SMS Tools
for
Business Aircraft Operators

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Overview of SMS
What is an SMS?

1.1

Safety management systems (SMS) are an evolutionary development of the traditional flight safety program. The purpose of an SMS is identified as the **proactive management of safety-risks**.

The definition used in the *IS-BAO an International Standard for Business Aircraft Operations*, of a safety management system is *“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 stresses the “**systematic**” nature of an SMS. A system can be viewed as a group of processes that act together to transform inputs into a desired output. A system usually has a clear purpose or objective, a process or a set of processes, to achieve the objective, and a means of measuring if the objective has been met.

The definition also stresses that an SMS is a **comprehensive process**. That is that it is not just a “pilot thing” or “maintenance thing”, but it includes all aspects of the operation. It also identifies the purpose of an SMS as the **proactive management of safety-risks**. That reinforces the concept that an SMS must be looking forward, not focused on history.

This definition also notes that an SMS must not be considered as a stand-alone system related to any part of the operation, but that it must integrate all of the systems used to manage operations, maintenance, finance and human resources.

The International Civil Aviation Organization uses a slightly more simple definition of a safety management system. They define an SMS as *“a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures”*. That definition stresses the structural aspects of an SMS.
If the two definitions are carefully considered it is readily apparent that they are not in conflict but are, in fact, complementary. An SMS can be described as a system where:

a. The hazards and the associated risks that are inherent in a flight department or company’s operation are identified and analyzed,

b. Action is then taken to either eliminate the hazards or to reduce the related risks to a level as low as reasonably practicable (ALARP) by reducing the likelihood of an occurrence or the severity, should there be an occurrence,

c. These actions are then tracked and evaluated to ensure that the safety management activities are appropriate and effective. At the same time processes are used to identify new and emerging hazards or any that were missed in the original hazard identification process.

d. These activities occur within a management framework and in accordance with a company safety policy that identifies a strategic safety objective and describes safety accountabilities at all levels in the organization.

A safety management system attempts to put the proven safety management process together in a sound framework so that the processes work as a system to enhance the safety, efficiency and effectiveness of the operation. With an SMS it should be possible to systematically and proactively anticipate hazards, and reduce “surprises” by making appropriate and effective risk management decisions.
Safety Management Formula

- Identify hazards
- Assess and measure your safety-risks
- Mitigate to eliminate the hazards or reduce risks to an acceptable level
- Track and evaluate safety management activities to ensure they are appropriate and effective
- Modify safety management activities as required

Hazard - The condition or circumstance that can lead to physical injury or damage.

Risk - The consequence of a hazard measured in terms of likelihood and severity.

Mitigation - The measures taken to eliminate a hazard, or to reduce the likelihood or severity of a risk.

System Safety Deficiency - The circumstance that permits hazards of a like nature to exist

Objectives of a Safety Management System

- To manage risk to a level as low as reasonably practicable
- To optimize safety performance in an operational and business environment
A Framework for Safety Management

A Good SMS is:

- Proactive
- Purposeful and comprehensive
- Appropriate to the size and complexity of the operation
- Effective
- Explainable

1 Included with permission of Shell Aircraft International
There are many benefits to implementing a Safety Management System. The top of the list is safety. Other benefits are discussed below.

Safety and Security
The goal of an SMS is to manage the safety risks of an operation to a level as low as reasonably practicable. The same philosophy applies to your security risks.

Teamwork
Operators have reported that developing an SMS provides a better understanding of roles and responsibilities, fosters communications, and builds a positive safety culture.

Loss prevention
An accident incurs significant losses such as:

**Direct Losses**
- physical damage to the aircraft
- property damage
- personal injury
- loss of life
- legal claims

**Indirect Losses**
- loss of business
- damage to the reputation
- increased insurance premiums
- loss of productivity
- environmental impact
- loss of use of equipment
- costs of replacement equipment or supplemental lift
- additional personnel costs, such as
  - i. employee counselling
  - ii. recruitment and training
**Insurance and aircraft financing**
Implementation of an SMS (and professional standards) can positively affect your insurance costs and ability to obtain insurance or financing for your aircraft.

**Stakeholder and customer confidence**
Operating to high safety standards is a significant marketing advantage. Also, it increases the confidence of passengers that you are operating to the highest standards.

**Regulator confidence**
Implementation of an SMS proves to the regulator that you have instituted measures to raise the safety bar and could result in less direct oversight.

**Regulatory compliance**
New ICAO requirements and States regulations will require implementation of a Safety Management System.

**Due diligence**
Implementation of an SMS demonstrates that management has exercised proper responsibility to identify safety hazards and reduce the potential for accidents.
The development and implementation of an SMS takes time, even for mature aviation departments. There is no “magic pill” or “silver bullet” to help with implementation. It does take effort on the part of the organization to develop and implement an effective SMS. It is more that just “buying a manual”. You need to be actively engaged in the development, implementation, and maintenance of your SMS. The time it takes to implement your SMS will depend on several factors:

a. Your commitment to the process, including commitment of resources
b. The size and complexity of the operation
c. Your company culture
d. Your “starting” point—what do you already have in place?

Experience has shown that it could take from a few months to a year to develop and implement an SMS in your operation. However there will be ongoing work required to mature and continually improve your SMS so that you can derive the maximum benefits.
An SMS need not be expensive but does require the allocation of resources and time. Just as there are many factors that influence the time to implement an SMS, there are many factors that influence the cost. A small flight department or commercial operation can effectively implement an SMS in a relatively short period of time with minimal cost. A larger, international, or more complex operation may incur more costs due to additional development, communication, and training costs. A key factor again is your “starting point”—what processes, procedures and systems do you already have in place? What is your safety culture?

However, the costs of implementing and maintaining an SMS are far outweighed by the direct and indirect benefits discussed above. In addition, you should consider the risks of not implementing an SMS:

a. Can you afford an accident or incident?

b. Can you afford the increased risk of loss of business or company confidence in your operation if you do not have effective safety systems in place?

c. Can you afford unnecessary or inappropriate expenditures for aircraft equipment, training, or support services for your operation if you do not have systems to ensure that they are appropriate and effective?

d. Can you afford the litigation involved with an accident or incident?

