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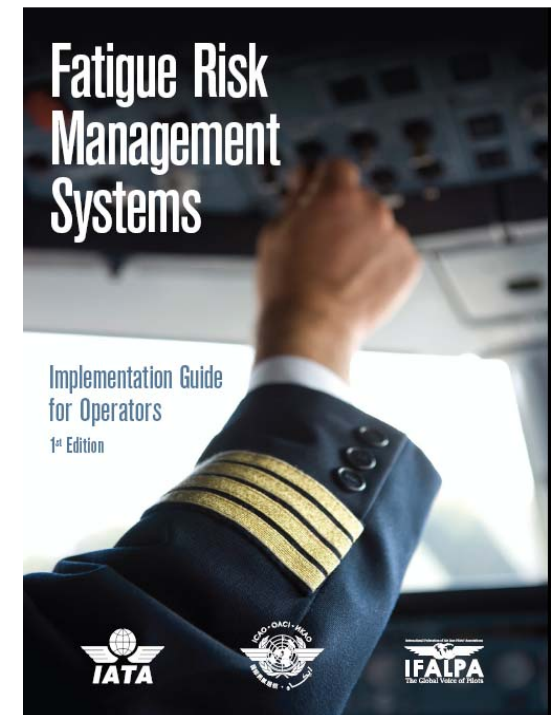
# The Components of FRMS



# Description of the Guide



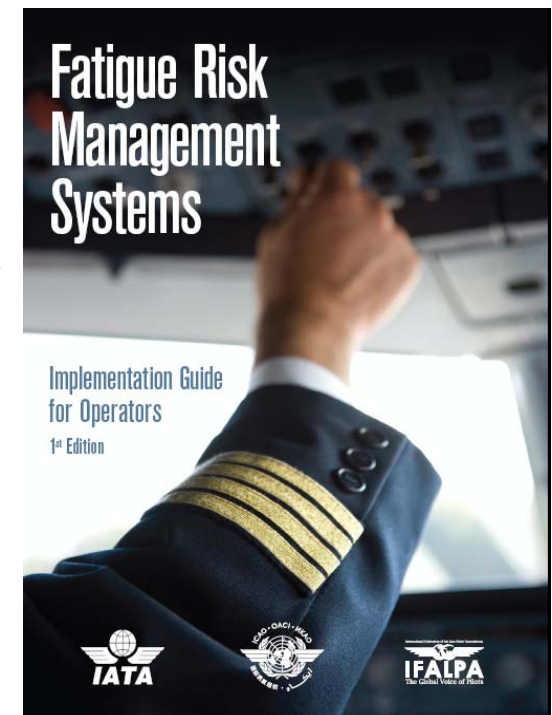
- Collaboratively developed
- Aligned with ICAO's FRMS Manual for Regulators
- Provides comprehensive implementation guidance including scientific principles
- Freely available on the web
  - [www.gsic.iata.org](http://www.gsic.iata.org)
  - [www.icao.int](http://www.icao.int)
  - [www.ifalpa.org](http://www.ifalpa.org)



