The Components of FRMS
Description of the Guide

- Collaboratively developed
- Aligned with ICAO’s FRMS Manual for Regulators
- Provides comprehensive implementation guidance including scientific principles
- Freely available on the web
  - [www.gsic.iata.org](http://www.gsic.iata.org)
  - [www.icao.int](http://www.icao.int)
  - [www.ifalpa.org](http://www.ifalpa.org)
Description of the Guide

- Summarizes supporting science
- Explains the minimum requirements
- Describes how to implement an FRMS
- Provides operational examples of various means of compliance
- Stresses the need for joint responsibility amongst all stakeholders
Contents

- Introduction to FRMS
- Science for FRMS
- FRMS policy and documentation
- Fatigue Risk Management Processes
- FRMS Safety Assurance Processes
- FRMS Promotion Processes
- FRMS Implementation
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- Identification of hazards
- Risk assessment
- Risk mitigation
- FRMS performance monitoring
- Management of operational and organizational change
- Continuous FRMS improvement
- Training programs
- FRMS communication plan
FRMS Framework

Fatigue Safety Action Group
Co-ordinates fatigue risk management activities

Policy (Chapter 3)
Documentation (Chapter 3)

Risk Management Processes (Chapter Four)
Safety Assurance Processes (Chapter Five)
Promotion Processes (Chapter Six)
FSAG, Policy and Documentation

FRMS Components

Risk Management Processes
Safety Assurance Processes
Promotion Processes

Fatigue Safety Action Group

Policy (Chapter 3)
• Identifies FRMS elements
• Identifies FRMS operations (scope)
• Reflects shared responsibility
• States safety objectives
• Declares management commitment
• Identifies lines of accountability

Documentation (Chapter 3)
• Policy and objectives
• Processes and procedures
• Accountabilities, responsibilities and authorities
• Mechanism for involvement of all stakeholders
• FRMS training records
• Planned and actual times worked
• Outputs (findings, recommendations, actions)

SMS

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Fatigue Safety Action Group

*Co-ordinates fatigue risk management activities*

Policy (Chapter 3)

Documentation (Chapter 3)
Fatigue Safety Action Group (FSAG)
- Participants
- Role

Fatigue Policy
- Signatory
- Content

Supporting Documentation
- Owner
- Content
Next Steps

Risk Management Processes (Chapter Four)

Safety Assurance Processes (Chapter Five)
Next Steps

DATA

Risk Management Processes (Chapter Four)

Safety Assurance Processes (Chapter Five)
Identification of Hazards

- Reactive
- Proactive
- Predictive
Reactive Methods

- Assess the contribution of crewmember fatigue to safety reports and events.
- At what time of day did the occurrence take place?
- Was the crewmember’s normal circadian rhythm disrupted?
- How many hours had the crewmember been awake at the time of the occurrence?
- Does the 72-hour sleep history suggest a sleep debt?
Methods of Hazard Identification

Predictive Methods

• Identify areas of future fatigue related risks
  o Previous experience
  o Evidence-based scheduling practices
  o Bio-mathematical models
Methods of Hazard Identification

Proactive Methods

- Monitor fatigue levels in an operation
- Self-reporting of fatigue risks
- Crew fatigue survey
- Relevant flight crew performance data
- Available safety databases and scientific studies
- Analysis of planned versus actual time worked
- Sleep monitoring (sleep diary, actigraphy, polysomnography)
FRM Processes

Fatigue Safety Action Group

Policy

Documentation

SMS

Risk Management Processes (Chapter Four)
- Identification of fatigue hazards
- Risk assessment
- Risk mitigation strategies

Safety Assurance Processes

Promotion Processes

FRMS Components

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What they do:

- Identify where fatigue is a hazard
- Assess the level of risk that given fatigue hazard represents
- If necessary, put in place controls and mitigation strategies, and monitor to make sure that they manage the risk at an acceptable level
FRMS Safety Assurance Processes

- **Fatigue Safety Action Group**
  - Monitoring of FRMS performance
  - Managing organizational and operational changes
  - Continuous improvement