An effective SMS integrates financial and human resource considerations and provides the tools to make sound decisions within your operation.
SMS Components and Elements
The International Civil Aviation Organization (ICAO) requires commercial air transport operators and non-commercial operators of large or turbojet aircraft to have a safety management system (SMS) that is appropriate to the size and complexity of the operation. It also makes reference to the ICAO SMS Framework that consists of the following four components with the associated elements:

**Safety Policy and Objectives**
1. Management commitment and responsibility
2. Safety accountabilities
3. Appointment of key safety personnel
4. Coordination of emergency response planning
5. SMS documentation

**Safety Risk Management**
1. Hazard identification
2. Safety risk assessment and mitigation

**Safety Assurance**
1. Safety performance monitoring and measurement
2. The management of change
3. Continuous improvement of the SMS

**Safety Promotion**
1. Training and education
2. Safety communication

Some civil aviation authorities may describe their SMS requirements in slightly different terms, but a well structured SMS should meet any variation in the description.

The following is a brief explanation of each of these components and their elements. This toolkit will provide a step by step process to develop and implement an SMS that will meet these requirements. It also provides tools that an operator can use to develop, implement and mature the SMS so that it is fully integrated into the business and a positive safety culture can be sustained. The applicable tools are referenced in the discussion for each component and element below.
1. Management commitment and responsibility
The operator should define the organization’s safety policy, which should be in accordance with international and national requirements, and which should be signed by the accountable executive of the organization.\(^2\) The safety policy should:

- reflect organizational commitments regarding safety;
- include a clear statement about the provision of the necessary resources for the implementation of the safety policy; and
- be communicated, with visible endorsement, throughout the organization.

The safety policy should:

- include the safety reporting procedures;
- clearly indicate which types of operational behaviours are unacceptable; and
- include the conditions under which exemption from disciplinary action would be applicable.

The safety policy should be periodically reviewed to ensure it remains relevant and appropriate to the organization.

*Note: For information on how to meet the requirements of this element see section 3.1 step 2.*

2. Safety accountabilities
The operator should identify the accountable executive who, irrespective of other functions, has ultimate responsibility and accountability, on behalf of the organization, for the implementation and maintenance of the SMS. The operator should also identify the accountabilities of all members of management, irrespective of other functions, as well as of employees, with respect to safety performance of the SMS. Safety responsibilities, accountabilities and authorities should be documented and communicated throughout the organization and should include a definition of the levels of management with authority to make decisions

\(^2\) In the case of an owner/operator, the safety policy should be signed by the owner of the aircraft.
regarding safety risk tolerability.

Note: For information on how to meet the requirements of this element see section 3.1 step 7.

3. Appointment of key safety personnel
The operator should identify a safety manager to be the responsible individual and focal point for implementation and maintenance of an effective SMS.\(^3\)

Note: For information on how to meet the requirements of this element see section 3.1 step 3 & step 7.

4. Coordination of emergency response planning
The operator should ensure that an emergency response plan that provides for the orderly and efficient transition from normal to emergency operations, and the return to normal operations, is properly coordinated with the emergency response plans of those organizations it must interface with during the provision of its services.

Note: For information on how to meet the requirements of this element see section 3.1 step 9.

5. SMS Documentation
The operator should develop an SMS implementation plan, endorsed by senior management of the organization, that defines the organization’s approach to the management of safety in a manner that meets the organization’s safety objectives and maintain SMS documentation to describe the safety policy and objectives, the SMS requirements, the SMS processes and procedures, the accountabilities, responsibilities and authorities for processes and procedures, and the SMS outputs. Also as part of the SMS documentation, the operator should develop and maintain a safety management system manual (SMSM), to communicate its approach to the management of safety throughout the organization.

\(^3\) In a small operation the flight department manager would be this individual.
The SMSM may be a chapter in the operations manual.

*Note: For information on how to meet the requirements of this element see section 3.1 step 10.*

### 6. Safety objectives and SMS performance goals

The operator should establish safety objectives and performance goals for the SMS and ensure that all operator personnel are conversant with the objectives and goals and understand their roles in achieving them.

*Note: For information on how to meet the requirements of this element see section 3.1 step 6, step 11 & step 12.*

### 7. Additional considerations for small operations

The safety policy and objectives for small operators should address the items noted above, but would be expected to do so in a rudimentary manner. For example, the safety policy of an owner/operator may reflect an accord with family and/or business associates which will ensure common safety expectations. In such situations the emergency response plan may also involve family members and business associates. In a small operation the flight department manager would be the safety manager. Depending on the size and complexity of the operation, he or she may choose to appoint another person to assist them with the maintenance of the SMS.

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4 Safety objectives and performance goals are not explicitly mentioned in the ICAO list of SMS elements but they are inferred. Also, experience has demonstrated that they are a integral part of an effective SMS.
2.2 Safety Risk Management

1. Hazard identification
The operator should develop and maintain a formal process that ensures that hazards in operations are identified. Hazard identification should be based on a combination of reactive, proactive and predictive methods of safety data collection.

2. Safety risk assessment and mitigation
The operator should develop and maintain a formal process that ensures analysis, assessment and control of the safety risks in operations.

3. Additional considerations for small operations
The risk management system for small operators should include a hazard identification, risk analysis and mitigation process, but would be expected to do so in a rudimentary manner. The hazard identification and risk analysis process may involve a risk profiling process that has been developed for operations of the type being conducted, and that leads to commonly accepted mitigation strategies which in turn are tracked by the operator to ensure that they are appropriate to the operator’s circumstances and that they are effective. The risk management system may also use hazard checklists or similar risk management processes, which are integrated into operator activities.

Note: For information on how to meet the requirements of this element see section 3.1 step 5 & step 8.
1. **Safety performance monitoring and measurement**
   The operator should develop and maintain the means to verify the safety performance of the organization and to validate the effectiveness of safety risks controls. The safety performance of the organization should be verified in reference to the safety performance indicators and safety performance objectives of the SMS.

   *Note: For information on how to meet the requirements of this element see section 3.1 step 6 & step 12 & section 4.4.*

2. **The management of change**
   The operator should develop and maintain a formal process: to identify changes within the organization which may affect established processes and services; to describe the arrangements to ensure safety performance before implementing changes; and to eliminate or modify safety risk controls that are no longer needed or effective due to changes in the operational environment.

   *Note: For information on how to meet the requirements of this element see section 3.1 step 5 & section 4.3.*

3. **Continuous improvement of the SMS**
   The operator should develop and maintain a formal process to identify the causes of sub-standard performance of the SMS, determine the implications of sub-standard performance in operations, and eliminate or mitigate such causes.

