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Twelve steps to implementing a safety management system.

BY JOHN SHEEHAN

SMS Tools for Corporate Aviation

Now that the International Civil Aviation Organization (ICAO) has made it mandatory for international operators of large and turbojet-powered aircraft to “establish and maintain a safety management system (SMS) appropriate to the size and complexity of the operation” after Nov. 18, 2010, implementation of the system is in full swing. We at the International Business Aviation Council (IBAC) are pleased to note the great response by corporate operators around the world, especially those who choose to comply with this mandate through International Standard for Business Aircraft Operations (IS-BAO) registration.

But experience has shown that both grasping the SMS concept and implementing it are not particularly easy tasks for corporate operators. The fully integrated approach to safety and the diversity of missions and wide range of flight department compositions make a “one-size-fits-all” approach to SMS impossible. As a consequence, IBAC over the years has provided increasingly detailed implementation guidance for SMS, culminating with the *SMS Toolkit* in 2009.

The *SMS Toolkit* was developed by a working group comprising members of the IBAC staff and participants from a number of IBAC’s 15 member associations to assist noncommercial fixed- and rotary-wing aircraft operators, on-demand charter operators and aerial work interests in developing and implementing safety management systems that meet the ICAO standards and recommended practices, as well as the requirements of major aviation regulatory authorities.

The tool kit consists of a 57-page hard copy *SMS Tools* booklet that provides a step-by-step process to develop

and implement an SMS, a compact disc that contains an electronic copy of the booklet, and 18 tools and six reference documents in electronic format. There are also hyperlinks to numerous other related sources. Other aids to SMS implementation are also included.

Why an SMS?

Most corporate and charter operators are aware of the existence of SMS, but all may not fully appreciate the rationale for its use and the advantages it brings to an operator. Most operators practice some form of overall safety management, especially if they have an up-to-date flight operations manual that contains policies, standards and procedures that directly apply to their operation. What is missing is the integration of these elements into a system of interlocking policies and procedures that considers all elements in concert.

More important, an SMS forces an operator to actively identify potential hazards, analyze them and create measures that will minimize the risks involved with the hazards. Further, the system provides for participation of all members of the flight operation in the SMS; teamwork is a welcome result of this action in most operations. The concept of constant improvement through a series of regular reviews of the operation’s activities and compliance with its own standards completes the action loop of hazard identification and mitigation, active risk assessment, managing organizational and environmental change, internal evaluation and program revision.

The resulting advantages — the ability to actively measure and mitigate operational and organizational risks, better management practices, increased customer confidence, loss prevention, preferred insurance rates, and a fully

integrated team within the flight operation — provide a rewarding return on the investment of the time and effort to implement and maintain an SMS.

The naysayers who contend that their seat-of-the-pants brand of safety management is just fine without the advantages of an SMS should ask the questions: Really, how safe is my operation? How can I know how safe it is if I have no means of measuring the risks we encounter on a daily basis?

SMS in Brief

The ICAO definition of SMS is “a systematic approach to managing safety, including the necessary organization, structures, accountabilities, policies and procedures.”

IBAC defines SMS as “the systematic and comprehensive process for the proactive management of safety risks that integrates the management of operations and technical systems with financial and human resource management.” This definition goes a bit beyond the more fundamental ICAO definition, but IBAC believes that the concepts of *risks*, *comprehensiveness*, *proactiveness* and *integration* are very important. The most important advantages of an SMS over conventional, more fragmented safety programs are the full integration of supporting programs and the ability to measure the degree of risk exposure.

The component parts of an SMS include methods of creating and sustaining safety through:

- Policies and objectives;
- Risk management processes;
- Assurance elements (Is it getting done?); and,
- Education and promotion within the organization.

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The basic formula for achieving these objectives is to:

- Identify hazards;
- Assess and measure risks created by the hazards;
- Eliminate the hazards or reduce risks to an acceptable level;
- Track and evaluate safety management activities for effectiveness; and,
- Modify safety management activities as required.

Implementing an SMS

A comprehensive implementation plan must be employed to assure that the resulting SMS meets all program goals and objectives. Not starting with a detailed plan is like launching on an international flight without flight planning.

An effective plan will ensure that:

- Management is committed to its success;
- Required resources are allocated;
- Responsibilities are assigned;
- Milestones are established and tracked;
- Existing policies, programs, systems and procedures are integrated with the new elements; and,
- Linkages are maintained.

Not ensuring that the first item on this list is truly present will jeopardize the success of any SMS. Without the boss's support, making it work will be difficult.

Like other means of treating addictions, IBAC advocates the following 12-step SMS implementation program; the addiction we are trying to treat is reliance on weak or poorly integrated safety programs:

1. *Study the SMS concept.* Read as much as possible on the subject to gain a comprehensive understanding of what the program is supposed to accomplish, how the parts fit together and what level of effort is required for success. Talking to others who have instituted an SMS

in your type of operation will prove quite useful.

2. *Obtain senior management commitment.* This means “selling” the flight department manager/chief pilot on the merits of the program. But, whoever runs the flight department must also gain the support of corporate executives at the highest levels for the program to work.

