

# What Will Do for Me?

A new way of conducting the business of safety is coming—and pilots will have two important ways to participate.

By Capt. Jim Ferrari (United) and Capt. Linda Orlady (United)

What is SMS to the line pilot? Is SMS just another new acronym, standing for safety management system? We'll discuss two vital input points for the line pilot, but first a brief overview.

In a nutshell, SMS is a business approach to safety that will become, in stages over time, the way aviation safety is managed and regulated throughout the world.

U.S. federal aviation regulations (FARs) and Canadian aviation regulations (CARs) specify much about how we are trained, certified, and operate in the U.S. and Canadian aviation world. Many of these FARs and CARs stem from and follow the directives of the International Civil Aviation Organization (ICAO), the aviation arm of the United Nations. The United States and Canada are two of ICAO's 189 "member states." ICAO passed a resolution in 2006 mandating that all member states must have in effect by Jan. 1, 2009, regulations that require airlines, airports, air traffic service providers, maintenance providers, and any other organization or business involved in aviation, to adopt SMS.

This ICAO mandate means, effectively, that a new way of managing safety will soon be well on its way to worldwide implementation. Transport Canada already requires each Canadian airline to have an SMS, and thus they are well ahead of the rest of the world in implementing this new approach to safety.

## Four pillars support SMS

SMS establishes a formal relationship between the operator, its employees, and the regulator(s). As defined by ICAO, four essential pillars undergird any SMS:

- *Safety policy*—All corporate management systems must define policies, procedures, and organizational structures to accomplish their goals.
- *Safety risk management*—A formal system for detecting hazards and managing safety risk is essential to keep risk at an acceptable level.
- *Safety assurance*—After safety controls are defined, the operator must ensure that they are enacted and continuously used and honed to be effective in a changing environment.
- *Safety promotion*—The operator must promote safety as a basic corporate core value with practices that support and encourage a sound safety culture.

The absolute essence of any SMS is an effective safety culture, sometimes called a "just culture." Under this con-

cept, organizations develop and maintain an environment of trust and accountability. In addition, the organization must name a specific accountable executive or member of senior management who is accountable and responsible for all of the organization's safety programs. Furthermore, this accountable member of management must have the authority and the commensurate ability to provide the funding needed to support the SMS program—i.e., he or she must have control of the purse strings.

## Employee participation

One cornerstone of an effective safety culture is employee participation, and employee involvement in all aspects of the operation is absolutely vital. An effective, nonpunitive reporting system such as an Aviation Safety Action Program (ASAP) partnership represents the gold standard of employee participation in SMS.

An accurate data collection and dissemination system is essential to finding potential safety problems, with the goal of being proactive instead of just reacting to past accidents and incidents. Effectively disseminating these results back to all levels of management and line personnel is another hallmark of a good SMS.

Movement toward an effective safety culture may require some groups to modify their perspectives. Organizations, regu-

lators, and employees must realize that human beings all make unintentional errors. These errors occur across the whole spectrum of operations and can be ferretted out not only through accident and incident records, but also in everyday normal and abnormal operations. A nonpunitive reporting system must be designed to provide a method of finding systemic procedures, processes, and infrastructure that contribute to human error.

In establishing the trust needed for the reporting



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ALPA's SMS director.**

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## SMS gives line pilots and other employees two basic opportunities to contribute and participate: SMS requires that (1) the employee be able to report safety conditions and events without fear of personal jeopardy, and (2) the organization include its employees in a formal safety risk assessment process.

system to work, a basic assumption that most of us do not intentionally violate regulations and standard operating procedures is essential. All the parties must also understand that willful or intentional deviations and violations are neither included nor protected under such a system. The oversight and disciplinary responsibilities of both regulators and management in these cases do not change. Certainly, from the line pilot perspective, if a pilot intentionally flies recklessly, we would want the situation to be addressed constructively.

### The airline industry evolves

A brief history of the aviation industry's development is helpful in understanding where we are now in the overall picture of our maturing industry. Some have described the first few decades of aviation as "the machine era," devoted to developing the machines and improving their capabilities and efficiencies. Accidents and incidents involving mechanical failures were commonplace, and fixes were centered on the machines themselves and on improving the technology.