   *Note: For information on how to meet the requirements of this element see section 3.1 step 12 & chapter 4.*

4. **Additional considerations for small operations**
   The safety assurance process should be relative to the size and complexity of the operation. For small operations it may consist of informal and formal feedback mechanisms, periodic reviews of operational processes and procedure and rudimentary internal evaluation processes along with periodic external safety audits that assist the operator in verifying safety performance and rectifying any identified instances of sub-standard SMS performance. External audits may be conducted by civil aviation authority inspectors, industry association safety auditors or independent safety advisors.
1. Training and education
The operator should develop and maintain a safety training programme that ensures that personnel are trained and competent to perform their SMS related duties. The scope of the safety training should be appropriate to each individual’s involvement in the SMS.

2. Safety communication
The operator should develop and maintain formal means for safety communication that ensures that all personnel are fully aware of the SMS; conveys safety critical information; and explains why particular safety actions are taken and why safety procedures are introduced or changed.

3. Additional considerations for small operations
The training program may include e-learning or similar training provided by training service providers. Depending on the size and complexity of the operation this safety communications requirement may be met through regular staff meetings where safety information, actions and procedures are discussed.

Note: For information on how to meet the requirements of this element see section 3.1 step 11.
SMS Development and Implementation Guidance
The following are 12 steps to develop and implement an SMS. Also of interest is chapter 4 which addresses using and maturing your SMS.

### The steps to develop and implement an SMS are:

1. **Study the SMS concept**
2. **Obtain senior management commitment**
3. **Establish SMS team**
4. **Determine what you already have and what you need**
5. **Conduct initial hazard identification and risk assessment, and develop safety risk profile**
6. **Develop your safety management strategy and safety assurance process**
7. **Identify safety accountabilities**
8. **Develop ongoing hazard identification and tracking system and risk assessment procedures**
9. **Develop emergency preparedness plan**
10. **Amend programs, procedures and documents as required**
11. **Conduct staff training and education**
12. **Track and evaluate safety management activities**

#### 1. Study the SMS concept

As was noted in chapter 1, safety management systems are an evolutionary development of the traditional flight safety program. However, there are terms and concepts that must be understood in order to ensure efficient use of time and resources in the SMS development and implementation process. An SMS guidance manual in electronic format is on the CD included with this document. It contains detailed information on safety management systems, accident causation, risk management, safety culture and other related subjects. That document also includes references to other materials that may be of interest. Also on the CD are tools that an operator may use in the SMS development and implementation process. PDF versions of the tools are hyperlinked to this document. There are also MS Word versions of many of the tools on the CD. In addition, references to specific sections of the SMS Guidance Manual,
safety management systems are an evolutionary development of the traditional flight safety program

and to specific tools, are included in the explanations of the development and implementation steps in this chapter. However, it is suggested that readers initially focus on the concept, basic structure and content of an SMS, before delving into the detail of developing and implementing an SMS and the related tools.

The ICAO Safety Management Manual is also considered to be a primary references document. Links to that manual and other secondary SMS reference documents, training materials, and information sources can be found in the SMS Reference Library on the IBAC web site at http://www.ibac.org/safety-management/sms-information-library.

### Primary References


### Secondary References

- Safety Management International Collaboration Group: [10 Things You Should Know About SMS](http://www.faa.gov/about/initiatives/sms/international/)
- Flight Safety Foundation Air Safety World article on SMS: [Beyond Safety Management Systems](http://www.faa.gov/about/initiatives/sms/international/)
- Transport Canada Advisory Circular: [SMS Development Guide for Small Operators](http://www.faa.gov/about/initiatives/sms/international/)
- Guidance material on the FAA website: [http://www.faa.gov/about/initiatives/sms/](http://www.faa.gov/about/initiatives/sms/)
- Numerous links to SMS information documents and sources are posted in the IBAC SMS Library: [http://www.ibac.org/safety-management/sms-information-library](http://www.ibac.org/safety-management/sms-information-library)
SMS Development and Implementation Steps

2. Obtain senior management commitment
Safety management requires the involvement of all staff; however, without the commitment from senior management, it will not be effective. In order to ensure an effective SMS senior management must:

a. Demonstrate commitment to safety and the SMS,
b. Require employee participation,
c. Allocate resources,
d. Facilitate communication, and
e. Establish the safety policy, strategic safety objective and acceptable level of risk.

Senior management must establish a safety policy which is a high level statement of desired corporate safety performance. The aim of the safety policy is twofold:

1. To provide guidance to everyone in the company who has a direct or indirect impact on the company’s safety performance; and
2. To provide specific direction to ensure that safety management activities are purposeful and that the resources expended on safety are appropriately targeted so that they will result in optimum safety performance.

A safety policy generally describes high level accountabilities and responsibilities of the owner, CEO or equivalent of a company, describes measurable standards, and is constructed so that the short and long-term safety goals and objectives of the operator can be linked to the safety policy, strategic safety objective and acceptable level of risk.

Safety objectives are outcome based to meet your organization’s safety policies. You need to communicate your objectives to foster a common understanding of what you want your SMS to achieve.

Tools

Safety policy examples: Safety Policy Examples
ICAO Safety policy Guidance: ICAO SMS Safety Policy Statement
CASA SMS publication: Safety Management and the CEO
Transport Canada publication: Selection of the Accountable Executive
3. Establish SMS Team
The director of operations or flight department manager must take a lead role in developing and implementing a safety management system. In a small operation he or she may have only a few people to work with but as the SMS for such an operation will be more rudimentary, it should be quite doable. In larger operations it may be more appropriate to establish a core team to manage the process and to assign tasks to working groups. In larger operations it may also be appropriate to employ a safety officer or director of safety to coordinate the SMS development and implementation process. Regardless of the management structure employed, in order to ensure success management must be fully engaged in the process, and processes must be used to ensure that all staff members are engaged to the maximum extent practicable.

If a safety officer or director of safety is employed it must be clearly understood that he or she functions as staff advisor to the director of operations or flight department manager and that the accountability for safety and the implementation of the SMS remains a line management responsibility.

4. Determine what you already have and what you need
Most existing operations are already doing many of these elements, if informally. This tool provides a method to determine what you already have in place, what you need to develop in its entirety, and what you need to improve to meet this requirement. It provides a starting point for developing your SMS. The gap analysis process will also help to develop an SMS development and implementation plan that can be used to track activities and ensure that the work is completed on schedule.

Tools
Gap Analysis Tool: SMS Gap Analysis Tool

5. Conduct initial hazard identification and risk assessment, and develop safety risk profile
At this point it is important to ensure that your safety management activities are focused on the safety issues that are basic to your operation. This can be
done through a process to identify the hazards and associated risks that are inherent in the operation and developing your safety-risk profile.

