SMS Tools

for

Business Aircraft Operators

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Introduction: Why SMS?

The Safety Management System (SMS) represents an evolutionary approach to aviation safety. To understand how SMS functions, one must first understand something of its history and context.

Aviation Safety has evolved through three distinct eras. The first was the *Technical Era*, from dawn of flight in the early 1900s until about the late 1960s. During this timeframe, aviation safety efforts focused on mechanical issues and failures as well as regulatory oversight. As aircraft became more mechanically reliable and regulatory efforts became more cogent, from about 1970 until the mid-1990s, Human Factors took a central role in aviation safety efforts and in the investigation of aviation mishaps. It was during this *Human Factors Era* that Crew Resource Management (CRM) was born. While the application of Human Factors science was useful in the understanding of individual cockpit behavior, it did not consider the operational and organizational context of that behavior. With the advent of the *Organizational Era*, from the mid-1990s until the present day, aviation safety professionals have recognized that individuals operate in a complex organizational environment, which includes multiple factors that have the potential to affect behavior (ICAO, 2013)). This has led to the perspective that safety must take on a systematic approach that encompasses organizational factors, human factors and technical factors. Figure 1 depicts this evolution.
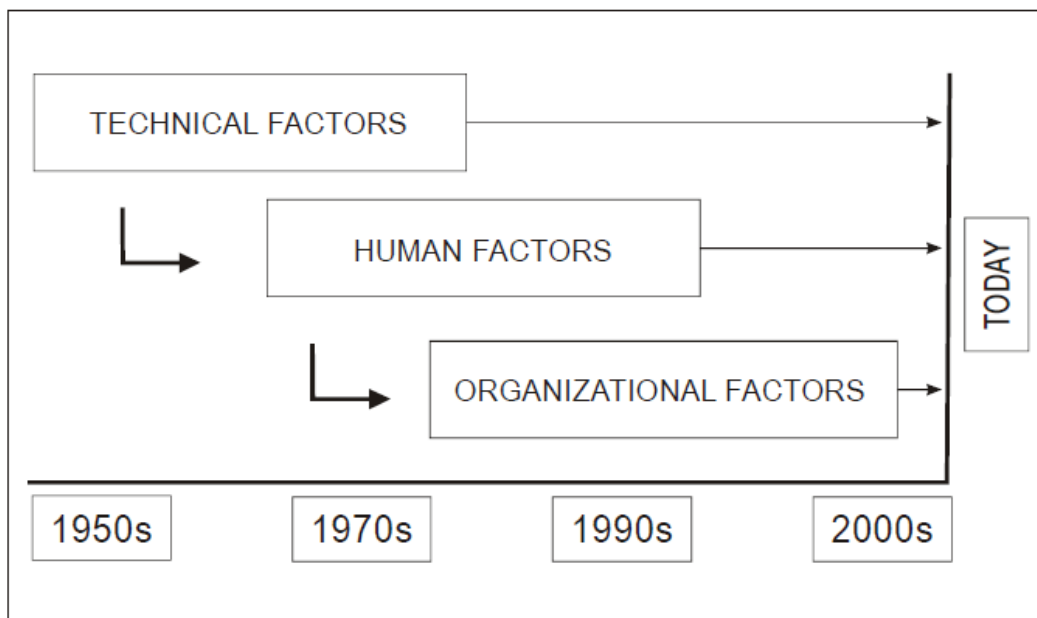
Figure 1. The Evolution of Safety. Reprinted from the ICAO Safety Management Manual, 2013.

According to the United States Federal Aviation Administration's (FAA) former Administrator for Safety, Nick Sabatini:

> Organizational risk is not new in aviation. It was present at Kitty Hawk with Orville and Wilbur Wright and machinist Charlie Taylor. It was present in the 1940s with accidents every 16 days. Yet, organizational risk was largely undetected because it was overshadowed by greater risks - such as engine failure, controlled flight into terrain, loss

of control, and approach and landing accidents. Now that we have fundamentally addressed those common causes, we need to identify and address other vulnerabilities, including organizational risk, which now may pose greater concern. Metaphorically, organizational risk is taller due to the flatness of the surrounding terrain (Sabatini, 2009, p. 35)**.**

