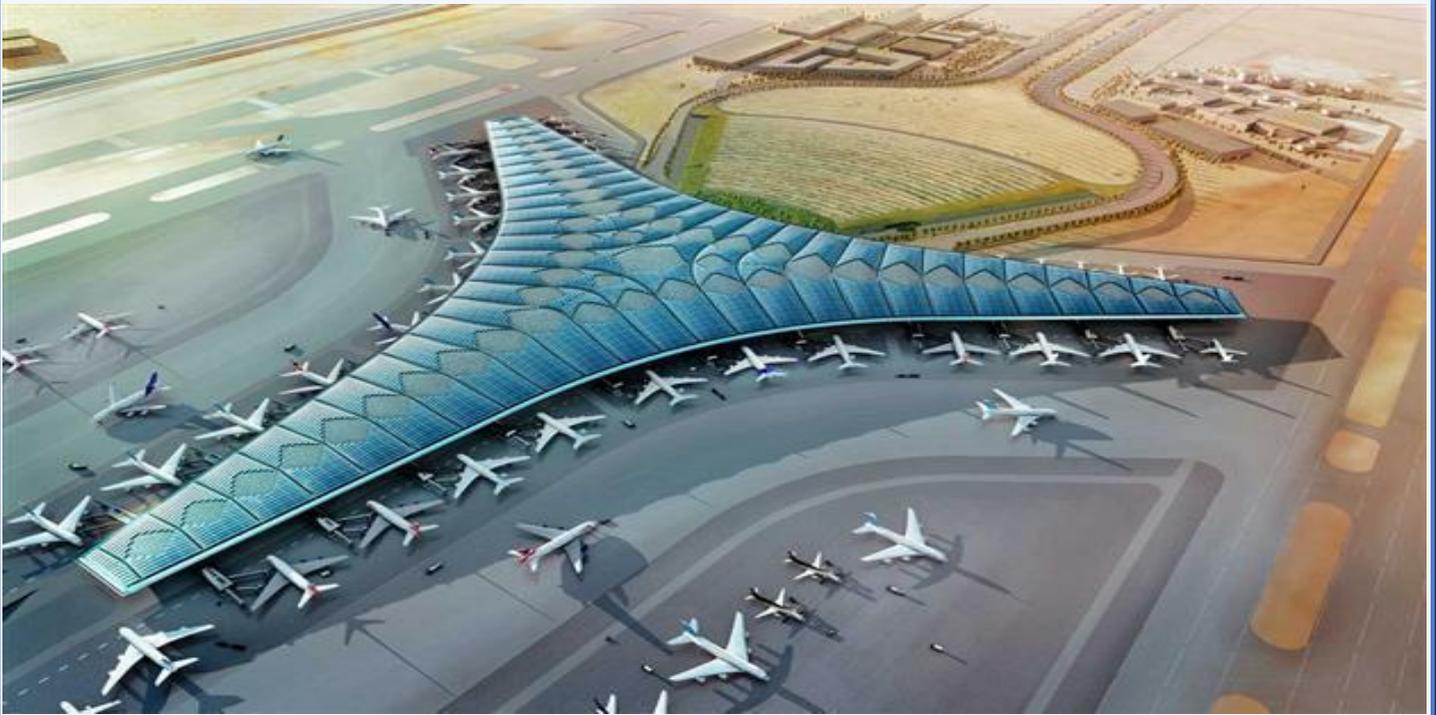


SAFETY MANAGEMENT SYSTEMS (SMS) GUIDANCE FOR ORGANIZATIONS



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FOREWORD

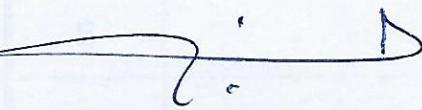
This This DGCA Document contains guidance material intended to assist DGCA approved organizations with the implementation of their Safety Management Systems (SMS), to meet the requirements of KCASR 19.

The guidance document is designed to address a phased implementation approach, which will allow organizations the time they need to implement safety management in a planned, systematic way.

This guidance document will be updated as and when it is necessary to maintain compliance with KCASRs and ICAO standards and recommended practices.

It is hereby declared that the DGCA/Aviation Safety Department's Safety Management Systems (SMS) Guidance for Organizations (CAP 701) is approved.

Approved by:



Aviation Safety Director
DGCA – State of Kuwait

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INTRODUCTION

The purpose of this document is to provide guidance on the implementation of Safety Management Systems (SMS). It has been developed to give sufficient understanding of SMS concepts and the development of management policies and processes to implement and maintain an effective SMS. It applies to Air Operator's Certificate (AOC) holders, continuing airworthiness management organizations, maintenance organizations, air navigation service providers, aerodromes and approved training organizations that are exposed to safety risks related to aircraft operations during the provision of their services.

This document meets ICAO Annex 19 and KCASR 19 requirements. Compliance and effectiveness of an SMS will be assessed using the DGCA SMS evaluation checklists that can be found attached to this guidance document in attachments A & B.

A safety management system is a systematic and proactive approach for managing safety risks. As with all management systems, SMS includes goal setting, planning, and measuring performance. An effective safety management system is woven into the fabric of an organization. It becomes part of the culture; the way people do their jobs.

Safety management goes beyond compliance with prescriptive regulations, to a systematic approach where potential safety risks are identified and managed to an acceptable level. SMS adopts a business-like approach to safety, similar to the way that finances are managed, with safety plans, safety performance indicators and targets and continuous monitoring of the safety performance of the organization. It enables effective risk-based decision making processes across the business.

It is important to recognize that SMS is a top down driven system, which means that the accountable manager of the organization is responsible for the implementation and continuing compliance of the SMS. Without the wholehearted support and ownership of the accountable manager the SMS will not be effective. However, safety is a shared responsibility across the whole organization and needs the involvement of all staff.

There is not a 'one size fits all' model for SMS that will cater for all types of organizations. Organizations should tailor their SMS to suit the size, nature and complexity of the operation, and the hazards and associated risks inherent with its activities

Where an organization is part of a group that has several approvals, the SMS must be combined and integrated.

CHAPTER 1 - SAFETY MANAGEMENT SYSTEM (SMS)

SMS is a proactive and integrated approach to managing safety including the necessary organizational structures, accountabilities, policies and procedures. It is more than a manual and a set of procedures and requires safety management to be integrated into the day-to-day activities of the organization. It requires the development of an organizational culture that reflects the safety policy and objectives.

At the core of the SMS is a formal risk management process that identifies hazards and assesses and mitigates risk. It is important to recognize that even with mitigations in place, some residual risk will remain, and an effective SMS will enable organizations to manage this.

Risks generated by contracted activities and other third parties should also be considered. Therefore, when the organization has a formal agreement with another organization this should include provisions for the management of safety. This should also include reporting procedures for safety related matters.

Safety Management System Implementation

For many organizations there will be some elements of an SMS already in place so carrying out a gap analysis is the first step. The DGCA Phase 1 SMS evaluation framework is available on the DGCA website and forms the basis of the DGCA's initial assessment of an organization's SMS. There are two versions one for complex organizations and a simpler version for non-complex organizations. For help in determining whether an organization is complex or non-complex please refer to the appropriate KCASRs requirements.

Where gaps have been identified these should be included in an implementation plan. The plan should detail the gaps and the actions to be taken (what, when and by whom) to implement an SMS. The plan should be developed to allow prioritizing of the different elements over a period of time. Building an SMS overnight will be far too challenging and a step-by-step approach will deliver a more effective SMS in the end.

CHAPTER 2 - THE KEY COMPONENTS OF A SAFETY MANAGEMENT SYSTEM

The SMS should comprise of the following four key components:

- a) Safety policy and objectives;
- b) Safety risk management;
- c) Safety assurance;
- d) Safety promotion.

Whilst the four components above appear to be separate, it is important to recognize that they are all interrelated. They can only function effectively if all four are built on a foundation of a positive safety culture. This should be driven from the top of the organization by the accountable manager and the senior management team.

Each of these four components will now be considered in the following sections.

CHAPTER 3 – SAFETY POLICY AND OBJECTIVES

The safety policy and objectives can be divided into the following five areas:

- a) Management commitment;
- b) Safety accountabilities and responsibility;
- c) Appointment of key safety personnel;
- d) Coordination of emergency response planning;
- e) SMS documentation.

The safety policy outlines the aims and objectives that the organization will use to achieve the desired safety outcomes. It should declare the principles and philosophies that lay the foundation for the organization's safety culture and be communicated to all staff throughout the organization. The creation of a positive safety culture begins with clear, unequivocal direction and ownership from the accountable manager.

In preparing a safety policy, senior management should consult with the key safety personnel, and where appropriate, staff representative bodies (employee forums, trade unions, for example). Consultation will ensure that the safety policy and stated objectives are relevant to all staff. It will generate a sense of shared responsibility for the safety culture in the organization. A positive safety culture is one where all staff are responsible for, and consider the impact of, safety on everything they do.

Management Commitment

The accountable manager should have full responsibility and accountability for the SMS and should have:

- a) Corporate authority for ensuring all activities can be financed and carried out to the required standard;
- b) Full authority for ensuring adequate staffing levels;
- c) Direct responsibility for the conduct of the organization's affairs;
- d) Final authority over operational matters;
- e) Final accountability for all safety issues.

Senior Management should:

- a) Develop the safety policy, which is endorsed and actively supported by the accountable manager;

- b) Continuously promote the safety policy to all staff and demonstrate their commitment to it;
- c) Specify and allocate necessary human and financial resources;
- d) Establish safety objectives and performance standards for the organization. Safety Performance Indicators (SPIs) should be established that monitor and measure the safety performance of the organization and the effectiveness of the SMS.

The safety policy should include a commitment to:

- a) Strive to achieve the highest safety standards;
- b) Comply with all applicable legal requirements, meet all applicable standards and consider best practice;
- c) Provide appropriate resources;
- d) Determining safety as a primary responsibility of all staff especially managers;
- e) Ensure that the policy is implemented and understood at all levels, both internally and externally.

The safety policy should actively encourage effective safety reporting by defining a just culture. This should define the line between acceptable and unacceptable performance and provide fair and just protection to all personnel.

Safety accountability and responsibilities

The organization should clearly define the lines of safety accountability and responsibilities throughout the organization. This should include the direct accountability for safety on the part of the accountable manager and senior management. There is also a need to define the safety responsibilities and expected behaviors of key personnel (nominated post-holders, safety manager, safety officers, safety committee members, for example). Safety is everyone's responsibility, and all staff should be aware of their safety roles and responsibilities.

It is essential that safety management is seen as an integral strategic part of the organization's business by assigning the highest priority to safety. With this in mind, there has to be a demonstrable board level commitment to an effective SMS.

The accountable manager, together with the senior management team, set the standard for the organization's safety culture. Without this commitment and leadership, SMS will be ineffective.

Appointment of key safety personnel

Whilst the organizational structure of the SMS should reflect the size, nature and complexity of the organization it should:

- a) Appoint a safety manager;
- b) Create appropriate safety committees.

The safety manager

The safety manager should act as the focal point and be responsible for the development, administration, maintenance and promotion of an effective safety management system. The safety manager should report directly to the accountable manager. The post should be given appropriate status in the organization in order to provide the necessary degree of authority when dealing with safety matters.

The safety manager should possess:

- a) Broad operational knowledge and experience in the functions of the organization and the supporting systems;
- b) Analytical and problem solving skills;
- c) Effective oral and written communication skills;
- d) An understanding of human and organizational factors;
- e) Detailed knowledge of safety management principles and practices.

It is important to note that accountability for the SMS rests with the accountable manager not the safety manager.

The safety manager should be a full-time employee although in a small complex or non-complex organization it may be a part time role shared with other duties. They may also be the compliance monitoring / quality manager, but in such cases there will need to be independent compliance monitoring of the SMS.

The safety manager should carry out the following functions:

- a) Manage the SMS implementation plan on behalf of the accountable manager;
- b) facilitate the risk management process that should include hazard identification, risk assessment and risk mitigation;
- c) monitor corrective actions to ensure their accomplishment;
- d) provide periodic reports on safety performance;

- e) maintain safety management documentation;
- f) ensure that there is safety management training available and that it meets acceptable standards;
- g) provide advice on safety matters;
- h) initiate and participate in occurrence / accident investigations;
- i) to collate, understand and disseminate information from other similar organizations, the regulator and contracted organizations.

Safety committees

Safety Review Board (or equivalent safety committee)

The Safety Review Board (SRB) is a high level committee which considers strategic safety functions. The accountable manager should be actively involved in the SRB and normally chairs the meeting. The SRB should normally include the senior management of the organization. Membership of the board and frequency of meetings should be defined.

The SRB ensures that appropriate resources are allocated to achieve the established safety performance and gives strategic direction to the safety action group. It should also look to the Safety Action Group (SAG) to highlight significant risk issues and provide an input to the high level strategy.

The SRB monitors:

- (a) Safety performance against the safety policy and objectives;
- (b) Effectiveness of the SMS;
- (c) Effectiveness of the safety oversight of sub-contracted organisations;
- (d) Corrective or mitigating actions are being taken in a timely manner;
- (e) Effectiveness of the organization's safety management processes;
- (f) Appropriateness of resources that are allocated to achieve safety performance beyond that required by regulatory compliance.

Safety action group

For larger organizations a safety action group may be established as a standing group or as an ad-hoc group to assist or act on behalf of the SRB. The Safety Action Group (SAG) reports to and takes strategic direction from the SRB. It is comprised of managers, supervisors and staff from operational areas. Membership of the Group and frequency of meetings should be defined. The safety manager may also participate in the SAG.

In very large organizations more than one safety action group may be established that focus on specific areas.

In small complex organizations of less than 20 full time equivalents a single safety committee may be established combining the functions of the SRB and SAG.

The SAG oversees and reviews:

- a) Operational effectiveness of the safety risk management processes;
- b) Appropriate resolution and mitigation of identified risks;
- c) Assessment of the safety impact of operational changes;
- d) Implementation of corrective action plans;
- e) Corrective action is achieved within agreed timescales;
- f) The effectiveness of safety recommendations and safety promotion.
- g) Results of safety data analysis.

Coordination of emergency response planning

An Emergency Response Plan (ERP) should be established that provides the actions to be taken by the organization or individuals in an emergency. The emergency response plan should be integrated into the SMS and reflect the size, nature and complexity of the activities performed by the organization.