A safety-risk profile is a documented overview of the safety-risks that are generally experienced by the flight operations of a company. It is like a map that charts the “contours” of highest risk and is the basis on which the safety management system is developed. The purpose of a Safety-Risk Profile is to ensure that the resources expended on safety are appropriately targeted and will result in optimum safety performance. A Safety-Risk Profile is unique to each operator. It is an explicit depiction of the hazards or types of hazards that are encountered in the flight operation, documented so that the related risks can be identified, assessed and managed. The risk profile must be sufficiently well documented to permit corporate executives, auditors, insurance underwriters and other interested parties to understand how the safety-risks of the operation have been identified, assessed and managed. A completed profile will highlight and explain the areas of highest risk, justifying the need to effectively manage the risks.

The safety-risk profile may be developed by conducting an initial hazard identification and risk analysis of the operation or by using a risk profiling process that has been developed for the type of operations being conducted. The hazard identification process is a good time to get everyone involved in development of your SMS. A range of tools are provided to assist in the process. There are also a variety of software tools available to assist in the process. As many of these have been designed for complex operations and more are under development, specific references have not been included in the Toolkit.

As part of this risk management process mitigation should be developed to either eliminate the hazards or reduce the associated risk to an acceptable level. This will require that an acceptable level of risk is determined. The acceptable level of risk will be influenced by the nature of the operation and the level of risk the stakeholders are willing to assume.

A Safety-Risk Profile is a “living document” that must be periodically updated, particularly during times of operational change. It serves as the underlying rationale for the operator’s safety management system.
6. Develop your safety management strategy and safety assurance processes

A safety management strategy is the operator’s approach to the management of safety. It is the linkage between the risks identified on the safety-risk profile and the remainder of the safety management system. It provides a summary explanation of, and rationale for, the safety management activities conducted by the operator. This document is the performance standard by which the regulatory agency, insurance underwriters, and others can evaluate safety performance. The safety management strategy normally contains the following:

a. A description of the nature of flight operations;
b. the safety risk profile of the operator;
c. A list of the hazards or risks identified and the strategies adopted to mitigate them;
d. Safety performance objectives that document the direction and activities being taken to enhance safety performance;
e. The mechanisms employed to monitor the operator’s performance in relation to stated objectives and goals and to evaluate the effectiveness of the operator’s safety management;
f. Other tools employed to manage the risks; and
g. Safety assurance process.

The ongoing monitoring of operational systems, processes and procedures to ensure that they are appropriate and effective is an integral part of an SMS. Not only can the safety assurance activities be used to ensure that...
identified problems have been resolved but they also can be used to assist in maximizing the efficiency of safety management activities. Safety assurance activities can include:

a. Conducting internal assessments of operational processes at regularly scheduled intervals,

b. Utilizing checklists tailored to the organization’s operations when conducting safety evaluations,

c. Assessing the activities of contractors where their services may affect the safety of the operation,

d. Having assessments periodically reviewed by an independent source,

e. Documenting safety assessment results and corrective actions,

f. Documenting positive observations,

g. Categorizing findings to assist in prioritizing corrective actions,

h. Sharing the results and corrective actions with all personnel,

i. Utilizing available technology such Flight Data Analysis to identify operational issues,

j. Holding regular safety meetings

k. Keeping the owner/CEO/Accountable Executive informed of safety issues

l. Investigating incidents and providing feedback to management and staff.

**Tools**


Safety management strategy example: [Safety Management Strategy Example](http://www.ibac.org/safety-management/sms-information-library)

Compliance monitoring checklist example: [Compliance Monitoring Tool](http://www.ibac.org/safety-management/sms-information-library)

7. Identify safety accountabilities
Everyone has a responsibility for safety. It is important that the authorities and accountabilities of all the people within the operation be clearly defined. In a small operation, where duties and responsibilities are combined, it is still critical to define the functions that need to be performed and the related accountabilities— even though they may all be done by a single person. An organization chart helps to clarify the relationships and lines of communication within the organization.

Passengers must also play a role in safety by complying with regulations, company policies and crew member instructions, as well as participating in operator hazard reporting programs and safety related training programs.

In order to make the SMS work it is essential to have a positive safety culture. Creation of an informed, learning, reporting and just culture is not a simple task but it is an extremely important success factor.

Tools
Organizing SMS accountabilities: [Organizing SMS Accountabilities]
Sample list of accountabilities of management and staff in the IBAC SMS Guidance Manual, section 5.6: [SMS Guidance Manual]
Culture explanatory material in the IBAC SMS Guidance Manual, chapter 10: [SMS Guidance Manual]
Safety culture assessment materials: [Cultural Assessment Tools] and [Safety Culture Discussion Papers]

8. Develop ongoing hazard identification and tracking system and risk assessment procedures
A hazard identification and tracking system is composed of two parts:

a. The hazard identification and analysis programme; and
b. The hazard tracking system.

The purpose of a hazard identification and analysis programme is to proactively identify and address potential deficiencies in safety management. It can include voluntary or confidential reporting programmes, safety committee meetings, operator data collection systems, brainstorming sessions, safety management system audits and
All operators require some type of hazard identification and tracking system. A hazard tracking system is the mechanism to document, track and evaluate the effectiveness of remedial measures. The design of the system will depend on the size of the operation and the nature of the operation. It should be complementary to other management systems.

The system may be automated or manual, and with time can be employed to identify operational safety deficiencies and anomalies in operator’s safety management. Guidance on the analysis component can be found in the Guidelines for the Conduct of Risk Analysis by Business Aircraft Operators that is included on the CD.

Given the nature of a hazard identification and tracking system it is logical for an operator to integrate quality management into the system.

All operators require some type of hazard identification and tracking system. In an operation with only a few people operating in a low-risk environment, it may be very rudimentary. However, it should include a system to conduct risk assessment and to formally track identified hazards.

Operators with high-risk factors (operational, technical or human) should have more comprehensive and aggressive hazard identification programmes. These might include any or all of the following:

a. Risk assessments prior to undertaking specified tasks;
b. Hazard reporting programmes;
c. Safety committees (within the company, or affiliated with industry associations or stakeholders, or the civil aviation authority);
d. Brain-storming sessions;
e. Change management processes, and
f. Operational safety reviews.

The effectiveness of the operator’s SMS and safety related activities will be enhanced if risk assessment, management, and mitigation techniques are fully integrated into all activities undertaken by the operator and every employee’s daily tasks. Not only do risk assessments enhance safety, they also enhance operating efficiency and customer satisfaction. Examples of risk awareness and risk assessment tools are referenced below.
Another valuable tracking tool that has been used by a number of operators to collect data and identify trends is flight data analysis. It is known by several terms including Flight Data Analysis (FDA), Flight Operational Quality Assurance (FOQA) and Corporate Flight Operations Quality Assurance (C-FOQA), which has been piloted by the Flight Safety Foundation. Information on FDA can be obtained from aircraft manufacturers, independent vendors, civil aviation authorities and the Flight Safety Foundation.

