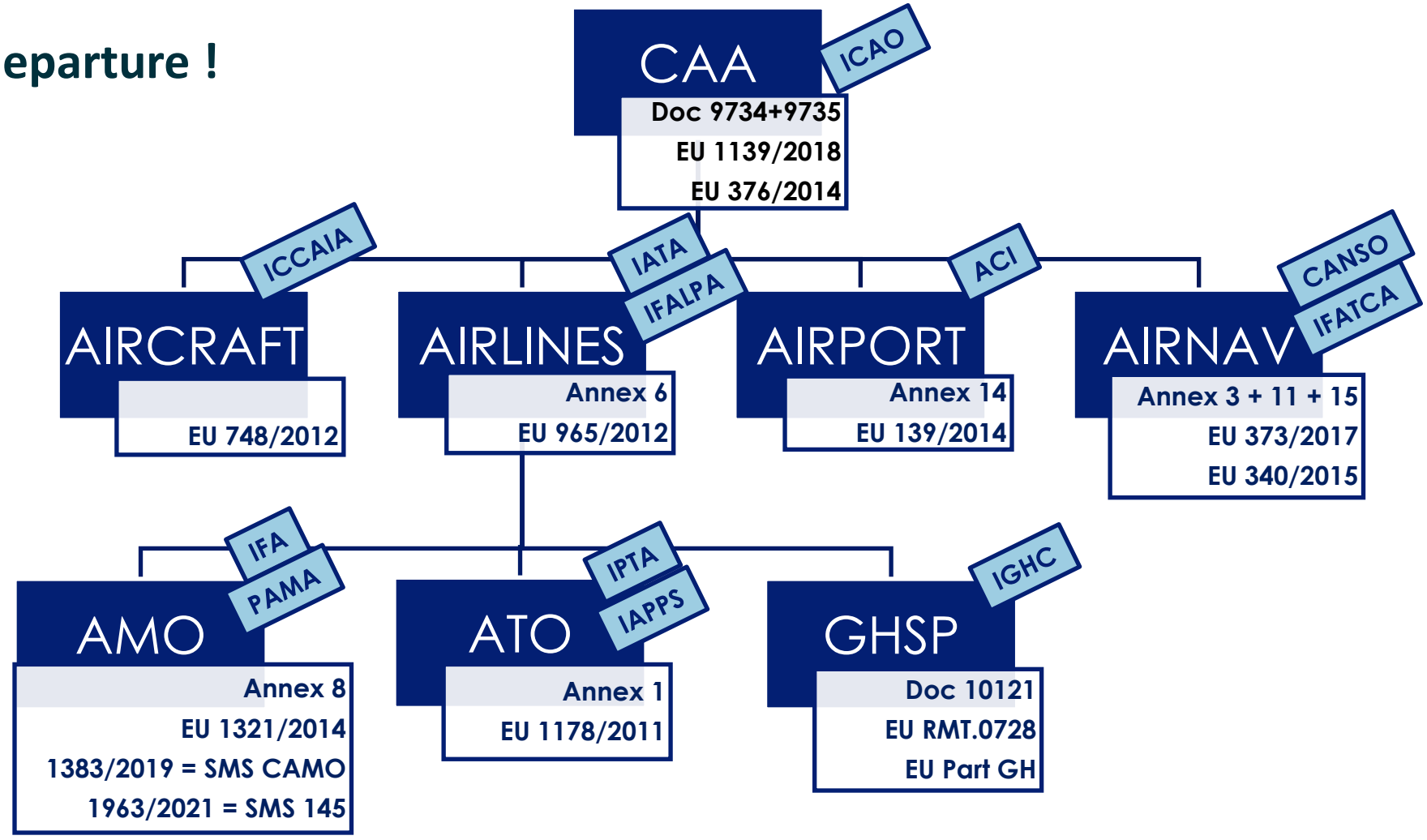
We expect flying crews to have a high level of physical & mental performance.

But how do we support regional flight crews to optimize their performance in their operational context ?


An accident doesn’t start in the cockpit.

Commercial Air Transport Eco-system

All must act before departure !



