



# FTL/FRM Workshop

## Main challenges when overseeing FRM & FTL schemes

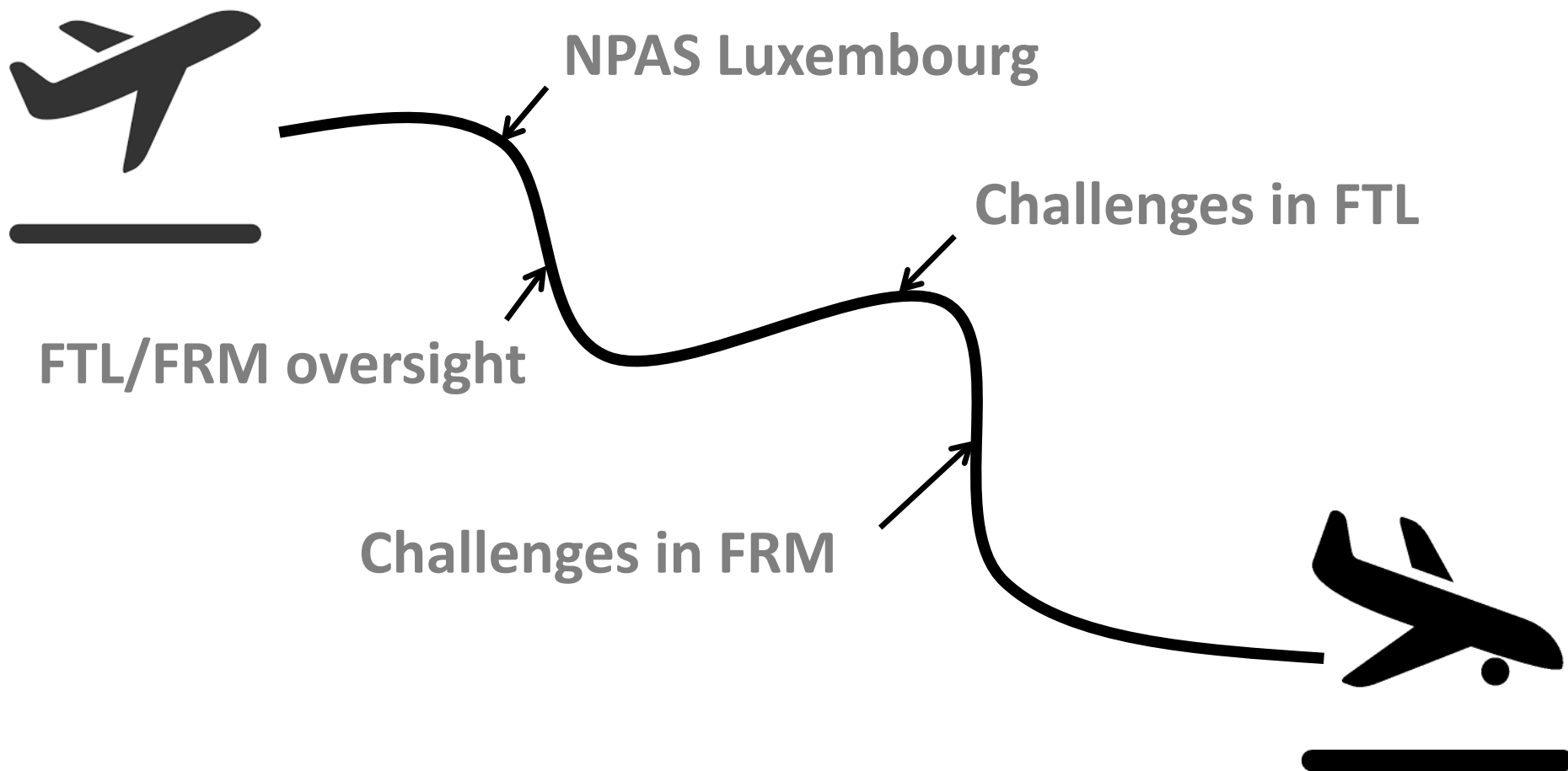
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DU GRAND-DUCHÉ DE LUXEMBOURG  
Ministère de la Mobilité  
et des Travaux publics