As illustrated by Dr. James Reason's famous Swiss Cheese Model in Figure 2, this emphasis on technical, human and organizational factors allows SMS practitioners to view safety in their organizations as a system and hence identify potential risks as latent conditions in the system before those conditions create the circumstances for incidents or accidents
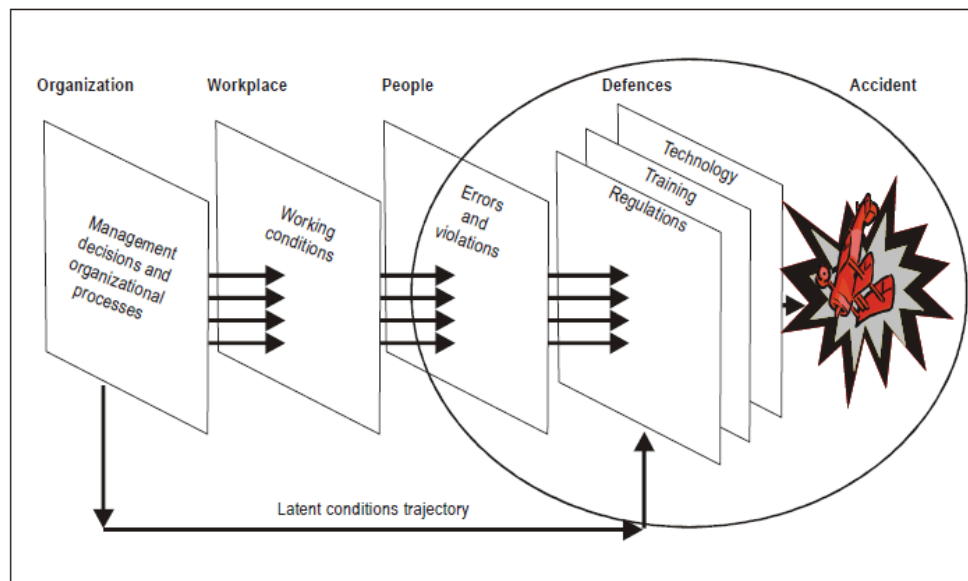
Figure 2. Reason's Model of Accident Causation. Reprinted from the ICAO Safety Management Manual, 2013.

So while many in the aviation industry might group SMS with management philosophies that have come and gone, this brief review shows that SMS is, in fact, the natural evolution of aviation safety. And unlike the mechanisms that have preceded it, SMS allows those who practice it to manage risk proactively.

1. Overview of SMS

1.1 What is an SMS?

A description of *Safety Management System* can be assembled from the words themselves. The ICAO (2013) defines *safety* as the "state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management"(p. 12). *Management*, as defined in the latest edition of Richard Daft's seminal text on the subject, is "the attainment of organizational goals in an effective and efficient manner through planning, organizing, leading, and controlling organizational resources" (2013, p. 6). *Systems*, according to the United States Federal Aviation Administration (FAA), "can be described in terms of integrated networks of people and other resources performing activities that accomplish some mission or goal in a prescribed environment" (2010, p. 2). Therefore, a Safety Management System can be described as *a system that facilitates the attainment organizational goals in an effective and efficient manner through an integrated network of people and resources while reducing the possibility of harm to persons or property through a continuing process of hazard identification and risk management.*

This description puts the formal definitions of SMS into a more understandable context. According to ICAO, a *Safety Management System* (SMS) is a *systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.*(ICAO, 2013, p. 10). Stolzer, Halford and Goglia (2008), define SMS as (a) *dynamic risk management system based on quality management principles in a structure scaled appropriately to the operational risk, applied in a safety culture environment*.

Both the description and the definitions of SMS stress the fact that SMS is a *system* that encompasses an *entire organization* with the goal of attaining organizational goals while reducing risk. This means that SMS is not a stand-alone system in an organization but that it must integrate *all of the systems used to manage operations, maintenance, finance and human resources.*

1.2 Purpose of SMS

Managing safety is a core business process for any aviation organization and SMS provides the tools with which perform that function. Most importantly, SMS provides a process to manage hazards and their associated risks using a view of the organization, the personnel and the machines as an integrated system.

To accomplish this purpose, an SMS must:

a. Identify and analyse the hazards and the associated risks inherent in an operation;
b. Mitigate the identified risk;
c. Track the effectiveness of risk mitigations measures and update/modify them as required; and
d. Accomplish these activities 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.

While previous safety programs focused solely on reactive measures, SMS provides an operator the ability to manage risks, reactively, proactively, and predictively.

a. *Reactive Management* – Accomplished through analysis of past outcomes or events; hazards are identified through investigation of safety occurrences. Incidents and accidents are clear indicators of systems' deficiencies and therefore can be used to determine the hazards that were both contributing to the event or are latent;

b. *Proactive Management* **–** Accomplished through analysis of existing or real time situations. This is the primary job of the safety assurance function (discussed below) with its audits, evaluations, employee reporting, and the associated analysis and assessment processes. This involves actively seeking hazards in the existing processes; and

c. *Predictive Management* – Accomplished through data gathering in order to identify possible negative future outcomes or events. Analyzing system processes and the environment to identify potential future hazards and initiating mitigating actions (ICAO, 2013).

According to ICAO, there are eight building blocks for SMS:

1. Senior management's **commitment** to the management of safety;
2. **Effective safety reporting**;
3. Continuous monitoring through systems to **collect, analyze, and share** safety-related data arising from normal operations;
4. **Investigation** of safety occurrences with the objective of identifying systemic safety deficiencies rather than assigning blame;
5. **Sharing** safety lessons learned and best practices through the active exchange of safety information;
6. **Integration** of safety training for operational personnel;
7. Effective **implementation** of Standard Operating Procedures (SOPs), including the use of checklists and briefings; and
8. **Continuous improvement** of the overall level of safety (ICAO, 2014).