Where organizations, such as aerodromes, are subject to other ERP requirements these should be adhered to and may be cross referred to. In many cases there will be a need for liaison with other relevant parties to agree coordination of emergency response arrangements and testing of the plan.

The ERP should ensure:

- a) An orderly and efficient transition from normal to emergency operations;
- b) Designation of emergency authority and responsibilities;
- c) Authorization by key personnel for actions contained in the plan;
- d) Coordination with other organizations;
- e) Safe continuation of operations or return to normal operations as soon as practicable.

The ERP should set out the responsibilities, roles and actions for the various agencies and personnel involved in dealing with emergencies. It may include checklists and contact details and the ERP should be regularly reviewed and tested. Key personnel should have easy access to the ERP at all times.

SMS documentation

Documentation for a SMS should be appropriate to the size, nature, and complexity of the organization and normally consists of:

- a) SMS records (hazard logs, risk assessments, safety cases, meeting minutes, for example);
- b) Records and documentation management;
- c) SMS manual.

The organization's SMS manual should be the key instrument for communicating the approach to safety for the whole of the organization. It should document all aspects of the SMS, including the safety policy, objectives, procedures and individual safety accountabilities. The SMS should be constantly evolving and therefore the SMS manual should be a living document and should be reviewed regularly to ensure that it remains accurate and appropriate. The SMS manual may be incorporated into existing manuals or expositions. Contents should include:

- a) Scope of the SMS;
- b) Safety policy and objectives;
- c) Safety accountabilities;
- d) Key safety personnel;
- e) Documentation control procedures;
- f) Hazard identification reporting and risk management schemes;
- g) Safety performance monitoring;
- h) Incident investigation and reporting
- i) Emergency response planning;
- j) Management of change processes;
- k) Safety promotion;
- l) Contracted activities;
- m) Just culture policy and supporting processes.

CHAPTER 4 – SAFETY RISK MANAGEMENT

The safety risk management component of a SMS can be divided into three areas:

- a) Hazard identification processes;
- b) Risk assessment and mitigation processes;

Safety risk management is the heart of the SMS. The process starts with identifying hazards affecting aviation safety and then assessing the risks associated with the hazards in terms of severity and likelihood. Once the level of risk is identified, appropriate remedial action or mitigation measures can be implemented to reduce the level of risk to an acceptable level. Mitigation measures should then be monitored to ensure that they have had the desired effect. It is important to apply a common standard and process for risk assessment and control throughout the organization. Appropriate training and communication will enable a clear understanding on how to deliver this.

Hazard Identification

A hazard is any condition that can cause or contribute to an aircraft incident or accident. A hazard identification process enables the collecting, recording, analyzing, acting on and generating feedback about hazards that affect the safety of the operational activities of the organization. In a mature SMS hazard identification is an ongoing process.

There are many sources of hazard identification from reactive events to a more proactive approach.

- Reactive schemes include data from accidents, incidents, flight data monitoring, voluntary and confidential reporting systems.
- Proactive schemes include open hazard reporting systems, LOSA (Line Operations Safety Audit) style normal operation assessments, safety surveys, change management processes and safety risk assessments

Subject matter expert judgement can also contribute to hazard identification through workshops and safety committee meetings. Organizations should carry out an initial hazard identification exercise on its current operations to create a baseline safety case or an initial risk register. Hazard identification then becomes an ongoing activity and hazard logs and risk registers should be continuously reviewed and updated. Organizations should look externally for possible hazards from accident reports, MOR publications, industry trade associations or Kuwait National Safety Plan.

Safety Reporting

A confidential reporting system should be established to encourage safety reporting. This should be supported with a just culture providing appropriate protection for the reporter. This should also include an effective feedback process to the individual and to the wider organization where appropriate. This approach should encourage staff at all levels to proactively report errors, near misses and hazards.

Staff need to have confidence in the just culture and the reporting system. They must know that confidentiality will be maintained and that the information they submit will be acted upon, otherwise they will decide that there is no benefit in their reporting.

Risk assessment and mitigation

Risk

Risk is generally assessed in terms of severity and likelihood of the consequences of a hazard occurring. Organizations should define whether they are assessing severity using the worst case scenario or the most credible outcome. The risk assessment should include appropriate justification and details of any assumptions made. A hazard has the potential to cause harm while risk is the likelihood of that harm occurring within a specific time-scale.

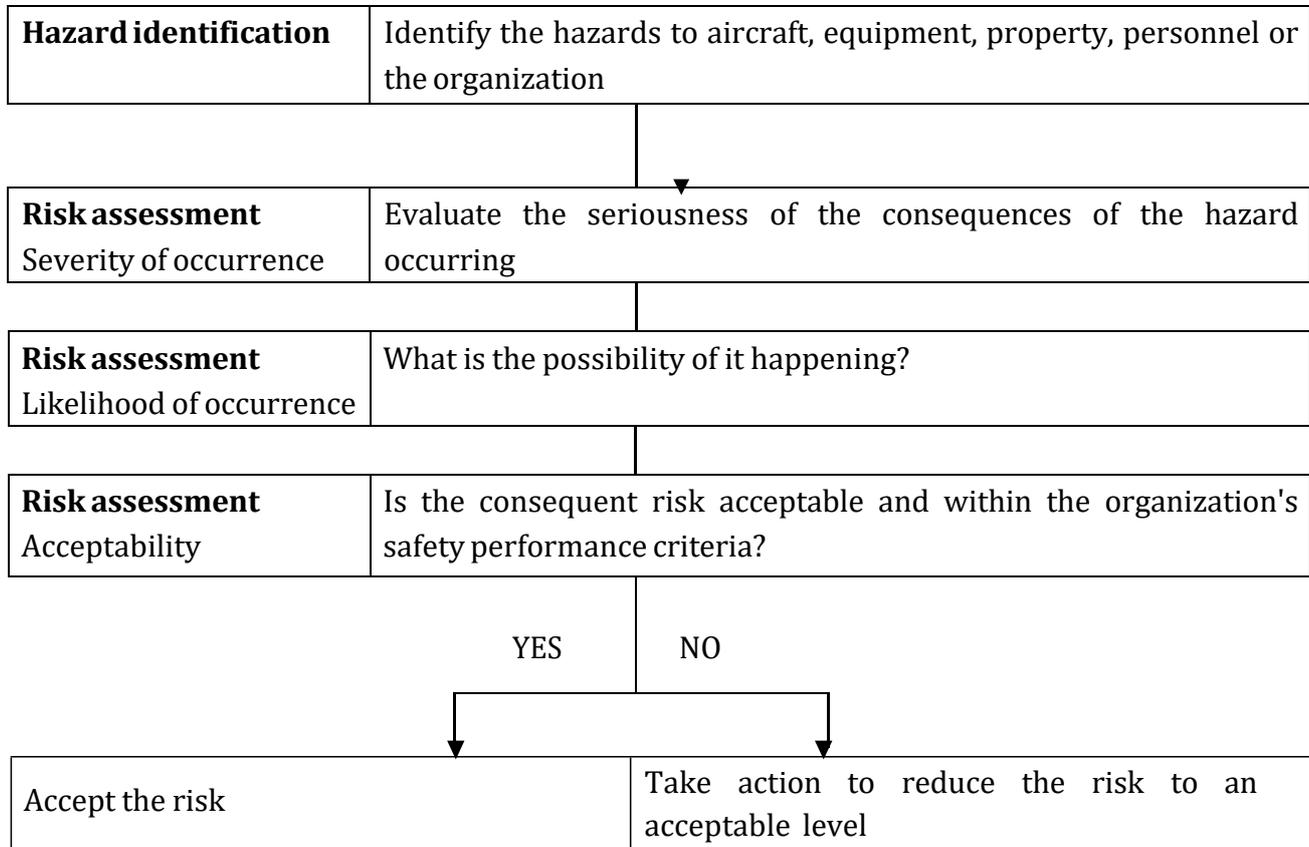
Following the identification of a hazard, a risk assessment is carried out to determine the potential for harm or damage. This involves the following considerations:

- Severity: How bad will it be if the unwanted safety event occurs?
- Likelihood: How likely is the unwanted safety event to occur or reoccur?

Risk assessment and mitigation processes analyze and eliminate or mitigate to an acceptable level, risks that could threaten the capability of an organization to undertake its activities in a safe manner.

Organizations may use barrier models such as bow-tie for their risk management process.

A diagram showing the hazard analysis and risk assessment process is shown below:



A system should be developed for assessing and analyzing the data collected or derived from the actions outlined above. Information provided by the analysis should be distributed to those with a responsibility for operational safety in the organization.

Risk assessment

The risk assessment process should determine the acceptability of a risk. This is normally done by defining a Risk Tolerability Matrix that should be used across the whole organization. An example of a risk tolerability matrix and its definitions is provided below. While the severity of the consequences can be defined, the likelihood of occurrence may be more subjective where data is limited. The assessment process should be recorded at each stage including any assumptions made or supporting information. As risk assessments can be subjective they should be verified by at least one other person or by one of the safety committees.

Severity of consequences

Aviation definition	Meaning	Value
Catastrophic	Aircraft / Equipment destroyed. Multiple deaths.	A
Hazardous	A large reduction in safety margins, physical distress or a workload such that organizations cannot be relied upon to perform their tasks accurately or completely. Serious injury or death to a number of people. Major equipment damage.	B
Major	A significant reduction in safety margins, a reduction in the ability of organizations to cope with adverse operating conditions as a result of an increase in workload, or as a result of conditions impairing their efficiency. Serious incident. Injury to persons.	C
Minor	Nuisance. Operating limitations. Use of emergency procedures. Minor incident.	D
Negligible	Little consequence.	E

Likelihood of occurrence

Qualitative definition	Meaning	Value
Frequent	Likely to occur many times (has occurred frequently)	5
Occasional	Likely to occur sometimes (has occurred infrequently)	4
Remote	Unlikely, but may possibly occur (has occurred rarely)	3
Improbable	Very unlikely to occur (not known to have occurred)	2
Extremely improbable	Almost inconceivable that the event will occur	1

Example risk tolerability matrix

Severity

Catastrophic	A	1A Review	2A Review	3A Unacceptable	4A Unacceptable	5A Unacceptable
Hazardous	B	1B Acceptable	2B Review	3B Review	4B Unacceptable	5B Unacceptable
Major	C	1C Acceptable	2C Review	3C Review	4C Review	5C Unacceptable
Minor	D	1D Acceptable	2D Acceptable	3D Review	4D Review	5D Review
Negligible	E	1E Acceptable	2E Acceptable	3E Acceptable	4E Review	5E Review
		Extremely improbable	Improbable	Remote	Occasional	Frequent
		1	2	3	4	5

Likelihood

Note.— In determining the safety risk tolerability, the quality and reliability of the data used for the hazard identification and safety risk probability should be taken into consideration.

Risk classification

Acceptable	The consequence is so unlikely or not severe enough to be of concern; the risk is acceptable. However, consideration should be given to reducing the risk further to as low as reasonably practicable in order to further minimise the risk of an accident or incident.
Review	The consequence and/or likelihood is of concern; measures to mitigate the risk to as low as reasonably practicable should be sought. Where the risk is still in the review category after this action then the risk may be accepted, provided that the risk is understood and has the endorsement of the individual ultimately accountable for safety in the organization.
Unacceptable	The likelihood and severity of the consequence is intolerable. Major mitigation will be necessary to reduce the likelihood and severity of the consequences associated with the hazard.

Risk mitigation

Risks should be managed to an acceptable level. This should be balanced against the time, cost and difficulty of taking measures to reduce or eliminate the risk. The level of risk can be lowered by reducing the severity of the potential consequences, reducing the likelihood of occurrence or by reducing exposure to that risk. It is easier and more common to reduce the likelihood than it is to reduce the severity.

Corrective action should take into account any existing defenses and their inability to achieve an acceptable level of risk. This may result in a review of previous risk assessments that may have been impacted by the corrective action. Risk mitigations and controls will need to be verified / audited to ensure that they are effective.

CHAPTER 5 – SAFETY ASSURANCE

Safety assurance assesses the safety performance of the organization and enables continuous improvement. The three aspects of safety assurance are:

- a) Safety performance monitoring and measurement;
- b) The management of change;
- c) Continuous improvement of the safety system.

Safety performance monitoring and measurement

A key function of the SMS is assurance that the system is working and is effective. This involves:

- The setting and monitoring of Safety Performance Indicators (SPIs) to measure the organization's safety performance;
- Assessing the effectiveness of the SMS by confirming that the mitigations, controls and defenses put in place are working and effective to ensure safe operational practices;
- Monitoring compliance with the appropriate regulations and standards.

Note: These all require safety and quality (compliance monitoring) to be integrated or working closely together.

Safety objectives need to have been established before setting SPIs. This allows the safety performance of the organization to be measured against its safety policies and objectives. Organizations should review Kuwait National Aviation Safety Plan as this may provide ideas for SPIs.

The following should be considered in setting safety objectives:

- Define what the organization hopes to achieve.
- It should be a statement of a desired outcome.
- Safety objectives should be short, high-level statements of the safety priorities and should reflect the organization's safety policy.
- Safety objectives should address the organization's most significant risks.

Once safety objectives have been set then SPIs can be established. SPIs can be used to measure the performance of the SMS and the operational safety performance. SPIs will require the monitoring of data from various sources such as;

- a) Occurrences and events;
- b) Safety reports;
- c) Safety studies;
- d) Safety reviews including trend analysis;
- e) Audits;
- f) Surveys;
- g) Internal safety investigations.

Note: Further details on Safety Performance Measurements can be found in Appendix 1 of this document.

Safety audits are used to ensure that the structure of the SMS is sound in terms of:

- a) Adequate staff levels;
- b) Compliance with approved procedures and instructions;
- c) Levels of competency and training to carry out specific roles;
- d) Maintaining required levels of performance;
- e) Achievement of the safety policy and objectives;
- f) Effectiveness of interventions and risk mitigations.

Safety and cultural surveys should be carried out as a matter of routine, to provide assurance to managers of safe operational activity. They are used to identify issues or problems in daily operations. They can also be used to gather the views and opinions of operational personnel. Surveys may involve the use of:

- a) Day to day observation checks such as Line Operations Safety Audits (LOSA);
- b) Questionnaires;
- c) Informal confidential interviews.