CAA

A French history of Reduced Rest regulation:

Civil Aviation Code (CAC)

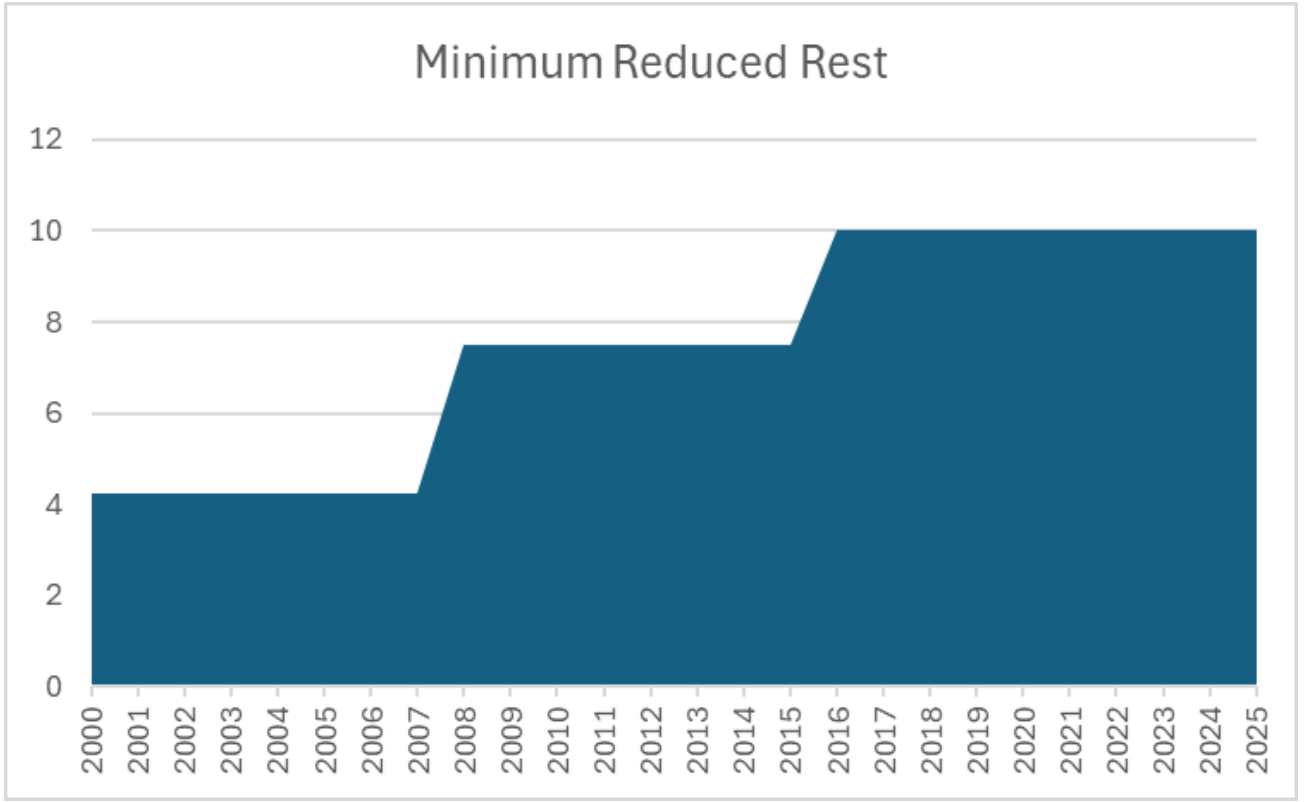
- Layover : **4h15**

Sub-Part Q (EU-OPS) since 16/07/2008

- Layover : **7h30** + 2x(t-15)

ORO.FTL (AIR-OPS) since 16/02/2016

- Layover : **10h00**
- 8h sleep



By regulation, rest period has improved for Reduced Rest in outstation.

PART 145 :

Shortage of team:

- In theory: 2 mechanics per night
- In practice: only 1 mechanic per night
- Deviation becoming the norm

Adaptation:

- Isolate critical tasks => 2 mechanics
  - **1 Execute**
  - **1 Control**

What about number of MEL ?
Max 3 in main base ?
When do we cross the line ?

OEM : OEB Reduction plan

(Operational Engineering Bulletin)

End 2020 : 44 active OEB for all ATR fleet.

ATR promotes the implementation of SB solutions (technical fix) that cancel OEBs
AND
Track implementation of the retrofit.

ATR have significantly reduced
the number of active OEB (Max 3 per AC).