1.3 How long does it take?

In his classic book*, Leading Change*, John Kotter lists eight steps to effect real change in an organization. While some of those steps can be accomplished quickly, the final step in the process is the change becoming anchored in an organization's culture.   SMS implementation is very similar. Effective implementation of an SMS can require significant cultural change in an organization; hence that implementation can take significant time. There is no short cut to an effective SMS and there can be resistance to its principles from some in the organization. If SMS is being adopted merely for appearance's sake, in order to satisfy a perceived requirement and the necessary cultural change to facilitate the SMS is not encouraged, then SMS will never be truly effective.

The time it takes to implement SMS will depend on several factors:
a. The willingness of the organization's leadership to embrace SMS and create the cultural change necessary for SMS to accepted and effective;
b. The organization's commitment to the process, including commitment of people and resource;
c. The size and complexity of the operation;

    d. The existing organizational culture; and

    e. The organization's current safety system.

While there is no predetermined period for an SMS to be developed and initially implemented, there have been many cases where a year has been sufficient. In relation to the IS-BAO, Stage I registration only requires that the processes and procedures be in place. Stages II and III registrations require maturity of the SMS.

1.4 How much does it cost?

An SMS need not be expensive but is 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 the organization's current state —what processes, procedures and systems does the organization already have in place? Is the current organizational culture supportive or resistant to SMS implementation?

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

    a. Can the organization afford an accident or incident?

    b. Can the organization afford the increased risk of loss of business or company confidence in its operations if there are not effective safety systems in place?

    c. Can the organization afford unnecessary or inappropriate expenditures for aircraft equipment, training, or support services for the operation if it does not have systems to ensure that those measures are appropriate and effective?

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

Consider also that an organization that effectively manages risk may be able to operate with greater flexibility and profitability than would be able to with broad, prohibitive and unnecessary defences in place. The real question here is – can an organization afford not to implement an SMS?

2. Organizational Culture, Safety Culture and the Importance of Leadership

One of the definitions of SMS provided above specified that an effective SMS has to be applied in a "safety culture environment" (Stolzer et al., 2008). But to understand safety culture, one must first understand the culture of the organization in which a safety culture is formed and maintained. And to understand organizational culture and safety culture, one must also understand the profound effect that leadership has on both. It may be very tempting for some to overlook this portion of the discussion in order to skip to the chapters that lay ahead. But without an understanding of culture and the factors that affect it, an organization that attempts to implement SMS will not attain the full benefit and capability that SMS can achieve.

2.1 Organizational Culture

One of the most influential researchers and writers on the subject of Organizational Culture is Dr. Edgar Schein and in his work *Organizational Culture and Leadership*, Schein (2010) defines organizational culture as:

> …a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems (p. 18).

This quote and others like have been shortened to a one-sentence summation that encapsulates the idea above. Simply put, organizational culture is *the way we do things here.*

Why is this understanding important? According to ICAO (2013), the greatest impact for the creation and maintenance of an effective safety culture occurs at the organizational level. ICAO believes organizational culture sets the boundaries for accepted executive and operational performance by establishing the norms and limits, hence organizational culture provides the foundation for managerial and employee decision-making.

2.2 Safety Culture

Safety culture is an aspect or characteristic of organizational culture and possesses some unique attributes. In 2002, a research team commissioned by the United States FAA studied organizational and safety culture across several industries with high-reliability requirements and high-consequence conditions. The team developed a global definition of safety culture which seems to capture all the required elements.

> Safety culture is the enduring value and priority placed on worker and public safety by everyone in every group at every level of an organization. It refers to the extent to which individuals and groups will commit to personal responsibility for safety, act to preserve, enhance and communicate safety concerns, strive to actively learn, adapt and modify (both individual and organizational) behavior based on lessons learned from mistakes, and be rewarded in a manner consistent with these values (Wiegmann, Zhang, von Thaden, Sharma, & Mitchell, 2002, p. 8)

Nearly every instructional manual or text that discusses the benefits of SMS also argues the importance of a healthy safety culture for the SMS to function as designed. Safety culture

