



# Advisory Circular

TCAA-AC-GEN011A

February 2020

## DEVELOPMENT OF AN SMS IMPLEMENTATION PLAN

### 1.0 PURPOSE

- 1.1 This Advisory Circular provides guidance to assist service providers in developing an SMS implementation plan that defines their organization's approach to the management of safety.

### 2.1 REFERENCE

- 2.1 Tanzania Civil Aviation Regulations  
2.2 Tanzania Manual of ANS Standards  
2.3 Tanzania Manual of Aerodrome Standards

### 3.0 BACKGROUND

In implementing SMS, a service provider shall, as part of the SMS documentation, develop, adhere to and maintain an SMS implementation plan. The SMS implementation plan shall define the approach the service provider will adopt for managing safety in a manner that will meet the organization's safety objectives. The SMS implementation plan shall address the coordination between the SMS of the service provider and the SMS of other organizations the service provider must interface with during the provision of services. This AC provides guidance for development of an SMS implementation plan that will enable the service provider to comply with the regulatory requirements.

### 4.0 System description

#### 4.1 The Service Provider's System

The development of an SMS implementation plan starts with a detailed and accurate description of the service provider's established system and operation. A system review and description of the SMS elements and their interface with existing systems and processes is the first step in defining the scope and applicability of the SMS. This exercise provides an opportunity to identify any gaps related to the service provider's SMS components and elements. The system description includes the SMS interfaces within the organization, as well as pertinent interfaces with other external organizations such as subcontractors. An overview of the system description and its accountability and reporting structure should be included in the SMS documentation. For large and complex organizations, details of basic systems and organizational procedures are addressed in the service provider's relevant exposition or administrative manuals. In such cases, a brief outline together with an organizational chart with appropriate cross references may be adequate for the purpose of the system description.

#### 4.2 Integration of management systems



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Depending upon the organizational, operational and regulatory contexts, a service provider may implement an integrated SMS. Integration has the potential to provide synergies by managing safety risks across multiple areas of aviation activities. For example, a service provider may implement a single SMS for its design organization, production organization, and business aviation flight department. Alternatively, there may be situations where an individual SMS for each type of aviation activity is appropriate. The organization may define the best means to integrate or segregate its SMS as suits its business or organizational model, subject to satisfying the State that its SMS duties in all service provider roles are being properly discharged. The service provider's SMS may also be integrated with security, occupational health and environmental management systems.

## 4.2.1 SMS and QMS integration

Aviation service providers typically implement enterprise-wide management systems. Organizational safety performance is dependent on the effective integration of these systems to support the delivery of products and services. In the context of SMS, the most significant aspect of integration is with the service provider's quality management system (QMS). QMS is generally defined as the organizational structure and associated accountabilities, resources, processes and procedures necessary to establish and promote a system of continuous quality assurance and improvement while delivering a product or service. QMS is an existing aviation regulatory requirement for all service providers. The QMS and SMS are complementary. QMS is focused on compliance with prescriptive regulations and requirements to meet customer expectations and contractual obligations while the SMS is focused on safety performance. The objectives of an SMS are to identify safety-related hazards, assess the associated risk and implement effective risk controls. In contrast, the QMS focuses on the consistent delivery of products and services that meet relevant specifications. Nonetheless, both the SMS and QMS;

- a) must be planned and managed;
- b) depend upon measurement and monitoring of performance indicators;
- c) involve all organizational functions related to the delivery of aviation products and services; and
- d) Strive for continuous improvement.

SMS and QMS utilize similar risk management and assurance processes. The objective of the SMS is to identify safety-related hazards the organization must confront and to control the associated risks. SMS is designed to manage safety risk and measure safety performance during delivery of products and services. The safety risk management process eliminates hazards or provides effective controls to mitigate safety risks by maintaining an appropriate resource allocation balance between production and protection to meet safety performance requirements

A QMS provides consistency in the delivery of products and services to meet performance standards as well as customer expectations. The QMS also has an independent assurance function that utilizes a feedback loop to assure delivery of products and services that are



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—fit for purpose and free of defects or errors. The quality assurance function identifies ineffective processes and procedures that must be redesigned for efficiency and effectiveness.

Furthermore, SMS and QMS utilize similar tools. Safety and quality practitioners are essentially focused on the same goal of providing safe and reliable products and services to customers. Both quality and safety practitioners are trained on various analysis methods including root-cause analysis and statistical trending analysis.

Given the complementary aspects of SMS and QMS, it is possible to establish a synergistic relationship between both systems that can be summarized as follows:

- a) an SMS is supported by QMS processes such as auditing, inspection, investigation, root cause analysis, process design, statistical analysis and preventive measures;
- b) a QMS may anticipate safety issues that exist despite the organization's compliance with standards and specifications; and
- c) quality principles, policies and practices are linked to the objectives of safety management.

The relationship between SMS and QMS leads to the complementary contributions of each system to the attainment of the organization's safety and quality goals. A summary comparison of the two systems is provided in Table 1 below.

