



sleep debt

predictive

circadian rhythm

proactive

shared responsibility

jet lag

fatigue reports

fit to fly

Fatigue risk management systems: A step-by-step guide

Disclaimer

This guide is recommended for small and medium-sized operations, which CASA defines as those employing up to 50 full-time pilots. Small, non-complex organisations may decide that they do not need to develop and implement a fatigue risk management system (FRMS)—a fatigue management approach may be more appropriate.

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Fatigue and Fatigue Risk Management Systems

What is fatigue?

Fatigue is a natural human response to certain conditions. These can include working hours that reduce the opportunity for recovery sleep, operational demands requiring a sustained high-tempo cognitively and/or physically taxing workload, as well as simply being awake when you would normally be asleep.

The symptoms of fatigue are many and varied, and are both physical (e.g. yawning, micro-sleeps) and mental (e.g. loss of vigilance). When impairment due to fatigue, such as impaired memory or poor communication, coincides with other operational risks in the environment, the likelihood of incidents and accidents increases.

Core factors of fatigue

When it comes to a fatigue risk management system (FRMS), a definition of fatigue that considers research undertaken across a number of transport sectors¹ may be appropriate (see opposite).

It is expected that at a minimum the four core factors shown opposite are clearly addressed within an FRMS. While the additional three factors are not mandatory, their consideration is strongly encouraged to optimise the impact on fatigue.

FATIGUE

A suboptimal physiological condition caused by exertion that manifests as a state of reduced alertness and/or diminished capability to perform mental or physical tasks, which:

- may impair the ability of the pilot to safely operate an aircraft
- is associated with one or more of the following:
 - the pilot's lack of required sleep*
 - the pilot's wakefulness beyond typical hours*
 - the pilot's normal circadian phase at any relevant time*
 - the pilot's workload of mental activities, or physical activities at any relevant time*
 - the environmental conditions imposed on the pilot
 - the psychosocial factors of the pilot
 - the dietary, health and fitness status of the pilot.

*CASA core factors associated with fatigue

¹Phillips, R. O. (2015). A review of definitions of fatigue – And a step towards a whole definition. *Transportation Research Part F* 29, 48–56.

Why might you need an FRMS?

For an FRMS to be of value, you need to consider the level of complexity of your operations and approach the potential hazards and risks from a systems-based perspective. Importantly, poor implementation of any FRMS, safety management system (SMS) or other safety-related initiatives can increase safety-related risks. So the decision to develop and implement an FRMS needs to be made carefully, after considering all relevant and foreseeable factors.

For an operation that can operate safely and satisfactorily within the limits of the prescriptive rules in Civil Aviation Order (CAO) 48.1 (Appendices 1 to 6), an FRMS would not likely provide sufficient return on investment for the overall safety of the organisation. In contrast, where operators cannot safely sustain themselves within the prescriptive rules in CAO 48.1, an FRMS may provide the elements to maintain a safe operational environment in relation to fatigue risks.

What is an FRMS?

- ▶ An FRMS aims to ensure that personnel are sufficiently alert so that they can operate to at least a satisfactory level of performance.
- ▶ An FRMS applies scientific principles and processes from the field of SMS development and use, tailored to the specific risks relating to fatigue.
- ▶ As detailed in industry resources such as the International Civil Aviation Organization's (ICAO) *Fatigue Management Guide for Airline Operators*, an FRMS—like an SMS—seeks to achieve a realistic balance between safety, productivity and costs.

ICAO defines an FRMS as:

'A data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles and knowledge as well as operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness.'

