



**EASA**  
European Aviation Safety Agency

# PANEL#1: BUILDING SAFE AND EFFICIENT AIRCREW ROSTERS

Irina PETROVA  
Air Operations Expert  
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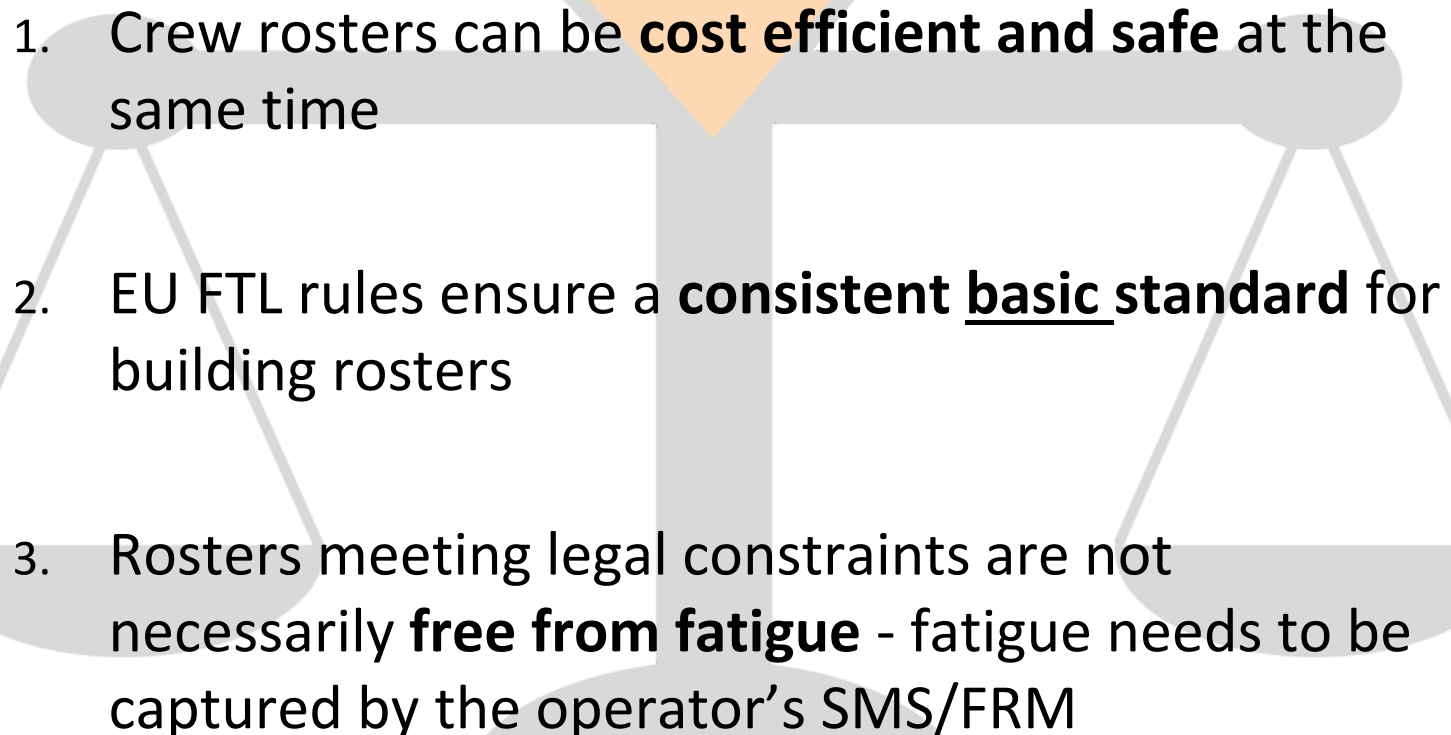
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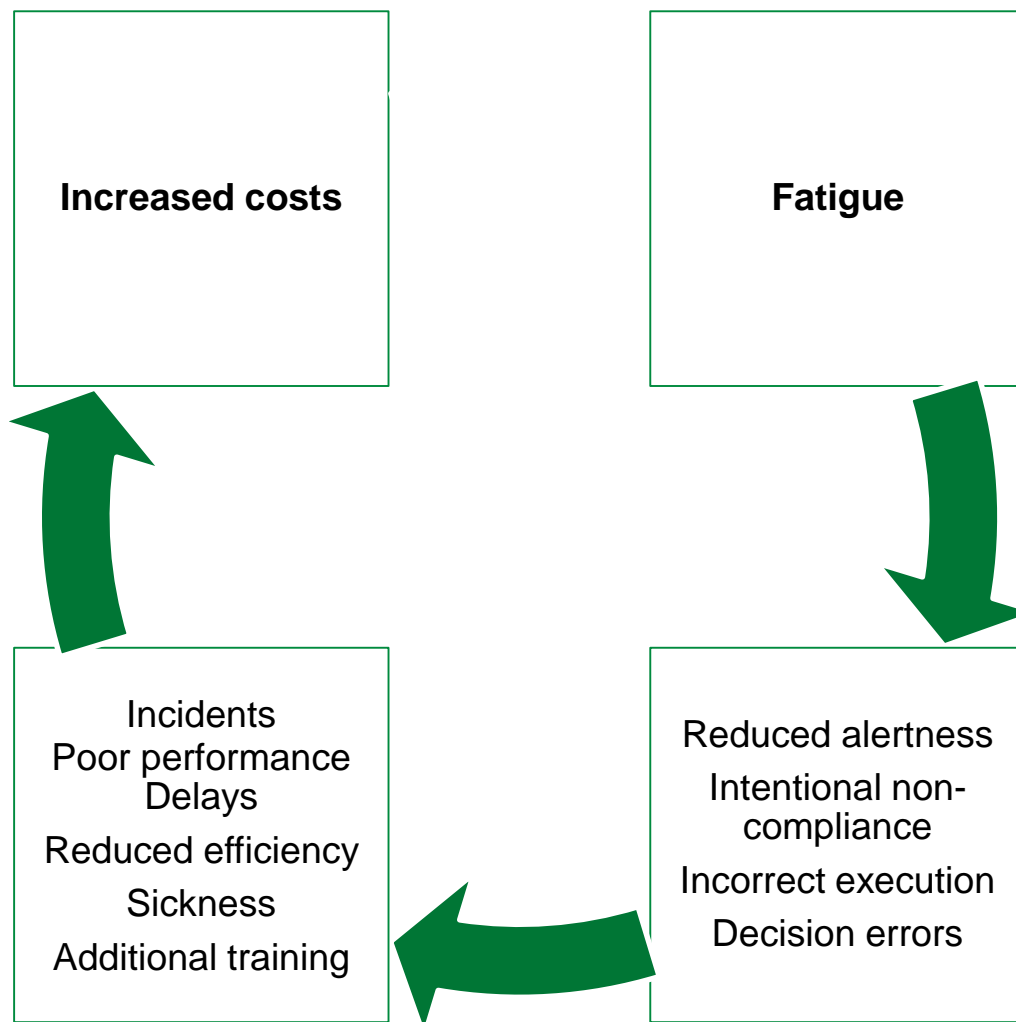


