Appendix 2 to Chapter 7

GUIDANCE ON THE DEVELOPMENT OF AN SMS GAP ANALYSIS FOR SERVICE PROVIDERS

Gap analysis

The implementation of an SMS requires a service provider to conduct an analysis of its system to determine which components and elements of an SMS are currently in place and which components and elements must be added or modified to meet the implementation requirements. This analysis is known as gap analysis, and it involves comparing the SMS requirements against the existing resources in the service provider.

This guidance provides, in checklist format, information to assist in the evaluation of the components and elements that comprise the ICAO SMS framework and to identify the components and elements that will need to be developed. Once the gap analysis is complete and documented, it will form one basis of the SMS implementation plan.

The gap analysis form included in this guide can be used as a template to conduct a gap analysis. Each question is designed for a "Yes" or "No" response. A "Yes" answer indicates that the service provider already has the component or element of the ICAO SMS framework in question incorporated into its system and that it either matches or exceeds the requirement. A "No" answer indicates that a gap exists between the component/element of the ICAO SMS framework and the system of the service provider.

Note. – Within the context of this guidance the term "service provider" refers to any organization providing aviation services. The term includes approved training organizations that are exposed to safety risks during the provision of their services, aircraft operators, approved maintenance organizations, organizations responsible for type design and/or manufacture of aircraft, air traffic services providers and certified aerodromes, as applicable.

ICAO SMS framework

The ICAO SMS framework consists of four components and twelve elements, and its implementation shall be commensurate with the size of the organization and the complexity of the services provided.

1. **Safety policy and objectives**

    1.1 – Management commitment and responsibility

    1.2 – Safety accountabilities

    1.3 – Appointment of key safety personnel

    1.4 – Coordination of emergency response planning

    1.5 – SMS documentation

2. **Safety risk management**

    2.1 – Hazard identification

    2.2 – Safety risk assessment and mitigation

3. **Safety assurance**

    3.1 – Safety performance monitoring and measurement

    3.2 – The management of change

    3.3 – Continuous improvement of the SMS

4. **Safety promotion**

    4.1 – Training and education

    4.2 – Safety communication

SMS GAP ANALYSIS FOR SERVICE PROVIDERS

ICAO reference	Aspects to be analyzed or question to be answered	Answer	Status of implementation
Component 1 – SAFETY POLICY AND OBJECTIVES			
Element 1.1 – Management commitment and responsibility			
SMM (Doc 9859) Chapter 8	Is there a safety policy in place?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 3 and 8	Does the safety policy reflect organizational commitments regarding safety management?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 3 and 8	Does the safety policy include a clear statement about the provision of the necessary resources for the implementation of the safety policy;	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 3 and 8	Does the safety policy include the safety reporting procedures?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the safety policy clearly indicate which types of operational behaviours are unacceptable?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the safety policy include the conditions under which exemption from disciplinary action would be applicable?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Is the safety policy signed by the Accountable Executive?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Is the safety policy communicated, with visible endorsement, throughout the [organization]?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Is the safety policy periodically reviewed to ensure it remains relevant and appropriate to the [organization]?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Is there a formal process to develop a coherent set of safety objectives?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Are the safety objectives linked to the safety performance indicators, safety performance targets and safety requirements?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Are the safety objectives publicized and distributed?	☐ Yes ☐ No	
Element 1.2 – Safety accountabilities			
SMM (Doc 9859) Chapters 8 and 10	Has the [organization] identified an Accountable Executive who, irrespective of other functions, shall have ultimate responsibility and accountability, on behalf of the [organization], for the implementation	☐ Yes ☐ No	

ICAO reference	Aspects to be analyzed or question to be answered	Answer	Status of implementation
	and maintenance of the SMS?		
SMM (Doc 9859) Chapter 8	Does the Accountable Executive have responsibility for ensuring that the safety management system is properly implemented and performing to requirements in all areas of the [organization]?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the Accountable Executive have full control of the financial resources required for the operations authorized to be conducted under the operations certificate?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the Accountable Executive have full control of the human resources required for the operations authorized to be conducted under the operations certificate?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the Accountable Executive have direct responsibility for the conduct of the organization's affairs?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the Accountable Executive have final authority over operations authorized to be conducted under the operations certificate?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 8 and 10	Has the organization identified the accountabilities of all members of management, irrespective of other functions, as well as of employees, with respect to the safety performance of the SMS?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Are the safety responsibilities, accountabilities and authorities documented and communicated throughout the [organization]?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Has the [organization] Included a definition of the levels of management with authority to make decisions regarding safety risk tolerability?	☐ Yes ☐ No	
Element 1.3 – Appointment of key safety personnel			
SMM (Doc 9859) Chapter 8	Has the organization appointed a qualified person to manage and oversee the day-to-day operation of the SMS?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the person overseeing the operation of the SMS fulfil the required job functions and responsibilities?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Are the safety authorities, responsibilities and accountabilities of personnel at all levels of the organization defined and documented?	☐ Yes ☐ No	
Element 1.4 – Coordination of emergency response planning			