GHSP and Airlines :
Regional Pilot acting as Coordinator

<u>In Outstation</u>

- Flight Plan, Fuel, W&B, luggage, safety perimeter, catering, seating, waiting for missing paper
- Walk Around in complete mindfulness (Pilot External Inspection : 5mn)
- Variable weather conditions

<u>Time keeper</u> <u>(turnaround coordinator):</u>

- Short turnaround (20mn)
- Number of legs (max 10)
- Delay
- Time pressure (Slot, Curfew, Sunset), Stress

⇒ **Hurry-up syndrome**

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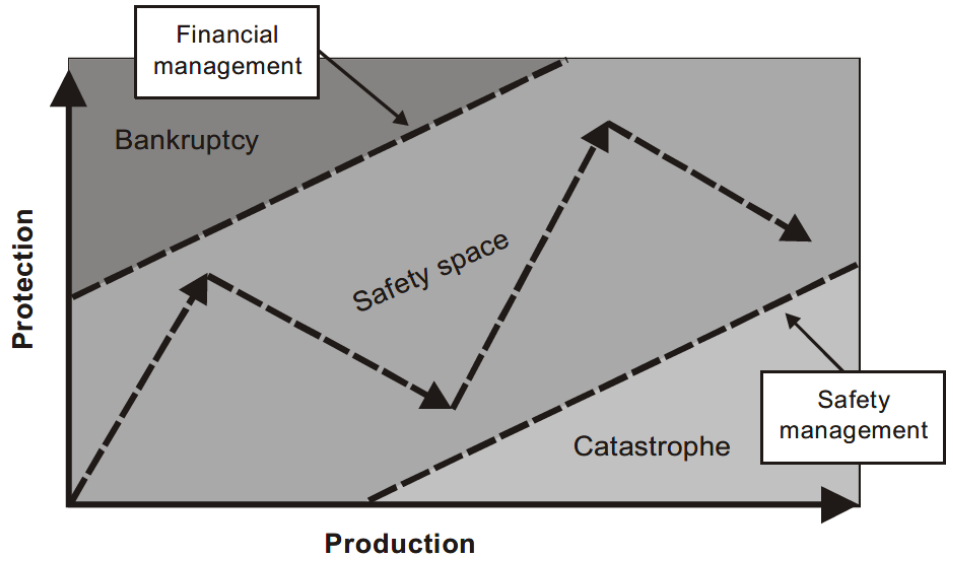
Airlines

Example outside EU

Sub Para	Maximum Flight Time	Maximum Flight Duty Period (in Hours)	Maximum No. of Landings
6.1.1	8 hrs	11:00	6
		11.30	5
		12:00	4
		12.30	3



EASA ORO.FTL.205 Flight duty period (FDP)

Maximum daily FDP — Acclimatised crew members

Start of FDP at reference time	1–2 Sectors	3 Sectors	4 Sectors	5 Sectors	6 Sectors	7 Sectors	8 Sectors	9 Sectors	10 Sectors
0600–1329	13:00	12:30	12:00	11:30	11:00	10:30	10:00	09:30	09:00

10 legs, high workload, no break
How do we ensure resilient performance ?

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Bio-Mathematical Model for Regional Airlines (high workload):

		Scoring after the flight:	
FDF	PTP	1,553	
PTP	SFG	1,995	
SFG	PTP	2,449	3 legs
FDF	PTP	3,535	
PTP	SFG	3,974	
SFG	PTP	4,412	
PTP	FDF	4,841	
FDF	PTP	5,277	
PTP	FDF	5,701	6 legs
FDF	PTP	3,999	
PTP	SFG	4,438	
SFG	PTP	4,864	
PTP	FDF	5,296	
FDF	PTP	5,724	
PTP	FDF	6,155	
FDF	PTP	6,584	7 legs

Samn Perelli Subjective Fatigue Scale

1. Fully Alert, wide awake
2. Very lively, responsive, but not at peak
3. OK somewhat fresh
4. A little tired, less than fresh
5. Moderately tired, let down
6. Extremely tired, very difficult to concentrate
7. Completely exhausted, unable to function

Mitigations : Workload

Build margin through :

Flight program analysis:

- Transit time (20mn : can/must ?)
- Curfew, sunset
- Break for rest & meal (1 long transit)

Operational reliability:

- Flight time per route
- Turnaround time per airport

Soft Rules (by survey, common sense)

Mitigations : Fatigue

Robustness and stability:

- Days off, work/rest cycles, morning/evening cycles
- Standby pilots' agreement

Training/Communication for pilots and roster manager:

- FTL and FRM training
- FTL is a limit, not a target
- Recover : 2 consecutive nights of unrestricted sleep

Nutrition for pilots:

- Alternate meals between Captain and First Officer
- Cf professional sports people (**protein > sugar**)