# 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



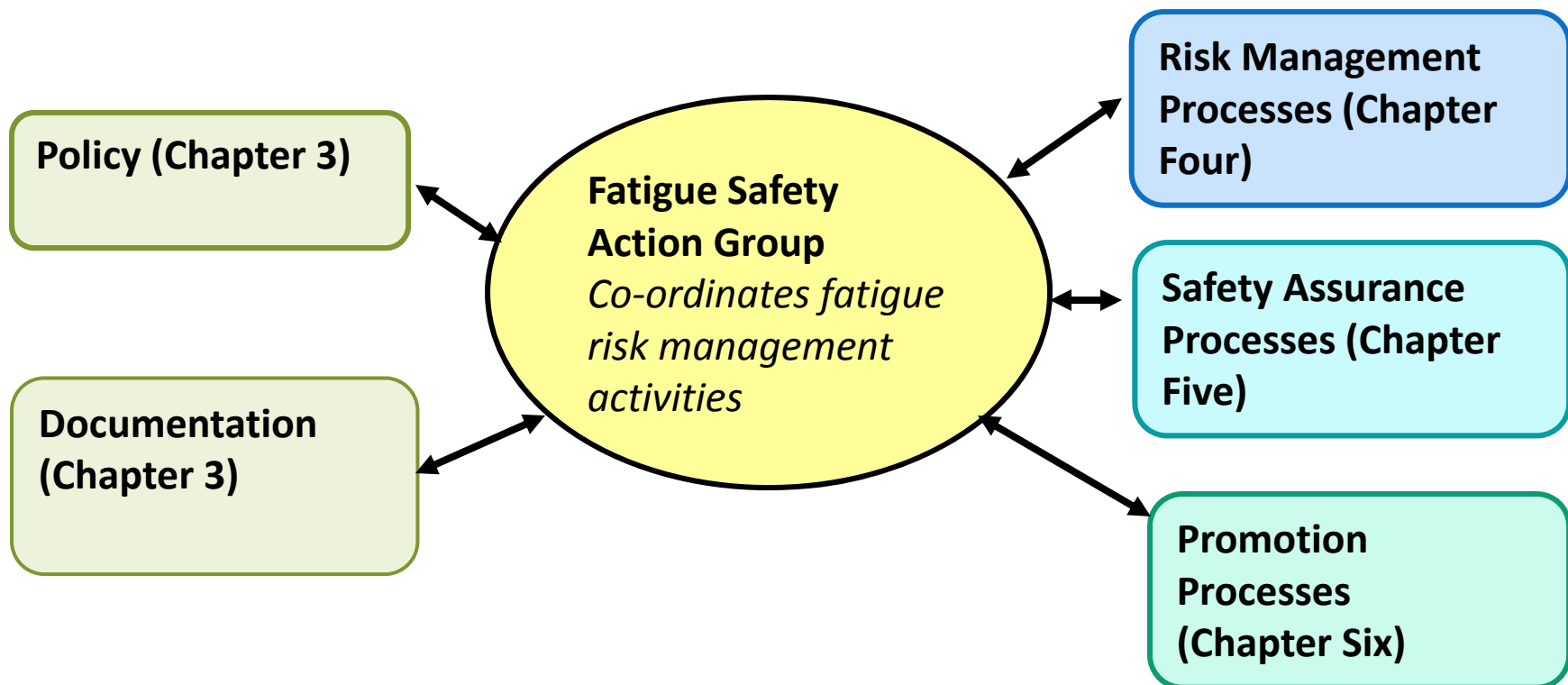
- Introduction to FRMS
- Science for FRMS
- FRMS policy and documentation
- Fatigue Risk Management Processes
- FRMS Safety Assurance Processes
- FRMS Promotion Processes
- FRMS Implementation

# SMS and FRMS



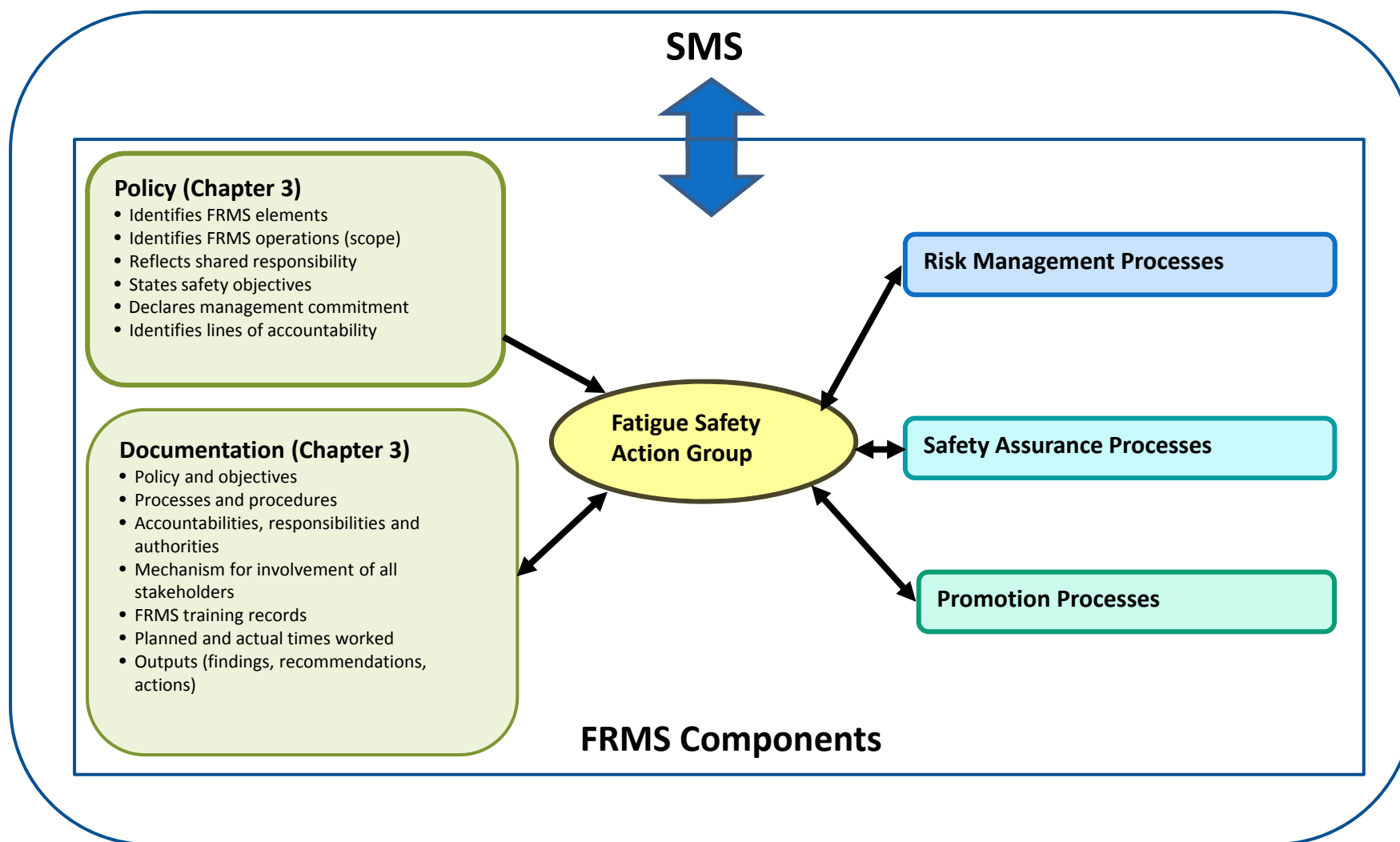
SMS Framework	FRMS
Safety policy and objectives	FRMS policy and documentation
Safety risk management	FRM processes <ul style="list-style-type: none"><li>• Identification of hazards</li><li>• Risk assessment</li><li>• Risk mitigation</li></ul>
Safety assurance	FRMS safety assurance processes <ul style="list-style-type: none"><li>• FRMS performance monitoring</li><li>• Management of operational and organizational change</li><li>• Continuous FRMS improvement</li></ul>
Safety promotion	FRMS promotion processes <ul style="list-style-type: none"><li>• Training programs</li><li>• FRMS communication plan</li></ul>