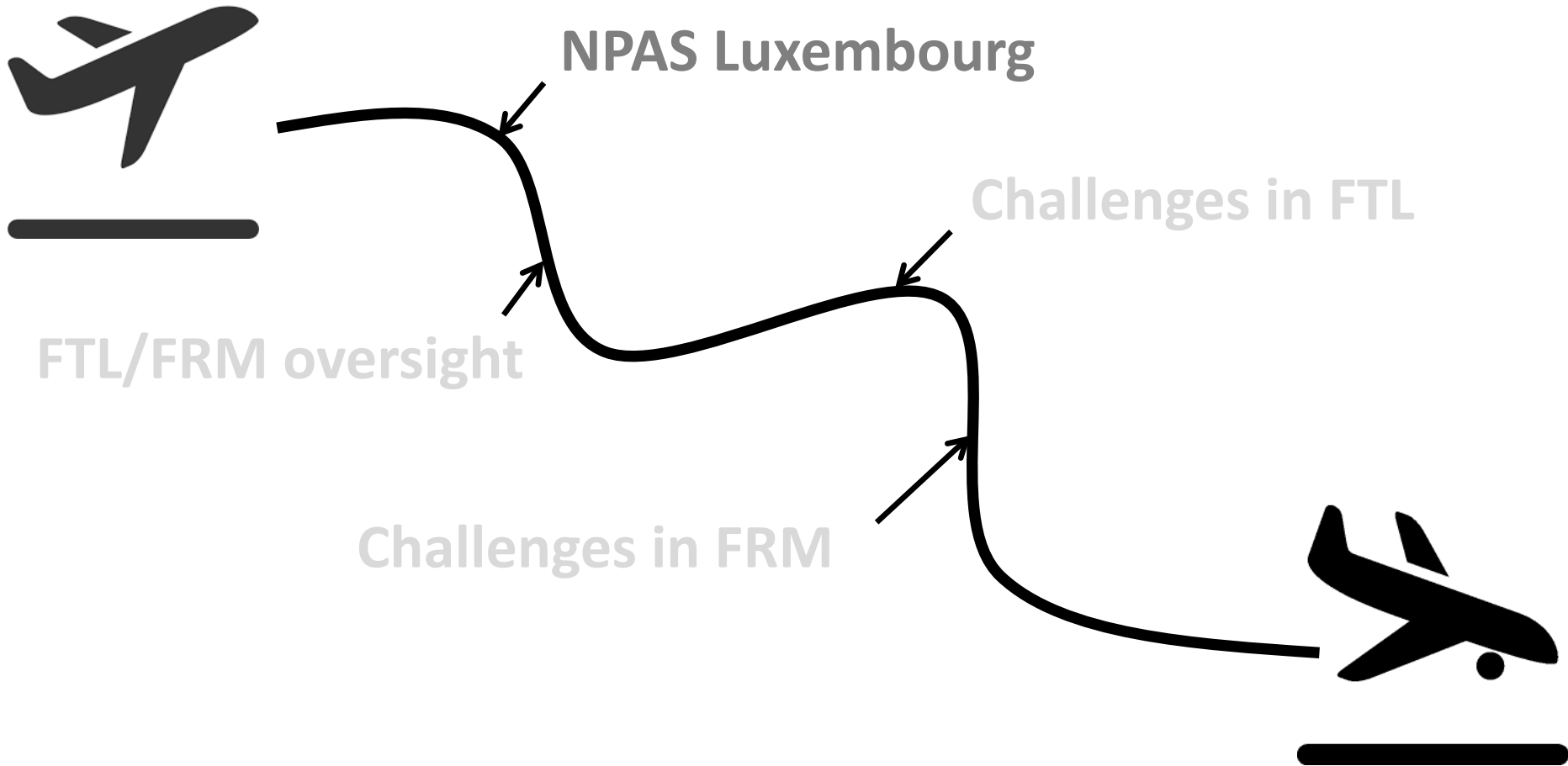
Direction de l'aviation civile



# Where are we?



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## ✈ National Plan for Aviation Safety:

✈ Updated in 2024

✈ Based on safety data

Safety Issue	
1	Fatigue
2	Risk of Mid-Air Collision
3	FOD
4	Windshear
5	Engine failure or problems - multi-engine aircraft
6	Technical - Landing gear
7	Incorrect aircraft setup by crew
8	Unstabilised approach
9	Aircraft deviation from ATC instruction
10	Technical - flight controls