In ICAO's *Fatigue Management Guide for Airline Operators*, as outlined in the table on page 4, the structure of an FRMS is based on an SMS framework. The core activities are safety risk management and safety assurance. These activities are governed by FRMS policy and processes and supported by activities including FRMS promotion. Like an SMS, the FRMS must be documented.

| SMS Framework | FRMS Framework |
|--|--|
| Safety policy and objectives <ul style="list-style-type: none"> ➤ Management commitment and responsibility ➤ Safety accountabilities ➤ Appointment of key staff members ➤ Safety response planning ➤ SMS documentation | FRMS policy and documentation <ul style="list-style-type: none"> ➤ Management commitment ➤ FRMS accountabilities, responsibilities and authorities ➤ FRMS objectives ➤ FRMS processes and procedures ➤ FRMS training records |
| Safety risk management <ul style="list-style-type: none"> ➤ Hazard identification ➤ Risk assessment and mitigation | Fatigue risk management <ul style="list-style-type: none"> ➤ Identification and assessment of fatigue-related risks ➤ Fatigue-related risk mitigation/controls ➤ Implementation ➤ Evaluation |
| Safety assurance <ul style="list-style-type: none"> ➤ Safety performance monitoring and measurement ➤ Management of change ➤ Continuous improvement | FRMS safety assurance <ul style="list-style-type: none"> ➤ Monitor FRMS effectiveness ➤ Processes for managing change (to the operational/organisation environment and/or to the FRMS itself) ➤ Continuous improvement of the FRMS |
| Safety promotion <ul style="list-style-type: none"> ➤ Training and education ➤ Safety communication | FRMS promotion <ul style="list-style-type: none"> ➤ Training programs ➤ FRMS communication plan |

For an SMS or an FRMS to be effective, all the elements shown need to be in place, and must be appropriate for the complexity, maturity and size of the organisation. An FRMS can include specific tools and resources, the use of which must be considered in the context of the SMS.

This is to provide assurance that defensive layers add a net benefit individually and in combination.

Examples of tools and resources relevant to an FRMS are:

- Biomathematical models used to estimate and predict fatigue. See CASA's *Biomathematical Fatigue Models Guidance Document* for more information: www.casa.gov.au/fatigue Models can be used during roster scheduling/planning as well as assessing actual working hours after the event. In some cases, models

can be fully automated when integrated with rostering and scheduling software.

- Objective and subjective tools to record sleep—for example, using wrist-worn actigraphy devices and self-reporting mechanisms respectively. See Appendix B of ICAO's *Fatigue Management Guide for Airline Operators* for detailed descriptions of such approaches and their pros and cons.
- Objective performance measurement using laboratory-type tests in an operation or data directly from the operation—for example, flight data. Laboratory-type tests such as the psychomotor vigilance task (PVT) that can be used to obtain surrogate or proxy measures of fatigue are also referred to in Appendix B of ICAO's *Fatigue Management Guide for Airline Operators*.

Fatigue management systems vs fatigue risk management systems

Some organisations are operating under an exemption from CAO 48 via a safety case based on a fatigue management system (FMS). In the past, FMS was also commonly referred to as an FRMS. There are key differences between the old FMS/FRMS approach and the new FRMS approach.

Key differences:

- The old FMS/FRMS and the new FRMS are assessed to different standards.
- The new FRMS will be assessed to a standard consistent with ICAO standards.
- Typically, the old FMS/FRMS was not as strongly focused on safety assurance, continuous improvement and change management.

How does an FRMS sit with the other appendices in CAO 48.1 (2019)?

There are three levels in the fatigue rules:

1. The basic prescriptive level—basic duty periods and flight time limits (Appendix 1).
2. Enhanced fatigue management—greater risk management requirements, hazard identification, continuous monitoring, training for flight crew, but still using prescriptive rules (Appendices 2 to 6).
 - a. Enhanced fatigue management with a minor variation. Minor variations will permit operators to deviate from the prescriptive rules in a narrow range of circumstances where the prescriptive schedules are manifestly inappropriate to a particular operation, but where development of an FRMS is not warranted.
3. An FRMS—the most sophisticated, requiring investment of time and resources into actively understanding and managing pilots' fatigue levels (Appendix 7).

Both Appendix 1 (the basic prescriptive level) and Appendix 7 (FRMS) are available to all, while the other appendices focus on specific operations—for example, Appendix 6 applies to flight training.

Why integrate an FRMS into a Safety Management System (SMS)?

Since fatigue affects fitness for duty, which also relates to impairment from other sources such as alcohol and other drugs, fatigue management is logically an integral part of safety management.