The 1970s brought about "the human era," in which human factors issues involved with operating the air transportation system were addressed with the advent of crew resource management (CRM) concepts and better procedures for flight crews. At this point, most, if not all, of the advances in technology and human factors issues were achieved in what is known as a *reactive* methodology, with subsequent improvements and changes being the result of accident and incident analysis. These processes were, and continue to be, essential elements in developing and maintaining an effective safety environment.

We currently operate in what has been described as "the organizational era," in which the entire organization itself is seen as integral to the safety structure. Factors such as

workforce stability, qualifications and experience, morale, and credibility represent areas of interest, as are the latent conditions and active failures that may exist in the workplace. We are interested not only in the reactive methodology previously discussed, but also in incorporating additional *proactive and predictive* methods in preventing incidents and accidents.

### SRA offers pilots a second shot

The late Jerome Lederer, an early airmail pilot, NASA researcher, and founder of the Flight Safety Foundation, who has often been recognized as "the father of U.S. aviation safety," described aviation safety in 1972 as "organizing to put hindsight where your foresight should be in identifying and managing risks." Lederer seems to have envisioned a process known today as safety risk assessment (SRA).

Most of us have heard the expression, "that was an accident waiting to happen," after an accident manifests some glaring issue or hazard that stood out as a trigger for the mishap. The SRA is designed to uncover human factors "traps" and to short-circuit the trigger with intelligent and efficient mitigations to prevent mishaps from occurring in the first place. The ability of an organization to conduct an effective SRA is directly dependent on the quality and quantity of data that are used to detect hazards.

The SRA thus represents the second opportunity for line pilots to help the process. While effective and timely reporting of inadvertent violations of FARs or SOPs is important, reporting and detecting any hazard that may endanger the safety of the operation—either in the air or on the ground—is essential to the success of the SRA process. Verifiable, accurate data are the best tool for detecting and evaluating hazards and their potential consequences.

A formal SRA conducted by an organization or facility with-

## Executive Board Beefs Up SMS Policy

The ALPA Executive Board at its meeting in May amended ALPA safety management system (SMS) policy to strengthen language in the policy regarding the role of labor organizations in detecting and reducing hazards to aviation safety. The new language declares that a safety risk management (SRM) program, part of an SMS, “requires the participation of labor organization(s) as the representative[s] of their employee groups in both the identification of hazards and in the development of risk mitigation strategies.”


SMS is a proactive business approach to managing aviation operations with the goal of increasing safety and reducing risk in the air transportation system. ALPA strongly advocates that all airlines have an SMS.

The ALPA SMS Project Team will continue to represent the Association at government and industry meetings and working groups, work with MECs in implementing an SMS at their respective airlines, educate the ALPA air safety structure on the fundamentals of SMS, and support ALPA’s Executive Air Safety Chairman in incorporat-

ing SMS into the Association’s air safety structure.

ALPA has a direct interest in ensuring that airlines whose pilots the Association represents and that claim to have an SMS do indeed have an SMS in action as well as word. The FAA has not made SMS mandatory, but Transport Canada has, and ICAO has proposed SMS standards for all ICAO member states to be implemented by 2009. Moreover, the FAA is writing guidance and standards for U.S. airlines, airports, manufacturers, and other aviation entities to use in developing and implementing SMS.

In support of its work in this area, the ALPA SMS Project Team recommended the amendment to the ALPA *Administrative Manual*.

To read the verbatim ALPA policy on SMS, log on to [Crewroom.alpa.org](http://Crewroom.alpa.org) by using your ALPA member number and password; on the home page, scroll down the left side and click on e-Library; click on Administration, then Administrative Manual, and open Section 80—Engineering & Air Safety. 

out pilot input (or input from any employee group) would be incomplete. An organization that does not solicit and receive front-line employee input does not have an SMS. If an organization’s SMS documentation does not include employees in detecting hazards and assessing and mitigating risk, its risk assessment processes are flawed, and its safety culture is questionable.

Pilots themselves and other stakeholders must realize that pilots, being subject-matter experts, bring a unique and essential element to the SRA process. In any airline, regulatory, ATC, or airport SRA when flight operations will be affected, pilots should participate, contributing their unique knowledge and perspective to the process. ALPA’s Airport Liaison Representative (ALR) program is just one example of this principle put to good use with airport operators.