## ✈ National Plan for Aviation Safety:

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### Safety Issue

#### 1 Fatigue

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## ✈ National Plan for Aviation Safety:

Title	Aviation personnel fatigue		
Description	As the aviation activities are growing rapidly in the last months, the hiring of qualified personnel is being difficult and quite long in time, there is a general lack of resources that leads to extra workload. Fatigue will reduce the ability to concentrate, remember and make decisions and could potentially lead to people being more easily distracted and eventually lose situational awareness. As the number of flights increases, the workload is increasing and there is a lot of pressure to make sure their aircraft are departing on time.		
Ongoing deliverables	Timeline	Owner	Status
Fatigue reporting promotion	2022-	DAC Air Operators	ongoing
Implementation of FRM principles	2022- 2025	Air Operators, ANA	ongoing
Raise awareness of all operational personnel to fatigue management	2022- 2025	All stakeholders	ongoing
References	DAC ASR 2022, EASA SI-5002, SI-1039		



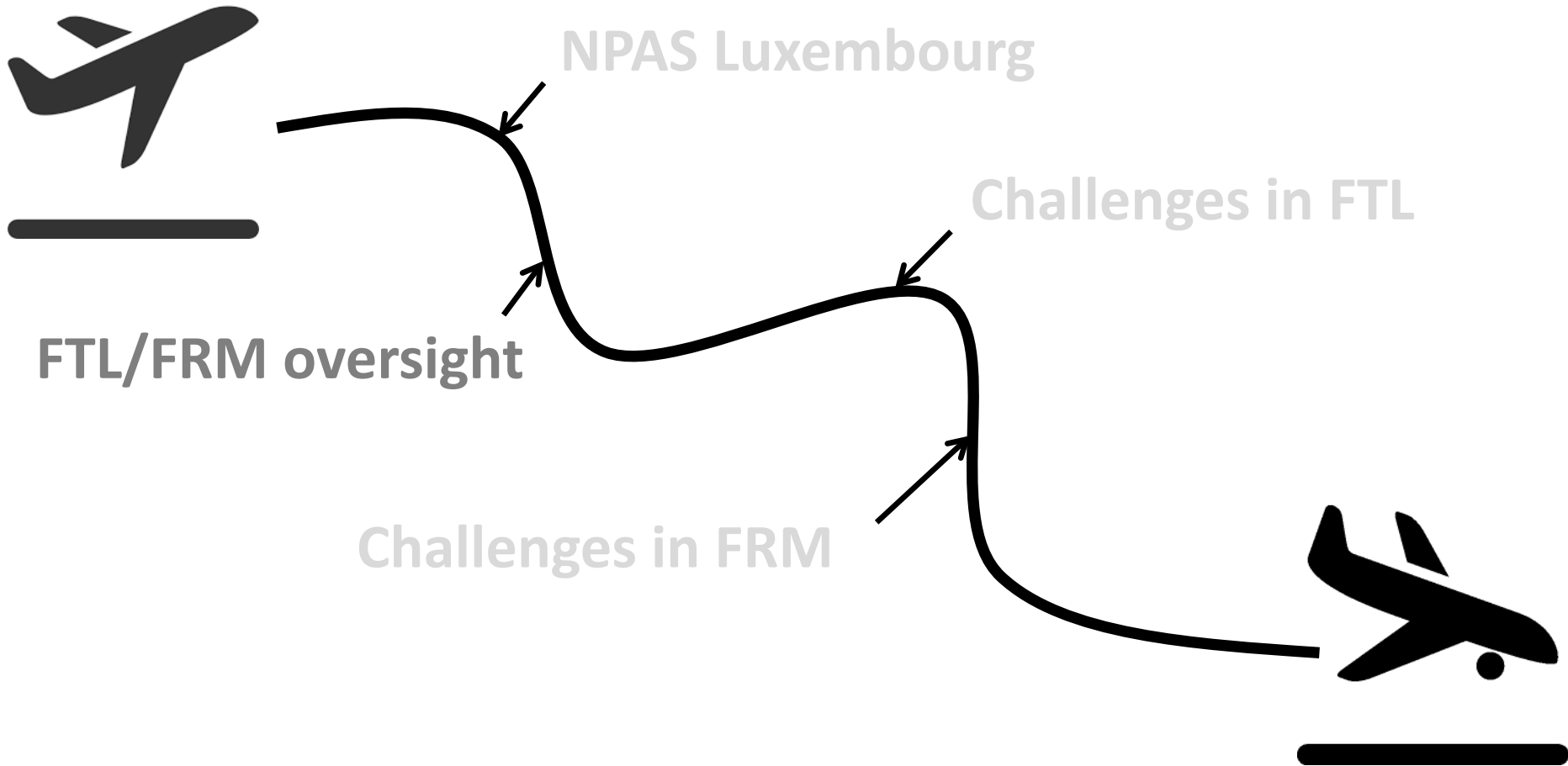
## ✈ National Plan for Aviation Safety:

Title	<b>Oversight capabilities/focus area: flight time specification schemes</b>			
Description	<p>Member States shall ensure that the NCAs possess the required competence to approve and oversee the operators' flight time specification schemes; in particular, those including fatigue risk management. NCAs should focus on the verification of effective implementation of processes established to meet the requirements on operators' responsibilities and to ensure the adequate management of fatigue risks. NCAs should consider the latter when performing audits of the operators' management systems.</p> <p>Feedback from Member States on the implementation of this action is normally obtained via EASA standardisation activities.</p>			
Past deliverables		Timeline	Owner	Status
Dedicated FRM inspection has been created in 2019		done	DAC-OPS	completed
Dedicated FTL inspection is in place.		done	DAC-OPS	completed
FTL is part of the risk profile of the operator which is used for the risk based oversight programme		done	DAC-OPS	completed
New and ongoing deliverables		Timeline	Owner	Status
Feedback to EASA on actions implemented to foster NCA's oversight capabilities		2024 Q4	DAC	new
References	EPAS MST.0034			

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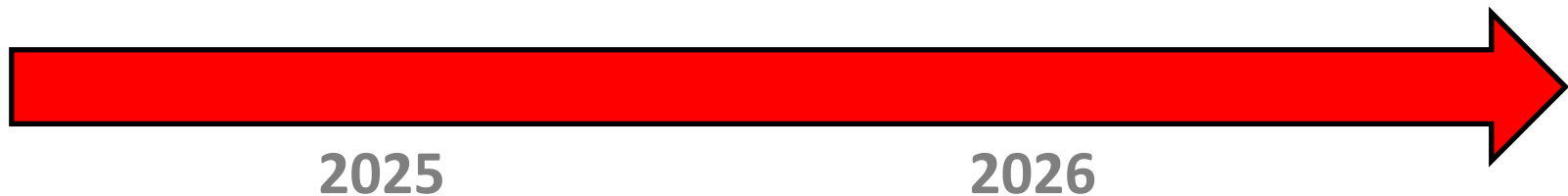


## ✈ Oversight programme structure:

✈ Basic oversight programme (24 months)