provides the environment, the atmosphere, in which the SMS operates. Metaphorically speaking, safety culture is to SMS what air is to living creatures. If the atmosphere is healthy, the SMS thrives. If the atmosphere is poisonous or non-existent, the SMS becomes inanimate. Figure 3 depicts the relationship of safety culture to SMS and organizational elements that interact with SMS.
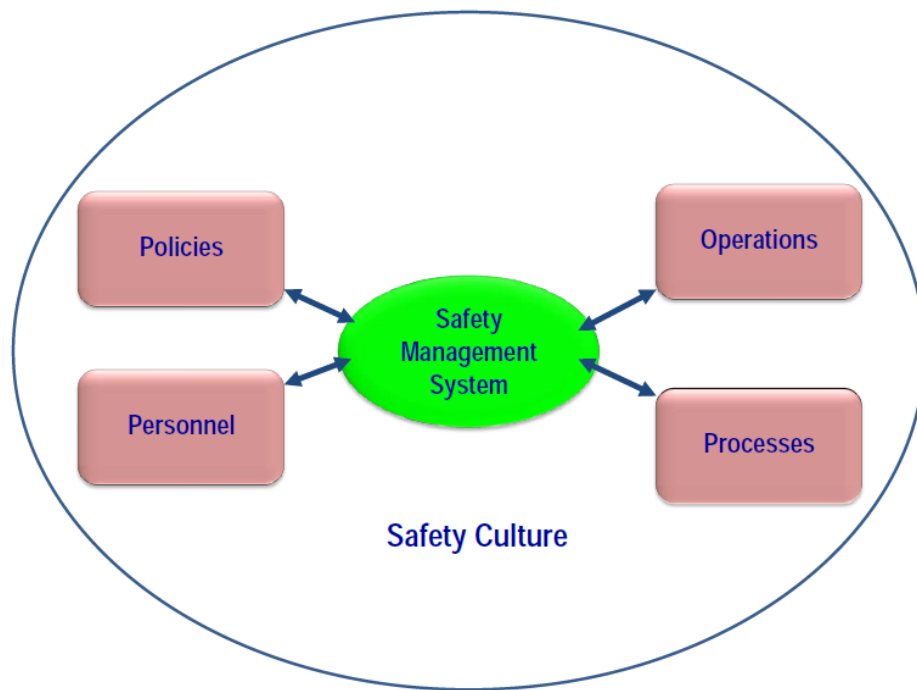
Figure 3. Interaction of safety culture with SMS and organizational elements.

A more thorough discussion on the interaction between safety culture and organizational culture can be found in the latest edition of the ICAO *Safety Management Manual*.

2.3 The Importance of Leadership

There is an emerging body of literature which emphasizes the role of leadership in influencing and institutionalizing a positive safety culture (Patankar & Sabin, 2010). While most definitions of leadership dwell on how leaders act or what they do, most seem to try to encapsulate the concept of leadership with a catch phrase or contrasting it with management, similar to that cited in Covey (2013): " "Management is doing things right; leadership is doing the right things…. Management is efficiency in climbing the ladder of success; leadership determines whether the ladder is leaning against the right wall." (p. 108)

But for the purposes of culture, Schein (2010) captures leadership most accurately. "Organizational culture creation and management," he says, "are the *essence of leadership* and make you realize that *leadership and culture are two sides of the same coin*" (emphasis added) (P. 3). So if the creation and management of organizational culture is the essence of leadership, then the creation and management of safety culture should also fall under the responsibility of leadership.

ICAO (2013) agrees and charges senior leadership / management of an aviation organization with the development and promulgation of the organization's safety policies, standard operating procedures and safety resource management – its safety culture. ICAO also requires the appointment of an *accountable executive* with direct responsibility for a safety program's success where its members and stakeholders are concerned (2013).

The essence here is the organizational culture and safety culture are primarily products of the leaders that create and manage them as depicted in Figure 4. Without leadership, safety culture is a term, a construct or a theory. With leadership, safety culture provides the atmosphere for SMS to succeed.

Figure 4 Relationship of Organizational Culture, Safety Culture and Leadership

   To be effective in influencing the culture, leaders have to manifest certain key behaviors:
   • Credibility – leaders' words and actions must be consistent;
   • Action orientation – leaders must act to address unsafe conditions;
   • Vision – leaders create and maintain a vision for safety excellence within the organization;
   • Accountability – leaders must ensure that employees take accountability for safety-critical activities;
   • Communication – leaders must communicate thoughtfully and cogently about safety;
   • Collaboration – leaders must encourage active employee participation in resolving safety issues and promote employee ownership of those issues; and
   • Feedback and recognition – leaders must ensure that employees are recognized quickly and positively for their actions reinforcing the culture. (OGP, 2013)

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3. 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.   A more thorough discussion of these components can be found in the ICAO Safety Management Manual (ICAO Document 9859). 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.

3.1 Safety Policy and Objectives

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.[1] The safety policy should:

  a. reflect organizational commitments regarding safety;

  b. include a clear statement about the provision of the necessary resources for the implementation of the safety policy;

  c. be communicated, with visible endorsement, throughout the organization;

  d. include the safety reporting procedures;

  e. clearly indicate which types of operational behaviours are unacceptable; and

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[1] In the case of a corporation, the CEO or executive charged with responsibility for the flight department should sign the policy. For an owner/operator, the safety policy should be signed by the owner of the aircraft

f. 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 4.1 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 regarding safety risk tolerability.

>   *Note: For information on how to meet the requirements of this element see section 4.1 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.[2]

>   *Note: For information on how to meet the requirements of this element* see section 4.1 step 3 *and* 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 4.1 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. The operator should develop and maintain SMS documentation describing 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. For some organizations, a separate SMSM might not be desirable or even appropriate, therefore this information may be included as a section or chapter in the operations manual.