Due to the level of inter-connectedness between fatigue, fitness for duty, human factors and safety management, it could be argued that the 'correct' place for an FRMS is within an SMS.

In many cases the desire, or need, not to separate the FRMS from the SMS leads to their early integration. In fact, for operations that do not yet have a formal FRMS, it is possible, and potentially even desirable, to integrate the FRMS into the SMS while it is being developed and implemented.

Case study

Helicopter Response Pty Ltd is a small rotary-wing operator with seven aircraft and three bases. The company has been operating for 33 years with a steadily improving safety record and is widely acknowledged in Australia as having an effective safety management system (SMS). In 2006 the management team decided to develop and implement a fatigue risk management system (FRMS); a decision also had to be taken whether the FRMS would stand alone or be integrated into the SMS.

After considering the options and implications, it was unanimously agreed the FRMS would be built into the SMS from the outset. The reasons why include:

- all other fitness-for-duty components were already embedded in the SMS
- the person accountable for the SMS was also going to 'own' the FRMS
- the approach would avoid an unnecessary project to integrate the two systems at a later stage.

The critical role of communication in an FRMS

In many ways, the safety promotion activities such as communication associated with an FRMS are considered as only relevant to the FRMS. However, safety promotion is critical to the success or failure of an FRMS and/or integrating an FRMS with an SMS. While the obvious stakeholders tend to be those directly involved with day-to-day operations, there is a need for organisation-wide communication. That is, inclusion of the executive management team and the board, scheduling and rostering personnel

and possibly others such as unions and/or CASA is essential.

If FRMS implementation, or FRMS integration into an SMS, is to succeed and be effective, all relevant stakeholders must be involved. Senior management especially need to be committed to providing all the necessary resources. If you do not inform, engage and work with such stakeholders, at best the results will be sub-optimal; and at worst, this could contribute to non-compliance, confusion, inefficiency and, potentially, increased operational risks. Promotion activities and communication are outlined in the next section of this Guide.

Developing an FRMS

Many resources are available to support FRMS development and integration into an SMS, including:

- ICAO fatigue management guidance material: www.icao.int/safety/fatiguemanagement/Pages/Resources.aspx
- ICAO Annex 19 documentation related to safety management: www.icao.int/safety/SafetyManagement/pages/default.aspx
- CASA's SMS for aviation: a practical guide resource kit—2nd edition: casa.gov.au/sms
- CASA's fatigue management guidance material: casa.gov.au/fatigue

FRMS basics

Given both work (e.g. rosters) and non-work (e.g. individual sleep hygiene) factors contribute to fatigue, individuals and employers must acknowledge that they share responsibility for fatigue management. Without this acknowledgment, adequate or sustainable management of fatigue-related risk is impossible. If individuals or organisations fail to manage fatigue-related risks adequately, the integrity of the FRMS will be compromised. If there is genuine understanding and commitment from employees and employers, supported by appropriate systems and processes, fatigue risks can be managed in a way that supports safe, suitable and effective operations.

Leadership and the FRMS

As with any safety-related initiative, FRMS leadership is vital for success. Effective leadership requires a consistently demonstrated commitment to a suitable, sustainable and safe approach.

The most senior levels of the organisation must demonstrate leadership:

- by making it personal—sharing their own experiences of fatigue in the workplace—senior managers can raise the profile of fatigue and safety
- by allocating the necessary resources to the FRMS in the right timeframe, and according to FRMS priorities.

FRMS governance

Larger commercial organisations are likely to need what ICAO has defined as a 'fatigue safety action group' (FSAG) involved in all aspects of their FRMS. Alternatively, you could include FRMS as a standing component of a broader safety-related working group or committee, or as a sub-group. An FSAG (or equivalent) generally comprises frontline operational representatives (e.g. flight crew), operational management, commercial management, rostering and scheduling and other areas. Inclusion of a CASA Inspector or subject matter expert as an external observer to the process adds credibility to the management commitment to ongoing fatigue monitoring and mitigation.

FRMS policy and documentation

In a similar way to SMS policy, FRMS policy must articulate:

- management/leadership commitment
- FRMS accountabilities, responsibilities and authorities
- FRMS objectives.

