What Is Fatigue Management? How Does It Relate to Our Fatigue Risk Management Plan? Intro to New Guidance

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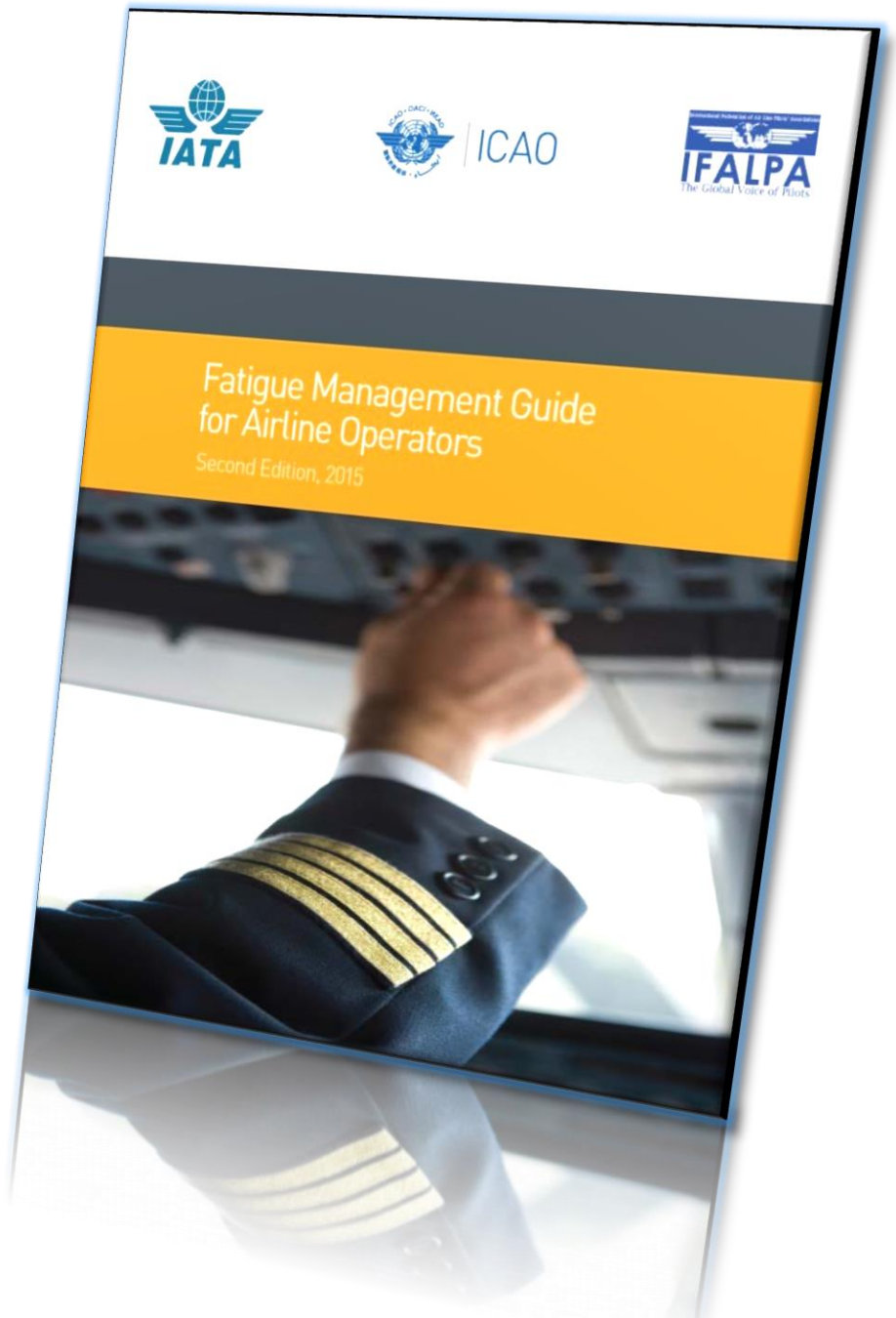
Fatigue Management