# FRMS Framework





# FSAG, Policy and Documentation



# Getting Started



**Policy (Chapter 3)**

**Documentation  
(Chapter 3)**

**Fatigue Safety  
Action Group**

*Co-ordinates fatigue  
risk management  
activities*

# Getting Started... cont'd



## ✈️ 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

# Methods of Hazard Identification



## ➤ 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

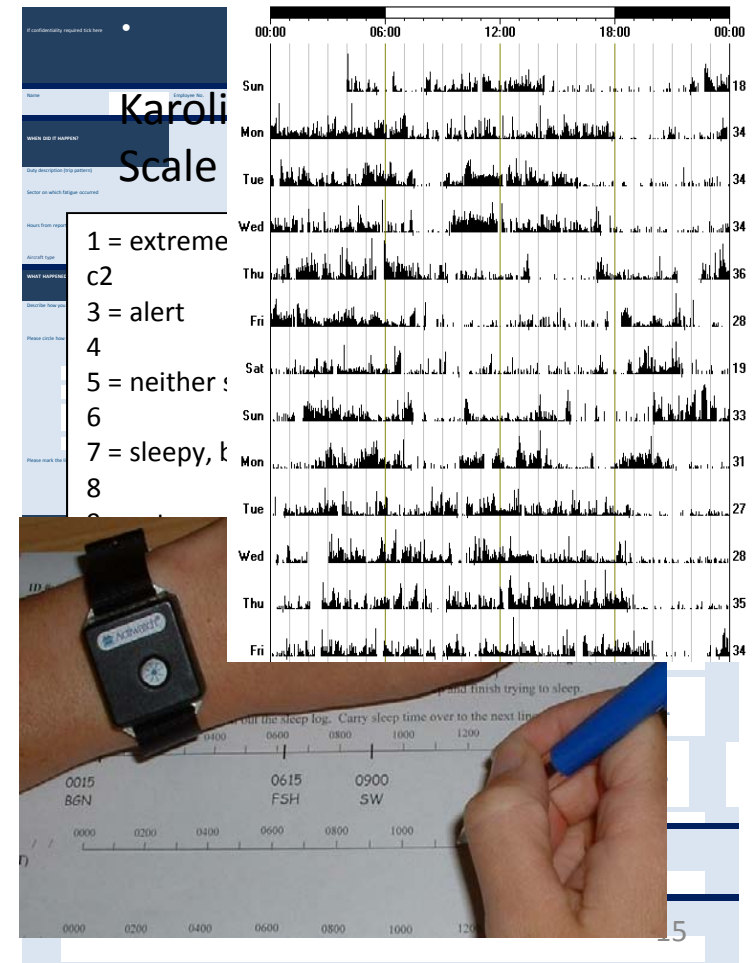
- Identify areas of future fatigue related risks
  - Previous experience
  - Evidence-based scheduling practices
  - Bio-mathematical models