As previously noted the existence of a positive company safety culture is an important success factor. Safety culture was discussed in Step 7 and will again be addressed in Chapter 4 of this document. Development of a positive safety culture should be addressed early in the SMS development process.

**Tools**

- Risk Analysis Guidelines: Risk Analyses Guidelines
- Risk management tracking form: Risk Management Tracking Form
- Shell Hazard Register Example: Hazard Register Example
- Harley-Davidson risk awareness tool: Risk Awareness Tool
- T-Bird Aviation operational risk analysis tool: Operational Risk Analysis Tool
- General Dynamics and Gulfstream Flight Demonstration Flight Dispatch Release Form: Dispatch Release Form
- Maintenance Risk Assessment Checklist: Maintenance Risk Assessment Checklist
- Technical Services Risk Assessment Tool: Technical Services Risk Assessment Tool
- FAA Flight Risk Assessment INFO: Flight Risk Assessment Tool
- Flight Data Analysis program information:
  - UK CAA Flight Data Monitoring Homepage: http://www.caa.co.uk/default.aspx?catid=100
  - FAA Advisory Circular 120-82
9. Develop emergency response plan
While proactive safety activities will reduce the likelihood of an incident or accident occurring, in the aviation environment risk cannot be eliminated. Therefore, it is appropriate to devote some consideration to managing safety should an accident happen.

An emergency response plan is one piece of the safety management system that, hopefully, operators will never have to use – but if it is ever needed, it has to be right. How an organization fares in the aftermath of an accident or other emergency can depend on how well it handles the first few hours and the days following a major safety event. The emergency response plan should be designed to also maximize the possibility of continued survival of personnel involved in an accident.

An emergency response plan outlines in writing what should be done in the case of an emergency or after an accident, and who is responsible for each action.

To be able to respond successfully to an emergency, it is necessary to start with effective planning. An emergency response plan provides the basis for a systematic approach to managing the organization’s affairs in the aftermath of a significant unplanned event — in the worst case, a major accident.

The emergency response plan should ensure that there is:

a. Orderly and efficient transition from normal to emergency operations;
b. Delegation of emergency authority;
c. Assignment of emergency responsibilities;
d. Authorization by key personnel for actions contained in the plan;
e. Coordination of efforts to cope with the emergency, both initial response and ongoing activities; and
f. Safe continuation of operations or return to normal operations as soon as possible.

It is very important to regularly exercise the emergency response plan so that those involved are fully conversant with their duties and to ensure the integrity of the plan.
The emergency response plan should be updated when there are changes in the organization of when deficiencies are identified.

**Tools**

Emergency response plan explanatory material in IBAC SMS Guidance Manual, chapters 8: [SMS Guidance Manual](#)

Emergency response plan explanatory material:

- NBAA Emergency Response Plan
- ICAO Emergency Response Plan

Emergency response plan on EBAA website: [http://www.ebaa.org/content/dsp_page/pagec/ERP_Manual](http://www.ebaa.org/content/dsp_page/pagec/ERP_Manual)

### 10. Amend programs, procedures and documents as required

When amending and developing programs, procedures and documentation ensure that the following have been addressed:

- a. Systems for identifying and demonstrating compliance with all applicable laws, regulations and standards, including all approvals, authorizations, exemptions and permitted deviations;
- b. Documentation identifying operator personnel responsibilities and accountabilities for safety and for the management of exemptions and permitted deviations;
- c. Systems for ensuring that all operator personnel have the necessary qualifications, skills, competencies, training, equipment and tools necessary to enable them to discharge their responsibilities in a safe manner;
- d. Personnel training programmes and competency certification;
- e. Standard Operating Procedures; and
- f. Maintenance control procedures.

The SMS documentation should include the safety policy and objectives, the SMS requirements, the SMS procedures and processes, the accountabilities, responsibilities and authorities for procedures and processes, and the SMS outputs. The foregoing may be described in the company operations manual or separate documents linked to the operations manual.
11. **Conduct staff training and education**
Training programmes have traditionally focused primarily on aircraft crew and aircraft maintenance personnel. An SMS requires that all personnel receive training and education on the safety management system and on their safety related duties and responsibilities within the company.

SMS training should highlight how the program works, the importance of the participation of each person within the organization, the organization’s specific reporting procedures and related processes, and highlight reasons for an SMS — not to assign blame but to raise the safety bar.

Training can take many forms including formal classroom training, meetings or other communication methods, and on the job training.

**Tools**

12. **Track and evaluate safety management activities**
As with any activity that involves the expenditure of resources, regular evaluation of performance is an integral component of managing activity. Information on the appropriateness and effectiveness of the operator’s safety management system may be gathered through informal feedback, hazard identification reports and discussion of safety management activities in regular or special safety meetings. Systems such as flight data analysis may also be used.

While this is valuable information and should be used in the continuous improvement of the SMS, there should also be periodic evaluation in relation to stated safety performance objectives and goals and to ensure that safety management activities are appropriate and effective and that the SMS is meeting expectations.

Companies should ensure that actions to address validated hazards are assigned a priority appropriate to the level of risk indicated in the operator
safety-risk profile. For instance, concerns regarding maintenance practices should be afforded high priority if maintenance has been identified as a safety-critical area in the operator profile. Similarly, actions taken to address areas where high risk factors have been assigned should receive prompt and appropriate follow-up and evaluation.

The results of the periodic evaluation of performance in relation to those goals should be recorded and regularly reviewed by senior management so that they will be fully engaged in the SMS and the related safety management activities. If deficiencies are identified, remedial action plans should be developed, implemented, and tracked to ensure they are appropriate and effective.

The SMS evaluation process should include regular external audits. Operators who wish to achieve IS-BAO registration are required to undergo periodic audits by an accredited IS-BAO Auditor. The certification and safety oversight audits of operators who hold an Air Operator Certificate will probably include an audit of the operator’s safety management system.

Operators of any significant size can benefit from an internal SMS evaluation program.

Through these processes your safety management system can be used to enhance the safety of all aspects of the operation, build a positive safety culture, and enhance the efficiency and effectiveness the operation.