Safety culture surveys allow an organization to identify behaviors and attitudes of staff. This may identify human conditions that can impact an organization's safety performance.

Survey information is subjective and should therefore be verified before any corrective action is initiated but may provide a valuable source of safety information.

The management of change

The management of change should be a formal process that identifies external and internal change that may affect established cultures, processes and services. It utilizes the organization's existing risk management process to identify potential hazards that could impact safety. Change can also introduce new hazards that could impact the appropriateness and effectiveness of existing risk mitigations.

Organizations should define the types of changes that would require a formal management of change process. This should also include who makes the decision to start the process and who has the authority to sign it off.

Continuous improvement of the SMS

The organization should continually seek to improve their safety performance. Continuous improvement should be achieved through:

- a) Proactive evaluation of day-to-day operations, facilities, equipment, documentation and procedures through safety audits and surveys;
- b) Evaluation of an individual's performance to verify the fulfilment of their safety responsibilities;
- c) Reactive evaluations in order to verify the effectiveness of the system for control and mitigation of risk e.g. incidents, accidents and investigations;
- d) Tracking organizational changes to ensure that they are effective.
- e) Regular review of the organization's safety performance and safety action plans.

CHAPTER 6 – SAFETY PROMOTION

Training and education

All staff should receive safety training as appropriate for their safety roles and responsibilities. In particular all operational staff, managers, supervisors, senior managers and the accountable manager should be trained and be competent to perform their duties. This provides an opportunity to reinforce the safety policy, gain the necessary management buy-in and for establishing the expected attitudes and behaviors for all levels of staff in the organization. This should involve initial training as well as continued maintenance of competence. Training should include human and organizational factors

- a) Operational staff should have an understanding of the organization's safety policy and the principles and processes of the organization's SMS.
- b) In addition to (a) above, managers and supervisors should understand the safety process, hazard identification, risk management and the management of change.
- c) In addition to (a) and (b) above, senior managers should understand organizational safety standards, safety assurance and the regulatory requirements for their organization.
- d) The accountable manager should have an awareness of SMS roles and responsibilities, safety policy, safety culture, SMS standards and safety assurance.

Safety Communication

Safety communication is an essential foundation for the development and maintenance of an adequate safety culture. Types of communication may include:

- a) Safety policies and procedures;
- b) Newsletters, safety bulletins and notices;
- c) Presentations;
- d) Websites and e-mails;
- e) Informal workplace meetings between staff and the accountable manager or senior managers.

Safety communication should:

- a) Ensure that all staff are fully aware of the SMS and the organization's safety culture;
- b) Disseminate safety critical information internally and externally;
- c) Explain why certain actions are taken;
- d) Explain why safety procedures are introduced or changed;
- e) Complement and enhance the organization's safety culture;
- f) Contain a process for assessing the suitability of safety communication and its effect on the organization.

APPENDIX 1 – Measuring Safety Performance Guidelines

Purpose

The objective of this appendix is to provide guidelines for the definition and implementation of a set of safety performance indicators as part of your safety management system.

This appendix proposes an approach to safety performance measurement aiming at increasing your organization's potential for effective safety management that considers systemic and operational issues. Effective safety performance measurement will be decisive in driving your safety management system towards excellence.

Throughout this appendix:

- any reference to the term 'service provider' is intended to cover providers of aviation products and services;
- any reference to 'operations' is intended to mean your core activities being regulated through aviation safety regulations; and
- any reference to 'regulator' is used in the broad sense, to cover all State functions and responsibilities as relevant for the management of aviation safety.

1. The Concept

1.1. *What is safety performance?*

ICAO Annex 19 defines **safety** as 'the state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level' and **safety performance** as 'a service provider's safety achievement as defined by its safety performance targets and safety performance indicators. These definitions provide a good indication of the complexity related to measuring safety performance. In many areas safety metrics tend to focus on serious incidents and accidents, as these are easy to measure and often receive more attention. In terms of safety management, the focus on such negative events should be considered with some caution, because:

- in systems such as aviation with a low number of high consequence negative outcomes, the low frequency of such outcomes may give the wrong impression that your system is safe;
- the information is available too late to act on it;

- counting final outcomes will not reveal any of the systemic factors, hazards or latent conditions that have a potential to result in high consequence negative outcomes, under the same conditions; and
- where the resilience of a system has been undermined, such outcomes are more likely to occur by chance and therefore these outcomes may draw unwarranted attention and use scarce resources when they are not predictive of later events.

The issue is further complicated because the aviation system is a highly dynamic, complex system with many different players, interactions, dependencies and parameters that may have a bearing on final safety outcomes. Therefore, in most cases it is impossible to establish a linear relationship between specific parameters or safety actions and the final, aggregate safety outcome. Hence, the absolute measurement of safety is itself unachievable. Whilst there are many models of what makes up the level of safety (and conversely the level of exposure to risk), indicators will always constitute imperfect markers of these levels.

Safety is more than the absence of risk; it requires specific systemic enablers of safety to be maintained at all times to cope with the known risks, to be well prepared to cope with those risks that are not yet known, and to address the natural 'erosion' of risk controls over time. Thus, from the perspective of your organisation there cannot be any direct measures of safety. Measures should in particular focus on those features of your system that are intended to ensure safe outcomes —those elements that will constitute organisational enablers of safe outcomes and specific safety controls and barriers for any risks identified. Measures also need to address how external factors may influence these enabling elements, risk controls and barriers or how these controls and barriers influence each other.

This approach is aligned with current industry practice in the area of quality management as promoted for example by International Organisation for Standardization (ISO) 9000 series standards; when the resulting output cannot be directly measured, the underlying systems and processes need to be validated instead.

The principles above are valid both from a regulator's perspective and from the perspective of an individual service provider; in all cases the dynamic nature of the systemic, operational and external components of safety performance should be considered.

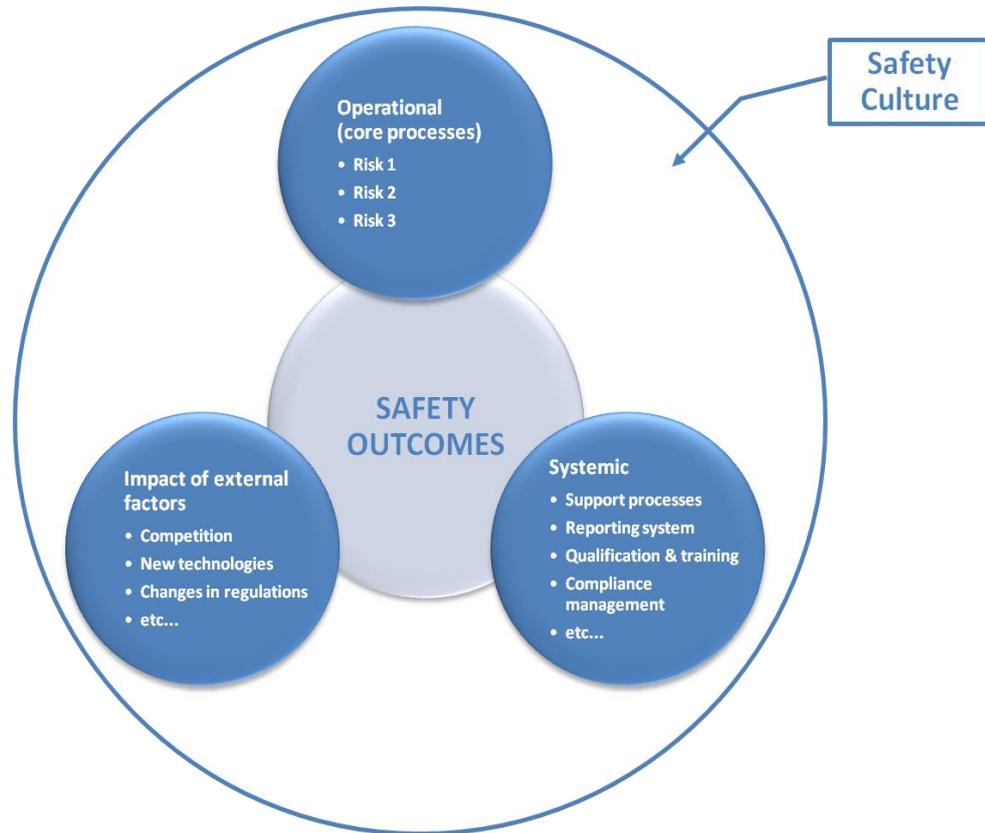


Figure 1: Components of safety performance

1.2. Why measure safety performance?

ICAO Safety Management System (SMS) standards and recommended practices promote the development and maintenance of means to verify the safety performance of your organisation and to validate the effectiveness of safety risk controls.

The analysis and assessment of how your organisation 'functions' to deliver its activities should form the basis for defining your safety policy, the related safety objectives and the corresponding safety performance indicators and targets.

SMS requires a systemic approach as with any other element of business management (e.g., quality, finance), and in this respect safety performance measurement provides an element that is essential for management and effective control: 'feedback.'

- Feedback will allow management to validate the analysis and assessment of how well your organisation functions in terms of safety and to make adjustments as required (Plan-Do-Check-Act).
- Feedback to your management will guide decision-making and resource allocation.

- Feedback to all staff will ensure that everyone is informed on your organisation’s safety achievements. This will help to create commitment and contribute to fostering your company’s safety culture.

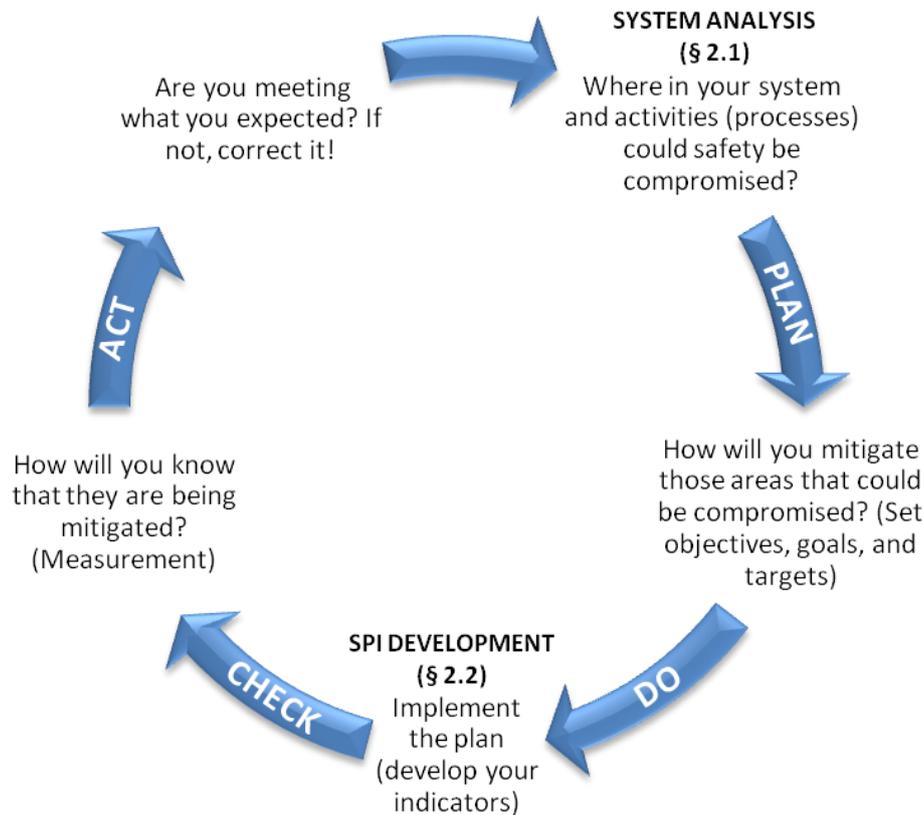


Figure 2: The measurement cycle

Effective safety performance measurement will support the identification of opportunities for improvement not only related to safety, but also to efficiency and capacity.

The management of safety relies on the capabilities of your organisation to systematically anticipate, monitor, and further develop your organisational performance to ensure safe outcomes of your activities. Effective safety management requires a thorough understanding and sound management of your system and processes. This cannot be achieved without some form of measurement. Rather than randomly selecting outcomes that are easy to measure, you should select safety performance indicators that consider the type of feedback needed to ensure your company’s capabilities for safety management can be properly evaluated and improved. This implies that you will need to measure performance at all levels of your organisation by adopting a broad set of indicators involving key aspects of your system, and operations and allowing to measure those key aspects in different ways.

1.3 How to measure: types of safety performance indicators

ICAO defines **safety performance indicator** as ‘a data-based safety parameter used for monitoring and assessing performance’ and **safety performance target** as ‘the planned or intended objective for safety performance indicator(s) over a given period.’

Safety performance indicators (SPIs) can be ‘classified’ in accordance with specific features; and different classifications are commonly used in different areas. The types of indicators described in this appendix have been defined following a review of such commonly used classifications and definitions to identify commonalities. An explanation is provided where relevant on the use of each. You may adopt any terms for your specific safety performance indicators as you see fit; the information below is provided to complement the conceptual information required for effective safety performance measurement.

- **Lagging indicator**

‘Metrics that measure safety events that have already occurred including those unwanted safety events you are trying to prevent’

Lagging indicators are measures of safety occurrences, in particular the negative outcomes that the organisation is aiming to prevent. Lagging indicators are mainly used for aggregate, long-term trending, either at a high level or for specific occurrence types or locations. Because they measure safety outcomes, they can be used to assess the effectiveness of safety measures, actions, or initiatives and are a way of validating the safety performance of the system. Also, trends in these indicators can be analysed to determine if latent conditions exist in present systems that should be addressed.

Two types of lagging indicators are generally defined as:

1. Indicators for high severity negative outcomes, such as accidents or serious incidents.

The low frequency of high severity negative outcomes means that aggregation (e.g., at industry segment level or regional level) may produce more meaningful analysis.

Example: number of runway excursions/1000 landings.

2. Indicators for lower-level system failures and safety events that did not manifest themselves in serious incidents or accidents (including system failures and procedural deviations); however, safety analysis indicates there is the potential for them to lead to a serious incident or accident when combined with other safety events or conditions. Such indicators are sometimes referred to as ‘precursor event’ indicators ¹.