# Methods of Hazard Identification

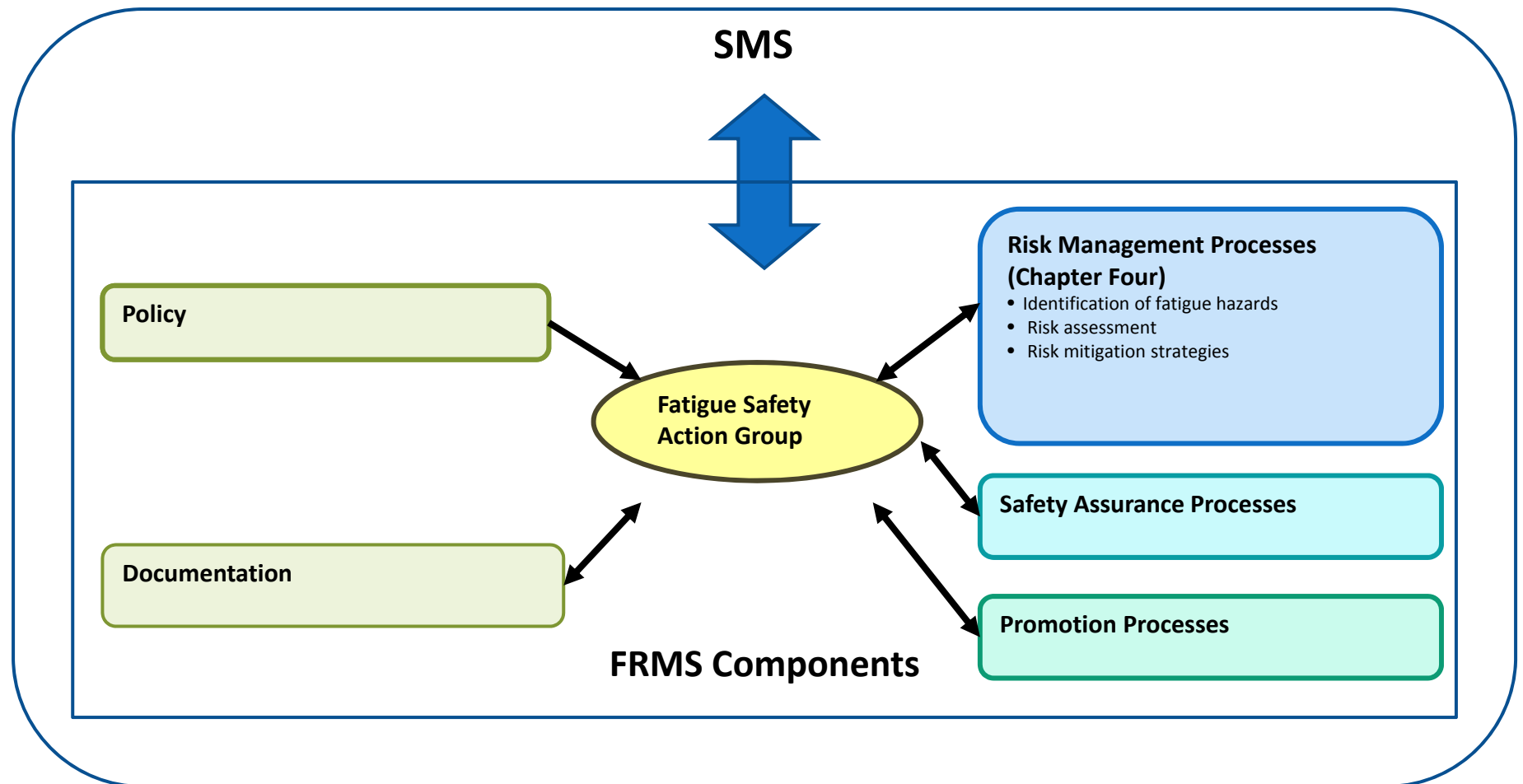


## ➤ Proactive Methods

- 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



# FRM Processes

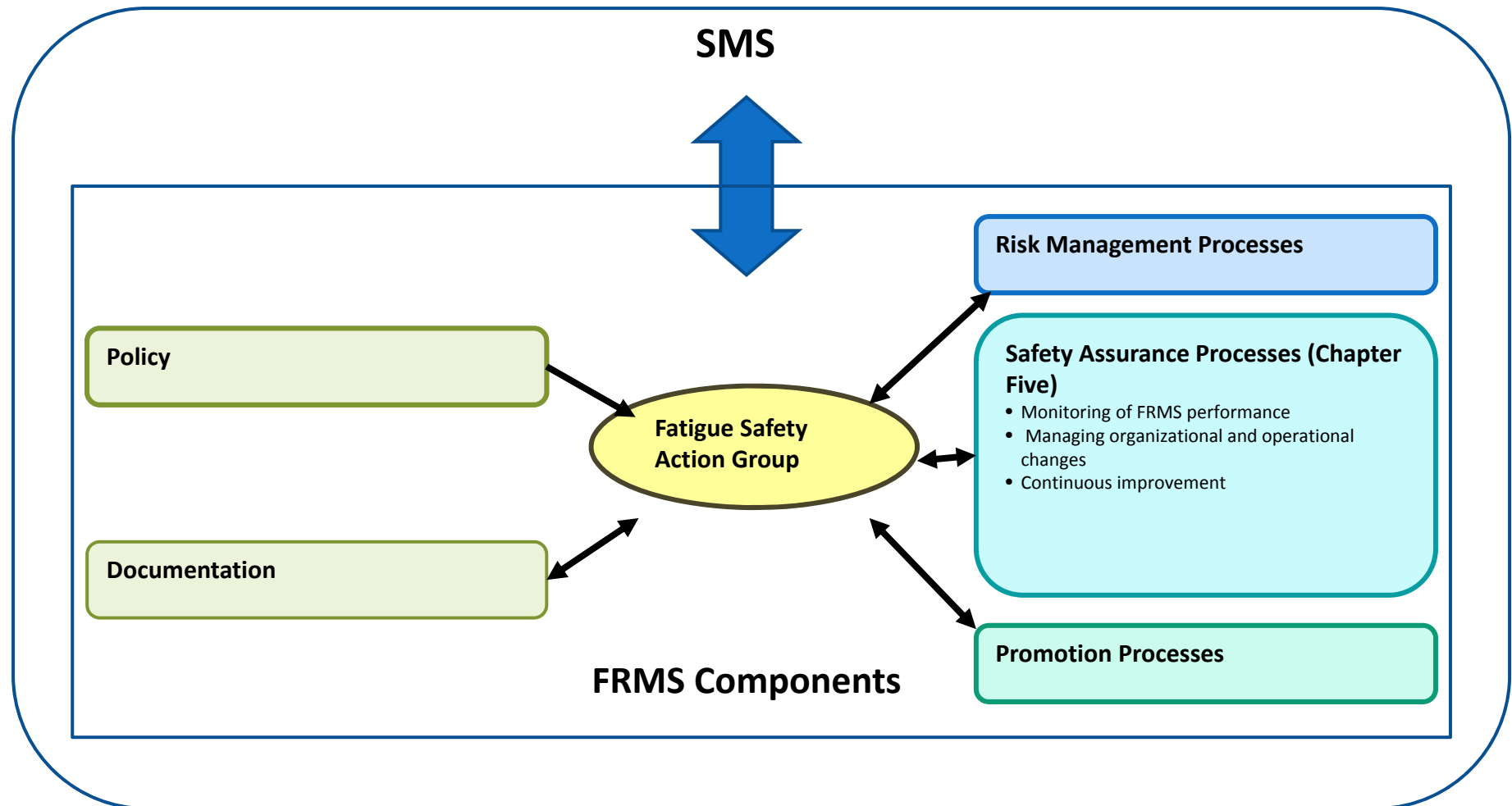