You need to clearly define the objectives of the FRMS to ensure that you meet all essential safety, compliance, operational efficiency and other requirements. You also need to develop FRMS documentation to cover all FRMS processes and procedures, including training records.

Fatigue risk management

Probably more than any other aspect, the FRMS risk management steps have been defined in detail in other freely available publications. These publications include the ICAO and CASA resources referred to previously, so this Guide does not cover them in any depth.

The main steps associated with assessing fatigue-related risk, which are complemented by elements such as setting the context as well as communication and consultation, are:

- risk identification and assessment
- risk control/mitigation/treatment
- risk monitoring and reporting.

Fatigue risk management processes should include FRMS implementation. Implementation is likely to be progressive and the steps involved will form part of the system as it evolves. Other components, including a confidential reporting system for fatigue-related information, are also essential.

As defined by ICAO, an FRMS must be data driven. This means documentation is needed to define:

- the data needed
- how frequently this data is required
- who is accountable for collecting, analysing the data and reporting on it

- how often larger reviews of the data are required
- what the data means for the suitability and effectiveness of the current FRMS structure.

Data is categorised by ICAO in three distinct categories:

1. Predictive—this data generally relates to examining future schedules and rosters (e.g. using biomathematical models). It could also include monitoring of individuals by validated technologies to inform users of their impairment before they are consciously aware of it. Another example of predictive modelling is the use of trend analysis of performance.
2. Proactive—this data generally relates to scanning for possible risks in expected operating conditions. Therefore, proactive data can come from routine, planned reports from crew members about their fitness for duty with respect to fatigue. Similarly, risk assessments undertaken before any triggering incidents where fatigue was found to be a causal or contributory factor would be classified as proactive data generating.
3. Reactive—data generated during or after an event. Sources include flight data, confidential reports, fatigue reports, audit reports and incident reports.

Each type of data has a unique value; however, most organisations tend to have much more reactive data than predictive or proactive data. The types of data available in each category are also further defined into objective data, that is directly measured (e.g. warnings triggered by a breach of minimum parameters), and subjective data that is self-reported as a reflection of a professional and/or personal assessment (e.g. confidential reports).

Both objective and subjective data streams have a clear role to play within an FRMS; the degree to which this occurs will depend on the size of an operation and its inherent complexity. For example, a small operator might routinely use reactive data from incident and confidential reports and audits, proactive data from company training and risk assessments and predictive data from analysis of future flight schedules.

A medium-sized operation might do all of these and use wrist-worn sleep monitoring of crew members on certain schedules to obtain objective data on the amount of sleep achieved. They might also use advanced crew resource management (CRM) techniques to regularly scan for the effects of fatigue on an operating crew (with any results being recorded). For a comprehensive description of the steps involved in a full risk management process, refer to ICAO's guidance material: www.icao.int/safety/fatiguemanagement/Pages/Resources.aspx

FRMS safety assurance

FRMS safety assurance forms another layer of defence against an operator's fatigue-related risk exposure. FRMS safety assurance processes are also part of the routine operation of the FRMS; they monitor how well the entire FRMS is functioning. Simply, the safety assurance steps involve:

1. checking the FRMS is functioning as intended against the specific metrics defined for each required area (such as safety, compliance, operational flexibility, etc.)
2. identifying where changes in the operating environment have the potential to increase fatigue-related risk exposures (e.g. new schedules, increased use of night or emergency response flying, etc.)
3. identifying areas for improving the management of fatigue-related risks in response to operational experience and associated data.

Ongoing improvement: operators are expected to monitor and maintain data to demonstrate the reasons for changes to the FRMS. For example, the data results could indicate eliminating and/or modifying risk treatments because they are no longer needed/relevant, or that there has been a trend in unacceptable negative consequences for certain circumstances (e.g. high Samn-Perelli scores for a particular route flown during specific times). The ongoing improvement data could also relate to feedback from crew members about FRMS procedures/processes/sections in documentation that is lacking clarity and the need for new content due to new or future changes to the operational demands and effectiveness of current risk treatments.