**Tools**

- SMS evaluation guidance material: [SMS Evaluation](http://www.ibac.org/safety-management/sms-information-library)
- Evaluation tracking form: [SMS Evaluation Tracking Form](http://www.ibac.org/safety-management/sms-information-library)
Work Plan to Manage the Process

The following sample work plan is presented to assist in the tracking of the development of a safety management system. The results of the Gap Analysis process should be used to modify it to fit the specific requirements.

## SMS Development Work Plan Example

<table>
<thead>
<tr>
<th>Action</th>
<th>Completion Date</th>
<th>Comments</th>
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<tbody>
<tr>
<td></td>
<td>Target</td>
<td>Actual</td>
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<tr>
<td>1. <strong>Study the SMS Concept</strong></td>
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<tr>
<td>2. <strong>Obtain Senior Management Commitment</strong></td>
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<tr>
<td>2.1 Agree to be involved and committed to SMS</td>
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<tr>
<td>2.2 Agree to draft policy, acceptable level of risk and strategic safety objective</td>
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<td>2.3 Agree to provide required resources</td>
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<td>2.4 Agree on accountabilities within the organization</td>
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<td>3. <strong>Establish SMS Team</strong></td>
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<tr>
<td>3.1 Agree on team structure and duties and responsibilities of groups and individuals</td>
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<td>4. <strong>Conduct Gap Analysis</strong></td>
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<td>4.1 Determine what you have and what you need</td>
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<td>4.2 Develop implementation plan</td>
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<td>5. <strong>Conduct Hazards and Risk Assessment</strong></td>
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<tr>
<td>5.1 Identify hazards and associated risks</td>
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<td>5.2 Assess risks and develop mitigation</td>
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<td>5.3 Develop safety risk profile</td>
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<tr>
<td>Action</td>
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<td>Comments</td>
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<tr>
<td></td>
<td>Target</td>
<td>Actual</td>
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<tr>
<td>6.1 Develop strategy to apply mitigation to appropriate programs, systems and procedures.</td>
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<tr>
<td>6.2 Confirm acceptable level of risk and strategic safety objective.</td>
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<tr>
<td>6.3 Develop safety performance objectives and goals and evaluation criteria</td>
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<tr>
<td>6.4 Adopt/adapt ongoing risk assessment tools and procedures</td>
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<td>6.5 Develop safety assurance processes and associated checklists</td>
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<tr>
<td>7. Identify Safety Accountabilities of Managers and Staff</td>
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<tr>
<td>7.1 Revisit accountabilities developed in step 2.4 and amend as required</td>
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<tr>
<td>7.2 Ensure accountabilities are reflected in organization charts, position descriptions, organization and other related manuals and documents</td>
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<td>7.3 Assess and address any identified cultural issues to ensure a positive safety culture in the organization.</td>
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<td>8. Develop Hazard Identification and Tracking System and Risk Assessment Procedures</td>
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<tr>
<td>8.1 Adopt/adapt forms and develop procedures for employees to provide feedback on mitigation and to report hazards and incidents</td>
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<td>8.2 Adopt/adapt analysis procedures.</td>
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<td>8.3 Develop Risk Register or similar system to track reports, analysis and rectification actions</td>
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<tr>
<td>8.4 Establish committees if they are being used</td>
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<tr>
<td>8.5 Set-up Flight Data Analysis system if it is being used</td>
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<td>8.6 Develop and implement ongoing risk assessment tools including the management of change</td>
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</table>
## Work Plan to Manage the Process

<table>
<thead>
<tr>
<th>Action</th>
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<th>Comments</th>
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<tbody>
<tr>
<td><strong>9. Develop Emergency Response Plan (ERP)</strong></td>
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<tr>
<td>9.1 Develop the ERP</td>
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<td>9.2 Train those involved in the ERP</td>
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<td>9.3 Exercise the ERP</td>
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<tr>
<td><strong>10. Amend programs, systems and procedures and related documents.</strong></td>
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<tr>
<td>10.1 Review previous activities and develop list of programs, systems and procedures and related documents that require amending</td>
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<tr>
<td>10.2 Amend documents, including operations manual, as required.</td>
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<tr>
<td>10.3 Ensure mitigation activities are integrated into programs, systems, procedures and related documents</td>
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<tr>
<td>10.4 Ensure system is in place to demonstrate compliance with applicable laws, regulations, approvals, etc.</td>
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<td><strong>11. Train Staff</strong></td>
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<tr>
<td>11.1 Ensure staff understand SMS principles and their role and responsibilities in the SMS</td>
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<tr>
<td>11.1 Ensure all staff members understand the hazards and risk involved in their segment of the operation and the mitigation being applied</td>
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<tr>
<td><strong>12. Track and Evaluate</strong></td>
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<tr>
<td>12.1 Develop tools to evaluate the SMS and verify that the acceptable level of risk, SMS safety objectives, goals and expectations are being met</td>
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<tr>
<td>12.2 Develop tools to track deficiency rectification activities and evaluate their appropriateness and effectiveness</td>
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<tr>
<td>12.3 Develop management review process that ensures that senior management is fully engaged in evaluation of the SMS and related safety management activities</td>
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</tbody>
</table>
Using and Maturing Your SMS
The effectiveness of a Safety Management System is greatest when first the leadership and then all members of an organization commit to and support safety as a core value. Unfortunately, there are many examples of organizations which have SMS processes and manuals, but where the SMS is neutered from the start or slides into disuse, due to a dysfunctional safety culture.

A safety culture reflects the atmosphere created by management that shapes the attitudes about safety amongst the people involved in the operation. The safety culture is affected by factors such as:

a. Management’s actions and priorities;
b. Policies and procedures;
c. Supervisory practices;
d. Safety planning, objectives and goals;
e. Actions in response to unsafe behaviours;
f. Employee training and motivation; and
g. Employee involvement or “buy-in”.

It should be remembered that the safety culture enables or hampers an organization’s SMS, and directly influences safety performance. A positive safety culture must be generated from the top down. It starts with the corporate Safety Policy and is built on the principles and actions of management. A positive safety culture will have at least the following four attributes:

**An Informed culture** - Management fosters a culture where people understand the hazards and risks inherent in their areas of operation. Personnel are provided with the necessary knowledge, skills and job experience to work safely, and they are encouraged to identify the threats to their safety and to seek the changes necessary to overcome them. As a consequence, managers make better informed decisions, and have ongoing feedback.
A Learning culture - Learning is seen as more than a requirement for initial skills training; rather it is valued as a lifetime process. People are encouraged to develop and apply their own skills and knowledge to enhance organizational safety. Staff members are updated on safety issues by management, and safety reports are fed back to staff so that everyone can learn the pertinent safety lessons. ‘Learning’ progresses from individual managers and staff to the ‘organization’, which in turn feeds the “informed” culture.