<b>Table 1. Summary comparison of QMS and SMS</b>	
<b>QMS</b>	<b>SMS</b>
Quality	Safety
Quality assurance	Safety assurance
Quality control	Hazard identification and risk control
Quality culture	Safety culture
Compliance with requirements	Acceptable level of safety performance
Prescriptive	Performance-based
Standards and specifications	Organizational and human factors
Reactive > Proactive	Proactive > Predictive

### 4.3 Gap analysis

The second step to developing an SMS implementation plan is the Gap Analysis. A gap analysis compares the service provider's existing safety management processes and procedures with requirements contained in the SMS framework. Aviation service providers will have typically implemented various SMS functions due to their compliance with national regulations or adoption of industry best practices. The development of an SMS should build upon existing organizational structures and control systems. The gap analysis facilitates development of an SMS implementation plan by identifying the gaps



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that must be addressed to fully implement an SMS. Once the gap analysis has been completed and fully documented, the resources and processes that have been identified as missing or inadequate will form the basis of the SMS implementation plan.

Appendix 1 to this circular provides a list of gap analysis questions to facilitate service providers in systematically assessing their existing processes. From an objective response to each gap analysis question, it will be apparent what enhancements or actions are required.

## 4.4 SMS implementation plan

4.4.1 An SMS implementation plan is developed in consultation with the accountable executive and managers responsible for the delivery of products and services related to, or in support of, the safe operation of aircraft. Once completed, the accountable executive endorses the plan. The SMS implementation plan includes timelines and milestones consistent with the requirements identified in the gap analysis process, the size of the service provider and the complexity of its products or services. The plan should address coordination with external organizations or contractors where applicable.

4.4.2 The service provider's implementation plan may be documented in different forms, varying from a simple spreadsheet to specialized project management software. The implementation plan should address gaps through completion of specific actions and milestones according to the stated timeline. Assignment of each task assures accountability throughout the implementation process. The plan should be reviewed regularly and updated as necessary. A format example of an SMS implementation plan/schedule is in Appendix 2 to this circular.

4.4.3 Full implementation of all components and elements of the SMS framework may take up to five years, depending on an organization's maturity and complexity. SMS implementation may therefore be planned in a phased approach. A discussion and example of a phased approach, is discussed in Section 5.0 below.

## 4.5 Safety performance indicators

4.5.1 An SMS defines measurable performance outcomes to determine whether the system is truly operating in accordance with design expectations and not simply meeting regulatory requirements. The safety performance indicators are used to monitor known safety risks, detect emerging safety risks and to determine any necessary corrective actions.

4.5.2 Safety performance indicators also provide objective evidence for the regulator to assess the effectiveness of the service provider's SMS and to monitor achievement of its safety objectives. The service provider's safety performance indicators consider factors such as the organization's safety risk tolerance, the cost/benefits of implementing improvements to the system, regulatory requirements and public expectations. Safety performance indicators should be selected and developed in consultation with the service provider's regulatory authority. This process is necessary to facilitate the regulator's aggregation and



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harmonization of the service provider's safety performance indicators for the same aviation sector.

4.5.3 The safety performance indicators and associated targets should be accepted by the State responsible for the service provider's authorization, certification or designation. Safety performance indicators are supplementary to any legal or regulatory requirements and do not relieve service providers from their regulatory obligations.

4.5.4 In practice, the safety performance of an SMS is expressed by safety performance indicators and their corresponding alert and target values. The service provider should monitor the performance of current indicators in the context of historical trends to identify any abnormal changes in safety performance. Likewise, target and alert settings

## 5.0 PHASED IMPLEMENTATION APPROACH

### 5.1 General

5.1.1 The objective of this section is to introduce an example of a phased approach to implantation of SMS. The examples given here details four SMS implementation phases. The implementation of an SMS is a systematic process. Nevertheless, this process may be quite a challenging task depending on factors, such as the availability resources required for implementation, as well as the service provider's pre-existing knowledge of SMS processes and procedures.

5.1.2 The reasons for a phased approach to SMS implementation include:

- a) the provision of a manageable series of steps to follow in implementing an SMS, including allocation of resources;
- b) the need to allow implementation of SMS framework elements in various sequences, depending upon the results of each service provider's gap analysis;
- c) the initial availability of data and analytic processes to support reactive, proactive and predictive safety management practices; and
- d) the need for a methodical process to ensure effective and sustainable SMS implementation.

5.1.3 The phased approach recognizes that implementation of a fully mature SMS is a multi-year process. A phased implementation approach permits the SMS to become more robust as each implementation phase is completed. Fundamental safety management processes are completed before moving to successive phases involving processes of greater complexity.

- 5.1.4 Four implementation phases are proposed for an SMS. Each phase is associated with various elements (or sub-elements) as per the ICAO SMS framework. It is apparent that the particular configuration of elements in this guidance material is not meant to be absolute. States and service providers may choose to make adjustments as may be deemed appropriate for the circumstances. A sample summary of the four phases of SMS implementation and their corresponding elements is shown in Table 2.