{¹ This term should be used with caution: Before defining one event or condition as a precursor to a more serious event or condition (e.g., incidents as precursors to accidents), it must be ensured that there is a demonstrable correlation between the two. Such correlation underlies the concept of measurement validity. The factors that cause the incidents defined as 'precursors' must be common between those incidents and the probability of accidents they are assumed to predict.}

Indicators for lower-level system failures and safety events are primarily used to monitor specific safety issues and measure the effectiveness of safety controls or barriers put in place for mitigating the risk associated with these hazards.

Example: number of un-stabilized approaches/1000 landings

- **Leading indicator**

'Metrics that provide information on the current situation that may affect future performance'

Leading indicators should measure both: things that have the potential to become or contribute to a negative outcome in the future ('negative' indicators), and things that contribute to safety ('positive' indicators). From a safety management perspective, it is important to provide sufficient focus on monitoring positive indicators to enable strengthening of those positive factors that make up your organisation's safety management capability.

Leading indicators, which are particularly relevant from a management perspective, may be used to influence safety management priorities and the determination of actions for safety improvement. You may use this type of indicator to proactively develop ('drive') your organisation's safety management capabilities, in particular during initial implementation of SMS. This may entail the setting of performance targets.

Example: The percentage of changes to Standard Operating Procedures that have been subject to hazard identification and safety risk management

Leading indicators may also be used to inform your management about the dynamics of your system and how it copes with any changes, including changes in its operating environment. The focus will be either: on anticipating emerging weaknesses and vulnerabilities to determine the need for action, or on monitoring the extent to which certain activities required for safety are being performed. For these 'monitoring' indicators, alert levels can be defined.

Example: The extent to which work is carried out in accordance with Standard Operating Procedures.

The concept of leading and lagging indicators has existed in domains outside of aviation for a number of years. In particular, economists use them as a means to measure the health of an economy.

Safety performance measurement should ideally consider a combination of leading and lagging indicators. The main focus should be to measure and to act upon the presence of those systemic and operational attributes that enable effective safety management within your organisation and meanwhile, use lagging indicators to ensure that this safety management is effective. Lagging indicators, particularly indicators for lower-level system failures, are useful to validate the effectiveness of specific safety actions and risk barriers or to support the analysis of information derived from your leading indicators.

2. Safety performance measurement process

2.1. Prerequisites for effective safety performance measurement

In essence, your safety performance is determined by your capability to implement and maintain those organizational elements required to ensure safe outcomes. The purpose of your SMS is to build up, maintain, and continually improve this capability. As a prerequisite for effective safety management, your organization needs to perform a system analysis to generate an accurate and reliable description of your organizational structures, policies, procedures, processes, staff, equipment, and facilities. This analysis should have a particular focus on the interactions between system components and external factors. This will provide you with a model of how your system elements and activities interact to produce the expected safety outcomes, allowing you to identify the strengths and weaknesses of your system. The system description and related model of how your activities lead to the expected outcomes will inform you on what to measure to drive safety performance and what to monitor to keep an eye on all of those elements that may affect your organization's safety performance.

Your internal audit system and regulator audits and inspections may also identify areas of concern or safety critical tasks.

If your organization has a quality management system, the existing system and process description is a starting point for your system analysis, but you should ensure that your system and process description properly addresses aviation safety risks as well as business risks.

Following completion of the system description, including analysis and assessment, your organization should have gained or confirmed its understanding of where it stands with regard to safety. Through this exercise you should have identified:

At the systemic level:

- whether the elements that constitute enablers of effective safety management are present, suitable, and effective;
- the elements that are still missing for effective safety management;
- whether the elements are sufficiently integrated with each other and with the core management and operational processes of your organization; and
- the weaknesses and vulnerabilities in your organization.

At the operational level:

- the main risks in operations that need to be addressed (the things that may cause ‘your next accident’).

This will form the basis for reviewing the adequacy of your safety policy, defining or adapting your safety objectives, and deriving your safety performance indicators.

2.2. *Process for defining and reviewing safety performance indicators*

As with anything that relates to effective safety management, defining and using safety performance indicators must be a dynamic process. A step-by-step process for developing your own set of safety performance indicators is proposed, which follows the ‘Plan-Do-Check-Act’ logic for continual improvement. This should help you to involve and get buy-in from all staff concerned.

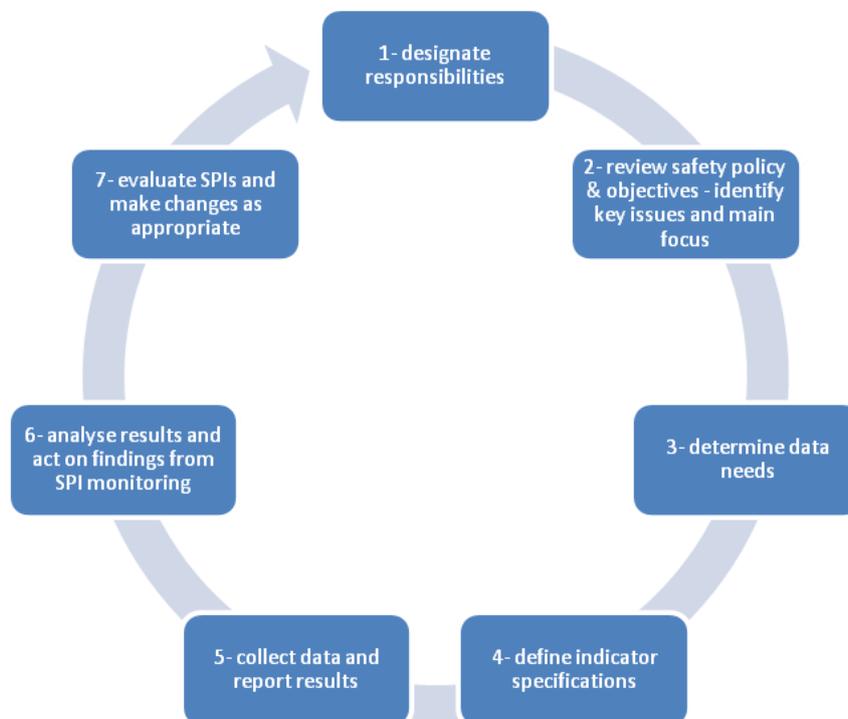


Figure 3: Process steps

Step 1: Designate responsibilities

It is critical to the success of the SPI project, as to the SMS journey in general, that your management are fully committed to implementing SPIs as a fundamental part of your organisation's safety management approach. Rather than just supporting a system of SPIs, management must define aspects of your organisation that require measurement and management and then must commit to a systematic approach to managing those elements, in accordance with your safety policy and defined safety objectives.

The first step for establishing SPIs will be for management to designate personnel with responsibilities for initiating the effective promotion and coordination of the introduction of the SPIs. This will require responsibility for ensuring effective communication and generally overseeing the implementation, with due consideration of your existing organizational setup in relation to safety management. These personnel (hereafter referred to as 'SPI team') should ideally include, and certainly have access to, personnel with appropriate experience and knowledge of safety and/or quality management principles and data analysis. They should also have experience applying this knowledge and these skills in the context of your policies, programs, operational procedures and practices. Process owners must be *directly* involved even if 'specialists' are used to supply measurement expertise or to support/facilitate the SPI development process. Also, it is essential that process owners take ownership of safety performance measurement for their processes. The SPI team (or individual with designated responsibilities, depending on the size and complexity of your organization) must clearly be shown to be in either a support or advisory role to management and process owners.

Management should be kept informed of progress on a regular basis and should take an active role in steering the process of implementing SPIs. For larger organizations it may be useful to develop an analysis of the costs and benefits of the SPI development project, with particular focus on the positive effects on your company's 'management information system' that will lead to improved resource allocation.

Finally, the SPI team should set a reasonable timetable, including milestones, to ensure adequate progress in developing the SPIs.

Step 2: Review safety policy and objectives – identify key issues and main focus

At this step, the SPI team should identify the scope and focus of measurement considering the results of the system analysis (2.1), paying particular attention to the completeness and adequacy of your SMS.

To define indicators for specific operational safety issues, the bow-tie methodology or similar tools can be used to determine the safety actions and risk barriers that would be most suitable for the definition of operational SPIs. A thorough hazard identification will be required as part of your system analysis to provide a good understanding of threats to safety in your operations.

The SPI team may also review typical indicators used within your industry segment and assess them to determine whether they are pertinent to your organization. For example, measuring the number of internal reports may not be meaningful if your system analysis reveals that there are no easily accessible means to report or there are concerns about confidentiality.

Step 3: Determine data needs

To be meaningful, measures of performance must be based on reliable and valid data, both qualitative and quantitative. Therefore, the SPI team should identify all pertinent data and information that is available within your organization and determine what additional information is needed. It should also consider information available through the internal audit/compliance monitoring system.

Regardless of the type of data, quality is one of the most important elements in ensuring that the data can be integrated and used properly for analysis purposes. Data quality principles and practices should be applied throughout the processes from data capture and integration to analysis.

You may be tempted to identify things that lend themselves to being measured instead of identifying what you should measure. This is likely to result in identifying SPIs that are most obvious and easy to measure rather than SPIs that are most valuable for effective safety management. Therefore, at this step of the process, it is important to focus on what changes your organization wants to 'drive' and what aspects it needs to 'monitor.' You should also consider that, to be effective at assessing system safety, a broad set of indicators involving key aspects of your system and operations should be developed; this will reduce the possibility of having a narrow and therefore potentially flawed view of your organization's safety performance.

Also, it may be necessary to measure the same system in several ways in order to gain a more precise idea of the actual level of safety performance. For example, only assessing your organization's safety culture without measuring operational parameters will merely provide a very partial indication of safety performance.

In the area of hazard identification and risk management in operations (core processes), availability of data will depend in part on the maturity of your internal safety reporting schemes. Aggregate data for your industry segment may also be considered, particularly when your SMS has not yet generated sufficient data. Other information, such as number of flights, fleet size, and financial turnover, may contribute to a better understanding of the context of operations. Continuous availability of data should be ensured to generate relevant and timely indicators. Delays in compiling data for the generation of indicators are likely to delay any safety actions that may be required.

Step 4: Define indicator specifications

Once the scope and focus of your SPIs have been determined and available data/information reviewed, the specifics need to be defined. Each SPI should be accompanied by sufficient information (or metadata) which enables any user to determine both the source and quality of the information and place this indicator in the context necessary to interpret and manage it effectively.

Whenever possible, indicators should be quantitative, as this facilitates comparison and detecting trends. Quantitative metrics should be precise enough to allow highlighting trends in safety performance over time or deviations from expected safety outcomes or targets.

For qualitative SPIs, it is important to minimize subjectivity. This may be achieved through an evaluation by members of staff not directly involved in the definition of SPIs.

Depending on the size of your organization and the complexity of its activities, a hierarchical framework for your SPIs could be defined to reflect the different processes and sub-systems within your organizational structure. While some indicators for assessing systemic issues may be common to different processes and subsystems, indicators for assessing operational issues will need to be specific. This underlines the importance of having performed an accurate system analysis identifying all system components and sub-systems as a prerequisite for implementing SMS (2.1).

Aspects of good SPIs include:

- The indicator is:
 - valid and reliable,
 - sensitive to changes in what it is measuring, and
 - not susceptible to bias in calculating or interpretation.
- Capturing the data is cost effective.
- The indicator is:
 - broadly applicable across company operations, and ideally throughout the larger aviation sector, and
 - easily and accurately communicated.

Step 5: Collect data and report results

Once you have defined your SPIs, you must decide how you will collect the data and report the results. Data collection approaches (i.e., data sources, how data will be compiled, and what the reports will look like), as well as roles and responsibilities for collection and reporting, should be specified and documented. Data collection procedures should also consider the frequency with which data should be collected and the results reported for each SPI. Some of these issues will have been addressed when deciding on the SPIs in steps 3 and 4.

The presentation format of the indicator results should take into account the target audience. For example, if you track several indicators addressing the same key issue, it may be useful to identify a subset of the most critical indicators to be given greater emphasis for reporting to top management. The presentation of indicator results should facilitate understanding of any deviations and identification of any important trends (e.g., scoreboards with traffic lights, histograms, linear graphs).

Step 6: Analyze results and act on findings from SPI monitoring

This is the most relevant step in terms of safety management, as the ultimate goal of implementing SPIs is to maintain and improve your organization's safety performance over time. There is no point in collecting information if the results are not used. Remember that SPIs are indicators of safety performance, not direct measures of safety. The information collected through different SPIs needs to be carefully analyzed, and SPIs collected for different issues need to be put in perspective and the results interpreted, so as to gain an overall picture of the organization's safety performance. The results obtained through an individual indicator may be insignificant if taken in isolation, but may be important when considered in combination with other indicators.

Inconsistencies between SPIs may be an indication of an inaccurate system description or problems with the SPIs themselves. For example, you may encounter situations where leading and lagging indicators associated with the same safety issue provide contradictory results or where a positive trend in systemic indicators goes with a negative trend in operational indicators.

If you find that the metrics are not defined well enough to capture safety critical information the SPIs should be reviewed. Any inconsistencies in the overall picture represent a potential opportunity for learning and for adjusting not only the SPIs (see Step 7) but your SMS itself.

Indicators should not be simply seen as a metric, with actions being taken to get a good score rather than to improve safety performance. It is important that results obtained through the collection, analysis and interpretation of SPIs are conveyed to your management for decision and action. Ideally, these results should be presented at regular meetings (e.g., management reviews, safety review board meetings) to determine what actions are required to address deficiencies or to further improve the system. It is important that such actions do not focus on certain indicators in isolation, but on optimizing your organization's overall safety performance.

As part of your safety communication and promotion, all staff should be informed of the results obtained through the collection, analysis, and interpretation of SPIs.

Step 7: Evaluate SPIs and make changes as appropriate

The systems analysis of your organization, along with the set of SPIs and their specifications, including the metrics and any defined targets, should be periodically reviewed and evaluated to consider:

- the value of experience gained,
- new safety issues identified,
- changes in the nature of risk,
- changes in the safety policy, objectives; and priorities identified,
- changes in applicable regulations, and
- Organizational changes, etc.