✈ FTL inspection

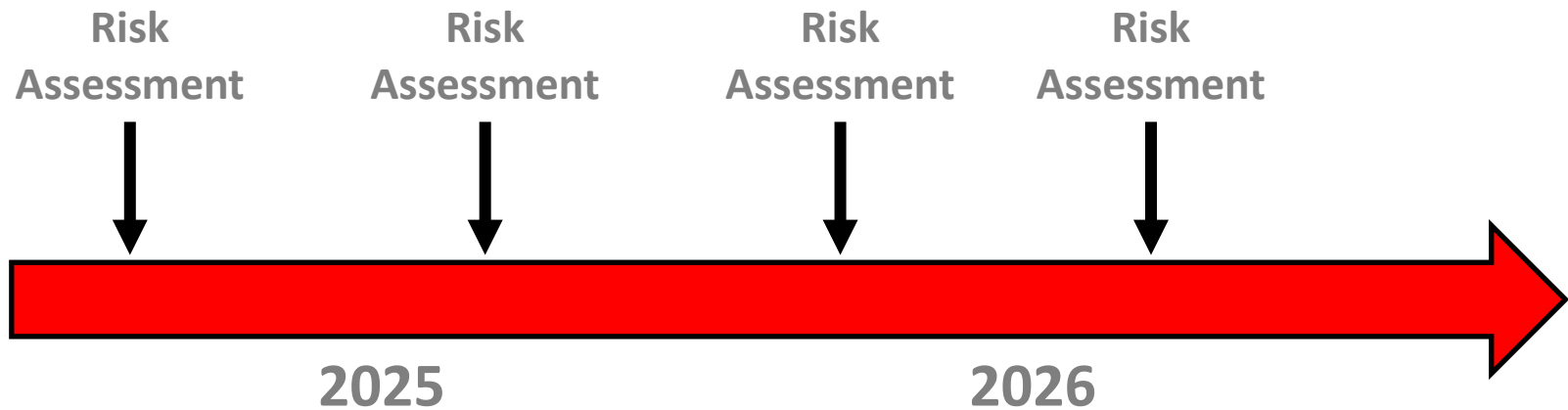
✈ FRM inspection





## ✈ Oversight programme structure:

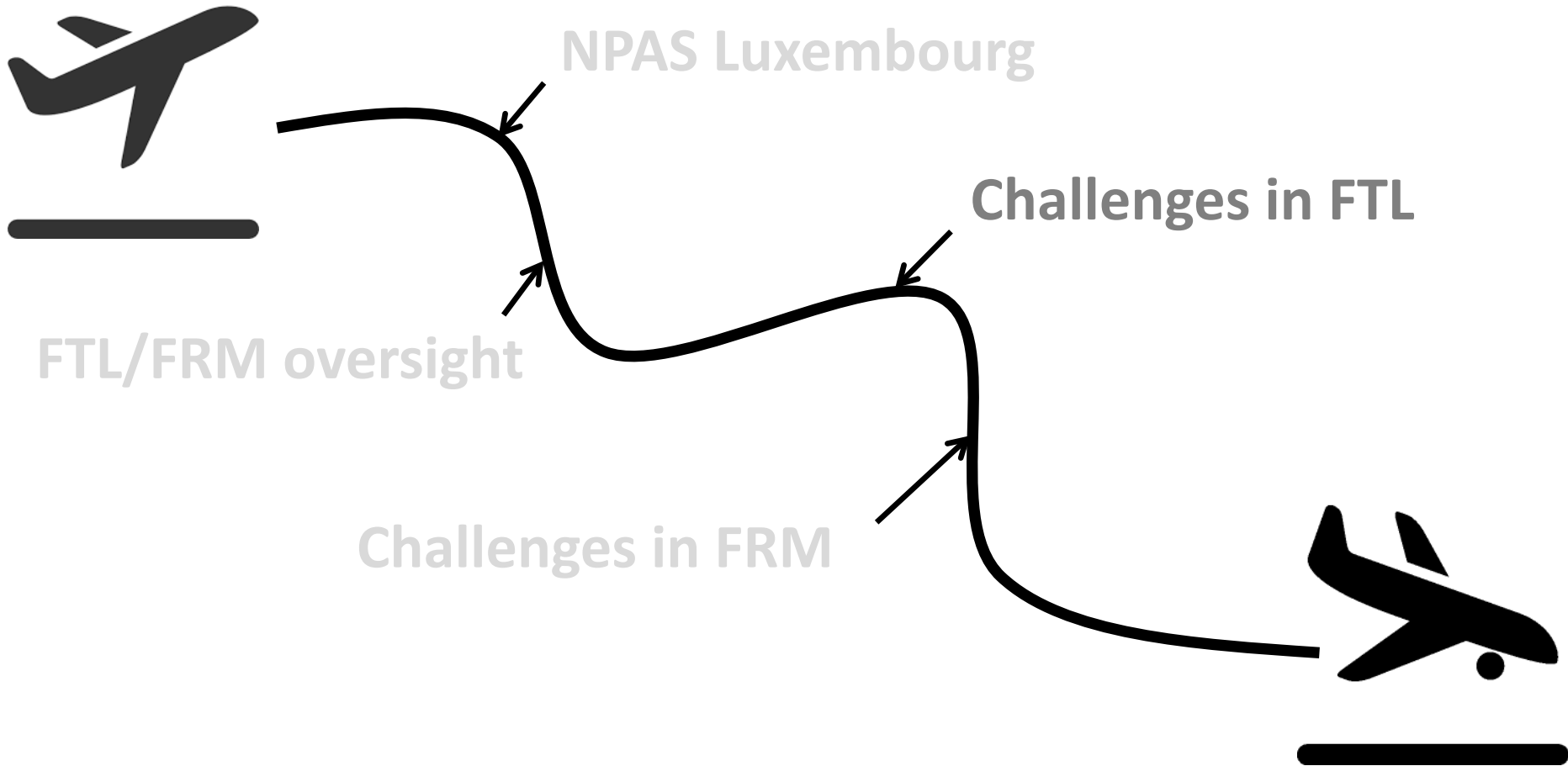
- ✈ Variable oversight programme (assessment every 6 months)
- ✈ Risk based
- ✈ FTL/FRM is taken into consideration for the risk profile
- ✈ Additional oversight in the field of FTL/FRM can be decided