## 5.2 Phase 1

- 5.2.1 The objective of Phase 1 of SMS implementation is to provide a blueprint of how the SMS requirements will be met and integrated into the organization's control systems, as well as an accountability framework for the implementation of the SMS.
- 5.2.2 During Phase 1, basic planning and assignment of responsibilities are established. Central to Phase 1 is the gap analysis. From the gap analysis, an organization can determine the status of its existing safety management processes and can begin planning for the development of further safety management processes. The significant output of Phase 1 is the SMS implementation plan.
- 5.2.3 At the completion of Phase 1, the following activities should be finalized in such a manner that meets the expectations of the CAA, as set forth in civil aviation regulations;

### **Management commitment and responsibility — Element 1.1 (i)**

- a) Identify the accountable executive and the safety accountabilities of managers. This activity is based on Elements 1.1 and 1.2 of the SMS framework.
- b) Establish an SMS implementation team. The team should be comprised of representatives from the relevant departments. The team's role is to drive the SMS implementation from the planning stage to its final implementation. Other functions of the implementation team will include but not be limited to:
  - (i) developing the SMS implementation plan;
  - (ii) ensuring the adequate SMS training and technical expertise of the team in order to effectively implement the SMS elements and related processes; and
  - (iii) monitoring of and reporting on the progress of the SMS implementation, providing regular updates and coordinating with the SMS accountable manager.
- c) Define the scope of the organization's activities (departments/divisions) to which the SMS will be applicable. The scope of the organization's SMS applicability will subsequently need to be described in the SMS document as appropriate. This activity is based on Element 1.5 of the ICAO SMS framework. Guidance on the system description is provided in 5.4.1 of this chapter.
- d) Conduct a gap analysis of the organization's current systems and processes in relation to the SMS framework requirements and SMS regulatory requirements.



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Guidance gap analysis for a service provider is provided in Appendix 1 to this circular.

## **SMS implementation plan Element 1.5 (i)**

- a) Develop an SMS implementation plan on how the organization will implement the SMS on the basis of the identified system and process gaps resulting from the gap analysis. An example of a basic SMS implementation plan is provided in Appendix 2 to this Circular.

## **Appointment of key safety personnel Element 1.3**

- a) Identify the key SMS person (safety/quality function) within the organization who will be responsible for administering the SMS on behalf of the accountable executive.
- b) Establish the safety services office.

## **Training and education Element 4.1 (i)**

- a) Conduct a training needs analysis.
- b) Organize and set up schedules for appropriate training of all staff according to their individual responsibilities and involvement in the SMS.
- c) Develop safety training considering;
  - (i) Initial (general safety) job-specific training; and
  - (ii) Recurrent training.
- d) Identify the costs associated with training.
- e) Develop a validation process that measures the effectiveness of training.
- f) Establish a safety training records system.

## **Safety communication Element 4.2 (i)**

- a) Initiate a mechanism or medium for safety communication.
- b) Establish a means to convey safety information through any of:
- c) Safety newsletters, notices and bulletins;



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- d) Websites;
- e) E-mail.

## 5.3 Phase 2

The objective of Phase 2 is to implement essential safety management processes, while at the same time correcting potential deficiencies in existing safety management processes. Most organizations will have some basic safety management activities in place at different levels of implementation. This phase aims at consolidating existing activities and developing those which do not yet exist.

### **Management commitment and responsibility Element 1.1 (ii)**

- a) Develop a safety policy.
- b) Have the accountable executive sign the safety policy.
- c) Communicate the safety policy throughout the organization.
- d) Establish a review schedule for the safety policy to ensure it remains relevant and appropriate to the organization.
- e) Establish safety objectives for the SMS by developing safety performance standards in terms of:
  - (i) safety performance indicators;
  - (ii) safety performance targets and alert levels; and
  - (iii) action plans.
- f) Establish the SMS requirements for subcontractors:
  - (i) establish a procedure to write SMS requirements into the contracting process; and
  - (ii) establish the SMS requirements in the bidding documentation.

### **Safety accountabilities Element 1.2**

- a) Define safety accountabilities and communicate them throughout the organization.
- b) Establish the safety action group (SAG).
- c) Establish the safety/SMS coordination committee.
- d) Define clear functions for the SAG and the safety/SMS coordination committee.



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- e) Establish lines of communication between the safety services office, the accountable executive, the SAG and the safety/SMS coordination committee.
- f) Appoint the accountable executive as the chairperson of the safety/SMS coordination committee.
- g) Develop a schedule of meetings for the safety services office to meet with the safety/SMS coordination committee and SAG as needed.

## **Coordination of emergency response planning Element 1.4**

- a) Review the outline of the ERP related to the delegation of authority and assignment of emergency responsibilities.
- b) Establish coordination procedures for action by key personnel during the emergency and the return to normal operations.
- c) Identify external entities that will interact with the organization during emergency situations.
- d) Assess the respective ERPs of the external entities.
- e) Establish coordination between the different ERPs.
- f) Incorporate information about the coordination between the different ERPs in the organization's SMS documentation.