New Guidance

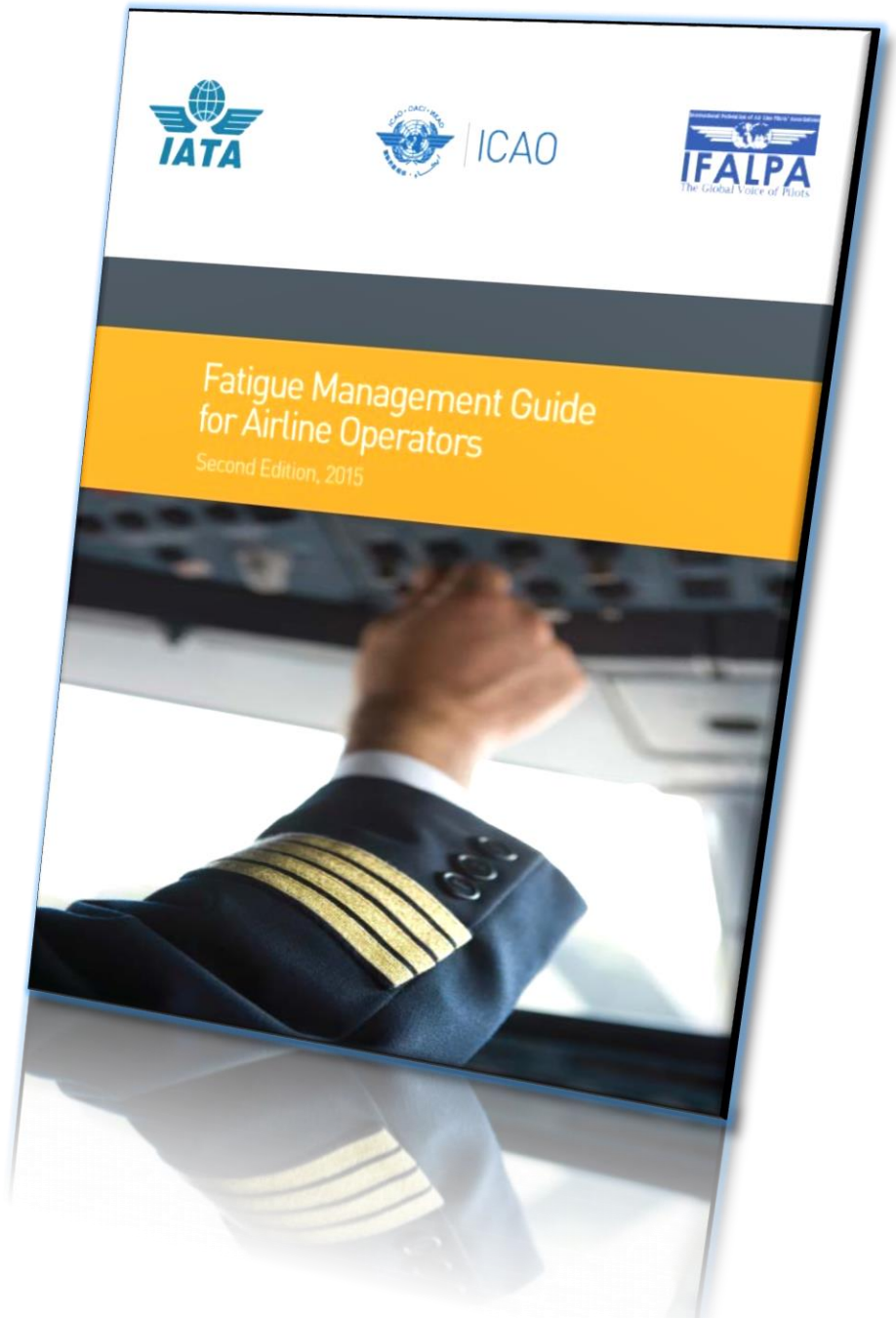
Fatigue Management Guide for Airline Operators, Second Edition, 2016