## ➤ What they do:

- 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





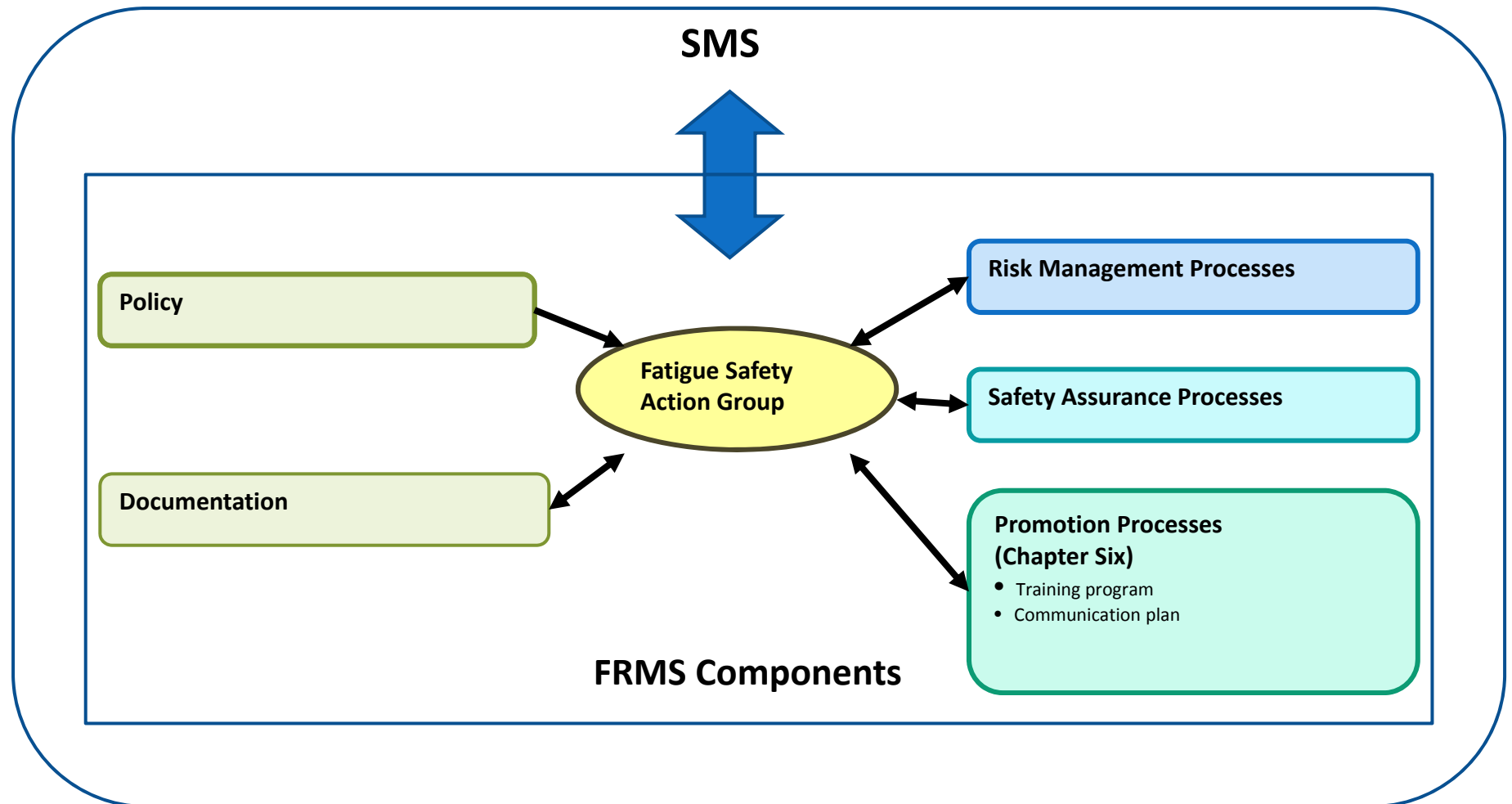
# FRMS Safety Assurance Processes

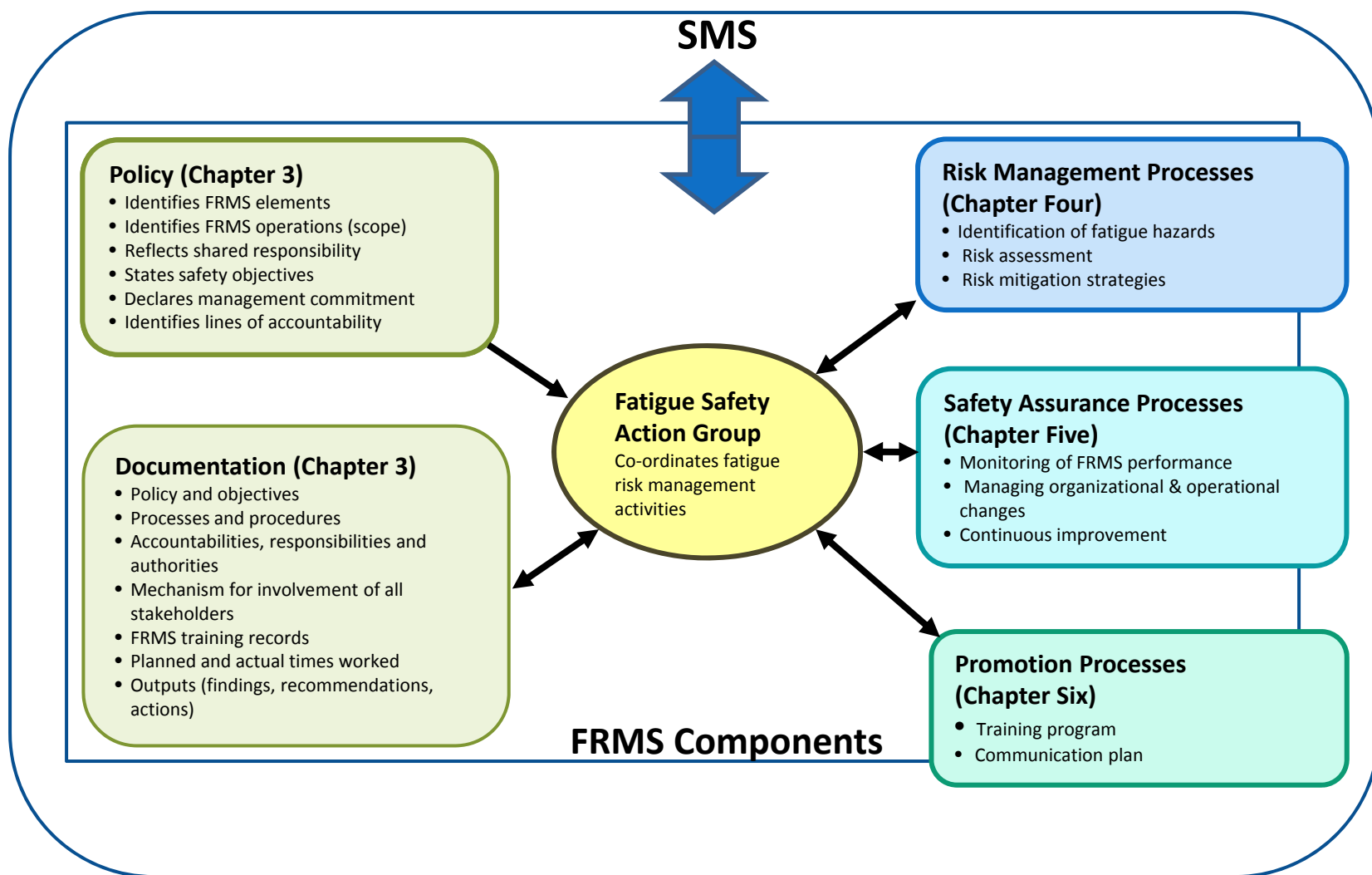
## What they do:

- 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







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# FRMS: Phased-in Implementation