FRMS promotion

FRMS promotion is critical to maintaining FRMS effectiveness. FRMS communication should coordinate with the rollout of training, as well as consultation with the workforce and any other stakeholders.

It is sensible to develop a specific plan for FRMS promotion and communication activities clearly defining their context, purpose and objectives. Ideally the FSAG (or equivalent) should do this and identify the desired audience/stakeholder groups to be addressed.

The next stage is to identify issues such as each group's likely needs, concerns and perceptions of current management of fatigue-related risk. Then, keeping in mind the stated FRMS objectives, and with this understanding of stakeholders, develop key messages for each stakeholder group.

This might include messages common to all stakeholders, such as the identification of fatigue as a critical risk to the business. Other messages might be specific to particular stakeholders; for example, a key message for the workforce and unions might be that safety is the primary driver of the project and no change will be effective without individuals reporting their fatigue-related concerns.

Promotion activities should progress naturally through the stages of SMS/FRMS development and integration. One effective, simple breakdown of these stages is:

1. Awareness—sharing information about FRMS and the project—what it means for each stakeholder group (e.g. training required, any changes in work schedules, answering any questions that have been raised, etc.)
2. Understanding—building on the initial awareness to create more detailed knowledge about who does what (accountabilities), timelines, what is in and out of scope, etc.
3. Adoption—the final phase—continuing to answer relevant and important questions, as well as demonstrating where earlier suggestions have been woven into the updated design.

Case study

Northern Skies Pty Ltd is a medium-sized company with 19 fixed-wing aircraft used primarily for fly-in-fly-out workers servicing the mining industry. Following the implementation of their FRMS, which was integrated into their existing SMS, Northern Skies developed and implemented a communications plan to share the post-implementation review results with key stakeholders. The following table is an excerpt from the plan, summarising the critical communication plan rollout details.

| Stakeholder group | Method for communication | Details | Date | Responsibilities |
|---|-----------------------------|--|--|---|
| All operational workers (employees, contractors, etc.) | Chief pilot weekly video | High-level overview of post-implementation review (PIR) outcomes and the importance of continuing to manage fatigue-related risk. Announcement of staff meetings. | 26 April | FSAG to provide key points to chief pilot |
| | Weekly safety update email | Include key findings, planned changes, change schedule and points of contact. | 5 May | FSAG to develop and provide key points |
| | Staff meetings | Include update of progress with planned changes against schedule. | July (dates as required) | FSAG to develop and provide to chief pilot for delivery |
| | Intranet safety page | Post slides from staff meetings as well as content of chief pilot video and safety email. | Within seven days of each activity above | FSAG and chief pilot to provide content |
| Board of Directors | Monthly board meeting | Overview of PIR outcomes including the change in risk profile, ongoing assurance content and timing as well as links to resources made available to all employees. | 22 April for all content excluding that shared in staff meetings | FSAG to provide content to company secretary |
| | One-page reference document | Summary of all information provided for future reference and records. | 22 April | FSAG to provide content to company secretary |
| CASA | Annual FRMS update meeting | Overview of PIR outcomes including system changes. | 21 August | FSAG to develop content and deliver |

Implementing an FRMS

No 'off-the-shelf' FRMS is available and, because each aviation organisation is unique, that is unlikely to change. Some elements, such as training packages, might be identical from site to site or possibly even from organisation to organisation. However, other elements such as feasibility and the appropriateness and effectiveness of risk treatments are likely to be specific to each operation.

One of the most difficult decisions many organisations need to make relates to how quickly to implement what is seen as the ideal FRMS. On the one hand, fatigue is known to be a significant risk factor and there is an argument for implementing the 'ideal' FRMS as soon as possible. On the other hand, most organisations have experienced well-meaning initiatives that were not delivered as intended. This can create new risks and impacts or unintended consequences and cause avoidable confusion and frustration.

Consequently, there is a strong case for starting small in any FRMS project. The initial focus could be on:

- setting outer limits for duty times, minimum rest requirements, etc. (e.g. based on legislation)
- getting into the organisational discipline of fully analysing planned and actual hours of work with a biomathematical model
- learning all possible organisational lessons from complete investigation of incidents where fatigue may be a causal/contributory factor
- raising fatigue awareness via targeted training.