Note. — Refer to TCAA-AC-GEN012A for further guidance on ERP.

## **SMS documentation Element 1.5 (ii)**

- a) Create an SMS documentation system to describe, store, retrieve and archive all SMS-related information and records by:
  - (i) developing an SMS document that is either a stand-alone manual or a distinct section within an existing controlled organization manual (refer to TCAA-AC-GEN013A for guidance on developing an SMS manual);
  - (ii) establishing an SMS filing system to collect and maintain current records relating to the organization's ongoing SMS processes;
  - (iii) maintaining records to provide a historical reference as well as the current status of all SMS processes such as: a hazard register; an index of completed safety assessments; SMS/safety training records; current SPIs and associated safety objectives; internal SMS audit reports; SMS/safety committee meeting minutes and the SMS implementation plan;
  - (iv) maintaining records that will serve as evidence of the SMS operation and activities during internal or external assessment or audit of the SMS.

## 5.4 Phase 3

The objective of Phase 3 is to establish safety risk management processes. Towards the end of Phase 3, the organization will be ready to collect safety data and perform safety analyses based on information obtained through the various reporting systems.

### **Hazard identification Element 2.1 (i)**

- a) Establish a voluntary reporting procedure. Refer to Appendix 5 for guidance.
- b) Establish a programme or schedule for systematic review of all applicable aviation safety-related Processes and equipment that are eligible for the HIRM process.
- c) Establish a process for prioritization and assignment of identified hazards for risk mitigation.

### **Safety risk assessment and mitigation Element 2.2**

- a) Establish a safety risk management procedure, including its approval and periodic review process.
- b) Develop and adopt safety risk matrices relevant to the organization's operational or production processes.
- c) Include adopted safety risk matrices and associated instructions in the organization's SMS or risk management training material.

### **Safety performance monitoring and measurement Element 3.1 (i)**

- a) Establish an internal occurrence reporting and investigation procedure. This may include mandatory or major defect reports (MDR) where applicable.
- b) Establish safety data collection, processing and analysis of high-consequence outcomes.
- c) Establish high consequence safety indicators (initial ALoSP) and their associated target and alert settings. Examples of high-consequence safety indicators are accident rates, serious incident rates and monitoring of high risk non-compliance outcomes. Refer to TCAA-AC-GEN014A for guidance on safety performance indicators.

Reach an agreement with the State oversight authority on safety performance indicators and safety performance targets.

## The management of change Element 3.2

- a) Establish a formal process for the management of change that considers:
  - 1) the vulnerability of systems and activities;
  - 2) the stability of systems and operational environments;
  - 3) past performance;
  - 4) regulatory, industry and technological changes.
- b) Ensure that management of change procedures address the impact on existing safety performance and risk mitigation records before implementing new changes.
- c) Establish procedures to ensure that safety assessment of new aviation safety-related operations, processes and equipment are conducted (or accounted for) as applicable, before they are commissioned.

## Continuous improvement of the SMS - Element 3.3 (i)

- a) Develop forms for internal evaluations.
- b) Define an internal audit process.
- c) Define an external audit process.
- d) Define a schedule for evaluation of facilities, equipment, documentation and procedures to be completed through audits and surveys.
- e) Develop documentation relevant to operational safety assurance.

## 5.5 Phase 4

Phase 4 is the final phase of SMS implementation. This phase involves the mature implementation of safety risk management and safety assurance. In this phase operational safety assurance is assessed through the implementation of periodic monitoring, feedback and continuous corrective action to maintain the effectiveness of safety risk controls.

### Management commitment and responsibility Element 1.1 (iii)

- a) Enhance the existing disciplinary procedure/policy with due consideration of unintentional errors/ mistakes from deliberate/gross violations.

### Hazard identification Element 2.1 (ii)



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- a) Integrate the hazards identified from occurrence investigation reports with the voluntary reporting system.
- b) Integrate hazard identification and risk management procedures with the subcontractor or customer SMS where applicable.
- c) If necessary, develop a process for prioritizing collected hazards for risk mitigation based on areas of greater need or concern. Refer to Appendix 3 to Chapter 2 of the Safety Management Manual (Doc. 9859) for guidance.

## **Safety performance monitoring and measurement      Element 3.1 (ii)**

- a) Enhance the safety data collection and processing system to include lower-consequence events.
- b) Establish lower-consequence safety/quality indicators with target/alert level monitoring as appropriate (Mature ALoSP).
- c) Reach an agreement with the State oversight authority on lower-consequence safety performance indicators and safety performance target/alert levels.

## **Continuous improvement of the SMS Element 3.3 (ii)**

- a) Establish SMS audits or integrate them into existing internal and external audit programmes.
- b) Establish other operational SMS review/survey programmes where appropriate.

## **Training and education Element 4.1 (ii)**

- a) Complete an SMS training programme for all relevant personnel.

## **Safety communication Element 4.2 (ii)**

- a) Establish mechanisms to promote safety information sharing and exchange internally and externally.