- Co-branded by IATA, ICAO, IFALPA
- Replaces previously released *FRMS Implementation Guide for Airline Operators*
- Designed as a companion document to the *Manual for the Oversight of Fatigue Management Approaches* (ICAO Document 9966)



New Guidance

- Fatigue Management
  - Scientific Principles
  - Operations Knowledge and Experience
- Prescriptive Approach
- FRMS Approach



Fatigue Management

- Fatigue management refers to the methods by which Service Providers and operational personnel address the safety implications of fatigue. In general, the ICAO SARPs support two distinct approaches for fatigue management:
  - the operator complies with prescriptive flight and duty time limits defined by the regulator, and manages fatigue hazards using the SMS processes that are in place for managing other types of hazards; or
  - the operator develops and implements a Fatigue Risk Management System (FRMS) that is approved by the regulator

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FM approaches share two important basic features.

- First, they are based on ***scientific principles*** and knowledge as well as ***operational experience***.
- Second, because fatigue is affected by all waking activities (not only work demands), fatigue management has to be a ***shared responsibility*** between regulators, operators and crew members.

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Scientific Principles and Operational Experience

- the need for adequate sleep (not just resting while awake) to restore and maintain all aspects of waking function (including alertness, physical and mental performance, and mood); and
- daily rhythms in the ability to perform mental and physical work, and in sleep propensity (the ability to fall asleep and stay asleep), that are driven by the circadian clock in the brain; and
- the contribution of workload to fatigue and physical and mental performance degradation; and
- the operational context and the safety risk that a fatigue-impaired crew member represents in that context.

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Scientific Principles

- Periods of wake need to be limited. Getting enough sleep (both quantity and quality) on a regular basis is essential for restoring the brain and body.
- Reducing the amount or the quality of sleep, even for a single night, decreases the ability to function and increases sleepiness the next day.
- The circadian body clock affects the timing and quality of sleep and produces daily highs and lows in performance capacity on various tasks.
- Workload can contribute to crew member fatigue. Low workload may unmask physiological sleepiness while high workload may exceed the capacity of a fatigued individual.

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Operational Knowledge and Experience

1. Effective fatigue management not only requires consideration of scientific principles, but also needs to be based on operational knowledge and experience.
2. Science generally aims to develop principles that can be broadly applied. Many of the scientific studies that underpin the principles do not have flight operations as their primary focus, but the findings are applied in flight operations.
3. Note that prior operational experience alone is not sufficient for fatigue management. A safety case requires more than just the argument that ‘we have always done it this way’.
4. Contextual factors are categorized as relating either to the flight operations context or to the broader organizational context.

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Operational Knowledge and Experience- Flight Operations Context

Operational context covers factors that a crew member experiences on duty, such as local environmental factors, working conditions, and the influence of crew member qualifications and experience (both their own and that of the other crew members they are working with).

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Factor in operational context	
Specific fleet attributes	☐ The quality of on-board rest facilities and policies for their use ☐ Patterns and types of flying (e.g., long-haul versus short-haul)
Routes and destinations	☐ Airport traffic density ☐ ATC behaviours ☐ Time spent in ground transportation ☐ Standard of layover accommodation ☐ Availability of food and water ☐ Social opportunities ☐ Cultural differences
Experience in managing operational demands	☐ Experience level in aircraft type (of crew members and of the operator) ☐ Experience on type of operation ☐ Experience level as pilot in command ☐ Experience level at specific airline
Staffing Levels	☐ Sufficient to be able to offer adequate sleep opportunities during and between pairings to avoid cumulative fatigue ☐ Sufficient staff to cover sickness and other absences ☐ For cabin crew, a sufficient number of crew members to cover the service needs on a given flight
Irregular operations	☐ Frequency of the need to use Captain's discretion/duty period extensions ☐ Frequency of disruption to schedules and the assignment of unscheduled duties ☐ Pressures to complete schedule

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Operational Knowledge and Experience- Organizational Context

Knowledge of the context in which the organization operates can provide an understanding of the pressures it faces and the factors that affect how it is able to address fatigue issues. Organizational context also relates to how the organization does things internally.