You might be wondering, “What about assessing the risk of factors in maintaining security?” The security of our airliners, airports, and other components of our air transportation system has long been an issue, since well before Sept. 11, 2001. (The first proven case of sabotage in the airline industry occurred on Oct. 10, 1933, when a United Airlines Boeing 247 crashed near Chesterton, Ind., after a bomb on the airplane exploded. All aboard were killed, and

the event marked the first death of a flight attendant aboard an airplane.) Hazards associated with security can and must be part of the SRA process, and we, as pilots, must be part of the solution.

### SMS faces cultural, cost challenges

Especially in international operations, your airline may have to deal with multiple regulatory agencies. Worldwide, the abilities and competence of operators and regulators varies tremendously. We airline pilots operate in a global community and know that cultural acceptance of risks varies and that different people will have different priorities.

That varying acceptance of risk must be factored in when operating in different regions of the world. Employees, organizations, and regulatory bodies must understand these differences and provide a viable operational philosophy consistent with maintaining the highest level of safety possible. These stakeholders must strive for continuous improvement as SMS is developed and implemented by various organizations.

The cost of safety is an important factor to consider. Not enough money exists to achieve “perfect safety” or “zero risk,” but organizations, as they look to implement the risk

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mitigations that are developed from an SRA, must weigh the cost/benefit(s) of such improvements against the cost of a potential mishap. The probability and severity of a given consequence must be balanced with the safety benefit and assigned a risk factor. Accurately assessing this risk factor is a big part of all SRA mitigation strategies.

This analysis cannot be accomplished effectively in a vacuum. Appropriate representation and participation by line employees is essential to giving an organization's decision-makers proper and accurate information so that they fully understand what the risks and rewards will be as they make important financial decisions about investing in safety. This process, when used consistently, will provide employees, passengers, and shippers with an increasingly safe air transportation system while maintaining a viable and profitable airline industry.

### **When do you need an SRA?**

So when should your airline conduct an SRA? The short answer is, "Whenever the airline contemplates implementing a new practice or changing past practice."

An SRA can be conducted for SOP changes, new aircraft, changes in training for recurrent and transition flight crews, significant FAR changes, newly discovered hazards, and anything else deemed to potentially upset the status quo. The required ongoing monitoring and analysis of data serves to uncover potential safety issues that can also trigger an SRA. So the reporting and monitoring system that the organization uses is the heart of this process.

## **ALPA SMS Project Team**

The mission of the ALPA SMS Project is to promote adoption of safety management systems in the airline industry and to assist in applying SMS techniques and practices within the ALPA safety structure. The SMS Project Team is charged with presenting the Association in a positive light through encouraging, developing, and training effective safety management throughout the airline industry.

The members of the ALPA SMS Project Team are

- Capt. Linda Orlady (United), Project director,
- First Officer Susan Bailey-Schmidt (Northwest),
- Capt. Jim Ferrari (United),
- First Officer Kent Lewis (Delta),
- Capt. Dale Peterson (Alaska),
- Capt. Nick Seemel (Air Canada Jazz), and
- Capt. Ben Tudor (Northwest). 

To generate accurate data, the reporting system must be designed to encourage frequent and accurate reporting on a continual basis. As pointed out earlier, having an effective nonpunitive reporting system is the gold standard toward which all stakeholders should strive.

SMS is going to bring changes to almost everyone in the aviation industry—from airlines and airport operators to those charged with federal, state, and local oversight of the industry—and should improve the safety and efficiency of our operations. Individual pilots can make a big difference in promoting safety at any level within their airline.

No doubt the future will bring significant challenges as new airline pilots take to the skies, air traffic increases, and new types of aircraft, including unmanned aerial vehicles and very light jets, add to the traffic mix. The challenge will be to make this future reality fit into a finite amount of airspace and to maintain a dedication to safety among all of the players.

Pilots are primary players, and we have a lot at stake, both professionally and personally. We can use and will need volunteers at every level, so please approach your MEC or LEC to see where you can help the most. Let us leave the airline industry better off than we found it! Our job is to make sure our voices are heard loud and clear, and with your help, we will. 