Civil Aviation Authority

CAR-100

Civil Aviation Regulation

Safety Management System

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Approved by: HE Eng. Naif Ali Hamed Al Abri
President (CAA)

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Corrigendum of Amendments

No.	Ref	Description
01	01	This is a new CAR issued against the Civil Aviation Law of Oman
02	02	This CAR has been reviewed with no changes implemented
03	03	This CAR has been reviewed whereby minor editorial changes have been made which includes, AMC to CAR 100.110 para (a) has been added, AMC to CAR 100.130 para (b) has been added, AMC and GM to CAR 100.135 has been reorganized due to duplication of information, and the cross referencing of Appendix 5 (SMS Implementation Plan) against the applicable regulations has been corrected.
04	03	CAP SMS-01 and CAP SMS-02 have been prepared as additional support material for this regulation, whereby the implementation of the SMS for Aviation Service Providers, implementation of Human Factors and Non-technical skills training have been further explained.

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Acronyms

The following terms or acronyms may be used in any manual or document published by the CAA. Reproduction in part or whole is allowed without prior approval. The Document Control Office reserves the rights to include such a listing in any CAA manual or document prior to publishing.

AC	Advisory Circular
AD	Airworthiness directive
ADREP	Accident/incident data reporting (ICAO)
AGA	Aerodromes, air routes and ground aids, (ICAO Doc 8400).
AGL	Above ground level, (ICAO DOC 8400)
AGL	Aerodrome or aeronautical ground lighting; i.e. any light specifically provided as an aid to air navigation, other than a light displayed on an aircraft.
AIM	Aeronautical Information Management
AIS	Aeronautical Information Services
ALoSP	Acceptable level of safety performance
AMC	Acceptable means of compliance
AME	Aircraft maintenance engineer
ANS	Air navigation service
AOC	Air operator certificate
ATC	Air traffic control
ATM	Air traffic management
ATS	Air traffic service(s)
CAA	Civil Aviation Authority
CMA	Continuous monitoring approach
CMC	Crisis management centre
CMT	Crisis management team
CNS	Communications, navigation and surveillance
EMC	Emergency management centre
EMS	Environmental management system
ERP	Emergency response plan
FIR	Flight information region
FRMS	Fatigue risk management systems
GM	Guidance material
HIRA	Hazard identification and risk assessment
HIRM	Hazard identification and risk mitigation
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
OHSMS	Occupational health and safety management system
OPS	Operations
OPM	Office Procedures Manual
ORP	Organization risk profile
OSC	Organization safety culture
OSHE	Occupational safety, health and environment
QA	Quality assurance
QC	Quality control
QM	Quality management
QMS	Quality management system
SA	Safety assurance
SAG	Safety action group
SARPs	Standards and Recommended Practices (ICAO)
SeMS	Security management system
SM	Safety management

SMM	Safety management manual
SMP	Safety Management Panel
SMS	Safety management system(s)
SOPs	Standard operating procedures
SPI	Safety performance indicator
SPM	Safety performance monitoring
SPT	Safety performance trend
SRB	Safety review board
SRC	Safety review committee
SRM	Safety risk management
SSO	Safety services office
SSP	State safety programme
TBD	To be determined
TOR	Terms of reference
USOAP	Universal Safety Oversight Audit Programme (ICAO)
VRS	Voluntary Reporting System
WIP	Work in progress

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FOREWORD

(a) The Civil Aviation Requirements for the establishment of a Safety Management System have been issued by the Civil Aviation Authority of Oman (hereinafter referred as the CAA or "the Authority") under the provisions of the Civil Aviation Law of the Sultanate of Oman.

(b) This CAR has been modelled upon similar regulations implemented by other member states and includes the subject matter endorsed within ICAO Annex 19 – Safety Management Systems and Document 9859.

(c) CAR-100 prescribes the requirements for:
   (1) The establishing, implementation, and maintaining a system for safety management.
   (2) Any applicable punitive actions that may be enforced by the Authority against recognised actions of non-compliance.

(d) CAR-100 is to be read in conjunction with CAP SMS-01 and CAP SMS-02 which provide additional support material pertaining to the compliance requirements of this regulation.

(e) Amendments to the text in CAR-100 in revised editions are issued as a complete amendment of pages contained within.

(f) Civil Aviation Publications (CAP-01 & CAP-02) issued with this Amendment should provide users additional information in the application and addressing of the issues pertaining to the implementation of the ideal SMS.

(g) The editing practices used in this document are as follows:
   (1) 'Shall' is used to indicate a mandatory requirement and may appear in CARs.
   (2) 'Should' is used to indicate a recommendation
   (3) 'May' is used to indicate discretion by the Authority, or the industry as appropriate.
   (4) 'Will' indicates a mandatory requirement and is used to advise of action incumbent on the Authority.

***** Note: The use of the male gender implies the female gender and vice versa.***

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SUBPART A – GENERAL

CAR 100.001 Applicability

CAR-100 prescribes the requirements applicable to:

(a) An organisation to establish, implement, and maintain a system for safety management.
(b) The Acceptable Means of Compliance and Guidance Material (AMC & GM), which are referred to therein, form part of the associated regulation or sub-regulation and have the same status.
(c) The applicable punitive actions that may be enforced by the Authority against recognised actions of non-compliance.

