



Experts in Fatigue Risk Management in aviation

Who are we?



- **World leading aviation consultancy firm** providing research and advisory services to the global aviation community
- Clients: **Airports, Air Navigation Service Providers, Institutions and Authorities, and Airspace users**
- Assist clients in improving operational performance across areas of **Safety, Environment, Efficiency and Capacity**
- **Data analysis combined with operational expertise**
- International experience & local presence
- Founded in 2000
- Over 200 satisfied clients and **more than 100 employees worldwide** plus part-time aviation professionals



- **World leading specialist in workforce planning & scheduling and Fatigue Risk Management**
- Clients in aviation: **Air navigation/Air traffic control service providers, Airlines, Airports**
- Assist organisations in striking the **perfect balance between people, resources and time**
- **Strategic, tactical and operational solutions**
- International experience in all areas of economy including aviation
- Founded in 1987
- Over 1500 satisfied clients and **more than 180 employees worldwide**

Introduction to Fatigue Risk Management



Fatigue

- is inevitable in a 24/7 industry
- cannot be eliminated



Must (therefore) be managed



Fatigue risk management deals with assessing and addressing the safety implications of fatigue.

It is a shared responsibility of:

- State
- Service provider
- Operational personnel

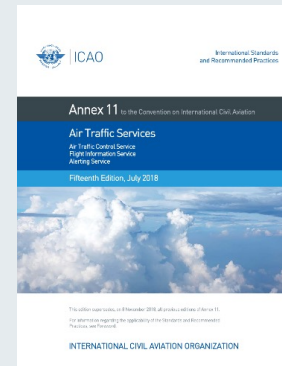
Fatigue Risk Management: why?

Compliance

- Mandatory by ICAO since November 2020

FRM benefits

- Improve operational task performance
- Improve safety
- Improve employee alertness
- Improve general well-being (thereby reducing staff turnover)
- Gain operational flexibility (FRMS)



Situational awareness



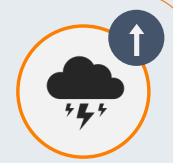
Decision-making



Ability to communicate and interact



Omissions and errors

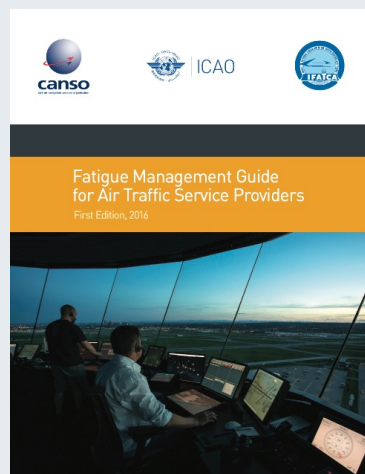


Ability to oversee unexpected situations

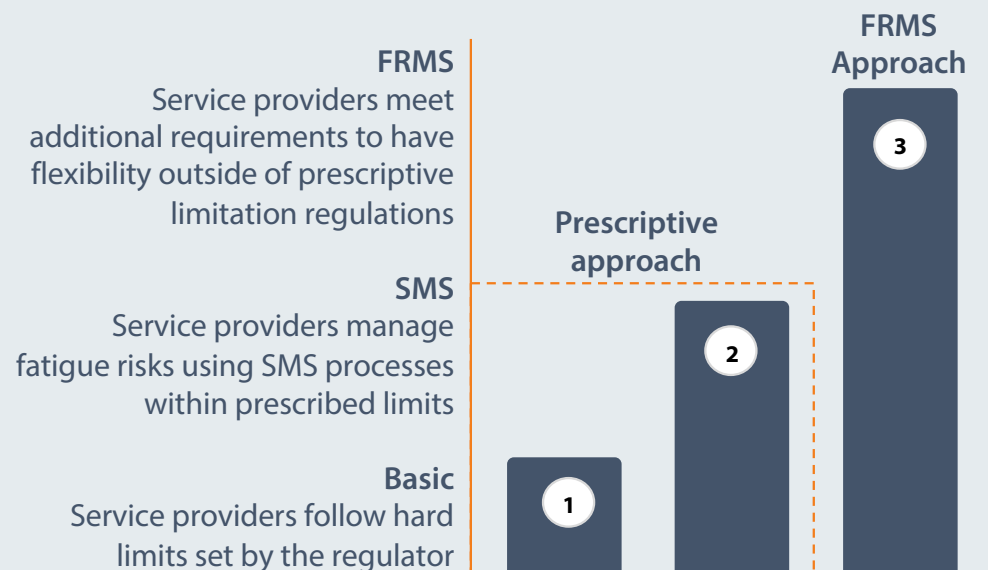
Fatigue Risk Management: how?