A Reporting culture - Managers and operational personnel freely share critical safety information without the threat of punitive action. This is frequently referred to as creating a corporate reporting culture. Personnel are able to report hazards or safety concerns as they become aware of them, without fear of sanction or embarrassment.

A Just culture - An environment where staff members will report hazards, safety concerns and committed errors is fundamental for a good reporting culture. To achieve this it is important that the workforce must know and agree on what is acceptable and what is unacceptable behaviour. While it is recognized that slips, lapses, mistakes and violations may occur and the associated circumstances need to be addressed, it is understood that gross negligence or serious offences are not and can not be tolerated. A just culture recognizes that, in certain circumstances, there may be need for punitive action. Therefore, it is important to define the line between acceptable and unacceptable actions or activities, and articulate this in the company’s SMS.

It should be remembered: safety culture is never neutral. It is either positive, or it is negative.
Some indications of a positive safety culture are:

a. Senior management places strong emphasis on safety as part of the strategy of controlling risks including minimizing losses.

b. Decision-makers and operational personnel hold a realistic view of the short- and long-term hazards involved in the organization’s activities.

c. Those in senior positions:
   i. Foster a climate in which there is a positive attitude towards criticisms, comments and feedback from lower levels of the organization on safety matters;
   ii. Do not use their influence to force their views on subordinates; and
   iii. Implement measures to contain the consequences of identified safety deficiencies.

d. Senior management promotes a just culture. As noted above, the term “just culture” does not imply blanket immunity from disciplinary action.

e. There is an awareness of the importance of communicating relevant safety information at all levels of the organization (both within and with outside entities).

f. There are realistic and workable rules relating to hazards, safety and potential sources of damage.

g. Personnel are well trained and understand the consequences of unsafe acts.

h. There is a low incidence of risk-taking behaviour, and a safety ethic that discourages such behaviour.

Tools


Safety culture assessment materials: Cultural Assessment Tools and Safety Culture Discussion Papers

Stages in the Development of a Safety Management System

The implementation and operation of an SMS takes time, even for mature aviation departments. The following diagram illustrates the different stages of maturity of an SMS that should be achieved over time.
Stages of Maturing of an SMS

Stage One
The SMS is documented, approved, resourced and being implemented. At this point the SMS infrastructure is in place and past and planned safety management activities are appropriately targeted.

Stage Two
The SMS is functioning and results are being measured. At this point the safety management activities are appropriately targeted; and safety-risks are being effectively managed.

Stage Three
The SMS is sustained and supported by an ongoing improvement process. At this point safety management activities are fully integrated into the operator’s business; and a positive safety culture is being sustained.

Additional information on the stages of maturity of an SMS can be found in the SMS Evaluation tool.

Tools
SMS Evaluation Guidance Manual: [SMS Evaluation](#)
A Change Management Process is a documented strategy that flows from the Safety Management Strategy, and is used for making changes to the operator SMS as a result of safety management activities or when introducing significant change to an operation. The change management process can be used to proactively identify and manage the identified or emerging safety risks and those that can accompany significant change. Examples of significant changes that might warrant active change management include:

a. The introduction of a new aircraft type;
b. Significant change in the nature of the operation (e.g. dynamic business growth, a new routes or operating environment, etc.);
c. Changes in hiring or scheduling practices;
d. Changes to organizational structure; or
e. Significant change in the maintenance contract; etc.

A change management process for significant changes normally involves some form of safety planning to demonstrate that hazards associated with the change will be systematically identified and managed, and that safety performance will be evaluated at an appropriate time and in an appropriate manner after the change has been implemented. Information from a change management process will be incorporated into the corporate risk profile and the safety management strategy.
As stated in Section 1.1 an SMS combines many processes to achieve a desired outcome. This outcome is to manage safety risks to a level as low as reasonably practicable. In order for these processes to deliver that outcome they must be used effectively in the safety management system. This means collecting information from the various processes and transforming this information into knowledge. Some examples of where and how this information is applied are:

a. **Change Management**: Apply information to the Hazard Identification process and the Management Review for upcoming plans.

b. **Flight Data Analysis**: Compare information to Hazard Identification, Incident Reporting, and apply to Training and Planning

c. **Incident Reporting**: Compare to Hazard Identification process. Apply to Training and review policy and objectives.

d. **Safety meetings**: Apply information to Hazard Identification and mitigation process and apply to Training and Management Review

e. **Audits, evaluations and surveys**: Use these safety assurance processes to ensure that safety management activities are achieving the desired outcomes and to identify new and emerging hazards.
The Management Review is the review of all information about the safety performance of an operator throughout the year. The review serves two purposes:

a. Informs management about the state of the business in terms of safety.
b. Identifies potential changes to the original policy and objectives in relation to performance and current business needs.

The management review will vary according to the size and complexity of the operation and may extend from a formal review of the results of all audits, FDA trends, incident reports, to a less formal discussion as a result of hazard reports and feedback from employees. In any case, this review should focus on the agreed level of safety performance and should always refer to the policy and objectives so as to ensure that safety is being managed as planned.
Information on IS-BAO
What is IS-BAO?

IS-BAO is a code of best practice for business aviation. It has been developed by the industry for the benefit of the industry. It is a set of performance based standards that use a safety management system as their cornerstone. It is the industry’s contribution to promoting highly professional operational practices. IS-BAO is intended to build upon the excellent safety record already established by business aviation.

The International Business Aviation Council (IBAC) introduced the IS-BAO program for many reasons. In many business sectors, international standards are recognized for their role in facilitating global commerce. IS-BAO is similar in this respect as its fundamental purpose is to foster standardized, safe and highly professional aircraft operations.

IS-BAO is a voluntary standard. Companies that obtain the IS-BAO and subscribe to its amendment service have no obligation in respect to its implementation. Nevertheless, IBAC encourages widespread adoption of the standards as a contribution by a responsive industry towards the objective of highly professional and standardized flight operations worldwide. Since its introduction the IS-BAO has been implemented by corporate flight departments and on demand charter operators worldwide to enhance the safety, security, efficiency and effectiveness of their operation.

More information on the IS-BAO can be found at http://www.ibac.org/is_bao.
The IS-BAO can be purchased from your national or regional business aviation association. Non-members can obtain a copy from the association closest to them. The list of Associations, their address and the price of the IS-BAO in the local currency can be found at http://www.ibac.org/is_bao/ordering-is-bao.

The price for companies that are members of IBAC Member Associations has been discounted to account for the substantial investment of the Associations in developing the standards.