ICAO reference	Aspects to be analyzed or question to be answered	Answer	Status of implementation
SMM (Doc 9859) Chapter 8	Does the [organization] have an emergency response/contingency plan appropriate to the size, nature and complexity of the organization?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the [organization] coordinate its emergency response/contingency procedures with the emergency/response contingency procedures of other organizations it must interface with during the provision of services?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the [organization] have a process to distribute and communicate the coordination procedures to the personnel involved in such interaction?	☐ Yes ☐ No	
Element 1.5 – SMS Documentation			
SMM (Doc 9859) Chapters 4 and 8	Has the [organization] developed and maintains a safety library for appropriate hazard documentation and documentation management?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 4 and 8	Has the [organization] developed and maintains SMS documentation in paper or electronic form?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 7, 8 and 10	Is the SMS documentation developed in a manner that describes the SMS and the consolidated interrelationships between all the SMS components?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 8 and 10	Has the service provider developed an SMS implementation plan that ensures that the SMS meets the organization's safety objectives?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 8 and 10	Has the SMS implementation plan been developed by a person or a planning group which comprises an appropriate experience base?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 8 and 10	Has the person or planning group received enough resources (including time for meetings) for the development of the SMS implementation plan?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Is the SMS implementation plan endorsed by the senior management of the [organization]?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Is the SMS implementation plan regularly reviewed by the senior management of the [organization]?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 8 and 10	Does the SMS implementation plan propose an implementation of the SMS in phases?	☐ Yes ☐ No	

ICAO reference	Aspects to be analyzed or question to be answered	Answer	Status of implementation
SMM (Doc 9859) Chapter 8	Does the SMS implementation plan explicitly address the coordination between the service provider SMS and the SMS of other organizations the [organization] must interface with during the provision of services?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Has the service provider developed a safety management system manual (SMSM) as a key instrument for communicating the organization's approach to safety to the whole [organization]?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the SMSM document all aspects of the SMS, including among others the safety policy, objectives, procedures and individual safety accountabilities?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the SMSM clearly articulate the role of safety risk management as initial design activity and the role of safety assurance as continuous activity?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Are relevant portions of SMS related documentation incorporated into approved documentation, such as Company Operations Manual, Maintenance Control/Policy Manual, Airport Operations Manual, etc, as applicable?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the service provider have a records system that ensures the generation and retention of all records necessary to document and support operational requirements?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Is the service provider records system in accordance with applicable regulatory requirements and industry best practices?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 8	Does the records system provide the control processes necessary to ensure appropriate identification, legibility, storage, protection, archiving, retrieval, retention time, and disposition of records?	☐ Yes ☐ No	
Component 2 –SAFETY RISK MANAGEMENT			
Element 2.1 – Hazard identification			
SMM (Doc 9859) Chapters 3 and 9	Does the [organization] have a formal safety data collection and processing system (SDCPS) for effectively collecting information about hazards in operations?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 3, 4 and 9	Does the [organization] SDCPS include a combination of reactive, proactive and predictive methods of safety data collection?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 3, 9 and 10	Does the [organization] have reactive processes that provide for the capture of information relevant to safety and risk management?	☐ Yes ☐ No	

ICAO reference	Aspects to be analyzed or question to be answered	Answer	Status of implementation
SMM (Doc 9859) Chapters 9 and 10	Has the service provider developed training relevant to reactive methods of safety data collection?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 9 and 10	Has the service provider developed communication relevant to reactive methods of safety data collection?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is reactive reporting simple, accessible and commensurate with the size of the service provider?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 9 and 10	Are reactive reports reviewed at the appropriate level of management?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is there a feedback process to notify contributors that their reports have been received and to share the results of the analysis?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 3, 9 and 10	Does the service provider have proactive processes that actively look for the identification of safety risks through the analysis of the organization's activities?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 9 and 10	Is there training relevant to proactive methods of safety data collection?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 9 and 10	Has the service provider developed communication relevant to proactive methods of safety data collection?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is proactive reporting simple, accessible and commensurate with the size of the service provider?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 3, 9 and 10	Does the service provider have predictive processes that provide the capture of system performance as it happens in real-time normal operations?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 9 and 10	Is there training relevant to predictive methods of safety data collection?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Has the service provider developed communication relevant to predictive methods of safety data collection?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is the predictive safety data capture process commensurate with the size of the service provider?	☐ Yes ☐ No	