ICAO distinguishes between different approaches

- Prescriptive approach
- Performance based approach (FRMS approach)



Three-step process towards a Fatigue Risk Management System



Based on ICAO Doc 9966
"Manual for the Oversight of Fatigue Management Approaches"

26 October 2021

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Towards FRM

Assessing and addressing the safety implications of fatigue

Your challenges



- Insufficient insight into the fatigue hazards
- Insufficient insight into how to address the fatigue hazards by appropriate countermeasures and mitigations
- Insufficient fatigue expertise to give substance to the shared responsibility regarding FRM

Our services



Research



Recommendations



Training

Our services



Research

ICAO SARPs identify different types of data and information to monitor in order to assess fatigue hazards in daily operations and/or schedules.

To70/Déhora can assist in identifying fatigue hazards by:

- Fatigue assessment (questionnaire, log study during duties, interviews)
- Sleep assessment (sleep diary, actigraphy)
- Roster analysis (biomathematical tooling)
- Workload assessment (survey, site visits, performance data)

Our services



Recommendations

Based on the assessment of the fatigue hazards appropriate countermeasures and mitigations should be developed.

To70/Déhora can assist in providing recommendations aimed at the State and the Service provider to:

- Optimise daily operations.
- Set the appropriate parameters for prescriptive limitations on working hours.
- Support the implementation of a Fatigue Risk Management System.

Our services



Training

In order to give substance to the shared responsibility regarding FRM, fatigue expertise is essential for Air Traffic Controllers, Schedule makers, Senior management and Safety related personnel.

To70/Déhora can provide fatigue training on:

- The basics of fatigue including sleep fundamentals and the effects of disturbing the circadian rhythms.
- The causes of fatigue, including medical conditions that may lead to fatigue.
- How to identify fatigue in oneself and in others.
- The effect of fatigue on performance and fatigue countermeasures.
- The influence of lifestyle, including nutrition, exercise, and family life, on fatigue.
- Familiarity with sleep disorders and their possible treatments.

Our experience



Asian CAA

Commissioned by an Asian Civil Aviation Authority, a study regarding fatigue management of Air Traffic Controllers was conducted. The study consisted of a benchmark and a fatigue hazard identification. Based on the results, regulation drafts for the management of fatigue were provided as well as supporting measures.

European ANSP

For a European ANSP, the organization and staffing of (standby) night shifts was analysed. Based on the results of questionnaires, logs, group interviews and roster analysis, a report was delivered with the most important findings, including concrete and hands-on recommendations.



European airline

For a European airline, the work and rest time patterns of both planned and actual flight assignments were analysed using biomathematical models. In addition, a retrospective survey among crew members was conducted. Based on the results, new limitations on working hours were implemented.

Our team



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*Experienced ATM expert that
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*Leading expert in fatigue
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*Licensed air traffic controller and
supervisor with years of
experience in fatigue risk
management*

Why us?

Combined Fatigue and ATM knowledge, with experience and resources

- Our team consists of a combination of scientific researchers and experienced operational experts, such as ATCOs, supervisors and airline pilots.
- Our team possesses the required knowledge, tools, experience and resources to successfully fulfil any FRM project in aviation.
- Our team has successfully completed FRM projects for other ANSP's and airlines.
- Our team can include a local partner in your country, making fast and easy communication possible.



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