The frequency of the review cycle should be defined. Periodic reviews will help to ensure that the indicators are well defined and that they provide the information needed to drive and monitor safety performance. Periodic reviews will also help identify when specific 'drive' indicators are no longer needed (e.g., if the intended positive changes have been achieved) and allow adjustment of SPIs so that they always focus on the most important issues in terms of safety. Nevertheless, too frequent reviews should be avoided, as they may not allow establishing a stable system.

After the first two to three cycles, you should have collected enough data and gained sufficient experience to be able to determine which are your 'key' SPIs - those that are most valuable and most effective to monitor and to drive safety performance. At this stage you may be able to derive targets for these key SPIs by extrapolating the data collected during previous cycles. Any such extrapolation needs to consider the 'dynamics' of your organization. You might also compare your SPIs with those implemented by other organizations within your industry segment, but you should never simply copy another organization's SPIs without checking that they are meaningful for your organization.

3. SPI Examples

Below is a non-exhaustive list with examples of indicators intended to assist your organization with selecting your own set of safety performance indicators, following the process described in 2.2. Before adopting any of these as your own SPIs, you should determine if the particular indicator is relevant to your specific organization, considering the maturity of your SMS and the specific features you would like to improve or that need attention.

3.1. Indicators for systemic issues

Area	Focus of measurement	Metrics
Compliance	- internal audits/compliance monitoring: all non-compliances	- total number per audit planning cycle / trend - % of findings analyzed for their safety significance,
	- internal audits/ compliance monitoring: significant non-compliances	- number of significant findings versus total number of findings - number of repeat findings within audit planning cycle
	- internal audits/ compliance monitoring: responsiveness to corrective action requests	- average lead time for completing corrective actions per oversight planning cycle - trend
	- external audits/ compliance monitoring: all non-compliances	- total number per oversight planning cycle / trend - % of findings analyzed for their safety significance,
	- external audits: significant non-compliances	- number of significant findings versus total number of findings
	- external audits: responsiveness to corrective action requests	- average lead time for completing corrective actions per oversight planning cycle - trend
	- consistency of results between internal and external audits/compliance monitoring	- number of significant findings only revealed through external audits
SMS effectiveness	- strategic management	- the degree to which safety is considered in the organization's official plans and strategy documents - the frequency with which the organization's official plans and strategy documents are reviewed with regards to safety

Area	Focus of measurement	Metrics
	- management commitment	<ul style="list-style-type: none"> - number of management walk-arounds per month/quarter/year - number of management meetings dedicated to safety per month/quarter/year
	- turnover rate of key safety personnel	<ul style="list-style-type: none"> - length of term - number of cases where the reasons for departure of key personnel have been analyzed
	- supervision	<ul style="list-style-type: none"> - number of cases where supervisors provided positive feedback on safety-conscious behavior of your staff per month/quarter/year
	- reporting	<ul style="list-style-type: none"> - number of reports received per month/quarter/year & trend - % of reports for which feedback to reporter was provided within 10 working days - % of reports followed by an independent safety review
	- hazard identification	<ul style="list-style-type: none"> - number of accident/serious incident scenarios analyzed to support Safety Risk Management (SRM) per month/quarter/year - number of new hazards identified through the internal reporting system per month/quarter/year & trend - findings from external audits concerning hazards that have not been perceived by personnel/management previously - number of safety reports received from staff per month/ quarter/year & trend
	- risk controls	<ul style="list-style-type: none"> - number of new risk controls validated per month/ quarter/year - % of overall budget allocated to new risk controls

Area	Focus of measurement	Metrics
	- HR management & competence development	<ul style="list-style-type: none"> - % of staff for which a competence profile has been established - % of staff who have had safety management training - frequency for reviewing competence profiles - frequency of reviewing the scope, content, and quality of training programs - number of changes made to training programs following feedback from staff per month/ quarter /year - number of changes made to training programs following analysis of internal safety reports per month/quarter/year
	- management of change	<ul style="list-style-type: none"> - number of organizational changes for which a formal safety risk assessment has been performed per month/quarter/year & trend - number of changes to Standard Operating Procedures (SOPs) for which a formal safety risk assessment has been performed per month/quarter/year & trend - number of technical changes (e.g., new equipment, new facilities, new hardware) for which a formal safety risk assessment has been performed per month /quarter /year & trend - number of risk controls implemented for changes per month/quarter/year & trend - % of changes (organizational /SOP/technical etc.) that have been subject to risk assessment
	- management of contractors	<ul style="list-style-type: none"> - % of contractors whose safety performance has been assessed - frequency for assessing safety performance of contractors - % of contractors integrated with your company's safety reporting scheme - % of contractors for which safety training has been provided

Area	Focus of measurement	Metrics
		<ul style="list-style-type: none"> - % of contractors that have implemented training control procedures - % of contractors that have a feedback system on safety issues in place with their customer - number of safety reports received from contractors per month/quarter /year & trend - number of safety actions initiated following assessment of safety performance or safety reports received per month/quarter/year & trend
	<ul style="list-style-type: none"> - emergency response planning (ERP) 	<ul style="list-style-type: none"> - number of emergency drills per year - frequency of reviewing the ERP - number of trainings on ERP per month/quarter/year - % of staff trained on the ERP within a quarter/year - number of meetings with main partners and contractors to coordinate ERP per month /quarter /year
	<ul style="list-style-type: none"> - safety promotion 	<ul style="list-style-type: none"> - number of safety communications published - number of trainings performed - number of safety briefings performed. - (per month/quarter/year)
	<ul style="list-style-type: none"> - safety culture 	<ul style="list-style-type: none"> - the extent to which personnel consider safety as a value that guides their everyday work (e.g., on a scale from 1= low to 5=high) - the extent to which personnel consider that safety is highly valued by their management - the extent to which human performance principles are applied - the extent to which the personnel take initiatives in improving organizational practices or report problems to management - the extent to which safety-conscious behavior is supported - the extent to which staff and management are aware of the risks your operations imply for themselves and for others.

3.2. Indicators for operational issues

Area	High Severity outcome to be prevented	Metrics
Air operators See also Air Traffic management/ Air Navigation Services for additional indicators	- traffic collision	- number of Traffic Collision Avoidance System (TCAS) resolution advisories per 1000 flight hours (FH)
	- runway excursion	- number of unstabilized approaches per 1000 landings
	- ground collision	- number of runway incursions per 1000 take-offs
	- controlled flight into terrain	- number of Ground Proximity Warning System (GPWS) and Enhanced Ground Proximity Warning System (EGPWS) warnings per 100 take-offs
	- accident/incident related to poor flight preparation	- number of cases where flight preparation had to be done in less than the normally allocated time - number of short fuel events per 100 flights - number of fuel calculation errors per 100 flights
	- accident/incident related to fatigue	- number of extensions to flight duty periods per month /quarter/year & trends
- accident/incident related to ground-handling	- number of incidents with ground handlers per month/quarter/year & trends - number of mass and balance errors per ground handler per month/quarter/year & trends - number of dysfunctions per ground handler per month/quarter/year & trends	

Area	High Severity outcome to be prevented	Metrics
	- maintenance related accident/incidents	<ul style="list-style-type: none"> - Pilots Reports (PIREPS) per 100 take offs - deferred items per month and aircraft - In Flight Shut Down (IFSD) per 1000 FH - In Flight Turn Backs (IFTB) and deviations per 100 take offs - number of service difficulty reports filed with the Civil Aviation Authority <p>dispatch reliability:</p> <ul style="list-style-type: none"> - number of delays of more than 15 minutes due to technical issues per 100 take offs - number of cancellations per 100 scheduled flights due to technical issues - rejected take offs per 100 take offs due to technical issues
Maintenance organisations	- maintenance planning/rostering related accident/incidents	- % of work orders for which a detailed planning has been made
	- maintenance planning/rostering related accident/incidents	<p>maintenance engineer fatigue / maintenance error:</p> <ul style="list-style-type: none"> - % of work orders with a difference > 10% between the expected lead time and the actual processing time - % of work orders with a difference > 10% between the estimated work force and the actual needs
	- maintenance related accident/incidents	<p>maintenance error:</p> <ul style="list-style-type: none"> - % of work orders that required re-work - number of duplicate inspections that - identified a maintenance error
	- maintenance data related accident/incidents	- number of safety reports related to ambiguous maintenance data
	- maintenance related accident/incidents	- number of investigations performed following components removed from service significantly before expected life limit was reached

Area	High Severity outcome to be prevented	Metrics
Air Traffic management/ Air Navigation Services	- traffic collision	<ul style="list-style-type: none"> - number of level busts/exposure - number of TCAS required action (RA) (with and without loss of separation) /exposure - number of minimum separation infringement/exposure - number of inappropriate separation (airspace in which separation minima is not applicable) /exposure - number of aircraft deviation from air traffic control (ATC) clearance/exposure - number of airspace infringements /exposures
	- traffic collision / controlled flight into terrain	<ul style="list-style-type: none"> - number of aircraft deviations from air traffic management (ATM) procedures/exposure - number of inappropriate or absences of ATC assistance to aircraft in distress
	- controlled flight into terrain	- number of near Controlled Flight Into Terrain (CFIT) IFSD /exposure
	- runway excursion	- number of inappropriate ATC instruction (no instruction, wrong information, action communicated too late, etc.)
	- runway incursion	<ul style="list-style-type: none"> - % of runway incursions where no avoiding action was necessary - % of runway incursion where avoiding action was necessary
Airports	- post-accident/incident fire	<ul style="list-style-type: none"> - Fire Extinguishing Services (ICAO Airport Fire Fighting Categories) decrease in value (# decrease-hours/ # airport annual operating hours) - number of radio/phone failures per 100 operations - number of fire rescue vehicles failures per 100 operations

Area	High Severity outcome to be prevented	Metrics
	- runway incursion	- runway incursions per 1000 operations signage: - number of failures or defects found during routine inspection - number of defects reported - average lead-time for repair/replacement - (per month/quarter/year & trends)
	- collision with vehicle on ground / ground-equipment	- notified platform safety rules violations per 1000 operations.
	- ground collision with wildlife	- number of ground collisions with wildlife - number of inspections of fences and other protective devices per month/quarter/year
	- FOD (Foreign Object Damage)	- number of FOD found during routine inspections - number of FOD found out of inspections and after report
	- runway incursion	runway lights - number of failures or defects found during routine inspection - number of defects reported - average lead-time for repair/replacement - (per month/ quarter/ year & trends)
	- bird-strike In Flight Shut Down (IFSD)	- number IFSD per 10000 FH following bird-strike
Flight training organisations	- accident/incident related to poor training	- number of trainees per instructor - number of changes in instructor per training - number of major changes to training program - (per month/ quarter/ year & trends)
	- accident/incident related to poor training/ complacency during examinations	- number of significant deviations from average pass rates
Design organisations	- design related accident/incidents	During the design phase: - number of design changes requested due to design errors per program and per period - number of rejected compliance demonstrations per program and per period

Area	High Severity outcome to be prevented	Metrics
	- design planning related accident/incident	- % of technical reports with a difference > 10% between the expected lead time and the actual processing time - % of technical reports with a difference > 10% between the estimated work force and the actual needs
	- design related accident/incidents	Post certification: - number of service difficulty /safety reports due to design errors per program and per period - number of safety reports related to ambiguous design data - number of design changes classified incorrectly (minor/major) per period
Manufacturing organisations	- manufacturing related accident/incidents	- number of service difficulty /safety reports due to manufacturing errors per program and per period
	- manufacturing process related accident/incidents	- % of work orders that required re-work - number of investigations performed following work orders that required re-work
	- manufacturing process related accident/incidents	- % of duplicate inspections that identified a manufacturing error
	- manufacturing process related accident/incidents	- number of cases where final delivery was delayed due to significant non-compliances - number of investigations performed following delayed delivery
	- manufacturing data related accident/incidents	- number of safety reports related to ambiguous manufacturing data
	- manufacturing planning related accident/incidents	Production personnel fatigue / production error: - % of work orders with a difference > 10% between the estimated work force and the actual needs - % work orders with a difference > 10% between the expected lead time and the actual processing time

3.3. Indicators to monitor external factors

Area	Monitoring focus	Metrics
Regulations	- new regulations	- number of new regulatory requirements that will affect your organization within the next 12 months
	- amendments to regulations	- number of amended regulatory requirements that will affect your organization within the next 6 months
	- evolution towards performance-based regulations	- number of objective based rules for which you have defined your own means of compliance
Technology	- new technologies relevant to your core business – hardware	- % of total investment that is spent on new technologies
	- new technologies relevant to your core business – software	- % of total investment that is spent on new technologies
	- new technologies relevant to your core business	- rate of obsolescence of existing qualifications
	- new technologies installed in aircraft	- number of aircraft modifications / Supplemental Type Certificates (STCs) that require a change to your company's rating
	- new technologies installed in aircraft	- number of new modifications / STC that require new qualifications
Competition	- financial turn -over	- evolution in your turnover
	- staff turnover	- average time to fill a vacant post - number of staff leaving to work for a competitor
	- market opportunities	- evolution in the number of requests for quotation from new customers - ratio of requests for quotation from new customers that are followed by a firm order
	- competitors	- evolution in the number of your direct competitors

Attachment A

SAFETY MANAGEMENT SYSTEM (SMS) EVALUATION CHECKLIST

This checklist evaluates the overall effectiveness of the SMS; as a function of both compliance and performance, through a series of indicators based on KCASR 19 and ICAO Annex 19. Each indicator should be reviewed to determine whether it is ***P***resent, ***S***uitable, ***O***perating, or ***E***ffective, using the definitions and guidance set out below each section.

This concept of evaluating SMS effectiveness supports the move from traditional, compliance-based oversight to performance-based oversight that focuses on how the SMS is performing. It provides a common baseline for SMS effectiveness evaluation that creates a sound basis for mutual acceptance of SMS.

In the case of an organization holding multiple certificates or approvals, the use of this checklist should follow the 1 organization = 1 evaluation rule. Therefore, if one organization integrates all activities within a single SMS, the evaluation should consider the SMS as a whole. Yet, it may be the case that different teams of inspectors oversee the same SMS with regard to different certificates, and a single evaluation may be impracticable. In such case, the different evaluations should be shared with the various teams of inspectors and a common message from Kuwait DGCA, should be provided to the organization.