>   *Note: For information on how to meet the requirements of this element see section 4.1 step 10.*

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[2] In a small operation the flight department manager would be this individual.

3.2 Safety Risk Management
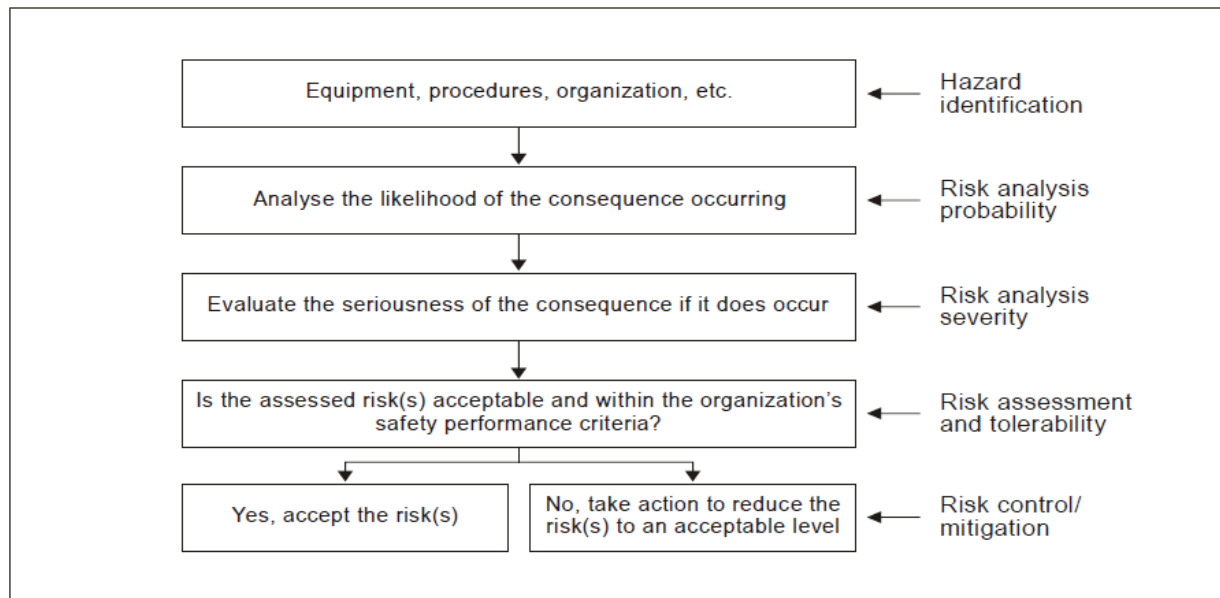
Figure 5. The Process of Safety Risk Management. Reprinted from the ICAO Safety Management Manual, 2013.

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. An example of this process is depicted in Figure 6.

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.
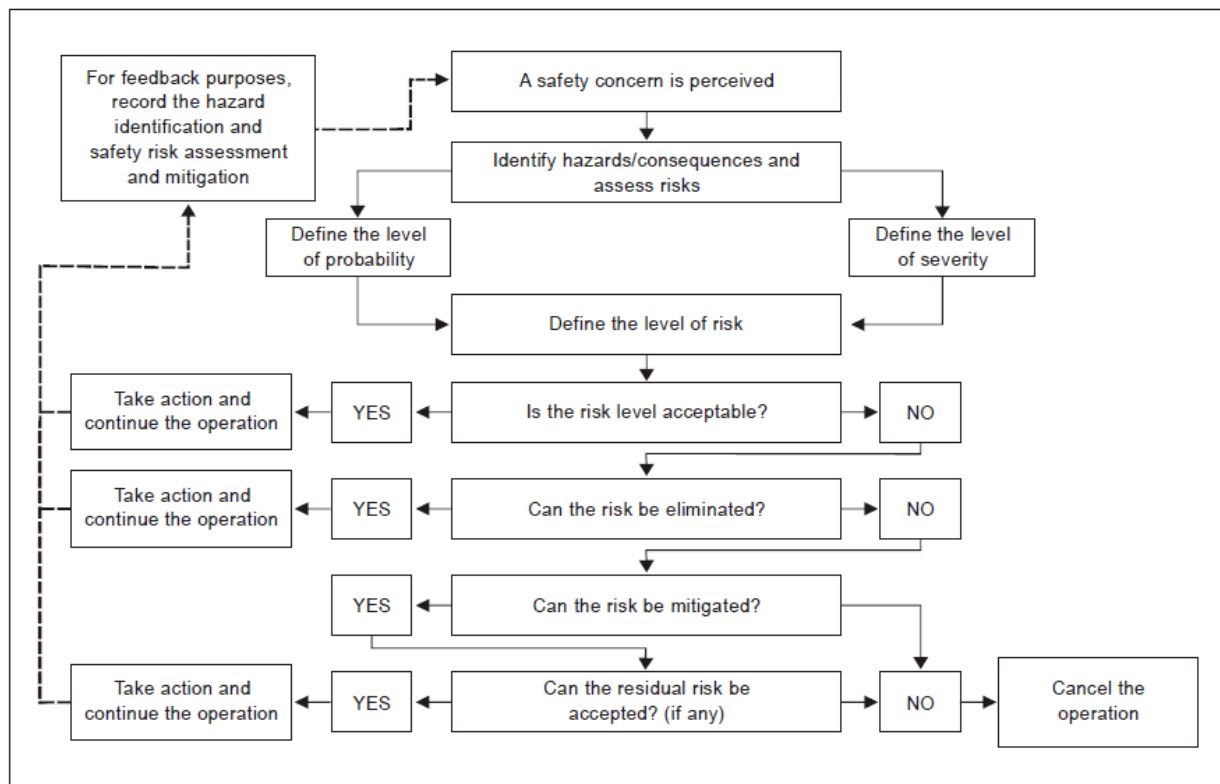
Figure 6, Safety Risk Assessment and Mitigation. Reprinted from the ICAO Safety Management Manual, 2013.