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Factor in organizational context	
Career stability	☐ Commercial pressures ☐ Changing employment arrangements (e.g., labour agreements, use of contract employees) ☐ Bankruptcy/receivership/merging airlines
Level of autonomy of crew during a duty period	☐ Pressures (commercial and personal) to complete the “mission” ☐ Geographic separation from the crew support team , i.e., immediate support and supervision is not always readily available ☐ Crew members are the final link in the safety chain for every flight
Fatigue management structure	☐ Fatigue management is integrated into day-to-day risk management activities versus being the responsibility of an independent group or individual
Effective reporting practises	☐ Safety reporting system ☐ Ease of reporting fatigue hazards ☐ Implications for a crew member of submitting a report ☐ Actions by operator in response to fatigue reports

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Operational Knowledge and Experience- Workforce Characteristics

Within an organization, knowledge of the composition, behavior and customs of the workforce provide context to the fatigue issues that may affect individual crew members and flight deck or cabin crews, as well as how best to manage them.

Workforce factor	
Crew cultures	Nationality, fleet or rank, home base, generation and gender Communication Crew co-ordination Attitudes towards safety and fatigue
Procedural differences	Division of in-flight roles, allotment of on-board rest, etc.
Experience of crew members	Varying degrees of operational experience in both type of aircraft and crew position

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Roles and Responsibilities

- Regulator is responsible for providing a regulatory framework and ensuring that operators manage their fatigue-related risks to achieve an acceptable level of safety.
- Operators are responsible for providing fatigue management education, creating pairings and rosters that enable crew members to perform their duties safely, and implementing processes for monitoring and managing fatigue hazards.
- Crew members are responsible for arriving fit for duty, including making appropriate use of rest breaks to obtain sleep, and for reporting fatigue hazards.