## **5.6 SMS elements progressively implemented throughout Phases 1 to 4**

In the phased approach implementation, the following three key elements are progressively implemented throughout each phase:

### **SMS documentation Element 1.5**



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As the SMS progressively matures the relevant SMS manual and safety documentation must be revised and updated accordingly. This activity will be inherent to all phases of SMS implementation and must be maintained after implementation as well.

## **Training and education Element 4.1 and Safety communication Element 4.2**

As with SMS documentation, training, education and safety communication are important ongoing activities throughout all phases of SMS implementation. As the SMS evolves, new processes, procedures or regulations may come into effect or existing procedures may change to cater for the SMS requirements. To ensure these changes are effectively understood and implemented by all personnel involved in safety-related duties it is vital that training and communication remain as ongoing activities throughout and after the complete implementation of the SMS.

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**Director Safety Regulation**



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**Table -2. Four phases of SMS implementation**

<i>Phase 1</i>	<i>Phase 2</i>	<i>Phase 3</i>	<i>Phase 4</i>
<p>1. SMS Element 1.1 (i): a) identify the SMS accountable executive; b) establish an SMS implementation team; c) define the scope of the SMS; d) perform an SMS gap analysis.</p> <p>2. SMS Element 1.5 (i): a) develop an SMS implementation plan.</p> <p>3. SMS Element 1.3: a) establish a key person/office responsible for the administration and maintenance of the SMS.</p> <p>4. SMS Element 4.1 (i): a) establish an SMS training programme for personnel, with priority for the SMS implementation team.</p> <p>5. SMS Element 4.2 (i): a) initiate SMS/safety communication channels.</p>	<p>1. SMS Element 1.1 (ii): a) establish the safety policy and objectives,</p> <p>2. SMS Element 1.2: a) define safety management responsibilities and accountabilities across relevant departments of the organization; b) establish an SMS/safety coordination mechanism/committee; c) establish departmental/divisional SAGs where applicable.</p> <p>3. SMS Element 1.4: a) establish an emergency response plan.</p> <p>4. SMS Element 1.5 (ii): a) initiate progressive development of an SMS document/manual and other supporting documentation.</p>	<p>1. SMS Element 2.1 (i): a) establish a voluntary hazard reporting procedure.</p> <p>2. SMS Element 2.2: a) establish safety risk management procedures.</p> <p>3. SMS Element 3.1 (i): a) establish occurrence reporting and investigation procedures; b) establish a safety data collection and processing system for high-consequence outcomes; c) develop high-consequence SPIs and associated targets and alert settings.</p> <p>4. SMS Element 3.2: a) establish a management of change procedure that includes safety risk assessment.</p> <p>5. SMS Element 3.3 (i): a) establish an internal quality audit programme; b) establish an external quality audit programme.</p>	<p>1. SMS Element 1.1 (iii): a) enhance the existing disciplinary procedure/ policy with due consideration of unintentional errors or mistakes from deliberate or gross violations.</p> <p>2. SMS Element 2.1 (ii): a) integrate hazards identified from occurrence investigation reports with the voluntary hazard reporting system; b) integrate hazard identification and risk management procedures with the subcontractor's or customer's SMS where applicable.</p> <p>3. SMS Element 3.1 (ii): a) enhance the safety data collection and processing system to include lower-consequence events; b) develop lower-consequence SPIs and associated targets/alert settings.</p> <p>4. SMS Element 3.3 (ii): a) establish SMS audit programmes or integrate them into existing internal and external audit programmes; b) establish other operational SMS review/survey programmes where appropriate.</p> <p>5. SMS Element 4.1 (ii): a) ensure that the SMS training programme for all relevant personnel has been completed.</p> <p>6. SMS Element 4.2 (ii): a) promote safety information sharing and exchange</p>





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## SMS GAP ANALYSIS CHECKLIST AND IMPLEMENTATION PLAN

### 1. INITIAL GAP ANALYSIS CHECKLIST (TABLE 1)

The initial gap analysis checklist in Table 1 can be used as a template to conduct the first step of an SMS gap analysis. This format with its overall —Yes/No/Partial responses will provide an initial indication of the broad scope of gaps and hence overall workload to be expected. The questionnaire may be adjusted to suit the needs of the organization and the nature of the product or service provided. This initial information should be useful to senior management in anticipating the scale of the SMS implementation effort and hence the resources to be provided. This initial checklist would need to be followed up by an appropriate implementation plan as per Tables 2 and 3.

- A —{Yes} answer -indicates that the organization meets or exceeds the expectation of the question concerned.
- A —{No} answer -indicates a substantial gap in the existing system with respect to the question's expectation.
- A —{Partial} answer -indicates that further enhancement or development work is required to an existing process in order to meet the question's expectations.