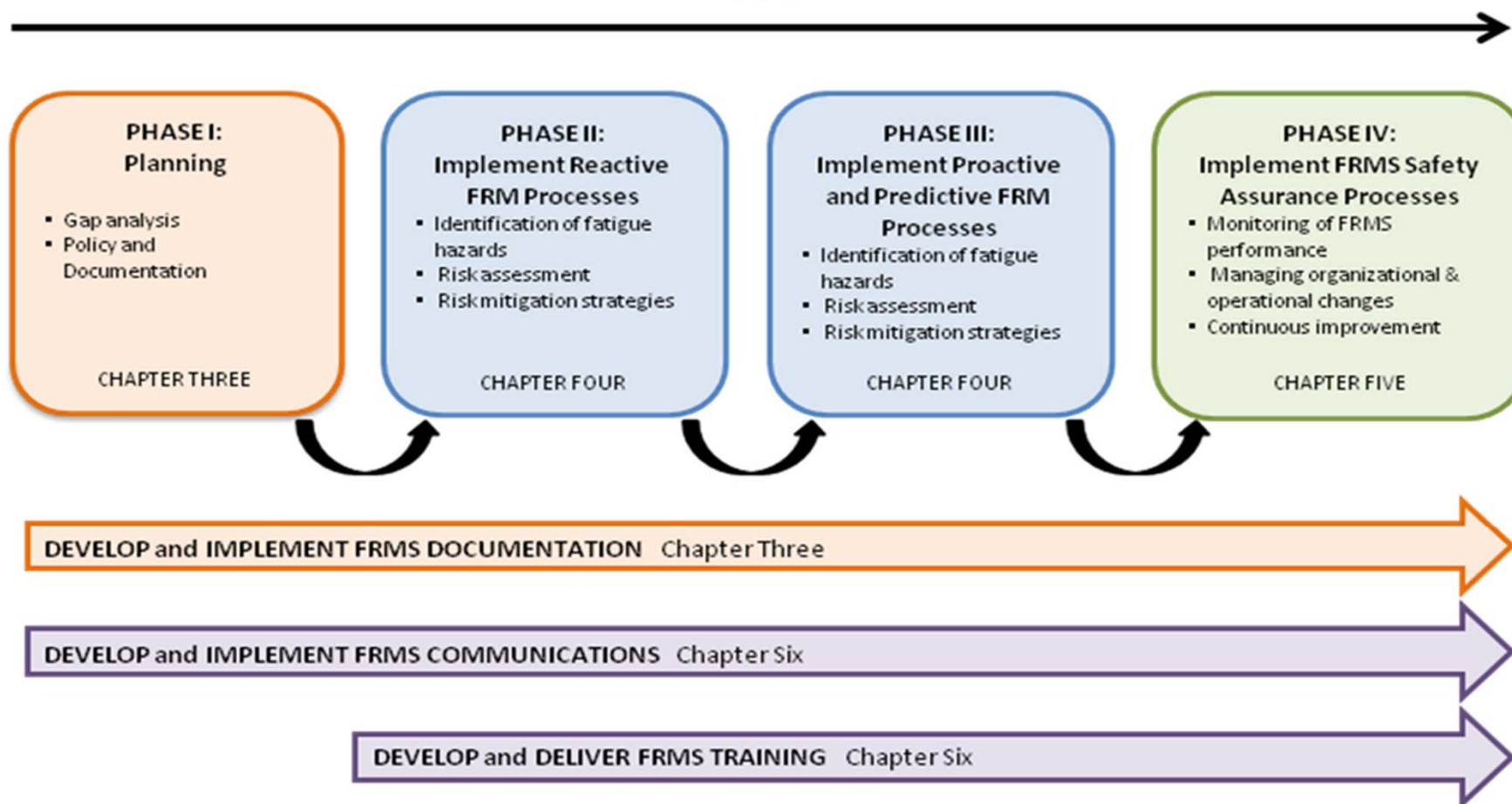
# FRMS Implementation



- 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



## TIMELINE



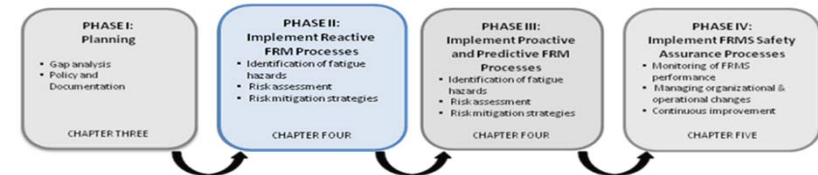
# Phase I



- 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

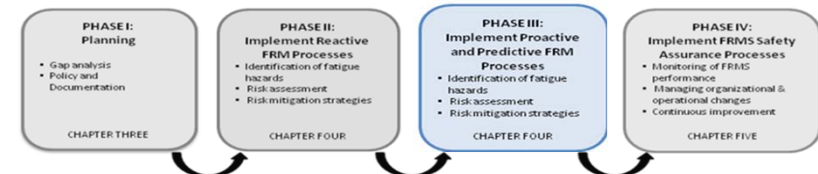


# Phase II



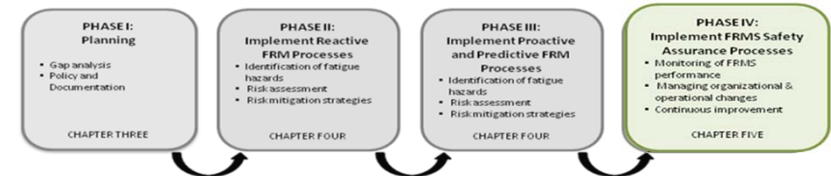
- ➔ FRM processes based on reactive hazard identification are operational
- ➔ FRMS documentation processes are established
- ➔ FRMS training activities are established
- ➔ FRMS communication processes are established
- ➔ The operator is ready to undertake coordinated safety analyses of this first version of the FRMS

# Phase III



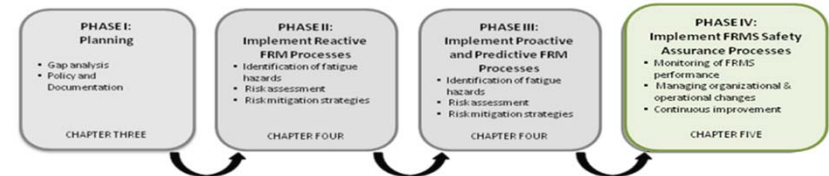
- FRM processes based on reactive, proactive, and predictive hazard identification are operational
- FRMS documentation processes are established
- FRMS training activities are established
- FRMS communication processes are established
- The operator is ready to undertake coordinated safety analyses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

# Phase IV



- ➔ 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**