3.3 Safety Assurance

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 4.1 step 6, step 12 and 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 4.1 step 5 and section 5.3.*

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 of the SMS 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 and 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.

3.4 Safety Promotion

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 4.1 step 11.

4. SMS Development and Implementation Guidance

4.1 SMS Development and Implementation Steps

The following are 12 steps to develop and implement an SMS. There are a variety of tools listed with select steps to help you in meeting the objectives of that step. Additionally, it is highly recommended that you reference the IBAC SMS Guidance Manual for each step as there is an abundance of supporting information contained within this resource. Also of interest is chapter 5 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 noted earlier, 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 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 in electronic format 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 the tools. In addition, references to specific sections of the SMS Guidance Manual, 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 reference document. Links to that manual and other secondary SMS reference documents, training materials, and formation sources can be found in the SMS Reference Library on the IBAC web site at http://www.ibac.org/safety/sms-information-library.

Tool	Hyperlink
Primary References	
IBAC SMS Guidance Manual	SMS Guidance Manual
ICAO Safety Management Manual	ICAO Document 9859, 3rd. Ed
Secondary References	
Safety Management International Collaboration Group	10 Things You Should Know About SMS
Flight Safety Foundation Air Safety World article on SMS	Beyond Safety Management Systems
UK Civil Aviation Authority CAP 1059	Safety Management Systems: Guidance for small, non-complex organisations
Guidance material on the FAA website	FAA Guidance on SMS
Guidance material on the UK CAA website	UK CAA Guidance on SMS
ECAST Safety Management and Safety Culture Working Group website	ECAST Safety Management and Culture Guidance
Guidance material on the SKYbrary website	SKYbrary SMS Guidance

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 the 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.

Tool	Hyperlink
Safety policy examples	Safety Policy Examples
ICAO Safety policy Guidance	ICAO SMS Safety Policy Statement
Transport Canada publication	Selection of the Accountable Executive
CASA: Safety Management and the CEO	Role of the CEO in Safety Management

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 manageable. 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

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Many organizations may already have a number of safety management processes in place, if informally. A gap analysis 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 implementation plan that can be used to track activities and ensure that the work is completed on schedule.

Tool	Hyperlink
Gap Analysis Tool	SMS Gap Analysis Tool
ICAO Document 9859, 3rd Ed. Appendix 7 to Chapter 5:	SMS Gap Analysis and Implementation Information

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 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.

Tool	Hyperlink
IBAC Risk Analysis Guidelines	Risk Analyses Guidelines
Hazard identification tools.	Hazard Identification Tools
Risk profiling methodology	Safety Risk Profile Tool
Shell Generic Hazard List	Shell Generic Hazards Listing

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,

Tool	Hyperlink
Safety management strategy example	Safety Management Strategy Example
Compliance monitoring checklist example	Compliance Monitoring Tool
CASA: SMS For Aviation – A Practical Guide	Safety Assurance

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.

Tool	Hyperlink
Organizing SMS accountabilities	Organizing SMS Accountabilities

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 safety reviews. 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 in the electronic file of tools.

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 organizational safety culture is an important factor in the development of the SMS. Safety culture was discussed in Chapter 2 and will again be addressed in Chapter 4 of this document. Development of a positive safety culture should be addressed early in the SMS implementation process.

Tool	Hyperlink
Hazard Identification and Tracking Tools	HITS Tools
Safety Management International Collaboration Group (SM ICG) Safety Performance Measurement Guidelines	Measuring Safety Performance Guidelines for Service Providers
Risk management tracking form	Risk Management Tracking Form
Risk Analysis Guidelines	Risk Analyses Guidelines
Tech. Services Risk Assessment Tool	Technical Services Risk Assessment Tool 2011.pdf
FAA Flight Risk Assessment INFO	FAA Flight Risk Assessment INFO
Flight Data Monitoring information	SKYbrary Flight Data Monitoring

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 completely eliminated. Therefore, it is appropriate to devote some consideration to managing safety should an accident happen.