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No.	Aspect to be analysed or question to be answered	Answer	Status of implementation
<b>Component 1 SAFETY POLICY AND OBJECTIVES</b>			
<b>Element 1.1 Management commitment and responsibility</b>			
1.1.1	Is there a safety policy in place? [ 5.3.7 to 5.3.15; 5.5.3]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.1.2	Does the safety policy reflect senior management's commitment regarding safety management? [5.3.7 to 5.3.15]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.1.3	Is the safety policy appropriate to the size, nature and complexity of the organization? [5.3.7 to 5.3.15]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.1.4	Is the safety policy relevant to aviation safety? [5.3.7 to 5.3.15]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.1.5	Is the safety policy signed by the accountable executive? [5.3.7 to 5.3.15; 5.5.3]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.1.6	Is the safety policy communicated, with visible endorsement, throughout the [Organization]? [5.5.3]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.1.7	Is the safety policy periodically reviewed to ensure it remains relevant and appropriate to the [Organization]? [5.5.3]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
<b>Element 1.2 Safety accountabilities</b>			
1,2,1	Has [Organization] identified an accountable executive who, irrespective of other functions, shall have ultimate responsibility and accountability, on behalf of the [Organization], for the implementation and maintenance of the SMS? [5.3.16 to 5.3.26; 5.5.2]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.2.2.	Does the accountable executive have full control of the financial and human resources required for the operations authorized to be conducted under the operations certificate? [5.3.16 to 5.3.26]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	



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<i>No.</i>	<i>Aspect to be analysed or question to be answered</i>	<i>Answer</i>	<i>Status of implementation</i>
1.2.3	Does the Accountable Executive have final authority over all aviation activities of his organization? [5.3.16 to 5.3.26]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.2.4	Has [Organization] identified and documented the safety accountabilities of management as well as operational personnel, with respect to the SMS? [5.3.16 to 5.3.26]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.2.5	Is there a safety committee or review board for the purpose of reviewing SMS and safety performance? [5.3.27 to 5.3.33; Appendix 4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.2.6	Is the safety committee chaired by the accountable executive or by an appropriately assigned deputy, duly substantiated in the SMS manual? [5.3.27 to 5.3.33; Appendix 4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.2.7	Does the safety committee include relevant operational or departmental heads as applicable? [5.3.27 to 5.3.33; Appendix 4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.2.8	Are there safety action groups that work in conjunction with the safety committee (especially for large/complex organizations)? [5.3.27 to 5.3.33; Appendix 4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
<b>Element 1.3 Appointment of key safety personnel</b>			
1.3.1	Has [Organization] appointed a qualified person to manage and oversee the day-to-day operation of the SMS? [5.3.27 to 5.3.33; 5.5.2; Appendix 2]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.3.2	Does the qualified person have direct access or reporting to the accountable executive concerning the implementation and operation of the SMS? [5.3.27 to 5.3.33; 5.5.2; Appendix 2, 6.1]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	



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<i>No.</i>	<i>Aspect to be analysed or question to be answered</i>	<i>Answer</i>	<i>Status of implementation</i>
1.3.3	Does the manager responsible for administering the SMS hold other responsibilities that may conflict or impair his role as SMS manager. [Appendix 2, 6.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.3.4	Is the SMS manager's position a senior management position not lower than or subservient to other operational or production positions [Appendix 2, 6.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
<b>Element 1.4 Coordination of emergency response planning</b>			
1.4.1	Does [Organization] have an emergency response/contingency plan appropriate to the size, nature and complexity of the organization? [Appendix 3]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.4.2	Does the emergency/contingency plan address all possible or likely emergency/crisis scenarios relating to the organization's aviation product or service deliveries? [Appendix 3, 4 f)]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.4.3	Does the ERP include procedures for the continuing safe production, delivery or support of its aviation products or services during such emergencies or contingencies? [Appendix 3, 4 e)]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.4.4	Is there a plan and record for drills or exercises with respect to the ERP? [Appendix 3, 5 c)]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.4.5	Does the ERP address the necessary coordination of its emergency response /contingency procedures with the Emergency /response contingency procedures of other organizations where applicable? [Appendix 3, 4 d)]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.4.6	Does [Organization] have a process to distribute and communicate the ERP to all relevant personnel, including relevant external organizations? [Appendix 3, 5 d)]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
<i>No.</i>	<i>Aspect to be analysed or question to be answered</i>	<i>Answer</i>	<i>Status of implementation</i>
	Is there a procedure for periodic review of the ERP to ensure its continuing relevance and effectiveness? [Appendix 3, 5 f)]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	



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<b>Element 1.5 SMS documentation</b>			
1.5.1	Is there a top-level SMS summary or exposition document which is approved by the accountable manager and accepted by the CAA? [5.3.36 to 5.3.38]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.5.2	Does the SMS documentation address the organization's SMS and its associated components and elements? [5.3.36 to 5.3.38; 5.4.1; Appendix 4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.5.3	Is [Organization] SMS framework in alignment with the regulatory SMS framework? [5.3.36 to 5.3.38; 5.4.1; Appendix 4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.5.4	Does [Organization] maintain a record of relevant supporting documentation pertinent to the implementation and operation of the SMS? [5.3.36 to 5.3.38; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.5.5	Does [Organization] have an SMS implementation plan to establish its SMS implementation process, including specific tasks and their relevant implementation milestones? [5.4.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.5.6	Does the SMS implementation plan address the coordination between the service provider's SMS and the SMS of external organizations where applicable? [5.4.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
1.5.7	Is the SMS implementation plan endorsed by the accountable executive? [5.4.4; 5.5.2]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
<b>Component 2 SAFETY RISK MANAGEMENT</b>			
<b>Element 2.1 Hazard identification</b>			
2.1.1	Is there a process for voluntary hazards/threats reporting by all employees? [5.3.42 to 5.3.52; 5.5.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
2.1.2	Is the voluntary hazard/threats reporting simple, available to all personnel involved in safety-related duties and commensurate with the size of the service provider? [5.3.42 to 5.3.52]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
2.1.3	Does [Organization] SDCPS include procedures for incident/accident reporting by operational or production personnel?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	