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✈ To go beyond the prescriptive limits:

- ✈ Audit the global picture
- ✈ Focus on how the operator is fulfilling its responsibilities
- ✈ Approach the audit with a concrete example





## ✈ Examples of challenging topics:

- ✈ Crew scheduling staff
- ✈ Sampling methodology
- ✈ Roster changes management





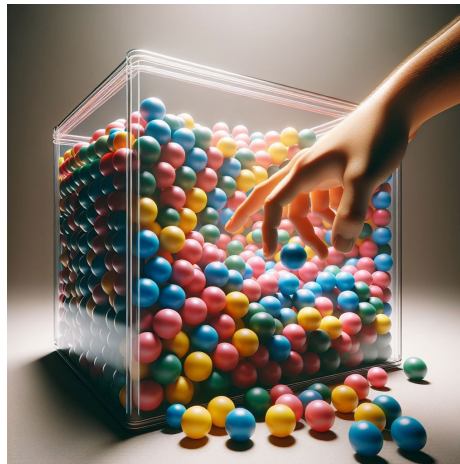
## ✈ Crew scheduling/crew control staff:

- ✈ Training?
- ✈ Understanding of FRM principles?
- ✈ Management of roster changes?
- ✈ Procedures used?



## ✈ Audit sampling methodology:

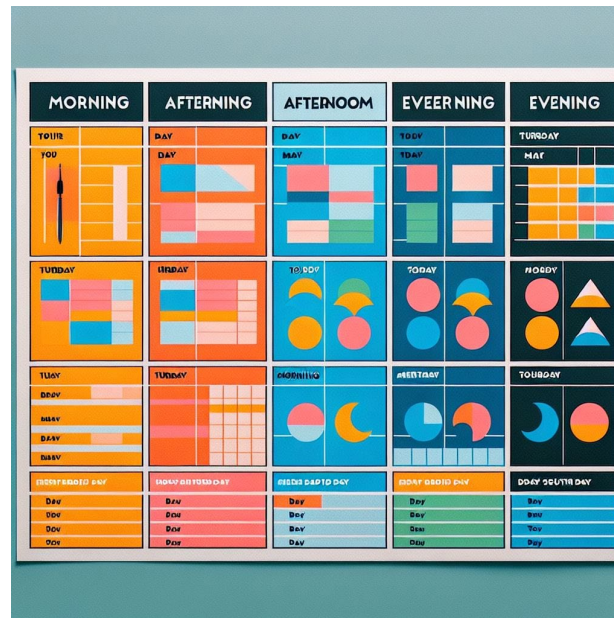
- ✈ A few examples are checked out of thousand rosters
- ✈ How to sample efficiently?
- ✈ If you have data from crew directly or from the pilots' representative, it can guide you on the cases to be investigated
- ✈ Otherwise, start the investigation with atypical cases such FDP with the use of commander's discretion





## ✈ Roster changes management:

- ✈ Focus on how roster changes are managed
- ✈ Delayed reporting procedure
- ✈ Use of standby crew
- ✈ Unforeseen circumstances in flight operations