1. SAFETY POLICIES AND OBJECTIVES (KCASR 19 component 1)

1.1 MANAGEMENT COMMITMENT (KCASR 19 element 3.1.1)

Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
Evaluation	1.1.1						
	1.1.2						
	1.1.3						
Guidance	What to look for						
	<ul style="list-style-type: none"> - Interview the Accountable Executive to assess their knowledge and understanding of the safety policy. - Check that the safety policy is reviewed periodically for content and currency. - Confirm that the safety policy meets the requirements. - Interview staff to determine to what extent the safety policy is known, as well as how readable and understandable it is. - Review available resources including personnel, equipment, and financial. - There are sufficient and competent personnel. - Review planned resources versus actual resources. - Check how a positive safety culture is encouraged and impacts the overall effectiveness. 						

Present	Suitable	Operating	Effective
<p>There is a safety policy, signed by the Accountable Manager, which includes a commitment to continuous improvement; observes all applicable legal requirements and standards; and considers best practices.</p> <p>The safety policy includes a statement to provide appropriate resources.</p>	<p>The safety policy is easy to read. The content is customized to the organization.</p> <p>There is a process for assessing resources and addressing any shortfalls.</p>	<p>The safety policy is reviewed periodically to ensure it remains relevant to the organization.</p> <p>The organization is assessing the resources being provided to deliver a safe service and taking action to address any shortfalls.</p>	<p>The Accountable Executive is familiar with the contents of the safety policy and endorses it.</p> <p>The organization is reviewing and taking action to address any forecasted shortfalls in resources.</p>

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	1.1.4	There is a means in place for the communication of the safety policy.						
	1.1.5	The Accountable Executive and the senior management team promote a positive safety/just culture and demonstrate their commitment to the safety policy through active and visible participation in the safety management system.						

What to look for

- Review how the safety policy is communicated.
- Safety policy is clearly visible to all staff including relevant contracted staff and third-party organizations.
- Question managers and staff regarding knowledge of the safety policy.
- All managers are familiar with the key elements of the safety policy.
- Evidence of senior management participation in safety meetings, training, conferences, etc.
- Feedback from safety surveys that include specific just culture aspects.
- Relationship with regulator and other stakeholders.
- Review how a positive safety and just culture are promoted.

Guidance	Present	Suitable	Operating	Effective
	<p>There is a means in place for the communication of the safety policy.</p> <p>The management commitment to safety is documented within the safety policy.</p>	<p>The safety policy is clearly visible to all staff (consider multiple sites).</p> <p>The safety policy is understandable (consider multiple languages). The Accountable Executive and the senior management team have a well-defined role in the safety management system.</p>	<p>The safety policy is communicated to all personnel (including relevant contract staff and organizations).</p> <p>The Accountable Executive and the senior management team are promoting their commitment to the safety policy through active and visible participation in the safety management system.</p>	<p>People across the organization are familiar with the policy and can describe their obligations in respect of the safety policy. Decision making, actions, and behaviors reflect a positive safety /just culture and there is good safety leadership that demonstrates commitment to the safety policy.</p>

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	1.1.6	The safety policy actively encourages safety reporting.						
1.1.7	A just culture policy and principles have been defined that clearly identifies acceptable and unacceptable behaviors to promote a just culture.							
Guidance	What to look for							
	<ul style="list-style-type: none"> - Evidence of when the just culture principles have been applied following an event. - Evidence of interventions from safety investigations addressing organizational issues rather than focusing only on the individual. - Review how the organization is monitoring reporting rates. - Review the number of aviation safety reports appropriate to the activities. - Safety reports include the reporter's own errors and events they are involved in (events where no one was watching). - Feedback on just culture from staff safety culture surveys. - Interview staff representatives to confirm that they agree with just culture policy and principles. - Check that staff are aware of the just culture policy and principles. 							
	Present	Suitable	Operating	Effective				
	A just culture policy and principles have been defined.	The just culture policy clearly identifies acceptable and unacceptable behaviors. The principles ensure that the policy can be applied consistently across the whole organization. The just culture policy and principles are understandable and clearly visible.	There is evidence of the just culture policy and supporting principles being applied and promoted to staff.	The just culture policy is applied in a fair and consistent manner and staff trust the policy. There is evidence that the line between acceptable and unacceptable behavior has been determined in consultation with staff and staff representatives.				
Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	1.1.8	Safety objectives have been established that are consistent with the safety policy and they are communicated throughout the organization.						
1.1.9	The State Safety Programme (SSP) is being considered and addressed as appropriate.							
Guidance	What to look for							
	<ul style="list-style-type: none"> - Assess whether the safety objectives are appropriate and relevant. - Objectives are defined that will lead to an improvement in processes, outcomes, and the development of a positive safety culture. - Assess how safety objectives are communicated throughout the organization. - Safety objectives are being measured to monitor achievement through SPIs and SPTs. - Assess if the safety objectives have considered the State safety objectives in the SSP. 							
	Present	Suitable	Operating	Effective				
	Safety objectives have been established that are consistent with the safety policy and there is a means to communicate them throughout the organization.	Safety objectives are relevant to the organization and its activities. Safety objectives are understandable and clearly visible. Safety objectives are aligned with the SSP.	Safety objectives are being regularly reviewed and are communicated throughout the organization.	Achievement of the safety objectives is being monitored by senior management and action taken to ensure they are being met.				

1.2 SAFETY ACCOUNTABILITY AND RESPONSIBILITIES (KCASR 19 element 3.1.2)

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	1.2.1	An Accountable Executive has been appointed with full responsibility and accountability to ensure the SMS is properly implemented and performing effectively.						
1.2.2	The Accountable Executive is fully aware of their SMS roles and responsibilities in respect of the safety policy, safety standards, and safety culture of the organization.							
Guidance	What to look for							
	<ul style="list-style-type: none"> - Evidence that the Accountable Executive has the authority to provide sufficient resources for relevant safety improvements. - Evidence of decision making on risk acceptability. - Review SMS activities are being carried out in a timely manner and the SMS is sufficiently resourced. - Evidence of activities being stopped due to unacceptable level of safety risk. - Look for evidence that Accountable Executive actions are consistent with the active promotion of a positive safety culture in the organization. 							
	Present	Suitable	Operating			Effective		
	An Accountable Executive has been appointed with full responsibility and ultimate accountability for the SMS.	The Accountable Executive has control of resources.	The Accountable Executive ensures that the SMS is properly resourced, implemented, maintained, and has the authority to stop the operation if there is an unacceptable level of safety risk. The Accountable Executive is fully aware of their SMS roles and responsibilities. The Accountable Executive is accessible to the staff in the organization.			The Accountable Executive ensures that the performance of the SMS is being monitored, reviewed, and improved.		
Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	1.2.3	Safety accountabilities, authorities, and responsibilities are defined and documented throughout the organization and staff understand their own responsibilities.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Question managers and staff regarding their roles and responsibilities. - Confirm senior managers are aware of the organization's safety performance and its most significant risks. - Evidence of managers having safety related performance targets. - Look for active participation of the management team in the SMS. - Evidence of appropriate risk mitigation, action, and ownership. - The levels of management authorized to make decisions on risk acceptance are defined and applied. - Check for any conflicts of interest and that they have been identified and managed. 							
	Present	Suitable	Operating			Effective		
	The safety accountability, authorities, and responsibilities are clearly defined and documented.	Individuals have access to their safety accountability, authorities, and responsibilities (for example, through job descriptions or organizational charts).	Everyone in the organization is aware of and fulfil their safety responsibilities, authorities, and accountabilities and are encouraged to contribute to the SMS.			The Accountable Executive and the senior management team are aware of the risks faced by the organization and SMS principles exist throughout the organization so that safety is part of the everyday language.		

1.3 APPOINTMENT OF KEY PERSONNEL (KCASR 19 element 3.1.3)

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	1.3.1	A competent safety manager who is responsible for the implementation and maintenance of the SMS has been appointed with a direct reporting line to the Accountable Executive.						
	1.3.2	The organization has allocated sufficient resources to manage the SMS including, but not limited to, competent staff for safety investigation, analysis, auditing, and promotion.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review safety manager role including credibility and status. - Review the training that the safety manager has received. - Evidence of maintained competency. - Review how the safety manager gets access to internal and external safety information. - Review how the safety manager communicates and engages with operational staff and senior management. - Review the safety manager's workload/allocated time to fulfil role. - Check there are sufficient resources for SMS activities such as safety investigation, analysis, auditing, safety meeting attendance, and promotion. - Review of safety report action and closure timescales. - Interviews with Accountable Executive and safety manager. - Check for any conflicts of interest and that they have been identified and managed. 							
	Present	Suitable	Operating	Effective				
A safety manager who is responsible for the implementation and maintenance of the SMS has been appointed with a direct reporting line to the Accountable Executive.	The safety manager is competent. Sufficient time and resources are allocated to maintain the SMS.	The safety manager has implemented and is maintaining the SMS. The safety manager is in regular communication with the Accountable Executive and escalates safety issues when appropriate. The safety manager is accessible to staff in the organization.	The safety manager is competent to manage the SMS and identifies improvements in a timely manner. There is a close working relationship with the Accountable Executive and the safety manager is considered a trusted advisor and given appropriate status in the organization.					

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	1.3.3	The organisation has established appropriate safety committee(s) that discuss and address safety risks and compliance issues and includes the Accountable Executive and the heads of functional areas.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review safety committee and meeting structure and Terms of Reference for each committee/meeting. - Review meeting attendance levels. - Review meeting records and actions. - Check that outcomes are communicated to the rest of the organization. - Evidence of safety objectives, safety performance, and compliance are being reviewed and discussed at meetings. - Participants challenge what is being presented when there is limited evidence. - Senior management are aware of the most significant risks faced by the organization and the overall safety performance of the organization. 							
	Present	Suitable	Operating	Effective				
The organization has established safety committee(s).	<p>Safety committee(s)' structure and frequency supports the SMS functions across the organization.</p> <p>The scope of the safety committee(s) includes safety risks and compliance issues.</p> <p>The attendance of the highest-level safety committee includes at least the Accountable Executive and the heads of functional areas.</p>	<p>There is evidence of meetings taking place detailing the attendance, discussions, and actions.</p> <p>The safety committee(s) monitor the effectiveness of the SMS and compliance monitoring function by reviewing there are sufficient resources.</p> <p>Actions are being monitored and appropriate safety objectives and SPIs have been established.</p>	Safety committees include key stakeholders. The outcomes of the meetings are documented and communicated and any actions are agreed, taken, and followed up in a timely manner. The safety performance and safety objectives are reviewed and actioned as appropriate.					

1.4 CO-ORDINATION OF EMERGENCY RESPONSE PLANNING (KCASR 19 element 3.1.4)

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	1.4.1	An appropriate emergency response plan (ERP) has been developed and distributed that defines the procedures, roles, responsibilities, and actions of the various organizations and key personnel.						
	1.4.2	The ERP is periodically tested for the adequacy of the plan and the results reviewed to improve its effectiveness.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review emergency response plan. - Review how coordination with other organizations is planned. - Review how ERP is distributed and where copies are held. - Interview key personnel and check they have access to the ERP. - Check that different types of foreseeable emergencies have been considered. - Review when the plan was last reviewed and tested and actions taken. 							
	Present	Suitable	Operating			Effective		
A coordinated ERP has been developed and defined.	Key personnel have easy access to the relevant parts of the ERP at all times. The ERP defines the procedures, roles, responsibilities, and actions of the various organizations and key personnel. The frequency and methods for testing the ERP are defined. The coordination with other organizations (including non-aviation organizations) is defined with appropriate means.	The ERP is reviewed and tested to make sure it remains up-to-date. There is evidence of coordination with other organizations as appropriate.			The results of the ERP review and testing are assessed and actioned to improve its effectiveness.			

1.5 SMS DOCUMENTATION (KCASR 19 element 3.1.5)

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	1.5.1	The SMS documentation includes the policies and processes that describe the organization's safety management system and processes and is readily available to all relevant personnel.						
	1.5.2	SMS documentation, including SMS related records, are regularly reviewed and updated with appropriate version control in place.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review the SMS documentation and amendment procedures. - Check for cross references to other documents and procedures. - Check availability of SMS documentation to all staff. - Check that staff know where to find safety-related documentation including procedures appropriate to their role. - Review the supporting SMS documentation (hazard logs, meeting minutes, safety performance reports, risk assessments, etc.). - Check how safety records are stored and version controlled. - Check appropriate staff are aware of the records control processes and procedures. 							
	Present	Suitable	Operating	Effective				
<p>The SMS documentation includes the policies and processes that describe the organization's SMS and processes. The SMS documentation defines the SMS outputs and which records of SMS activities will be stored.</p> <p>Records to be stored, storage period, and location are identified.</p>	<p>SMS documentation is readily available to all relevant personnel.</p> <p>SMS documentation is comprehensible.</p> <p>SMS documentation is consistent with other internal management systems and is representative of the actual processes in place.</p> <p>Data protection and confidentiality rules have been defined.</p>	<p>Changes to the SMS documentation are managed.</p> <p>Everyone is familiar with and follows the relevant parts of the SMS documentation.</p> <p>SMS activities are appropriately stored and found to be complete and consistent with data protection and confidentiality control rules.</p>	<p>SMS documentation is proactively reviewed for improvement.</p> <p>SMS records are routinely used as inputs for safety management-related tasks and continuous improvement of the SMS.</p>					

2. SAFETY RISK MANAGEMENT (KCASR 19 component 2)

2.1 HAZARD IDENTIFICATION (KCASR 19 element 3.2.1)

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	2.1.1	There is a confidential reporting system to capture errors, hazards, and near misses that is simple to use and accessible to all staff.						
	2.1.2	There is a confidential reporting system that provides appropriate feedback to the reporter and, where appropriate, to the rest of the organization.						
	2.1.3	Personnel express confidence and trust in the organization's reporting policy.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review the reporting system for access and ease of use. - Check staff's trust of and familiarity with the reporting system, and whether they know what should be reported. - Review how data protection and confidentiality is achieved. - Evidence of feedback to reporter, the organization, and third parties. - Assess volume and quality of reports, including whether personnel are reporting their own errors and mistakes. - Review report closure rates. - Check whether contracted organizations and customers are able to make reports. - Review how reports in the system are analyzed. - Confirm that responsibilities with regards to occurrence analysis, storage, and follow-up are clearly defined. - Check that relevant staff are aware of which occurrences should be mandatory. - Assess how senior management engage with the outputs of the reporting system. 							
	Present	Suitable	Operating	Effective				
	There is a confidential reporting system to capture mandatory occurrences and voluntary reports that includes a feedback system and stored on a database. The process identifies how reports are actioned, and timescales are specified and addressed.	The reporting system is accessible and easy to use by all personnel. Responsibilities, timelines, and format for the feedback are meaningful and well defined. Data protection and confidentiality is ensured.	The reporting system is being used by all personnel. There is feedback to the reporter of any actions taken (or not taken) and, where appropriate, to the rest of the organization. Reports are evaluated, processed, analyzed, and stored. Staff are aware of and fulfil their responsibilities in respect to the reporting system. Reports are processed within the defined timescales.	There is a healthy reporting system based on the volume of reporting and the quality of reports received. Safety reports are acted on in a timely manner. Personnel express confidence and trust in the organizations' reporting policy and process. The reporting system is being used to make better management decisions and continuously improve. The reporting system is available for third parties to report (partners, suppliers, and contractors).				