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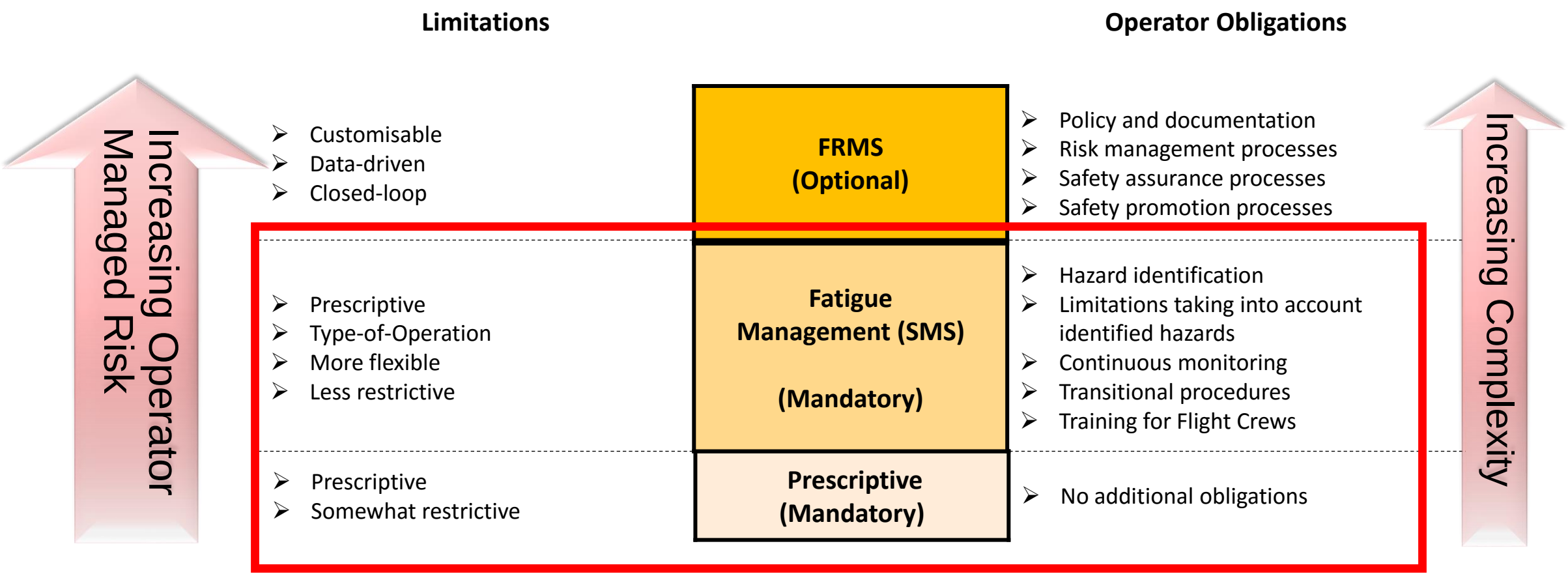
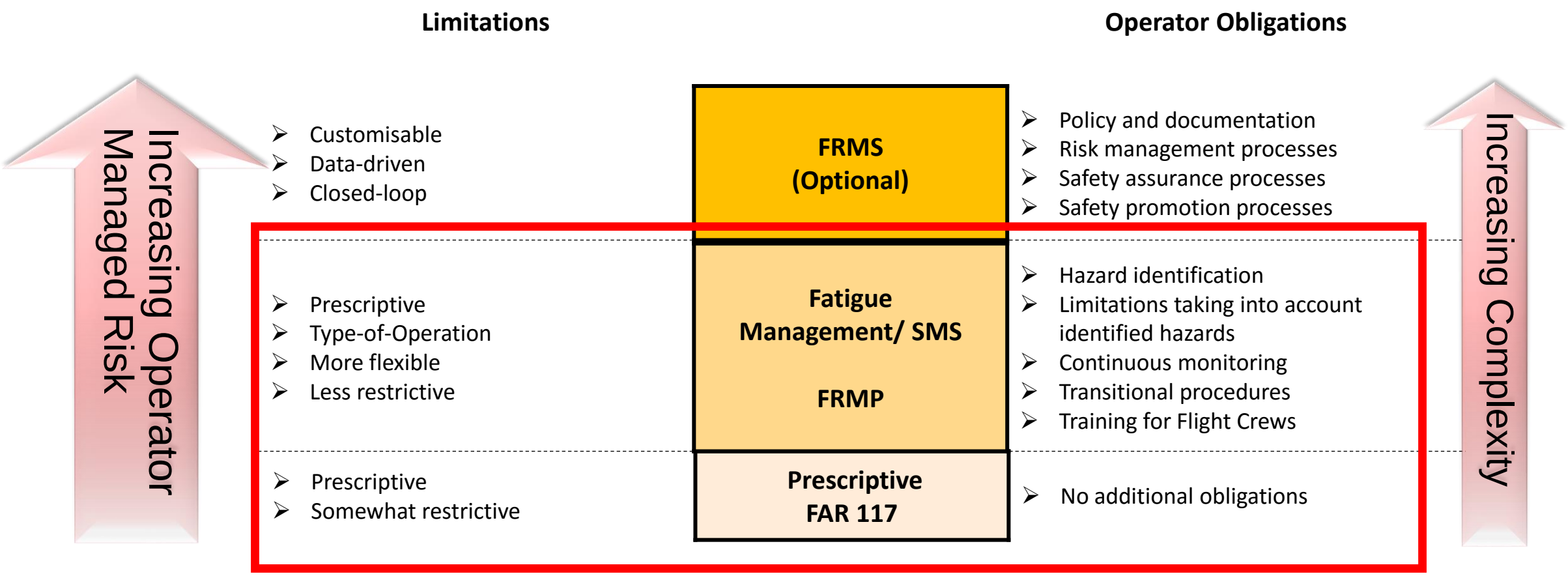
Fatigue Management