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	[5.3.42 to 5.3.52; 5.5.4; Chapter 4, Appendix 3]		
2.1.4	Is incident/accident reporting simple, accessible to all personnel involved in safety-related duties and commensurate with the size of the service provider? [5.3.42 to 5.3.52; 5.5.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
2.1.5	Does [Organization] have procedures for investigation of all reported incident/accidents? [5.3.42 to 5.3.52; 5.5.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
2.1.6	Are there procedures to ensure that hazards/threats identified or uncovered during incident/accident investigation processes are appropriately accounted for and integrated into the organization's hazard collection and risk mitigation procedure? [2.13.9; 5.3.50 f); 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
2.1.7	Are there procedures to review hazards/threats from relevant industry reports for follow-up actions or risk evaluation where applicable? [5.3.5.1]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
<b>Element 2.2 Safety risk assessment and mitigation</b>			
2.2.1	Is there a documented hazard identification and risk mitigation (HIRM) procedure involving the use of objective risk analysis tools? [2.13; 2.14; 5.3.53 to 5.3.61]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
2.2.2	Is the risk assessment reports approved by departmental managers or at a higher level where appropriate? [2.15.5; 5.3.53 to 5.3.61]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
2.2.3	Is there a procedure for periodic review of existing risk mitigation records? [5.5.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
2.2.4	Is there a procedure to account for mitigation actions whenever unacceptable risk levels are identified? [5.5.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
2.2.5	Is there a procedure to prioritize identified hazards for risk mitigation actions? [5.5.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
2.2.6	Is there a programme for systematic and progressive review of all aviation safety-related operations, processes, facilities and	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	



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	equipment subject to the HIRM process as identified by the organization? [5.5.4]		
<b>Component 3 SAFETY ASSURANCE</b>			
<b>Element 3.1 Safety performance monitoring and measurement</b>			
3.1.1	Are there identified safety performance indicators for measuring and monitoring the safety performance of the organization's aviation activities? [5.3.66 to 5.3.73; 5.4.5; 5.5.4; 5.5.5; Appendix 6]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.1.2	Are the safety performance indicators relevant to the organization's safety policy as well as management's high-level safety objectives/goals? [5.3.66 to 5.3.73; 5.4.5; Appendix 6]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.1.3	Do the safety performance indicators include alert/target settings to define unacceptable performance regions and planned improvement goals? [5.3.66 to 5.3.73; 5.4.5; 5.5.4; 5.5.5; Appendix 6]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.1.4	Is the setting of alert levels or out-of-control criteria based on objective safety metrics principles? [5.3.66 to 5.3.73; 5.4.5; Appendix 6]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.1.5	Do the safety performance indicators include quantitative monitoring of high-consequence safety outcomes (e.g. accident and serious incident rates) as well as lower-consequence events (e.g. rate of non-compliance, deviations)? [5.3.66 to 5.3.73; 5.4.5; 5.5.4; 5.5.5; Appendix 6]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.1.6	Are safety performance indicators and their associated performance settings developed in consultation with, and subject to, the civil aviation authority's agreement? [5.3.66 to 5.3.73; 5.4.5.2; 5.5.4; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.1.7	Is there a procedure for corrective or follow-up action to be taken when targets are not achieved and alert levels are exceeded/breached? [5.4.5; Appendix 6, Table 5-A6-5 b)]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.1.8	Are the safety performance indicators periodically reviewed? [5.4.5; Appendix 6]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
<b>Element 3.2 The management of change</b>			
3.2.1	Is there a procedure for review of relevant existing aviation safety-related facilities and equipment (including HIRM records) whenever there are pertinent changes to those	<input type="checkbox"/> Yes <input type="checkbox"/> No	