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	2.1.4	There is a process that defines how hazards are identified from multiple sources through reactive and proactive methods (internal and external).						
	2.1.5	The hazard identification process identifies human performance related hazards.						
	2.1.6	There is a process in place to analyze safety data and safety information to look for trends and gain useable management information.						
	2.1.7	Safety investigations are carried out by appropriately trained personnel to identify root causes (why it happened, not just what happened).						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review how hazards are identified, analyzed, addressed, and recorded. - Review structure and layout of hazard log. - Consider hazards related to: <ul style="list-style-type: none"> o Possible accident scenarios; o Human and organizational factors; o Business decisions and processes; o Third party organizations; and o Regulatory factors. - Review what internal and external sources of hazards are considered such as safety reports, audits, safety surveys, investigations, inspections, brainstorming, management of change activities, commercial and other external influences, etc. - Review whether safety investigations identify human and organizational contributing factors. 							
	Present	Suitable	Operating	Effective				
There is a process that defines how hazards are identified through reactive and proactive methods. The triggers for safety investigations are identified.	Multiple sources of hazards (internal and external) are considered and reviewed, as appropriate. The data analysis process enables gaining useable safety information. Hazards are documented in an easy-to-understand format. The level of sign-off for safety investigations is defined and adequate to the level of risk.	The hazards are identified and documented. Human and organizational factors related to hazards are being identified. Safety investigations are carried out and recorded.	The organization has a register of the hazards that is maintained and reviewed to ensure it remains up-to-date. It is continuously and proactively identifying hazards related to its activities and the operational environment and involves all key personnel and appropriate stakeholders including external organizations. Hazards are continuously assessed in a systematic and timely manner. Safety investigations identify causal/ contributing factors that are acted upon.					

2.2 SAFETY RISK ASSESSMENT AND MITIGATION (KCASR 19 element 3.2.2)

Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
Evaluation	2.2.1	There is a process for the management of risk that includes the analysis and assessment of risk associated with identified hazards expressed in terms of likelihood and severity (or alternative methodology).					
	2.2.2	There are criteria for evaluating the level of risk the organization is willing to accept and risk assessments and ratings are appropriately justified.					
Guidance	What to look for						
	<ul style="list-style-type: none"> - Review the risk classification scheme and procedures. - Check that severity and likelihood criteria are defined (or that an alternative methodology is described). - Review whether risk assessments are carried out consistently. - Sample an identified hazard and review how it is processed and documented. - Review what triggers a risk assessment. - Check any assumptions made and whether they are reviewed. - Review how issues are classified when there is insufficient quantitative data available. - Check that the process defines who can accept what level of risk. - Check that the risk register is being reviewed and monitored by the appropriate safety committee(s). - Evidence of risk acceptability being routinely applied in decision making processes. 						
	Present	Suitable	Operating		Effective		
<p>There is a process for the analysis and assessment of safety risks.</p> <p>The level of risk the organization is willing to accept is defined.</p>	<p>Severity and likelihood criteria are clearly defined and fit the service provider's actual circumstances.</p> <p>The risk matrix and acceptability criteria are clearly defined and usable. Responsibilities and timelines for accepting the risk are clearly defined.</p>	<p>Risk analysis and assessments are carried out in a consistent manner based on the defined process.</p> <p>The defined risk acceptability is being applied.</p>		<p>Risk analysis and assessments are reviewed for consistency and to identify improvements in the processes.</p> <p>Risk assessments are regularly reviewed to ensure they remain current.</p> <p>Risk acceptability criteria are used routinely and applied in management decision making processes and are regularly reviewed.</p>			

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	2.2.3	The organization has a process in place to make decisions and apply appropriate and effective risk controls.						
	2.2.4	Senior management have visibility of medium and high risk hazards and their mitigation and controls.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Risk controls consider human and organizational factors. - Evidence of risk controls being actioned and follow up. - Aggregate risk is being considered. - Check whether the risk controls have reduced the residual risk. - Risk controls are clearly identified. - Review the use of risk controls that rely solely on human intervention. - Check that new risk controls do not create additional risks. - Check whether the acceptability of the risks is made at the right management level. 							
	Present	Suitable	Operating			Effective		
The organization has a process in place to decide and apply risk controls.	Responsibilities and timelines for determining and accepting the risk controls are defined.	Appropriate risk controls are being applied to reduce the risk to an acceptable level including timelines and allocation of responsibilities. Human Factors are considered as part of the development of risk controls.			Risk controls are practical and sustainable, applied in a timely manner, and do not create additional risks. Risk controls take Human Factors into consideration.			

3. SAFETY ASSURANCE (KCASR 19 component 3)

3.1 SAFETY PERFORMANCE MONITORING AND MEASUREMENT (KCASR 19 element 3.3.1)

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	3.1.1	Safety performance indicators (SPIs) linked to the organization's safety objectives have been defined, promulgated, and are being monitored and analyzed for trends.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Evidence that SPIs are based on reliable sources of data. - Evidence of when SPIs were last reviewed. - The defined SPIs and targets are appropriate to the organization's activities, risks, and safety objectives. - SPIs are focused on what is important rather than what is easy to measure. - Consideration of any State SPIs. - Review whether any action has been taken when an SPI is indicating a negative trend (reflecting a risk control or an inappropriate SPI). - Evidence that results of safety performance monitoring are discussed at the senior management level. - Evidence of feedback provided to the Accountable Executive. 							
	Present		Suitable		Operating		Effective	
	There is a process in place to measure the safety performance of the organization including SPIs and targets linked to the organization's safety objectives and to measure the effectiveness of safety risk controls.		SPIs are focused on what is important rather than what is easy to measure. Reliability of data sources is considered in the design of SPIs. SPIs are linked to the identified risks and safety objectives. Frequency and responsibility for the trend monitoring of SPIs are appropriate. Realistic targets have been set. State SPIs are considered, as applicable.		The safety performance of the organization is being measured and meaningful SPIs are being continuously monitored and analyzed for trends.		SPIs are demonstrating the safety performance of the organization and the effectiveness of risk controls based on reliable data. SPIs are reviewed and regularly updated to ensure they remain relevant. Where the SPIs indicate that a risk control is ineffective, appropriate action is taken.	
Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	3.1.2	Risk mitigations and controls are being verified/ audited to confirm they are working and effective.						
3.1.3	Safety assurance takes into account activities carried out by all directly contracted organizations.							
Guidance	What to look for							
	<ul style="list-style-type: none"> - Evidence of risk controls being assessed for effectiveness (e.g., audits, surveys, reviews, SPIs and safety performance targets [SPTs], reporting systems). - Evidence of risk controls applied by contracted organizations being assessed and overseen (e.g., quality check, reviews, and regular meetings). - Information from safety assurance and compliance monitoring activities feeds back into the safety risk management process. - Review where risk controls have been changed as a result of the assessment. 							
	Present		Suitable		Operating		Effective	
	There is a process in place to assess whether the risk controls are applied and effective.		Responsibilities, methods, and timelines for assessing risk controls are defined. Contracted organizations are included in the safety assurance process.		Risk controls are being verified to assess whether they are applied and effective.		Risk controls are assessed and actions taken to ensure they are effective and delivering a safe service.	

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	3.1.4	Responsibilities and accountability for ensuring compliance with safety regulations are defined and applicable requirements are clearly identified in organization manuals and procedures.						
	3.1.5	There is an internal audit programme including details of the schedule of audits and procedures for audits, reporting, follow up, and records.						
	3.1.6	Responsibilities and accountabilities for the internal audit process are defined and there is a person or group of persons with responsibilities for internal audits with direct access to the Accountable Manager.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review how senior management ensure the organization remains in compliance. - Review job descriptions for compliance responsibilities. - Evidence that senior management take action on internal and external audit results. - Review how independence of the internal audit function is achieved. - Review how the internal audit function interacts with: <ul style="list-style-type: none"> o Senior management, o Line managers, and o The safety management staff. - Assess the contents of the programme against any regulatory requirements. 							
	Present	Suitable	Operating	Effective				
Responsibilities and accountabilities for compliance are defined. The organization has an internal audit programme and procedures for audits, reporting, and records. A person or group of persons with responsibilities for internal audits has been identified and they have direct access to the Accountable Executive.	The internal audit programme covers all applicable regulations and includes details of the schedule of audits. Independence of the internal audit function is achieved.	The compliance monitoring programme is being followed and regularly reviewed. All staff are aware of their responsibilities and accountabilities for compliance and to follow processes and procedures. Internal and external audit results are reported to the Accountable Executive and senior management.	Individuals are proactively identifying and reporting potential non-compliances. The Accountable Executive and senior management actively seek feedback on the status of internal and external audit activities.					

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	3.1.7	After an audit, there is appropriate analysis of causal factors and corrective/preventive actions are taken.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review the methods used for causal analysis - Check that the method is used consistently. - Review any repeat findings and check for actions have not been implemented or are overdue. - Check for timely implementation of actions. - Review senior management awareness of the status of significant findings and related corrective/preventive actions. - Check that appropriate personnel participate in the determination of causes and contributing factors. - Look for consistency between internal audit results and external audit results. - Review whether causal factors are considered as potential hazards. 							
	Present	Suitable	Operating			Effective		
The process for the identification and follow-up of corrective/preventive actions are defined. The interface between internal audits and the safety risk management processes is described.		Responsibilities and timelines for determining, accepting, and following-up the corrective/preventive action are defined. Compliance monitoring includes contracted activities.	The identification and follow-up of corrective/preventive actions is carried out in accordance with the procedures including causal analysis to address root causes. The status of corrective/preventive actions is regularly communicated to relevant senior management and staff.			The organization investigates the systemic causes and contributing factors of findings. The organization proactively reviews the status of corrective/preventive actions. Effectiveness of the corrective/preventive actions is verified.		

3.2 THE MANAGEMENT OF CHANGE (KCASR 19 element 3.3.2)

Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
Evaluation	3.2.1	The organization has a process to identify whether changes have an impact on safety and to manage any identified risks in accordance with existing safety risk management processes.					
	3.2.2	Human Factor (HF) issues have been considered as part of the change management process and, where appropriate, the organization has applied the appropriate HF/human-centred design standards to the equipment and physical environment design.					
What to look for							
<ul style="list-style-type: none"> - Key stakeholders are involved in the process. - Review what triggers the process. - Review recent changes that have been through the risk assessment process. - Check that change is signed off by an appropriately authorized person. - Transitional risks are being identified and managed. - Review follow up actions such as whether any assumptions made have been validated. - Review whether there is an impact on previous risk assessments and existing hazards. - Review whether consideration is given to the accumulative effect of multiple changes. - Review that business-related changes have considered safety risks (organizational restructuring, upsizing or downsizing, IT projects, etc.). - Evidence of HF issues being addressed during changes. - Review impact of change on training and competencies. - Review previous changes to confirm they remain under control. - Consider how the changes are communicated to those people impacted by the change. 							
Guidance	Present	Suitable	Operating	Effective			
	The organization has established a change management process to identify whether changes have an impact on safety and to manage any identified risks in accordance with existing safety risk management processes.	Triggers for the change management process are defined. The process also considers business related changes and interfaces with other organizations/ departments. The process is integrated with the risk management and safety assurance processes. Responsibilities and timelines are defined.	The change management process is being used and includes hazard identification and risk assessments with appropriate risk controls being put in place before a decision to make the change is taken. HF issues have been considered and been addressed as part of the change management process.	The change management process is used for all changes that may impact safety, including HF issues, and considers the accumulation of multiple changes. It is initiated in a planned, timely, and consistent manner and includes follow up action that ensures the change was implemented safely. The change is communicated to those affected. Risk control and mitigation strategies associated with changes are achieving the planned effect.			

3.3 CONTINUOUS IMPROVEMENT OF THE SMS (KCASR 19 element 3.3.3)

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	3.3.1	The organization is continuously monitoring and assessing its SMS processes to maintain or continuously improve the overall effectiveness of the SMS.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review the information and safety data used for management decision making and continuous improvement. - Evidence of: <ul style="list-style-type: none"> o Lessons learnt being incorporated into SMS and operational processes; o Best practices being sought and embraced; o Surveys and assessments of organizational culture being carried out and acted upon; o Data being analysed and results shared with Safety Committees; and o Follow-up actions. - Information from external occurrences, investigation reports, safety meetings, hazard reports, audits, and safety data analysis all contribute towards continuous improvement of the SMS. 							
	Present	Suitable	Operating			Effective		
There is a process in place to monitor and review the effectiveness of the SMS using the available data and information.	<p>The SMS is periodically reviewed, and the review is supported by safety information and safety assurance activities.</p> <p>Senior management and different departments are involved.</p> <p>The decision making is data informed. External information is considered in addition to internal information.</p>	There is evidence of the SMS being periodically reviewed to support the assessment of its effectiveness and appropriate action being taken.			The assessment of SMS effectiveness uses multiple sources of information including the safety data analysis that supports decisions for continuous improvements.			