# Where are we?



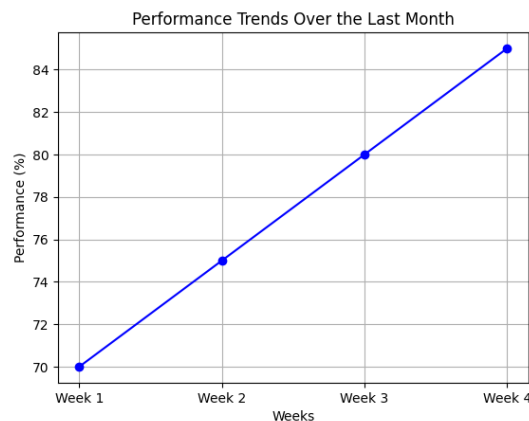
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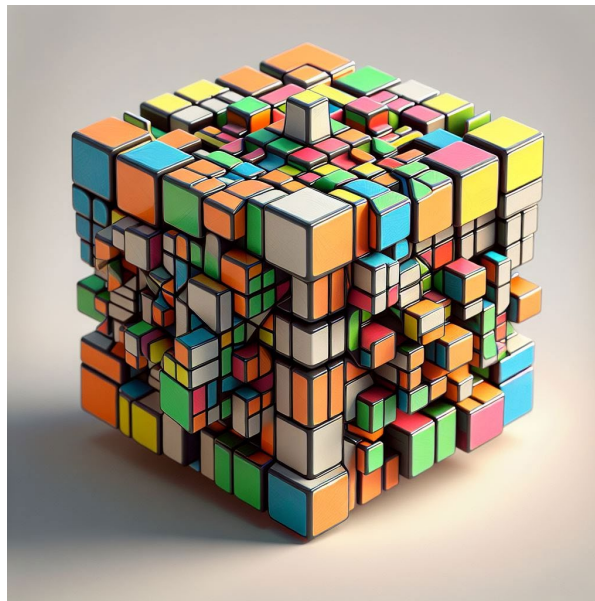
## ✈ Oversight of a performance-based regulation:

- ✈ Audit if the system is delivering the required performance
- ✈ Implementation of fatigue management principles in the decisions
- ✈ Are the hazards and related risks under control?



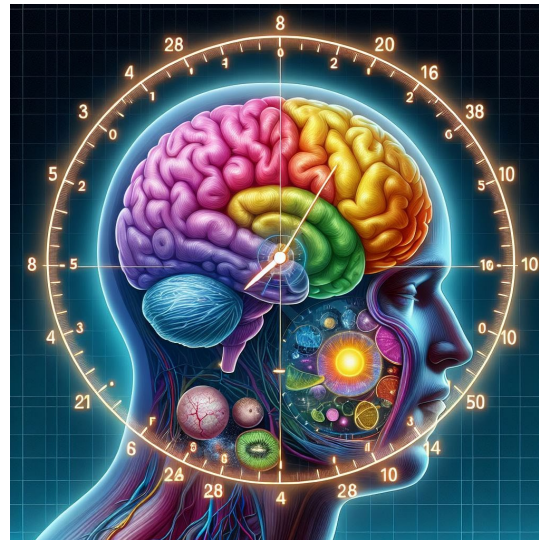
## ✈ Examples of challenging topics:

- ✈ Use of scientific knowledge and principles
- ✈ Data for fatigue hazard identification
- ✈ Risk assessment of Fatigue Reports



## ✈ Use of scientific knowledge and principles:

- ✈ Operators often focus only on bio-mathematical model
- ✈ The scientific principles of ICAO Doc 9966 are not always implemented in all FRM processes (need for sleep, sleep loss and recovery, circadian effects on sleep and performance, influence of workload)



## ✈ Data for fatigue hazard identification:

- ✈ Lack of fatigue reports
- ✈ No other methodologies used
- ✈ Surveys, routes studies, scientific publications... are not always considered by operators





## ✈ Risk assessment of Fatigue Reports:

- ✈ Methodology to be used
- ✈ Inclusion of scientific principles
- ✈ Importance of the criteria for likelihood and severity

Likelihood		Fatigue Severity							
		Catastrophic A		Hazardous B		Major C		Minor D	Negligible E
Frequent	5	5A	Accident	5B	Large safety reduction	5C	Significant safety reduction	5D	5E
Occasional	4	4A		4B		4C		4D	4E
Remote	3	3A		3B		3C		3D	3E
Improbable	2	2A		2B		2C		2D	2E
Extremely Improbable	1	1A		1B		1C		1D	1E



- Thank you for your attention
- Questions?