When you order IS-BAO, you will receive:
1. A copy of the IS-BAO standard in a 3-ring binder;
3. A CD with the IS-BAO and four possible versions of the GCOM so that you can develop your Company Operations Manual (COM) in the version of your choice, plus additional guidance material.

IBAC is a not-for-profit Council of business aviation associations. The IS-BAO was developed by IBAC and its Member Associations for the benefit of business aviation worldwide. The price of the document has been set to recover the cost of development and the ongoing maintenance cost of a dynamic standard that will be continuously updated to reflect current procedures, equipment and regulations. The IBAC policy is to sell the standards on a not-for-profit basis.
## IBAC Member Associations

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<tr>
<th>Association</th>
<th>Contact Information</th>
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<tbody>
<tr>
<td><strong>ABAA</strong></td>
<td>Australian Business Aircraft Association 9 Guthrie Ave Cremorne NSW 2090 Australia Tel: +61 (2) 9953 0363 Fax: +61 (2) 9904 9539 e-Mail: <a href="mailto:abaabell@optusnet.com.au">abaabell@optusnet.com.au</a></td>
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<tr>
<td><strong>BBGA</strong></td>
<td>British Business and General Aviation Association 19 Church Street Brill Aylesbury HP18 9RT UK Tel: +44 (0) 1844 238020 Fax: +44 (0) 1844 238087 e-Mail: <a href="mailto:info@bbga.aero">info@bbga.aero</a></td>
</tr>
<tr>
<td><strong>ABAG</strong></td>
<td>Associação Brasileira de Aviação Geral Rua Cel Tobias Coelho 147 São Paulo – SP 04357-070 BRASIL Tel: +(55) (11) 5032-2727 Fax: +(55) (11) 5031-1900 e-Mail: <a href="mailto:mail@abag.org.br">mail@abag.org.br</a></td>
</tr>
<tr>
<td><strong>CBAA</strong></td>
<td>Canadian Business Aviation Association Suite 430, 55 Metcalfe Street Ottawa, ON, K1P 6L5 CANADA Tel: +613-236-5611 Fax: +613-236-2361 e-Mail: <a href="mailto:info@cbaa.ca">info@cbaa.ca</a></td>
</tr>
<tr>
<td><strong>AsBAA</strong></td>
<td>Asian Business Aircraft Association Suite 503, One City gate, 20 Tat Tung Road, Tung Chung, Lantau, New territories Hong Kong Tel: +852 2340 2330 Email: <a href="mailto:jean-noel.robert@asbaa.org">jean-noel.robert@asbaa.org</a></td>
</tr>
<tr>
<td><strong>EBAA</strong></td>
<td>European Business Aviation Association Av. de Tervuren 13a-b /Box 5 BE1040 Brussels Belgium Tel: +32-2-766-0070 Fax: +32-2-768-1325 e-Mail: <a href="mailto:info@ebaa.org">info@ebaa.org</a></td>
</tr>
<tr>
<td><strong>EBAA France</strong></td>
<td>European Business Aviation Council - France BP. 10 Aéroport du Bourget 1445 Avenue de L’Europe 93352 Le Bourget Cedex, France Tel: 33 1 49 34 22 31 Fax: 33 1 49 34 31 28 e-Mail: <a href="mailto:EBAAFRANCE@aol.com">EBAAFRANCE@aol.com</a></td>
</tr>
<tr>
<td><strong>BAASA</strong></td>
<td>Business Aviation Association for Southern Africa Gate 9, Lanseria International Airport P O Box 658 Lanseria, 1748 South Africa Tel: +27 (11) 805 0680 Fax: +27 (11) 805-0599 e-Mail: <a href="mailto:kim@caasa.co.za">kim@caasa.co.za</a></td>
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<tr>
<td><strong>BAOA</strong></td>
<td>Business Aviation Operators Association (India) E-14/20, Vasant Vihar New Delhi 110 057 India Tel: +91 (11) 26142575 Fax: +91 (11) 46015915 e-Mail: <a href="mailto:info@baai.org">info@baai.org</a>, <a href="mailto:gill@kubase.com">gill@kubase.com</a></td>
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<tr>
<td><strong>GBAA</strong></td>
<td>German Business Aviation Association Duisburger Str. 4 D-10707 Berlin Germany Tel: +49-(0) 8 32 90 07 Fax: +49-(0) 8 32 90 07 e-Mail: <a href="mailto:info@gbaa.de">info@gbaa.de</a></td>
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<tr>
<td>IBAA</td>
<td>Aviazione 65, 20138 Milano Linate, ITALY</td>
</tr>
<tr>
<td>NBAA</td>
<td>1200 Eighteenth St. NW, Suite 400, Washington, DC 20036-2527 USA</td>
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<tr>
<td>JBAA</td>
<td>Marubeni- Building3F, 4-2 Otemachi 1-chome, Chiyoda-ku, Tokyo, 100-8088, Japan</td>
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<td>RUBAA</td>
<td>Maly Kakovinsky 4, 121099 Moscow, Russia</td>
</tr>
<tr>
<td>MEBAA</td>
<td>Emirates Tower, Level 41, Sheikh Zayed Road, PO Box 117733, Dubai, UAE</td>
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Definitions and Key Terms
Definitions and Key terms

**Acceptable Level of Risk**
The risk tolerance or safety expectations of an operator, or service provider, and their stakeholders and customers or an agency involved in safety oversight.

**Accountabilities**
The sum of duties and responsibilities assigned to personnel.

**Culture**
The values beliefs and behaviours of the group.

**Hazard**
The condition or circumstance that can lead to physical injury or damage.

**Incident**
An occurrence, other than an accident, associated with the operation of an aircraft that affects or could affect the safety of the operation.

**Lapse**
A failure of memory, such as when we either forget what we had planned to do, or omit an item in a planned sequence of actions.

**Mitigation**
The measures taken to eliminate a hazard, or to reduce the likelihood or severity of a risk.

**Risk**
The consequence of a hazard measured in terms of likelihood and severity.
**Safety**
The state in which the risk to harm to persons or damage to property is reduced to, and maintained at or below an acceptable level, through a continuing process of hazard identification and risk management.

**Safety Management System**
A 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.

**Safety Management System - ICAO Definition**
A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

**Slip**
an action which is not carried out as planned.

**Strategic Safety Objective**
The safety performance expectations, of an operator, a service provider or an agency involved in safety oversight.

**System Safety Deficiency**
The circumstance that permits hazards of a like nature to exist.

**Violation**
Deliberate act contrary to a rule or procedure, or a “work around”. 
