# LEGAL EASE
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# Will Nations Meet the Safety Management Systems Deadline?

Imagine if you could identify safety issues before they occur and correct the aviation safety systems to prevent future incidents before they surface. Sounds a bit like science fiction, doesn't it? But this is exactly what the FAA expects to do in the future, and it is counting on our support to make this paradigm happen.

The idea is called safety management systems, or SMS. There is a mandate under the International Civil Aviation Organization (ICAO) agreements for civil aviation authorities to create rules requiring safety managements systems.

The aviation industry enjoys the best safety record it has ever seen, and it is safer than any mode of transportation, which leads to the obvious question: "Why are we bothering with SMS?" The answer to this question lies in the continued growth of the air traffic system.

While the accident rate continues to decline, the amount of traffic in the air continues to climb. To maintain a "straight-line" total number of accidents and injuries on a year-over-year basis, the accident rate needs to drop — significantly — just to maintain the same number of accidents per year. To diminish annual accidents below current average totals, the accident rate needs to do more than decline; it needs to decline at a rate that will counterbalance the rate at which the volume of air traffic is growing.

Under SMS, the regulated parties are meant to be proactive, rather than reactive, in their approach to safety. Many current maintenance systems operate from the basis of a traditional quality-control environment in which safety issues are caught and corrected; for example, through inspections to ensure the work was performed correctly.

Quality-assurance programs take this paradigm one step further by creating procedures designed to forestall known issues and having feedback-loops permitting reports of quality issues to be analyzed, investigated — to identify root cause — and corrected through corrective action. Usually, this is implemented through the mechanisms of the quality-assurance system.

SMS takes the industry one step beyond traditional quality-assurance systems. Instead of reacting to known issues and actual problems, the SMS paradigm demands companies collect data, build tools to help analyze the data, and use the trends shown by the data to predict future problems.

Once the future problems are predicted, the traditional root-cause analysis and corrective-action model can be applied to correct the potential issues before they ever cause true safety issues.

The most important aspects of SMS, from a company perspective, are as follows:

- Develop and maintain a safety data collection system for collecting data to support the processing system.
- Use the data collected to verify safety performance meets the organization's safety policies and objectives.
- Develop and maintain a processing system permitting the company to identify hazard and analyze and assess safety risks. This system should combine reactive, proactive and predictive methods of analysis.
- Develop and maintain a formal risk-management program using the risk analysis to determine how best to mitigate risks to an acceptable level. This system should analyze the identified risks in terms of probability and severity, and use this data to assess the tolerability of each risk.
- Develop and maintain a system for mitigating risks to the extent called for under the risk-management program.

In addition to these features, the ICAO SMS model includes many of the elements traditionally seen in industry quality-assurance programs, such as continuous process improvement, training, communications and quality standards.

ICAO has asked the world's civil aviation authorities to impose regulations requiring SMS programs of the

following regulated parties:

- Air traffic services
- Airports
- Commercial operators
- Maintenance facilities

Obviously, this last SMS requirement — maintenance facilities — touches most of AEA's membership.

As envisioned by ICAO, the SMS mandate would impose a quality-assurance requirement on repair stations. The mandate is strikingly similar to the quality-assurance rules proposed for repair stations in 2001.

As most AEA members recall, industry opposition to those rules, particularly from the general aviation community, caused the FAA to publish the 2003 changes to Part 145 without the proposed quality-assurance rules. Although the FAA once again proposed quality-assurance rules, industry opposition to the rule likely will lead the FAA to rescind or drastically change the pending quality-assurance rule.

Of course, with SMS just over the horizon for the United States, the FAA would be wise to drop the proposed quality-assurance rules and focus instead on helping repair stations build SMS-compliant programs.

The ICAO SMS deadline is approaching fast, and the U.S. will not meet the ICAO deadline of Jan. 1, 2009. From the looks of things, internationally, it is likely no government will have an SMS regulatory program in place and operating smoothly by the ICAO deadline.

The nation closest to having an SMS program in place, Canada, announced once the SMS program is in place, it will no longer conduct compliance audits. Instead, the agency will examine whether or not the regulated party has a SMS and, if so, whether or not it is using the SMS to effectively understand and manage risks. But the word on Canadian implementation of SMS programs is, it has not gone as smoothly as hoped.

In the U.S., with implementation of regulations nowhere near ready to meet the Jan. 1 deadline, the U.S. expects to file a "difference" to the ICAO SMS provisions until such time as it is able to implement a SMS program.

In the U.S., the FAA already has voluntary standards for SMS programs in air carrier operations. These standards can be found in Advisory Circular 120-92. Standards also have been adopted for airports, which can be found in Advisory Circular 150/5200-37.

The FAA is planning to issue an Advanced Notice of Proposed Rulemaking seeking public comment on the question: "How should the FAA implement an SMS rule?" It also plans to create an Aviation Rulemaking Working Group, which will permit industry and the FAA to work jointly on creating SMS regulations.

One of the dangers this group must avoid is creating a rule focusing too much on quality-assurance techniques without providing the industry with the support it will need in the data-collection and analysis aspect of SMS.

Another key feature that must be investigated carefully is how to handle enforcement. Many other authorities have pointed out the importance of changing the focus of aviation regulators from enforcing standards to cooperatively working with the industry to achieve better safety standards.

While this is an important point, and the authorities are right to anticipate a desire to work more cooperatively with the industry to achieve safety, recent congressional focus on the FAA has yielded a desire by the government and the media to see a greater divide between the FAA and the regulated industry. Such a divide undermines the industry safety culture that is so important to our safety record. It also makes it nearly impossible to implement robust SMS programs that are truly free to analyze and mitigate future risk because the nature of SMS — while valuable for safety improvement — is to create a documentation trail, which would provide a litigation nightmare for regulated parties.

Because of the likely impact on its members, the AEA expects to be an active participant in the rulemak-ing process as the SMS rule is developed. ❑

*If you have comments or questions about this article, send e-mails to avionicsnews@aea.net.*