**FRMS Components**

- **Policy**
- **Documentation**

**SMS**

**Risk Management Processes**

**Safety Assurance Processes (Chapter Five)**
- Monitoring of FRMS performance
- Managing organizational and operational changes
- Continuous improvement

**Promotion Processes**

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FRMS Safety Assurance Processes

What they do:

• Check that the FRMS is functioning as intended
• Check that it is meeting the safety objectives defined in the FRMS policy
• Check that it is meeting regulatory requirements
• Identify where changes in the operating environment have the potential to increase fatigue risk
• Identify areas for improvement in the management of fatigue risk (continuous improvement of the FRMS)
FRMS Promotion Processes

SMS

Fatigue Safety Action Group

Policy

Documentation

Risk Management Processes

Safety Assurance Processes

Promotion Processes (Chapter Six)
- Training program
- Communication plan

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Fatigue Safety Action Group

FRMS Components

Policy (Chapter 3)
- Identifies FRMS elements
- Identifies FRMS operations (scope)
- Reflects shared responsibility
- States safety objectives
- Declares management commitment
- Identifies lines of accountability

Risk Management Processes (Chapter Four)
- Identification of fatigue hazards
- Risk assessment
- Risk mitigation strategies

Safety Assurance Processes (Chapter Five)
- Monitoring of FRMS performance
- Managing organizational & operational changes
- Continuous improvement

Promotion Processes (Chapter Six)
- Training program
- Communication plan

SMS

Documentation (Chapter 3)
- Policy and objectives
- Processes and procedures
- Accountabilities, responsibilities and authorities
- Mechanism for involvement of all stakeholders
- FRMS training records
- Planned and actual times worked
- Outputs (findings, recommendations, actions)
There is no ‘off-the-shelf’ version of an FRMS that will suit all operators.
An FRMS needs to be developed, understood and managed by people who have comprehensive experience in the complex operational environment to which it will apply.
A fully functioning FRMS doesn’t happen overnight.
Implementation is necessarily accomplished in phases.
Phased Implementation

**TIMELINE**

**PHASE I:** Planning
- Gap analysis
- Policy and Documentation

**PHASE II:** Implement Reactive FRM Processes
- Identification of fatigue hazards
- Risk assessment
- Risk mitigation strategies

**PHASE III:** Implement Proactive and Predictive FRM Processes
- Identification of fatigue hazards
- Risk assessment
- Risk mitigation strategies

**PHASE IV:** Implement FRMS Safety Assurance Processes
- Monitoring of FRMS performance
- Managing organizational & operational changes
- Continuous improvement

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**DEVELOP and IMPLEMENT FRMS DOCUMENTATION** Chapter Three

**DEVELOP and IMPLEMENT FRMS COMMUNICATIONS** Chapter Six

**DEVELOP and DELIVER FRMS TRAINING** Chapter Six
Phase I

- Gap analysis
- FRMS Policy Statement
- FRMS implementation plan
- FRMS documentation plan
- FRMS communication plan
- Allocation of financial and human resources
- Fatigue Safety Action Group (or equivalent) established
Phase II

- FRM processes based on reactive hazard identification are operational
- FRMS documentation processes are established
- FRMS training activities are established
- FRMS communication processes are established
- The operator is ready to undertake coordinated safety analyses of this first version of the FRMS
FRM processes based on reactive, proactive, and predictive hazard identification are operational
FRMS documentation processes are established
FRMS training activities are established
FRMS communication processes are established
The operator is ready to undertake coordinated safety analyses of this version of the FRMS
Roles and responsibilities for assuring the safety performance of the FRMS are established.

The necessary authorities and communication channels are active.

FRMS safety performance indicators have been developed and agreed on.

The procedures and processes for periodic evaluation of the safety performance indicators are established.
Phase IV....cont’d

- Appropriate feedback is established between the FRM processes and the FRMS safety assurance processes
- FRMS documentation processes are fully implemented
- FRMS training processes are fully implemented
- FRMS communication processes are fully implemented
Thank You