# Main messages

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1. Crew rosters can be **cost efficient and safe** at the same time
  2. EU FTL rules ensure a **consistent basic standard** for building rosters
  3. Rosters meeting legal constraints are not necessarily **free from fatigue** - fatigue needs to be captured by the operator's SMS/FRM



# Safety v. efficiency





# Basic rules for building rosters

Operator's main responsibilities with regard to rosters - ORO.FTL.110

- **advance publication** of duty rosters
- avoid or actively manage **fatiguing duties**
- allocate **sufficient rest periods**
- plan **feasible flight duties**
- ensure roster **stability** (**robustness**)



# Basic rules for building rosters

## Principles of rostering - AMC1 ORO.FTL.110

- **Balance** between the commercial needs and the capacity of individual crew members to work effectively, to sleep and to maintain a proper level of alertness
- **Even distribution** of work
- Account for all **legal constraints**



# Basic rules for building rosters

Operator's additional responsibilities with regard to rosters – CS FTL.1.225 (b)(2)

- avoid situations where the combination of standby and FDP would lead to more than **18 hours awake time**



# FRM – more efficient and safer rosters



Operators with FRM should have a reactive, proactive and predictive process to identify fatigue hazards

(AMC1 ORO.FTL.120(b)(4))



Predictive process includes examining crew rosters through the use of:

- operator or industry operational experience
- evidence-based scheduling practices
- bio-mathematical models



# Roster features that can contribute to fatigue



Reduced rest period



Daytime rest/sleep



Extended wakefulness



Circadian disruption



More than 4 sectors per day



Aircraft change



Training flights



Sim training



Time-zone crossing





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