Corporate SMS Resources

More information about the **International Business Aviation Council (IBAC) SMS Toolkit** is available on the council's “Safety Management” Web page at <www.ibac.org/safety-management>. The page also provides links to the IBAC “Safety Management Library,” “Safety Management System (SMS) Information Library” and the International Standard for Business Aircraft Operators (IS-BAO) program Web page.

Vital information for an SMS is available in the recently updated **Flight Safety Foundation (FSF) Approach-and-Landing Accident Reduction (ALAR) Tool Kit**, a multimedia resource on compact disc for aviation safety professionals working to prevent the leading causes of fatalities: approach-and-landing accidents, including those involving controlled flight into terrain (CFIT). Information about the FSF *ALAR Tool Kit* is available at <flightsafety.org/current-safety-initiatives/approach-and-landing-accident-reduction-alar>.

Information about developing an emergency response plan — an integral element of any SMS — is available from the **National Business Aviation Association** at <nbaa.org> and from the **European Business Aviation Association** at <www.ebaa.org>.

The **International Civil Aviation Organization (ICAO) Safety Management Manual**, a 290-page document that provides a wealth of information about establishing and operating an SMS, is available at <www.icao.int/fsix/_Library/SMM-9859_1ed_en.pdf>.

Links to a variety of information and tools, including the *Fatigue Risk Management (FRMS) Toolbox*, are available on the **Transport Canada** “Safety Management Systems (SMS)” Web page at <www.tc.gc.ca/eng/civilaviation/standards/sms-menu-618.htm>.

The **U.K. Civil Aviation Authority Safety Management Systems — Guidance to Organisations** is available at <www.caa.co.uk/default.aspx?catid=872&pagetype=90&pageid=9953>. This Web page includes links to a variety of other SMS materials, including a document titled *SMS Guidance for Small Non-Complex Organisations*.

A sample of government and commercial resources for SMS design and implementation is available from the **U.S. Federal Aviation Administration (FAA) “Safety Management System Reference Library”** at <www.faa.gov/about/initiatives/sms/reference_library/>. The resources include the FAA's *SMS Implementation Guide* and *SMS Assurance Guide*.

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Management personnel at all levels must stay actively involved.

3. *Establish an SMS team.* A project leader and representatives of the pilots, flight schedulers and maintenance personnel are essential. This is truly a team effort; without a development team, there may not be overall buy-in from the entire organization. Many organizations also find that improved overall teamwork within the organization is a consequence of implementing an SMS.
4. *Conduct a gap analysis.* This means taking one of the SMS checklists (see “Corporate SMS Resources,” p. 35) and conducting an internal audit of the organization to see what you already have that meets the criteria for an SMS. The deficiencies noted will provide a road map for your implementation program.
5. *Conduct initial hazard identification and risk assessment, and develop a safety risk profile.* This aspect asks key department personnel to identify the “standard” hazards they face on a daily basis and how they handle them. It also asks what other hazards they may face based on the variety of operations they perform. Information on how to accomplish this also is available from the resources listed in the sidebar to this article. The *IBAC SMS Tools* booklet is a good starting point.
6. *Develop safety management strategies and safety assurance processes.* This means that the organization must have a well-integrated plan to implement, sustain and measure the overall SMS effort. Measuring the relative risk involved with hazards is one of the most important features of the SMS concept and

should be exploited. It relies heavily on checklists and processes to ensure compliance.

7. *Identify safety accountabilities.* This determines who is in charge of the overall SMS program and, more important, who is in charge of each element of the program. Without designating a responsible individual for each program task, the likelihood of getting all the tasks done may be in doubt. And, don’t forget to designate a due date or time interval for each required action.
8. *Develop an ongoing hazard identification and tracking system and risk assessment procedures.* This is a key feature of the program. The success of an SMS depends on a constant flow of information regarding actual and anticipated hazards and methods for dealing with them. Each primary document listed in the sidebar to this article contains one or more methods for accomplishing this critical element of the program.
9. *Develop an emergency response plan.* While we hope that no person or aircraft within the organization will ever be involved in an incident or accident, having a plan for dealing with the many consequences of such an event is essential. Without it, the operator’s response to an incident or accident is often chaotic and confusing. It is essential to align the flight operation’s activities with those of the main company or client to ensure a comprehensive response.
10. *Amend programs, procedures and documents as required.* This is the feedback loop for the SMS. Once hazards and consequent risks are identified, how they are handled should be incorporated into the

program to ensure that similar events will not reoccur.

11. *Conduct staff training and education.* Without training and constant hazard and risk education, the SMS probably will not be effective and might not even survive. Again, this is a team effort, and the team must be kept in the loop. If they don’t see both activity and results from the program, it will be less effective.
12. *Track and evaluate safety management activities.* This aspect provides answers to questions such as: “How are we doing? Are we achieving our goals and objectives? Are we becoming more risk-aware? What can we do better?”

Continuing Process

The 12 steps described in this article form a *process*, one that will permit your organization to recognize potential hazards; evaluate and mitigate the related risks; and measure progress and effectiveness. The result should not be just another manual designed to meet a requirement imposed by someone else. A well-developed and integrated SMS is a continuing *process* designed to reduce the risks faced by your organization to the lowest possible levels commensurate with your type of operation.

Ideally, practicing the process will lead to a positive change in the organization’s safety culture. Even better, the process will lead to a more effective, efficient and productive organization. 🌐

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