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	facilities or equipment? [5.3.74 to 5.3.77; 5.5.4]	<input type="checkbox"/> Partial	
3.2.2	Is there a procedure for review of relevant existing aviation safety-related operations and processes (including any HIRM records) whenever there are pertinent changes to those operations or processes? [5.3.74 to 5.3.77; 5.5.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.2.3	Is there a procedure for review of new aviation safety-related operations and processes for hazards/risks before they are commissioned? [5.5.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.2.4	Is there a procedure for review of relevant existing facilities, equipment, operations or processes (including HIRM records) whenever there are pertinent changes external to the organization such as regulatory/industry standards, best practices or technology? [5.5.4]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
<b>Element 3.3 Continuous improvement of the SMS</b>			
3.3.1	Is there a procedure for periodic internal audit/ assessment of the SMS? [5.3.78 to 5.3.82; 5.5.4; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.3.2	Is there a current internal SMS audit/assessment plan? [5.3.78 to 5.3.82; 5.5.4; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.3.3	Does the SMS audit plan include the sampling of completed/existing safety risk assessments? [5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.3.4	Does the SMS audit plan include the sampling of safety performance indicators for data currency and their target/alert settings performance? [5.4.5; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.3.5	Does the SMS audit plan cover the SMS interface with subcontractors or customers where applicable? [5.4.1; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
3.3.6	Is there a process for SMS audit/assessment reports to be submitted or highlighted for the accountable manager's attention where appropriate. [5.3.80; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	



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<b>Component 4 SAFETY PROMOTION</b>			
<b>Element 4.1 Training and education</b>			
4.1.1	Is there a programme to provide SMS training/familiarization to personnel involved in the implementation or operation of the SMS? [5.3.86 to 5.3.91; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
4.1.2	Has the accountable executive undergone appropriate SMS familiarization, briefing or training? [5.3.86 to 5.3.91; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
4.1.3	Are personnel involved in conducting risk mitigation provided with appropriate risk management training or familiarization? [5.3.86 to 5.3.91; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
4.1.4	Is there evidence of organization-wide SMS education or awareness efforts? [5.3.86 to 5.3.91; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
<b>Element 4.2 Safety communication</b>			
4.2.1	Does [Organization] participate in sharing safety information with relevant external industry product and service providers or organizations, including the relevant aviation regulatory organizations? [5.3.92; 5.3.93; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
4.2.2	Is there evidence of a safety (SMS) publication, circular or channel for communicating safety (SMS) matters to employees? [5.3.92; 5.3.93; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
4.2.3	Are [Organization] SMS manual and related guidance material accessible or disseminated to all relevant personnel? [5.3.92; 5.3.93; 5.5.5]	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	

## 2. DETAILED SMS GAP ANALYSIS AND IMPLEMENTATION TASKS (TABLE 2)

The initial gap analysis checklist in Table 1 above, should then be followed up by using the detailed —SMS gap analysis and implementation task identification plan in Table 2. Once completed, Table 2 will provide follow-up analysis on details of the gaps and help translate these into actual required tasks and subtasks in the specific context of the organization’s processes and procedures. Each task will then accordingly be assigned to appropriate individuals or groups for action. It is important that correlation of individual element/task development with their descriptive placeholders in the SMS document be provided for in Table 2 in order to



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trigger progressive updating of the draft SMS document as each element is implemented or enhanced. (Initial element write-ups in SMS documents tend to be anticipatory rather than declaratory.)

### 3. ACTIONS/TASKS IMPLEMENTATION SCHEDULE (TABLE 3)

Table 5-A7-3 will show the milestones (start-end dates) scheduled for each task/action. For a phased implementation approach, these tasks/actions will need to be sorted according to the phase allocation of their related elements. Refer to Section 5 of this chapter for the phased prioritization of SMS elements as appropriate. Table 3 can be a separate consolidation of all outstanding actions/tasks or, if preferred, be a continuation of Table 2 in the form of a spreadsheet. Where it is anticipated that the actual number of tasks/actions and their milestones are sufficiently voluminous and complex so as to require utilizing a project management software to manage them, this may be done by using software such as MS project/Gantt chart as appropriate. Table 4 is an illustration of a Gantt chart.

SAMPLE ACTIONS/TASKS IMPLEMENTATION SCHEDULE (TABLE 3)							
<i>GAQ Ref.</i>	<i>Gap analysis question</i>	<i>Answer (Yes/No/Partial)</i>	<i>Description of gap</i>	<i>Action/task required to fill the gap</i>	<i>Assigned task group/person</i>	<i>SMS document reference</i>	<i>Status of action/task (Open/WIP/Closed)</i>
1.1.1	Is there a safety policy in place?	Partial	The existing safety policy addresses OSHE only.	a) enhance the existing safety policy to include aviation SMS objectives and policies or develop a separate aviation safety policy; b) have the safety policy approved and signed by the accountable executive.	Task Group 1	Chapter 1, Section 1.3.	Open

<i>Action/task required to fill the gap</i>	<i>SMS document ref.</i>	<i>Assigned task group/person</i>	<i>Status of action/task</i>	<i>Schedule/timeline</i>											
				1Q 14	2Q 14	3Q 14	4Q 14	1Q 15	2Q 15	3Q 15	4Q 15	1Q 16	2Q 16		
1.1.1 (a)	Chapter 1,	Task	Open												



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Enhance the existing safety policy to include aviation SMS objectives and policies or develop a separate aviation safety policy	Section 1.3	Group 1																	
1.1.1 (b) Require the safety policy to be signed by the accountable executive																			
Etc.																			

Sample SMS implementation schedule (Gantt chart)



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