An emergency response plan is one tool in 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.

Tool	Hyperlink
NBAA Aviation Emergency Response Plan Guidance	NBAA Emergency Response Plan
NBAA Facility Emergency Plan	Facility Emergency Plan
EBAA Presentation "Emergency Response Planning"	Emergency Response Planning
IBAC Emergency Response Planning Tool	Emergency Response Planning Tool

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 the 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.

Tool	Hyperlink
SMS eLearning course	eLearning Course Information

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, 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.

Tool	Hyperlink
IS-BAO SMS evaluation guidance	SMS Evaluation Guidance
Safety Management International Collaboration Group – SMS Evaluation Tool	SMS Evaluation Tool

4.2 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

Action	Completion Date		Comments
	Target	**Actual**	
1. Study the SMS Concept			
2. Obtain Senior Management Commitment			
2.1 Agree to be involved and committed to SMS			
2.2 Agree to draft policy, acceptable level of risk and strategic safety and objective			
2.3 Agree to provide required resources			
2.4 Agree on accountabilities within the organization			
3. Establish SMS Team			
3.1 Agree on team structure and duties and responsibilities of groups and individuals			
4. Conduct Gap Analysis			
4.1 Determine what you have and what you need			

Action	Completion Date		Comments
	Target	**Actual**	
4.2 Develop implementation plan			
5. Conduct Hazards and Risk Assessment			
5.1 Identify hazards and associated risks			
5.2 Assess risks and develop mitigation			
5.3 Develop safety risk profile			
6. Develop Safety Management Strategy & Safety Assurance Processes			
6.1 Develop strategy to apply mitigation to appropriate programs, systems and procedures			
6.2 Confirm acceptable level of risk and strategic safety objective			
6.3 Develop safety performance objectives and goals and evaluation criteria			
6.4 Adopt/adapt ongoing risk assessment tools and procedures			
6.5 Develop safety assurance processes and associated checklists			
7. Identify Safety Accountabilities of Managers and Staff			
7.1 Revisit accountabilities developed in step 2.4 and amend as required			
7.2 Ensure accountabilities are reflected in organization charts, position descriptions, organization and other related manuals and documents			
7.3 Assess and address any identified cultural issues to ensure a positive safety culture in the organization.			
8. Develop Hazard Identification and Tracking System and Risk Assessment Procedures			
8.1 Adopt/adapt forms and develop procedures for employees to provide feedback on mitigation and to report hazards and incidents			
8.2 Adopt/adapt analysis procedures.			

Action	Completion Date		Comments
	Target	**Actual**	
8.3 Develop Risk Register or similar system to tack reports, analysis and rectification actions			
8.4 Establish committees if they are being used			
8.5 Set-up Flight Data Analysis system if it is being used			
8.6 Develop and implement ongoing risk assessment tools including the management of change			
9. Develop Emergency Response Plan (ERP)			
9.1 Develop the ERP			
9.2 Train those involved in the ERP			
9.3 Exercise the ERP			
10. Amend programs, systems and procedures and related documents.			
10.1 Review previous activities and develop list of programs, systems and procedures and related documents that require amending			
10.2 Amend documents, including operations manual, as required.			
10.3 Ensure mitigation activities are integrated into programs, systems, procedures and related documents			
10.4 Ensure system is in place to demonstrate compliance with applicable laws, regulations, approvals, etc.			
11. Train Staff			
11.1 Ensure staff understand SMS principles and their role and responsibilities in the SMS			
11.2 Ensure all staff members understand the hazards and risk involved in their segment of the operation and the mitigation being applied			
12. Track and Evaluate			
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			
12.2 Develop tools to track			

Action	Completion Date		Comments
	Target	**Actual**	
deficiency rectification activities and evaluate their appropriateness and effectiveness			
12.3 Develop management review process that ensures that senior management is fully engaged in evaluation of the SMS and related safety management activities			

5. Using and Maturing Your SMS

5.1 Safety Culture

ICAO (2013) says that safety culture encompasses the commonly-held perceptions and beliefs of an organization's members pertaining to safety and can be a determinant of the members'behavior. Noted safety expert Dr. James Reason discussed the importance of shared values (what is important) and beliefs (how things work) among employees that interact with an organization's structures and control systems to produce behavioral norms (the way we do things around here) where safety is concerned (Reason, 1998). Reason continued by citing two treatments of safety culture: "as something an organization is (the beliefs, attitudes and values of its members regarding the pursuit of safety), and as something that an organization has (the structures, practices, controls and policies designed to enhance safety)" (1998, p. 294).