4. SAFETY PROMOTION (KCASR 19 component 4)

4.1 TRAINING AND EDUCATION (KCASR 19 element 3.4.1)

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	4.1.1	There is a training programme for SMS in place that includes initial and recurrent training. The training covers individual safety duties (including roles, responsibilities, and accountabilities) and how the organization's SMS operates.						
	4.1.2	There is a process in place to measure the effectiveness of training and to take appropriate action to improve subsequent training.						
	4.1.3	Training includes human and organizational factors including just culture and non-technical skills with the intent of reducing human error.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review the SMS training programme including course content and delivery method. - Check training records against the training programme. - Review how the competence of the trainers is being assessed and maintained. - Training considers feedback from external occurrences, investigation reports, safety meetings, hazard reports, audits, safety data analysis, training, course evaluations, etc. - Review how training is assessed for new staff and changes in position. - Review any training evaluation. - Check that the training includes human and organizational factors. - Ask staff about their own understanding of their role in the organization's SMS and their safety duties. - Check that all staff are briefed on compliance. 							
	Present	Suitable	Operating	Effective				
	There is an SMS training programme in place that includes initial and recurrent training.	The training covers individual safety duties (including roles, responsibilities, and accountabilities) and how the organization's SMS operates. Training material & methodology are adapted to the audience and include human factors. All staff requiring training are identified.	The SMS training programme is delivering appropriate training to the different staff in the organization and is being delivered by competent personnel.	SMS training is evaluated for all aspects (learning objectives, content, teaching methods & styles, tests, etc.) and is linked to the competency assessment. Training is routinely reviewed to take feedback from different sources into consideration.				
Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	4.1.4	There is a process that evaluates the individual's competence and takes appropriate remedial action when necessary.						
	4.1.5	The competence of trainers is defined and assessed and appropriate remedial action taken when necessary.						
	Guidance	What to look for						
<ul style="list-style-type: none"> - Review how competence assessment is carried out on initial recruitment and recurrently. - Check it includes safety duties and responsibilities, as well as compliance management. 								
Present		Suitable	Operating	Effective				
A competency framework is defined for all personnel, including trainers.		There is a process in place to periodically assess the actual competency of personnel against the framework.	There is evidence of the process being used and being recorded.	The competence assessment programme and process is routinely reviewed and improved. The competence assessment takes appropriate remedial action when necessary and feeds into the training programme.				

4.2 SAFETY COMMUNICATION (KCASR 19 element 3.4.2)

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is	Comments
	4.2.1	There is a process to determine what safety critical information needs to be communicated and how it is communicated throughout the organization to all personnel, as relevant. This includes contracted organizations and personnel where appropriate.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review the sources of information used for safety communication. - Review the methods used to communicate safety information (e.g., meetings, presentations, emails, website access, newsletters, bulletins, posters, etc.). - Assess whether the means of communication is appropriate. - The means for safety communication is reviewed for effectiveness and material used to update relevant training. - Significant events, changes, and investigation outcomes are being communicated. - Check accessibility to safety information. - Ask staff about any recent safety communication. - Review whether information from occurrences are timely communicated to all relevant personnel (internal and external) and has been appropriately misidentified. 							
	Present	Suitable	Operating			Effective		
There is a process to communicate safety critical information.	<p>The process determined <i>what, when, and how</i> safety information needs to be communicated.</p> <p>The process includes contracted organizations and personnel where appropriate.</p> <p>The means of communication are adapted to the audience and the significance of what is being communicated.</p>	Safety critical information is being identified and communicated throughout the organization to all personnel, as relevant, including contracted organizations and personnel where appropriate.			The organization analyses and communicates safety critical information effectively through a variety of methods as appropriate to maximize it being understood.	Safety communication is assessed to determine how it is being used and understood and to improve it where appropriate.		

Attachment B

SMS MANUAL EVALUATION CHECKLIST

Aspects to be audited or questions to be answered	Conformity			Comments
	Yes	No	N/A	
OVERALL MANUAL PRESENTATION				
Manuals presented in "Hard copy" and "Soft copy".				
Bound in a secure form (not loose).				
Exterior or binder clearly indicates manual contents.				
MANUAL CONTROL PROCESS				
Copies numbered for controlled issuance.				
Amendment issuance tracking process described.				
DGCA issued a numbered volume.				
MANUAL REVISION PROCESS				
Revision Instructions clear and adequate.				
Proper revision entry in the revision page.				
List of effective pages included, and correct.				
List of revisions to individual pages identified.				
MANUAL REFERENCING SYSTEM				
Table of contents easy to find and use				
Index, if included, easy to find and use				
Paragraphs and sub-paragraphs numbered or alphabetized for ease of reference				
Tables referenced for ease of use				
Figures referenced for ease of use				
Appendices reference for ease of use				
INDIVIDUAL PAGE PRESENTATION				
Pages numbered in chronological sequence (by chapter or single documents)				
Last revision number/date appears on each page				
Company name (and logo) appears on each page.				

DOCUMENT CONTROL

The manual(s) describes how it will be kept up to date and how the organization will ensure that all personnel involved in safety-related duties have the most current version.				
Hard copy or controlled electronic media and distribution list.				
The correlation between the SMS manual and other existing manuals such as the Maintenance Organization Exposition (MOE) or the Operations Manual.				
The process for periodic review of the manual and its related forms/documents to ensure their continuing suitability, adequacy and effectiveness.				
The manual's administration, approval and regulatory acceptance process is included.				

SMS REGULATORY REQUIREMENTS

Manual addresses current SMS regulations and guidance material for necessary reference and awareness by all concerned.				
Spelt out the compliance timeframe and advisory material references as applicable.				
Where appropriate, elaborate on or explain the significance and implications of the regulations to the organization				
Establishes a correlation with other safety-related requirements or standards where appropriate.				

SCOPE AND INTEGRATION OF THE SAFETY MANAGEMENT SYSTEM

Describes the scope and extent of the organization's aviation-related operations and facilities within which the SMS will apply.				
Spells out the nature of the organization's aviation business and its position or role within the industry as a whole.				
Identifies the major areas, departments, workshops and facilities of the organization within which the SMS will apply.				
Identifies the major processes, operations and equipment which are deemed eligible for the organization's HIRM programme, especially those which are pertinent to aviation safety.				
Where the SMS is expected to be operated or administered across a group of interlinked organizations or contractors, define and document such integration and associated accountabilities as applicable.				
Where there are other related control/management systems within the organization, such as QMS, OSHE and SeMS, identify their relevant integration (where applicable) within the aviation SMS.				

SAFETY POLICY

There is a safety policy in place.				
Safety policy clearly includes the conditions under which disciplinary action would or would not be applicable within the framework of the Safety Management System.				
The safety policy is communicated, with visible endorsement throughout the organization.				
The safety policy is periodically reviewed to ensure it remains relevant and appropriate to the organization.				
The safety policy states the organization's intentions, management principles and commitment to continuous improvement in aviation safety.				
The safety policy is approved and signed by the accountable manager.				
The safety policy is promoted by the accountable manager and all other key personnel.				
Personnel at all levels are involved in the establishment and maintenance of the safety management system.				
The safety policy is communicated to all employees with the intent that they are made aware of their individual safety obligations.				
Safety policy clearly indicates which types of operational behaviors are acceptable.				
Safety policy includes the safety reporting procedure				

SAFETY OBJECTIVES

There is a formal process to develop a coherent set of safety objectives.				
The safety objectives are publicized and distributed				
The safety objectives have been established.				
The safety objectives are expressed as a top-level statement describing the organization's commitment to achieving safety.				
Resources have been allocated for achieving the objectives.				
The safety objectives are linked to safety indicators to facilitate monitoring and measurement where appropriate.				

MANAGEMENT ROLES & RESPONSIBILITIES

The accountable manager is responsible for ensuring that the safety management system is properly implemented and is performing to requirements in all areas of the organization.				
An appropriate safety manager (office), safety committee or safety action groups have been appointed as appropriate.				
Safety authorities, responsibilities and accountabilities of personnel at all levels of the organization are defined and documented				
All personnel understand their authorities, responsibilities and accountabilities with regard to all safety management processes, decisions and actions.				
An SMS organizational accountabilities diagram is available.				
The organization has included a definition of the levels of management with authority to make decisions regarding safety risk tolerability.				

SAFETY REPORTING

A reporting system to include both reactive (accident/incident reports, etc.) and proactive/predictive (hazard reports) described.				
The respective reporting systems described to consider include: report format, confidentiality, addressees, investigation/ evaluation procedures, corrective/preventive actions and report dissemination.				
The organization has a procedure that provides for the capture of internal occurrences including accidents, incidents and other occurrences relevant to SMS.				
A distinction is to be made between mandatory reports (accidents, serious incidents, major defects, etc.), which are required to be notified to the NCAA, and other routine occurrence reports, which remain within the organization.				
There is also a voluntary and confidential hazard/occurrence reporting system, incorporating appropriate identity/data protection as applicable.				
The respective reporting processes are simple, accessible and commensurate with the size of the organization.				
High-consequence reports and associated recommendations are addressed to and reviewed by the appropriate level of management.				
Reports are collected in an appropriate database to facilitate the necessary analysis.				

HAZARD IDENTIFICATION AND RISK ASSESSMENT

Describe the hazard identification system and how such data are collated.				
Describe the process for the categorization of hazards/risks and their subsequent prioritization for a documented safety assessment.				
Describe how the safety assessment process is conducted and how preventive action plans are implemented.				
Identified hazards are evaluated, prioritized and processed for risk assessment as appropriate.				
There is a structured process for risk assessment involving the evaluation of severity, likelihood, tolerability and preventive controls.				
Hazard identification and risk assessment procedures focus on aviation safety as their fundamental context.				
The risk assessment process utilizes worksheets, forms or software appropriate to the complexity of the organization and operations involved.				
Completed safety assessments are approved by the appropriate level of management.				
There is a process for evaluating the effectiveness of the corrective, preventive and recovery measures that have been developed.				
There is a process for periodic review of completed safety assessments and documenting their outcomes.				

SAFETY PERFORMANCE MONITORING AND MEASUREMENT

Describe the safety performance monitoring and measurement component of the SMS This includes the organization's SMS safety performance indicators (SPIs).				
The formal process to develop and maintain a set of safety performance indicators and their associated performance targets.				
Correlation established between the SPIs and the organization's safety objectives where applicable and the process of regulatory acceptance of the SPIs where required.				
The process of monitoring the performance of these SPIs including remedial action procedure whenever unacceptable or abnormal trends are triggered.				
Any other supplementary SMS or safety performance monitoring and measurement criteria or process.				

SAFETY-RELATED INVESTIGATIONS AND REMEDIAL ACTIONS

Describe how accidents/incidents/occurrences are investigated and processed within the organization, including their correlation with the organization's SMS hazard identification and risk management system.				
Procedures to ensure that reported accidents and incidents are investigated internally.				
Dissemination of completed investigation reports internally as well as to the DGCA as applicable.				
A process for ensuring that corrective actions taken or recommended are carried out and for evaluating their outcomes/effectiveness.				
Procedure on disciplinary inquiry and actions associated with investigation report outcomes.				
Clearly defined conditions under which punitive disciplinary action would be considered (e.g. illegal activity, recklessness, gross negligence or willful misconduct).				
A process to ensure that investigations include identification of active failures as well as contributing factors and hazards.				
Investigation procedure and format provides for findings on contributing factors or hazards to be processed for follow-up action by the organization's hazard identification and risk management system, where appropriate.				

SAFETY TRAINING AND COMMUNICATION

Describe the type of SMS and other safety-related training that staff receive and the process for assuring the effectiveness of the training.				
Describe how such training procedures are documented.				
Describe the safety communication processes/channels within the organization.				
The training syllabus, eligibility and requirements are documented.				
There is a validation process that measures the effectiveness of training.				
The training includes initial, recurrent and update training, where applicable.				
The organization's SMS training is part of the organization's overall training programme.				
SMS awareness is incorporated into the employment or indoctrination programme.				
The safety communication processes/channels within the organization.				

CONTINUOUS IMPROVEMENT AND SMS AUDIT

Describe the process for the continuous review and improvement of the SMS.				
The process for regular internal audit/review of the organization's SMS to ensure its continuing suitability, adequacy and effectiveness.				
Describe any other programmes contributing to continuous improvement of the organization's SMS and safety performance, e.g. MEDA, safety surveys, ISO systems				
The organization has a process for the proactive evaluation of an individual's performance, to verify the fulfillment of that individual's safety responsibilities.				

SMS RECORDS MANAGEMENT

Describe the method of storing all SMS-related records and documents.				
The organization has an SMS records or archiving system that ensures the retention of all records generated in conjunction with the implementation and operation of the SMS.				

MANAGEMENT OF CHANGE

Describe the organization's process for managing changes that may have an impact on safety risks and how such processes are integrated with the SMS.				
Procedures to ensure that substantial organizational or operational changes take into consideration any impact which they may have on existing safety risks.				
Procedures to ensure that appropriate safety assessment is performed prior to introduction of new equipment or processes which have safety risk implications.				
Procedures for review of existing safety assessments whenever there are changes to the associated process or equipment.				

EMERGENCY/CONTINGENCY RESPONSE PLAN

Describe the organization's intentions regarding, and commitment to dealing with, emergency situations and their corresponding recovery controls.				
Outline the roles and responsibilities of key personnel				
The emergency response plan can be a separate document or it can be part of the SMS manual.				

The organization has an emergency plan that outlines the roles and responsibilities in the event of a major incident, crisis or accident.				
There is a notification process that includes an emergency call list and an internal mobilization process.				
The organization has arrangements with other agencies for aid and the provision of emergency services as applicable				
The organization has procedures for emergency mode operations where applicable.				
There is a procedure for overseeing the welfare of all affected individuals and for notifying next of kin.				
The organization has established procedures for handling the media and insurance-related issues.				
There are defined accident investigation responsibilities within the organization.				
The requirement for preservation of evidence, securing the affected area, and mandatory/governmental reporting is clearly stated.				
There is emergency preparedness and response training for affected personnel.				
A disabled aircraft or equipment evacuation plan has been developed by the organization in consultation with aircraft/equipment owners, aerodrome operators or other agencies as applicable.				
A procedure exists for recording activities during an emergency response.				

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