Over time, if these initial activities occur as planned, and are well received because they add value to personnel and the operation, organisational engagement and trust is likely to be in a good state for the next stage of FRMS implementation. ICAO sets out a specific example of a phased approach; one example of several ways in which implementation could occur. ICAO's four phases are:

1. Planning—this should include:
 - explicitly identifying gaps between the current system(s) and what is intended
 - developing policy and other documentation
 - developing an implementation plan to address the gaps identified in all key systems including reporting, risk management, etc.
2. Implementation of reactive FRMS processes (e.g. improve use of fatigue-related incident data)
3. Implementation of proactive and predictive FRMS processes (e.g. complete risk assessments and enhanced risk treatment of higher exposures, introducing peer monitoring in crews)
4. Implementation of FRMS safety assurance processes (e.g. monitoring of FRMS performance including all relevant components such as management of fatigue risks in schedules, rosters and flight and duty times, as well as training, monitoring, audit, etc.).

How to integrate an FRMS into your SMS

Integrating an FRMS into your SMS effectively treats FRMS data in the same way as other essential streams of data instead of a more stand-alone stream. This is the primary distinguishing feature of an integrated FRMS compared with a stand-alone system. For effective integration, the incorporation of FRMS components/streams would need to be extended throughout the SMS.

Having decided to integrate FRMS into the existing SMS, you need the following process steps:

| Step | Remarks |
|--|--|
| 1 Form a fatigue safety action group (FSAG) or equivalent | The FSAG may be separate to, or a subcommittee of, the safety committee, and will be responsible for coordinating and overseeing all FRMS activities. As appropriate to the size of the operation, the FSAG should include operational management, project resources, operations support staff, union/employee representatives, subject matter experts. |
| 2 Draft FSAG terms of reference, FRMS accountabilities, responsibilities and authorities | FSAG to consider which SMS accountabilities, responsibilities and authorities might appropriately be 'read across' to the FRMS or whether they need to be different. |
| 3 Do a gap analysis of existing SMS documentation, procedures and processes and FRMS requirements | The gap analysis results should indicate: <ul style="list-style-type: none"> ➤ which SMS documentation, procedures and processes you can apply to the FRMS without change ➤ which SMS documentation, procedures and processes you can apply to the FRMS with modification ➤ where neither of the above apply, which FRMS-specific documentation, procedures and processes you require. |
| 4 Develop FRMS policy and objectives | FRMS policy should: <ul style="list-style-type: none"> ➤ state the purpose/objectives of the FRMS including the responsibility management and employees share for managing fatigue-related risk ➤ reflect the commitment of management to: <ul style="list-style-type: none"> • ensure that sufficiently qualified staff, resources and equipment are available to meet FRMS requirements • ensure that initial and recurrent FRMS training is provided to all relevant employees • continuous improvement of the FRMS ➤ indicate that all employees involved with the FRMS are required to comply with its requirements (i.e. making appropriate use of rest periods, undertaking FRMS-related training, reporting fatigue-related risks and incidents, etc.). |
| 5 Using the results of the gap analysis, develop FRMS-related documentation, procedures and processes | You must decide how you will incorporate FRMS-related documentation, etc. into the SMS suite of documentation. FRMS procedures and processes should also cover the way you will identify fatigue-related risks—for example, reactively, through reporting mechanisms; and proactively, by fatigue surveys/questionnaires/performance data. |

