

TOUGH SOFTNESS!

CULTURAL CHANGE FOR AVIATION PROFESSIONALS

By Michael R. Grüniger, Capt. Giancarlo Buono
and Markus Kohler of Great Circle Services AG (GCS)



How are you feeling as you read this article? Perhaps tired? A bit drowsy from a long flight or from a disruption of your sleep pattern due to a change in time zones?

Fatigue affects everybody by reducing mental awareness and physical performance capability. When fatigue hits aviation professionals, one must ask, “Are you or your crew safe to get behind the wheel on that next leg of the trip?” To answer this question, one normally reverts to a different question: Am I legal to fly?

Flight Time Limitation (FTL) requirements provide clear and digital administrative regulation with the goal of ensuring flight crews are not affected by fatigue to such a point that safety is unacceptably affected. But does being compliant always mean being safe?

Zs
Getting the right amount of sleep is an essential part of providing a safe flight.

As the example of fatigue illustrates, a purely digital, administrative regulation approach may have significant drawbacks. The FTL represents rather arbitrary limits that lack scientific support and only address one cause of fatigue (duty time). The requirements are static and do not take into consideration specific operational requirements. Particularly for Business Aviation, it is difficult to establish efficient duty rosters as customer requirements usually cannot be predicted and require quick reaction times.

Although fatigue is nothing new, the way fatigue is being looked at is. This article will use the example of fatigue to illustrate the fundamental paradigm shifts currently taking place. These shifts are initiated by the ICAO and permeate the aviation industry from the commercial air transport sector through Business Aviation and down to general aviation.

From Hard to Soft

Since the invention of flying machines, efforts to improve safety have focused on technical aspects. Initially, it was quite obvious to address these issues as technology was immature and the cause of an accident could usually be attributed to the failure of a structural or system component that, once improved, would result in an enhancement of safety.

Needless to say, aviation technology has matured – and with accident rates asymptotically approaching zero, an increasingly higher amount of effort is required to continue this trend of reduction. Even though advancements like new fabrication techniques and materials continue to present new technical safety challenges, there is little room left for additional improvements.

Focusing on technical aspects of safety comes naturally to aviation professionals, as they are predominantly technical people. We tend to like numbers, speed and technical gadgets. However, issues like fatigue and its associated hazards tend to get overlooked.

It was not until 1993 that fatigue was first considered and cited as a cause of an accident (American International Airways DC-8-61, Guantanamo Bay). Despite repeated callouts by the flight engineer, the pilot allowed airspeed to deteriorate below the calculated VREF, bank angles in excess of 50 degrees to develop during turn from base to final and took no action on stick shaker activation – all causing the aircraft to stall and crash.

Driven by the growing awareness that available technical solutions to improving safety have been maxed out, other disciplines such as Crew Resource Management or the application of Quality Assurance principles to operation processes have emerged. The shift is generally characterized by:

○ A change of focus from technical aspects to human factors

○ A broad systemic view of not only the aircraft and its crew but also the environment in which it operates,

including ground, air traffic and maintenance service providers

- A proactive and anticipating approach to safety

- The involvement and assumption of responsibility and accountability by organizational management

The buzzwords that encompass this paradigm shift are Safety Management Systems (SMS) and Corporate Culture (future articles of Safety Sense will elaborate on these terms in detail).

From Administrative to Performance Regulation

From the regulators point of view, this shift in focus means the industry is expected to assume the responsibility to actively manage the risks associated with its operation. An integrated management and safety system provides risk transparency to management and the regulator.

When risks become transparent they can be managed to acceptably low (or as low as reasonably possible) levels. This allows operators to demonstrate to authorities an equivalent or higher level of safety is achieved as compared to what can be obtained from rigid administrative regulations. While maintaining and improving safety, this approach gives the operator much needed flexibility and efficiency to move beyond rigid administrative regulations and results in competitive advantages.

This benefit is recognized in the commercial air transport industry and it is therefore not surprising the industry is pioneering the expansion of the application of risk management principles to such areas as fatigue – areas previously considered too ‘soft’ to be handled by a structured assessment methodology. It was ground breaking activities by easyJet, recent scientific research and the development of software applications that made an individual quantitative assessment of the risks associated with fatigue based on the particular operating environment of an organization possible.

The ICAO Operations Panel Working Group now considers this Fatigue Risk Management System (FRMS) methodology to be mature enough for presentation to the Air Navigation Commission (ANC) for further review. The paper proposes additional definitions and minor



changes to the Standards and Recommended Practices (SARPs) of Annex 6, Part I, and offers a new attachment that provides guidance.

EASA's Point of View

During a two-day seminar organised by the Airline Association of Luxembourg, EASA's Head of Rulemaking supported the introduction of alternatives to traditional Flight Time Limitations (FTL). Obviously, such alternatives still require an equivalent level of safety to the harmonized minimum FTL as introduced in the new EU-OPS Subpart Q Regulation and do not preclude mandating a prescriptive fatigue management regulation as the primary means of compliance until this alternative system has been fully established.

However, today it is already possible for an operator to request an exemption from effective FTL. Business operators cannot draft a fixed roster scheme, as customer requests are often unpredictable. At present, only a National Aviation Authority (NAA) is entitled to seek exemptions and derogations based on Art. 8 Reg. 3922/92. However, if the exemption is urgent, the NAA can allow an exemption for two months without EU Commission notification.

Long-term exemptions require the establishment of an alternative method of addressing Subpart Q requirements and must be based on scientific data, clear risk mitigation measures and a request to NAA. The NAA would then have to agree with the operator's case and propose the alternative scheme to the European Commission. The Commission then

consults EU Member States and, at the end, approves it. Three or four requests for exemptions from Subpart Q have been brought forward to EASA thus far.

Sleep Well

This example of crew fatigue illustrates the fact safety and risk management systems have established themselves as viable and robust tools capable of continuing the impressive and unparalleled safety trend in aviation and thus are being successively applied across all aspects of operation. Responsibility and accountability are transferred from the regulator to the operator, and fundamental cultural changes will be necessary in organizations of old. But broad-minded operators already use the benefits of the system successfully to gain a competitive advantage – and sleep well with the knowledge of providing the safest possible operation to the customer.



Michael R. Gruening is the Managing Director of **Great Circle Services (GCS) Aviation Safety Advisors**. GCS assists in the whole range of planning and management issues, offering customized solutions to strengthen the position of a business in the aviation market. Its services include training and auditing consultancy, manual development and process engineering. He can be reached at michael.gruening@gcs-safety.com or +41-79 442 44 89. His column, **Safety Sense** appears regularly in *BART International*.

Lounge
After a long flight, pilots can take advantage of comfortable pilot's lounges at modern FBO (Picture Landmark Aviation).