ICAO reference	Aspects to be analyzed or question to be answered	Answer	Status of implementation
Element 2.2 – Safety risk assessment and mitigation			
SMM (Doc 9859) Chapters 9 and 10	Has the [organization] developed and maintains a formal process that ensures analysis, assessment and control of the safety risks in the [organization] operations?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 4, 9 and 10	Does the [organization] SMS documentation clearly articulate the relationship between hazards, consequences and safety risks?	☐ Yes ☐ No	
SMM (Doc 9859) Chapters 5 and 9	Is there a structured process for the analysis of the safety risks associated to the consequences of identified hazards, expressed in terms of probability and severity of occurrence?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 5 and 9	Are there criteria for assessing safety risks and establishing safety risk tolerability (i.e., the acceptable level of safety risk the organization is willing to accept?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 5 and 9	Does the service provider have safety risk mitigation strategies that include corrective/ preventive action plans to prevent recurrence of reported occurrences and deficiencies?	☐ Yes ☐ No	
Component 3 – SAFETY ASSURANCE			
Element 3.1 – Safety performance monitoring and measurement			
SMM (Doc 9859) Chapters 9 and 10	Has the [organization] implemented internal process by which the safety performance of the organization is verify and to validate the effectiveness of safety risks controls?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Are the following tools included in those processes? Safety reporting systems ☐ Yes ☐ No Safety studies ☐ Yes ☐ No Safety reviews ☐ Yes ☐ No Safety audits ☐ Yes ☐ No Safety surveys ☐ Yes ☐No Internal safety investigations ☐ Yes ☐ No		
SMM (Doc 9859) Chapters 6 and 9	Is the safety performance of the [organization] verified in reference to the safety performance indicators and safety performance targets of the SMS?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Are safety reports reviewed at the appropriate level of management?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is there a feedback process to notify contributors that their reports have been received and to share the results of the analysis?	☐ Yes ☐ No	

ICAO reference	Aspects to be analyzed or question to be answered	Answer	Status of implementation
SMM (Doc 9859) Chapter 9	Are corrective and preventive actions generated in response to hazard identification?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Are there procedures in place for the conduct of internal investigations?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is there a process to ensure that occurrences and deficiencies reported are analyzed to identify all associated hazards	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Does the service provider have a process for evaluating the effectiveness of the corrective/ preventive measures that have been developed?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Does the service provider have a system to monitor the internal reporting process and the associated corrective actions?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is there an audit function with the independence and authority required to carry out effective internal evaluations?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Does the audit system cover all functions, activities and organizations within the service provider?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Are there selection/training processes to ensure the objectivity and competence of auditors as well as the impartiality of the audit process?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is there a procedure for reporting audit results and maintaining records?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is there a procedure outlining requirements for timely corrective and preventive action in response to audit results?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is there a procedure to record verification of action(s) taken and the reporting of verification results?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is there a process in place to monitor and analyze trends?	☐ Yes ☐ No	
Element 3.2 – The management of change			
SMM (Doc 9859) Chapter 9	Has the [organization] developed and maintains a formal process to identify changes within the organization which may affect established processes and services?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Does the formal process for the management of change analyze changes to operations or key personnel for safety risks?	☐ Yes ☐ No	

ICAO reference	Aspects to be analyzed or question to be answered	Answer	Status of implementation
SMM (Doc 9859) Chapter 9	Has the [organization] established arrangements to ensure safety performance prior to implementing changes?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Has the [organization] established a process to eliminate or modify safety risk controls that are no longer needed due to changes in the operational environment?	☐ Yes ☐ No	
Element 3.3 – Continuous improvement of the SMS			
SMM (Doc 9859) Chapter 9	Has the [organization] developed and maintains a formal process to identify the causes of sub-standard performance of the SMS?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Has the [organization] established a mechanism(s) to determine the implications of sub-standard performance of the SMS in operations?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Has the organization established a mechanism(s) to eliminate or mitigate the causes of substandard performance of the SMS?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Does the organization have a process for the proactive evaluation of facilities, equipment, documentation and procedures (through audits and surveys, etc.)?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Does the organization have a process for the proactive evaluation of the individuals' performance, to verify the fulfilment of their safety responsibilities?	☐ Yes ☐ No	
Component 4 – SAFETY PROMOTION			
Element 4.1 – Training and education			
SMM (Doc 9859) Chapter 9	Is there a documented process to identify training requirements so that personnel are trained and competent to perform the SMS duties?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is the safety training appropriate to the individual's involvement in the SMS?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is the safety training incorporated into indoctrination training upon employment?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is there emergency response/contingency training for affected personnel?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is there a process that measures the effectiveness of training?	☐ Yes ☐ No	
Element 4.2 – Safety communication			
SMM (Doc 9859) Chapter 9	Are there communication processes in place within the [organization] that permit the safety management system to function effectively?	☐ Yes ☐ No	

ICAO reference	Aspects to be analyzed or question to be answered	Answer	Status of implementation
SMM (Doc 9859) Chapter 9	Are there communication processes (written, meetings, electronic, etc.) commensurate with the size and scope of the service provider?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is safety critical information established and maintained in a suitable medium that provides direction regarding relevant SMS documents?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is safety critical information disseminated throughout the [organization] and the effectiveness of safety communication monitored?	☐ Yes ☐ No	
SMM (Doc 9859) Chapter 9	Is there a procedure that explains why particular safety actions are taken and why safety procedures are introduced or changed?	☐ Yes ☐ No	

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