| Step | Remarks |
|--|---|
| <p>6 Develop a project/ implementation plan for SMS/ FRMS integration</p> | <p>The project/implementation plan should cover the whole process of integrating the FRMS with the SMS and indicate a timeline for all activities and who is responsible for them. This plan should also indicate a timeline for implementation of the different elements of the communication plan (see below).</p> <p>At this stage you also need to contact CASA regarding approval of the FRMS (see page 13).</p> |
| <p>7 Develop a comprehensive FRMS communication plan</p> | <p>The communication plan should cover all information that needs to be shared with relevant stakeholders.</p> <p>FRMS-related communications need to be carefully crafted in order to manage employees' expectations, explaining how the FRMS will, and importantly will not, affect them.</p> <p>Communication to employees should commence at an early stage—the appropriate timing of FRMS-related communications is vital.</p> |
| <p>8 Review current operations to assess where/when fatigue-related risks may exist and use the risk management process to determine the best way to control them—these results should be reflected in FRMS documentation</p> | <p>This stage of the process should include a review of rostering arrangements and possible rostering improvements aimed at better managing fatigue-related risk. FRMS procedures and processes must also reflect how you will monitor the effectiveness of your fatigue-related risk management.</p> |
| <p>9 Develop fatigue- and FRMS-related training material</p> | <p>The initial fatigue-related training effort should establish a common level of understanding among employees about fatigue and the impairment it causes. As the FRMS develops, training content should then expand to cover the FRMS itself.</p> |
| <p>10 Consider the use, or otherwise, of one or more biomathematical models to assist in identifying potential increases in fatigue-related risk</p> | <p>If you decide to use a biomathematical model, you will need to cover its application in the FRMS documentation and processes. This material should reflect when and how the model will be used—for example, when developing rosters, fatigue studies, incident investigation, etc.</p> |
| <p>11 Develop the processes for ongoing assurance and periodic review of FRMS capability, operational integrity and fitness for purpose, and how FRMS performance will be measured to ensure continuous improvement</p> | <p>Audits and reviews serve specific functions within the FRMS as they do within the broader SMS. Specific merit comes from internal and independent external audit; FRMS components can be assessed separately, or as part of more general safety audits.</p> |

Case study

Medical Response Pty Ltd provides stand-by medical transport throughout regional and country Australia. The company covers a large proportion of the country from five bases and included integration of FRMS into their SMS as one of five safety-related priorities for the year.

Based on the lessons learned from changes to the SMS following the integration of alcohol and other drugs content the year before, the company committed a dedicated project manager (one day per week for six months) to ensure that operational, management and regulatory stakeholders were supported and kept informed throughout the change.

The key tasks of the project manager were to implement the changes to documentation that had been identified by the safety department, while also managing the rollout of the associated communications plan in conjunction with safety, IT and the managing director's support team.

The CASA website also details the specific steps for initial approval to trial an FRMS and the later sequence of steps to apply for, and be granted, full FRMS approval:

- Step 1 – Complete and submit a Statement of Intent form
- Step 2 – Send completed and signed Statement of Intent form and documents to CASA's Permissions Issue team
- Step 3 – Attend a pre-application meeting
- Step 4 – Submit your formal application
- Step 5 – Review of your application
- Step 6 – Payment of costs and submission of required supporting documents
- Step 7 – Assessment of your application
- Step 8 – Detailed assessment*
- Step 9 – Recommendation and approval
- Step 10 – Issue of full FRMS approval

Getting approval to implement an FRMS

For the purpose of Step 8* above, CASA expects that an operator should be ready three months before the end of the trial FRMS period for its evaluation team to conclude an assessment for a full FRMS implementation approval. An operator who intends to apply for a full FRMS will need to notify their appropriate CASA regional office to schedule a final assessment.

When progressing to the recommendation and approval step (Step 9), and once the assessment for full FRMS implementation approval is complete, the assessing regional office begins the certification process for the full FRMS implementation approval. The regional office prepares a recommendation to a CASA delegate to issue, or not issue, the approval. At this stage, the applicant will also be informed if the recommendation varies from what has been applied for.

Finally, if approved, your formal approval documents will be emailed and the original approval forwarded by post. Please note that CASA will reconcile your account and, if required, issue a refund or require payment of the balance of any monies owing before issuing the approval.

Getting approval to trial an FRMS

CASA resources, including dedicated webpages, clearly define the process for getting formal approval to trial an FRMS: www.casa.gov.au/fatigue (see 'What steps do I need to take') as well as the necessary forms:

- Form 824A – Statement of Intent to request CASA approval of an FRMS
- Form 824B – Application for approval of an FRMS
- Form 817 – FRMS progress monitoring tool for operators.



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