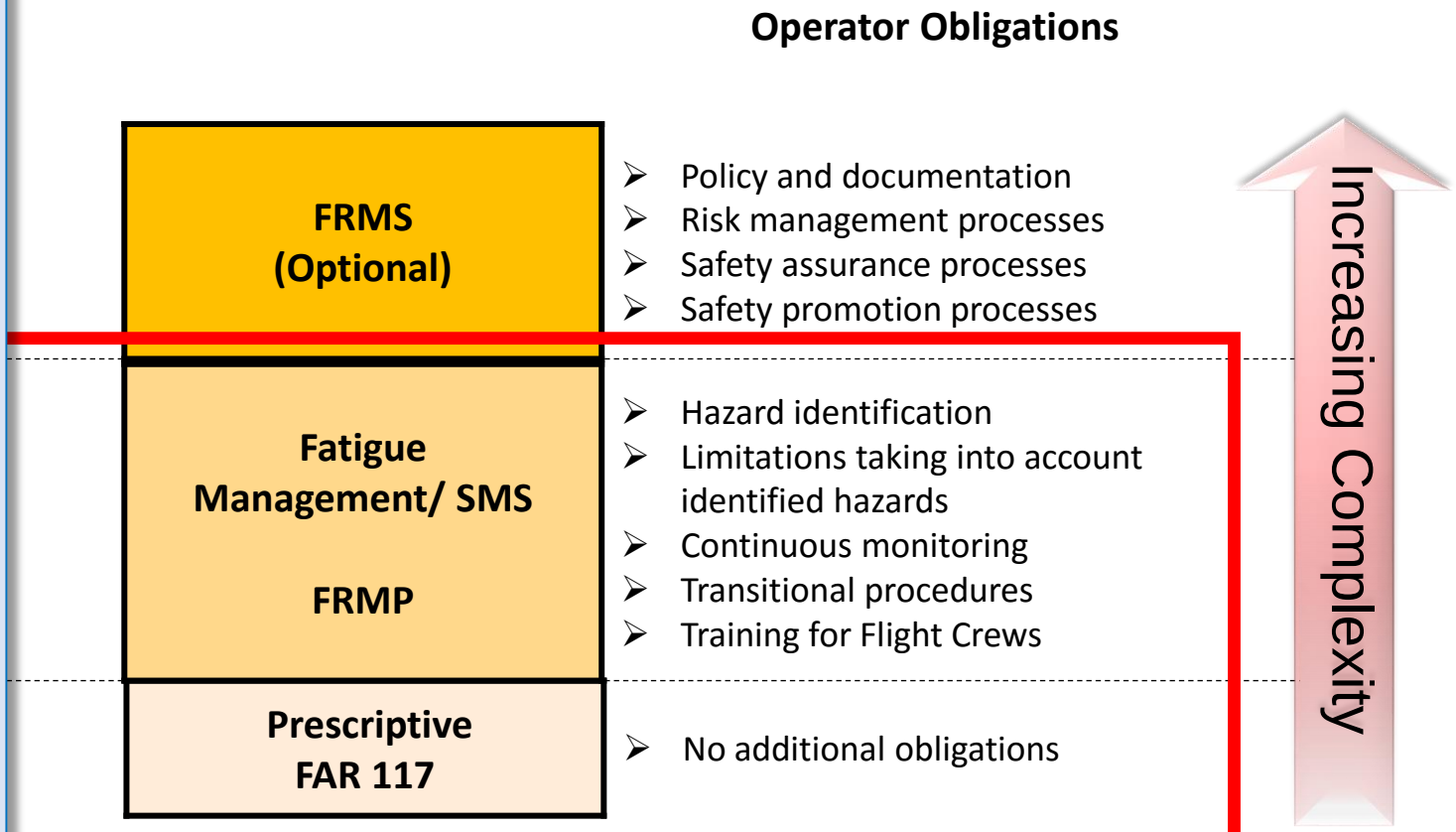
FAR 117 and FRMP



FAR 117 and FRMP

Nine Elements of FRMP

1. Senior Level Commitment
2. FRMP Scope and FM Policies and Procedures
3. Current Flight and Duty Period Limitations
4. Rest Scheme Consistent with Limitations
5. Fatigue Reporting Policy
6. Education and Awareness Training
7. Fatigue Incident Reporting Process
8. System for Monitoring Flightcrew Fatigue
9. FRMP Evaluation Program