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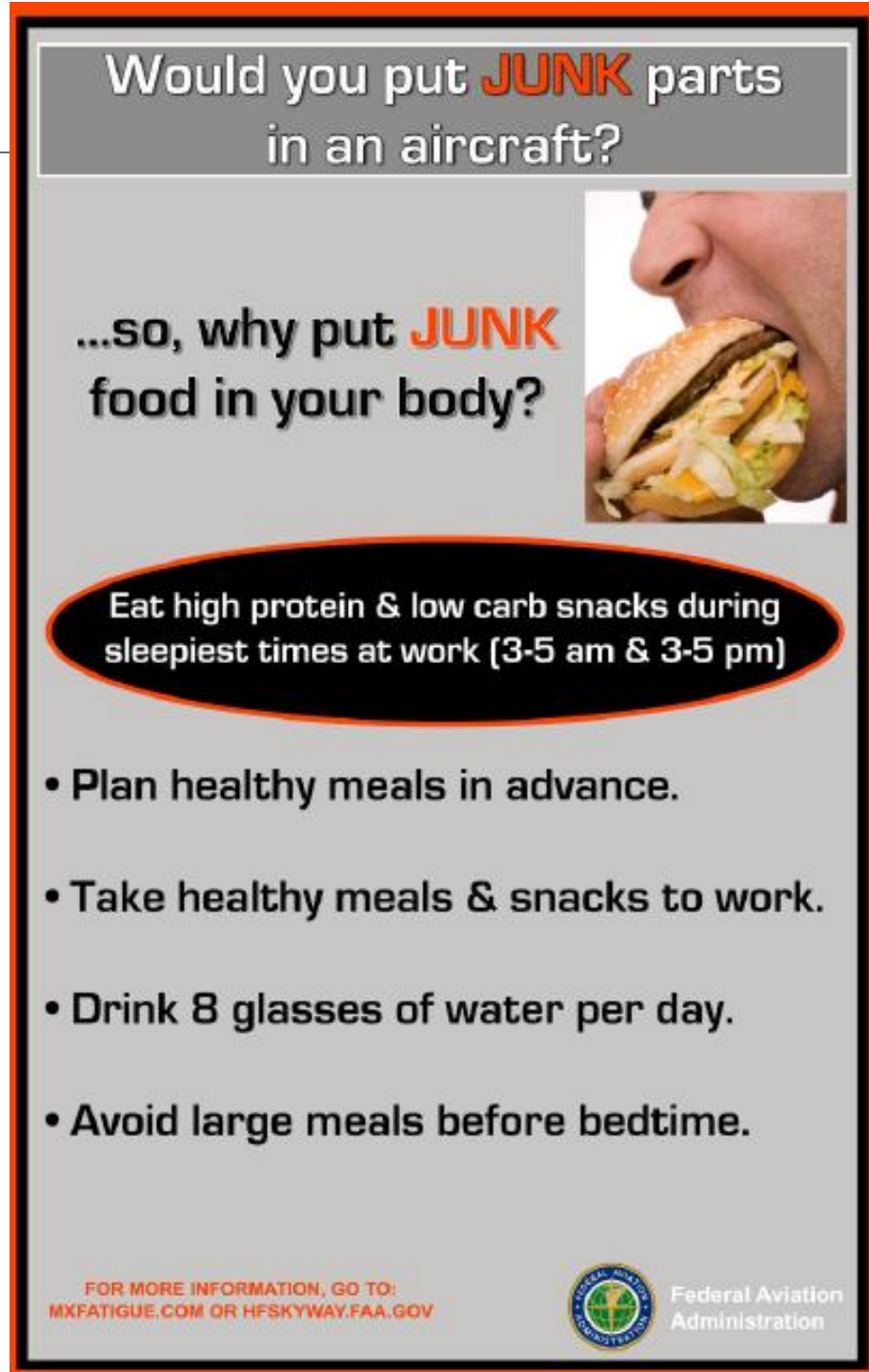

The way to Resilient Performance:
Fatigue report is a **weak signal.**

ATR recommends Regional Airlines to:

- Adapt SMS and handle properly weak signals
- Recognize fatigue as a risk
- Convince organisation to act
- Decide mitigations to organize and monitor…

ATR has proposed some specific cockpit recommendations :

Breaking the routine/repetition with special briefing (principles of Threat and Error Management).

Way forward

"How can we distinguish "**resilient performance**" from "**silent endurance**" before the tragedy occurs?"

"**Silent Endurance**"

Human, short term

Endure the pain, withstand the pain (heroes)

Normalization of Drift / Deviation

"**Resilient Performance**"

Organization, long term

Support the organization behind the crew

We build the safety margin before the cockpit.

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