# A fatigue risk management system - the way forward?

**By Lydia Hambour**

Fatigue is a known contributor to aviation accidents. This has been acknowledged by the NTSB through its most-wanted transport safety improvements list, where action to reduce fatigue-related accidents in aviation remains a critical item requiring attention...


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The acknowledgement that current fatigue management strategies are ineffective is a sentiment shared worldwide. Both ICAO and EASA have recently issued guidance recommending management strategies to address the fatigue risk threatening safe airline operations. So why may there be resistance to full implementation of a fatigue risk management system (FRMS)?

24-hour operations expose employees in the aviation industry to varying and often lengthy periods of time on duty, disruption to circadian patterns compounded by reduced and often interrupted rest periods. On top of this are workload influences, including external and internal factors that can vary from one duty or shift to the next. These hazards can interact and result in a fatigued employee – one whose ability to perform safety-related duties is impaired.

## What is a FRMS?

A static means of fatigue management, such as prescriptive rules, cannot flex or adjust to the operating environment that exists at any one time and in any one place. For example, a legal twelve hours' time on task limitation is the same for an aircrew member operating a two-sector duty at the start of a shift sequence following multiple days off and experiencing minimal workload or hassle factors as it is for another aircrew member operating their last shift of a six-day sequence of duty, flying into a category C airfield and with an inexperienced co-pilot. This is clearly simplistic. Such examples can be found in all areas of aviation, be it airline operations, maintenance, air traffic control, etc.

On the other hand FRMS provides a way of extracting data from the specific operational environment and comparing it with scientific knowledge on sleep and shift sequences. It therefore effectively manages the risks posed by fatigue as a result of the operational circumstances that actually exist. It is proactive and continuous so as to identify the risks, implement mitigating strategies and review the outcome, ensuring the risks are controlled effectively and continuously.

## How do I implement?

By its dynamic, adaptive and analytical nature, FRMS is not easy to implement. It is multi-faceted rather than binary. FRMS requires that an operation be flexible, with a willingness to change if and when required. This may be for all or only specific parts of the business as determined. For large organisations, which are highly automated and systems-dependent, this can be extremely difficult given their inherent inertia and legacy processes. Small changes may require lengthy lead-in times and complex systems integration. This will therefore necessitate careful planning by subject matter experts, including impact forecasting which must account for varying circumstances. Simply relying on the legal limitations as a means of controlling the fatigue risk is easy; however, it is also becoming recognised as incomplete and therefore unacceptable. FRMS requires education, increased expertise and understanding, but any investment made is recoverable through the accrued benefits it brings.


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## Is it worth It?

In essence FRMS exists to ensure an organisation can proactively manage the operational fatigue risk, thereby reducing the chance of a serious accident linked to fatigue. Yet, simultaneously, as alertness increases, we can expect to see a reduction in the incidents, cognitive slips and lapses caused by fatigue. Human factors degradations such as impaired decision-making, reduced communication and increased risk taking will diminish. These safety improvements can have a quantifiable benefit to the organisation through a significant reduction in insurance premiums. As employee alertness improves, recovery is optimised, leading to a better work/life balance for the individual and reduced attrition for the organisation. Furthermore, absence due to fatigue-related sickness is reduced, bringing greater stability to the operation and heightened performance.

## At what cost?

The safety benefits of FRMS are apparent but the improved efficiencies which are intrinsic to a well-developed FRMS can equally be quantified. Predictive fatigue models can be utilised to highlight the productivity restrictions in prescriptive flight time limitations and to suggest the FRMS-managed variations that can provide additional flexibility (within an appropriately risk-mitigated environment). However, predictive fatigue models are only one tool within an FRMS toolkit. By implementing an array of fatigue risk identification strategies such as field studies, surveys and employee reporting, the operating environment can be fatigue-risk assessed. Working with the local safety authority and all other stakeholders the risk areas, as identified, can be targeted using specific management strategies with similar beneficial outcomes for both safety oversight and productivity.

## What will they say?

It is evident that the FRMS approach requires a new way of thinking that goes beyond the certainty of "compliance "or "non compliance" assessments of safety risk. It therefore requires a programme of education and awareness training so that all parties are clear about their obligations. If understanding of FRMS is unclear it may be perceived solely as a means of increasing employee productivity. Conversely, at the other extreme, it may be seen as facilitating employee absence through providing a readily accessible justification based on abuse of a safety absolute. To further alleviate this possibility, it is vital that an FRMS is based on scientific evidence, objectivity and transparency and is underpinned by organisational commitment to a just culture and non-jeopardy reporting.

## Who needs convincing?

It will be apparent that to ensure the success of FRMS, buy-in from all parties is essential. It will facilitate the acquisition of data through clear communication channels that enable risks to be reported freely. Safety action groups can then review the data to decide on appropriate risk mitigating action. Ongoing assessment and review of fatigue controls by all stakeholder departments is essential for success. Trust in FRMS is key. A proven and externally supported method of work practice and validated results, together with feedback to employee groups will facilitate such acceptance on their part. Quality assurance and ongoing communication with the safety authority or regulator will give reassurance that FRMS can effectively perform internal governance. The requirement for intensive but static external audits will diminish as the regulator is updated on the proactive risk management capability on a regular and ongoing basis.

Ultimately, FRMS offers an enhanced method of managing fatigue risk in an organisation which can simultaneously deliver improvements in employee lifestyle and productivity. However it also requires a move away from the certainties of prescriptive rules to reflect the operational and individual circumstances that exist at the specific time and place. This in turn necessitates investment in education, systems and processes in order to overcome the inertia which is a part of more static legacy solutions. The evidence to date from those who have pioneered the FRMS philosophy is that such investment can deliver benefits to all stakeholders which are based on the foundation of enhanced safety performance.