Today's Agenda

Wednesday's Panels

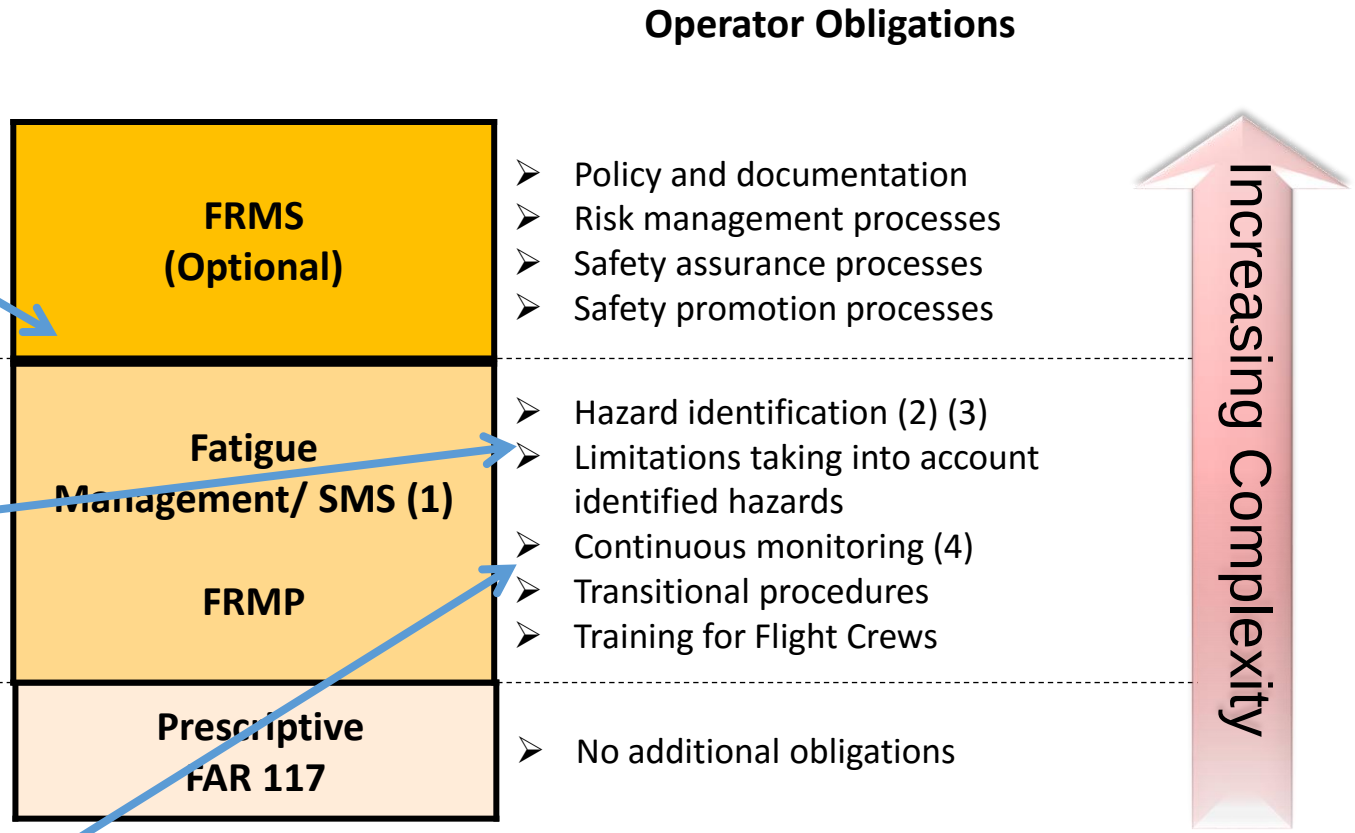
1015-1100 Safety Management Systems (1)

1100-1200 Identifying Fatigue as a Safety Risk (2)

1330-1415 FSAG-Roles and Responsibilities (2)

1415-1515 FSAG to Identify Risks (3)

1545-1645 Data Collection (4)



Thank You!