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shaping a better world

Why FRMS?

- Pilot fatigue is a major concern in modern aviation operations, mostly due to unpredictable work hours, long duty periods, circadian disruptions, and insufficient sleep that are challenges in both civilian and military flight operations.
- FRMS is the globally accepted standard for managing fatigue risk in aviation operations. ICAO advocates for FRMS implementation, encouraging industry transition to science-based approaches that complement prescriptive limits.
- Working closely and extensively with the FAA, the FRA, trucking, energy, and all branches of the military, IBR has made recognized industry contributions for FRMS implementation.

FRMS Implementation: IBR's Five-M™ Continuous Performance Improvement Process

With years of applied experience and state-of-the-art technology, IBR has the expertise to provide assistance in all areas of FRMS development and implementation, using the Five-M™ continuous performance improvement process:

- **Measurement:** Data collection and assessment of current conditions.
- **Modeling and Analysis:** Highly rated SAFTE-FAST software programs for schedule assessment of entire flight department and individuals.
- **Management, Policies, and Organization:** Ongoing support to launch and sustain an FRMS.
- **Mitigation:** Assistance finding practical and economical solutions to fatigue challenges.
- **Monitoring:** Program evaluation and feedback for continuous performance improvement.

Aviation Fatigue Management Team

Dr. Steven R. Hursh is President of IBR and an internationally recognized expert on modeling the relationship between sleep deprivation and performance. Dr. Hursh is a leading FRMS authority who currently consults for the Federal Aviation Administration, Federal Railroad Administration, US Defense Department, and private industry, building on over 40 years experience conducting behavioral research.

Dr. Francine James is Senior Scientist specializing in operational fatigue & performance research, where she manages and conducts field studies on the physiology of scheduling, fatigue, and operational performance.

Dr. Lauren Waggoner has eight years of experience consulting and researching sleep, fatigue, and operational performance in laboratory and field environments, including a post-doctoral fellowship at the Naval Postgraduate School.



Fatigue Risk Management Systems Tools & Services

Solutions for developing an
FRMS in aviation operations



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For more information about SAFTE-FAST, visit
www.saftefast.com or send an email to info@saftefast.com.



What is FRMS?

FRMS is a data-driven and scientifically based process that allows for continuous monitoring and management of safety risks associated with fatigue-related error. It is part of a repeating performance improvement process that can be integrated into a Safety Management System (SMS) with continuous safety enhancements gained by identifying and addressing fatigue risk across time and changing physiological and operational circumstances. FRMS is a management process that implements a systems approach to fatigue management through an integrated network of people and resources.

FRMS Tools & Services

In collaboration with Baines Simmons Americas, an international leader in aviation safety consulting and training services, IBR offers a comprehensive set of tools and services to support your FRMS needs from start to finish. Here's how we can help your company:

Fatigue Risk Management Consulting Support

With the Airline Safety and FAA Extension Act of 2010 enacted as law, all Part 121 airlines are required to develop an FAA-acceptable Fatigue Risk Management Plan (FRMP) and be prepared to eventually implement an FRMS. Regulations aside, proactively addressing fatigue in flight operations could lead to creative solutions tailored to your operation, as an alternative to certain prescriptive limits.

FRMS consulting services include:

- FRMS planning support and evaluation
- FRMS design and integration into a Safety Management System (SMS)
- Corporate policy development
- Scheduling data collection and analysis
- Fatigue Reporting System design

Fatigue Modeling with SAFTE-FAST

Fatigue needs to be measured and connected to the conditions that contribute to safety risk. IBR President Dr. Steven Hursh invented the SAFTE (Sleep, Activity, Fatigue & Task Effectiveness) model of human fatigue and circadian variation and developed the Fatigue Avoidance Scheduling Tool (FAST) as a user-friendly application of the model. The US Department of Defense considers SAFTE-FAST to be the most complete, accurate, and operationally practical model currently available, and it has been validated by the DOT and used by the FAA and numerous operators.

SAFTE-FAST Features:

- Fast, efficient and easy-to-use application
- AutoSleep – unique capability to realistically estimate sleep patterns affected by time zone changes, napping, crew rest and augmentation
- Batch processing – automated processing of multiple schedules
- Aggregate fatigue assessment – multiple fatigue metrics: total flight time, risk levels at critical phases of flight, workload, etc.
- Not just a fatigue score: Detailed examination of fatigue factors leading to mitigations
- Simplifies evaluation of potential changes and “what if” scenarios

Fatigue Risk Awareness and Education Training

FRMS is more than modeling. It is a management process built on organizational policies and procedures involving an integrated network of people and resources for an overall understanding of fatigue risk and mitigation on a company-wide basis. All company personnel – flight and cabin crew, maintenance, executive management and administrative staff – can benefit from gaining knowledge of fatigue management principles and practices to facilitate a systematic approach. IBR offers consulting services, fatigue modeling, and comprehensive educational resources.

Real World Outcomes Using SAFTE-FAST

(submitted by anonymous users)

Outcome #1

SAFTE-FAST analysis of day rest builds consensus for new labor agreement

- Greater engagement with cabin crew
- Crew gets home faster and are more rested
- Crew retains access to hotel, yet company eliminated 78 hotel rooms/wk. for productivity gain of 18 extra crew/mo.

Outcome #2

SAFTE-FAST analysis used for management of scheduling delays

- Identified vulnerabilities and equated schedule with one that was previously removed from scheduling
- Recommended longer layover of additional four hours resulting in 8% gain in effectiveness

Outcome #3

Executive Management Decision Aid

- Need for crew rest led to landing during quiet hours which resulted in hefty company fines and potential crew disciplinary action
- SAFTE-FAST analysis confirmed crew fatigue risk, providing objective support for the crew's decision