But primarily, safety culture can also be defined simply as an organizational commitment to safety at all levels of operation (McCune, Lewis, & Arendt, 2011). A positive safety culture will have the following five attributes or subcultures as outlined in the table below:

Safety Subcultures/Attributes

Subcultures	Key attribute	Key behavior of members
The Informed Culture	Knowledge	Know what they need to know
The Flexible Culture	Adaptation	They can adapt when required
The Reporting Culture	Information	They tell what happened
The Learning Culture	Growth	They learn from the lessons
The Just Culture	Expectation	They know what to expect

Note: Adapted from the work of J. Reason, 1998 and A. J. Stolzer, C. D. Halford, and J. J. Goglia, 2008. .

An Informed culture – Personnel are provided the means and encouraged to attain and maintain individual knowledge about the human, technical, organizational and environmental factors that determine the safety of their organization's system as an entire entity. Knowledge is not hoarded, it is disseminated.

A Flexible culture - Personnel can adapt organizational processes when facing high temporary operations or certain kinds of danger, shifting from the conventional hierarchical mode to a flatter mode. They have organizational support to think and adapt when circumstances require.

A Learning culture – Personnel have the willingness and the competence to draw conclusions from safety information systems and the will to implement major reforms. Personnel contribute to the organization's learning and growth process.

A Reporting culture – Personnel are prepared to report their errors and experiences. Managers and operational personnel freely share critical safety information without the threat of punitive action.

A Just culture – Personnel are encouraged, and even rewarded, for providing essential safety-related information. There is a clear line that differentiates between acceptable and unacceptable behavior. Personnel know what to expect from management and do not fear arbitrary action or punishment. In a

Just Culture, the outcome or severity of a particular incident isn't as important as the intent of the person responsible. Intent falls into four categories.

      a. **Unintended error**: Something should have happened, but for some reason (e.g. distraction) it did not. Unless these acts demonstrate a pattern of behavior, they will typically be debriefed;

      b. **Negligence**: A situation in which a person should have recognized the danger or potential harm, but did not. Or they may have omitted a critical step that no one else would have left undone, These acts will typically result in counseling, retraining and observation;

      c. **Recklessness**: A situation in which a person does recognize the dangerous or risky condition, but chooses to ignore that risk (as opposed to the negligent act wherein the risk was not recognized). If confirmed by investigation, these acts will result in a severe penalty; and

      d. **Intentional Non-Compliance**: A person deliberately chooses not to comply with established procedures or guidance.   While there are certain, albeit rare circumstances (e.g. aircraft emergencies) where non-compliance may be justifiable, in most cases it will be met with a severe penalty.

As mentioned previously, an organization's leadership, particularly its senior leadership, has the greatest impact on the heath of the organization's safety culture. The behaviors that leadership must exemplify include:

- Understanding of hazards within the workplace,
- Accepting criticism;
- Remaining open to opposing views;
- Fostering a climate that encourages feedback;
- Emphasizing the importance of communicating relevant safety information;
- Promoting realistic and workable safety rules; and
- Ensuring staff are well educated and trained so that the consequences of unsafe acts are understood. (McCune et al., 2011)

Tool	Hyperlink
Culture Assessment Tool	Cultural Assessment Tools
Safety Culture Discussion Papers	Safety Culture discussion papers
ECAST Safety Management and Safety Culture Working Group Website	ECAST Safety Culture Information

5.2 Maintaining and Growing Your SMS

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.
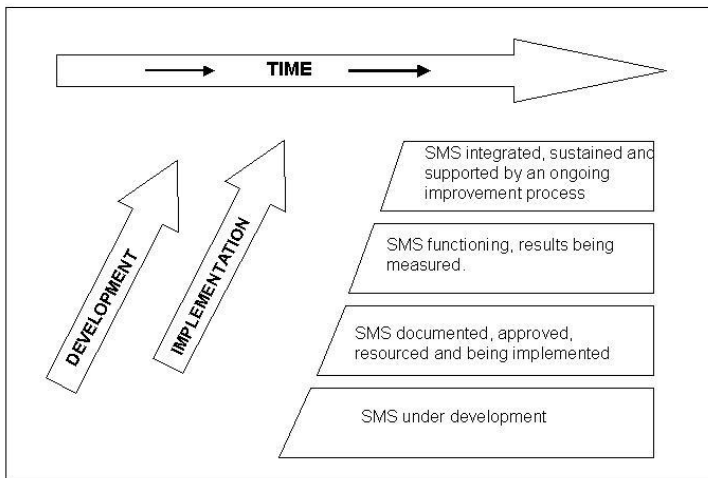
Stages of Maturing of an SMS

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.

Tool	Hyperlink
IS-BAO SMS Evaluation Guidance Material	SMS Evaluation

5.3 Change Management

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.

Tool	Hyperlink
CASA Managing Change in the Aviation Industry	Change Management

5.4 Gathering and Using Information from Your SMS

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.

5.5 Management Review Process

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.

6. Information on IS-BAO

6.1 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 the 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.

6.2 Obtaining the 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/Order.htm.

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;
2. A copy of the Generic Company Operations Manual in the version of your choice;
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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7. Definitions of 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".

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