CAR 100.005 System for safety management

(a) An organisation to which this Regulation applies must have a system for safety management that includes;
  (1) A safety policy on which the system for safety management is based; and
  (2) A process for risk management that identifies hazards to aviation safety, that evaluates and manages those associated risks; and
  (3) Safety assurance measures that ensure:
    I. Hazards, incidents, and accidents are internally reported and analysed and action is taken to prevent recurrence; and
    II. Goals for the improvement of aviation safety are set and the attainment of these goals is measured; and
    III. There is a quality assurance program that includes the conducting of internal audits and regular reviews of the system for safety management; and
  (4) Training that ensures personnel are competent to fulfil their safety responsibilities.
(b) The organisation must document all processes required to establish and maintain the system for safety management.
(c) The organisation's system for safety management must correspond to the size of the organisation, the nature and complexity of the activities undertaken by the organisation, and the hazards and associated risks inherent in the activities undertaken by the organisation.

CAR 100.010 Terminology & Definitions

Acceptable Level of Safety Performance (ALoSP): The minimum level of safety performance of civil aviation in a State, as defined in its State safety programme, or of an organisation, as defined in its Safety Management System, expressed in terms of Safety Performance Targets and Safety Performance Indicators.

Accountable executive: A single, identifiable person having responsibility for the effective and efficient performance the State's SSP, an organisation or a service provider's SMS. That person may be an executive or a managerial position, which has been the delegated the role of assuming those responsibilities and accountability.

Alert Level: An established level or criteria value outside of the normal operating range or out-of-control region that triggers a warning that an adjustment or evaluation is needed.

Authority*:* means the Civil Aviation Authority as established under the Civil Aviation Law by the Sultanate of Oman.

Consequence: Actual or potential impact of a hazard that can be expressed qualitatively and/or quantitatively. More than one consequence may evolve from an event.

Corrective Action: Action to eliminate the cause of or reduce the effects of a detected hazard or potentially hazardous situation in order to prevent its recurrence.

Defences: Specific mitigating actions, preventive controls or recovery measures put in place to prevent the realization of a hazard or its escalation into an undesirable consequence.

Error: An action or inaction by an operational person that leads to deviations from organisational or the operational person‘s intentions or expectations.

Hazard: A condition that could cause or contribute to an aircraft incident or accident.

Hazard Analysis: Analysis performed to identify hazards, hazard effects, and hazard causal factors used to determine system risk.

Hazard Identification: A process to establish a list of hazards relevant to the activity and the causes/threats that could release them.

High-consequence Indicators: Safety Performance Indicators pertaining to the monitoring and measurement of high-consequence occurrences, such as accidents or serious incidents. High consequence indicators are sometimes referred to as reactive indicators.

Human Factors: Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance (i.e. optimising the relationships within systems between people, activities and equipment).

Investigation: A process conducted for the purpose of accident prevention that includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes and, when appropriate, the publishing of safety recommendations.

Lower-consequence Indicator: Safety Performance Indicators pertaining to the monitoring and measurement of lower-consequence occurrences, events or activities such as incidents, non-conformance findings or deviations. Lower-consequence indicators are sometimes referred to as proactive/predictive indicators.

Non-technical skills: means specific human competencies, including critical decision making, team communication, situational awareness and workload management, which may minimise human error in aviation.

Open Reporting Culture: An organisational perspective that actively encourages effective safety reporting by defining acceptable behaviour (often unintended errors) and unacceptable behaviour (such as recklessness, violations or sabotage), and provides fair protection to reporters.

Operational Personnel: Personnel involved in aviation activities who are in a position to report safety information.

Note: Such personnel include, but are not limited to: flight crews; air traffic controllers; aeronautical station operators; maintenance technicians; personnel of aircraft design and manufacturing organisations; cabin crews; flight dispatchers, apron personnel and ground handling personnel.

Predictive: Any method that continuously analyses current and historical information to forecast potential future occurrences.

Prescriptive Standards: Standards that specify methods for complying with safety requirements.

Preventive Action: Pre-emptive action to eliminate or mitigate the potential cause or reduce the future consequence of a hazard.

Proactive: Any method that actively searches for potential safety risks through the analysis of an organisation's activities prior to occurrence.

Quality Assurance: The maintaining of a desired level of quality in service or oversight, especially by means of attention to every stage of the process of delivery or oversight.

Reactive: Any method that responds to past occurrences.

Remedial action: means action, the purpose of which is not punitive:

(a) that is taken to address the underlying causes of particular safety-related shortcomings or deficiencies; and

(b) that may involve restricting, limiting, conditioning or suspending the ability of an authorisation holder to exercise the privileges of a civil aviation authorisation.

Note: Examples of remedial action are requiring an individual authorisation holder to undertake training, and the introduction of changed processes or procedures by an organisation that holds an authorisation.

Risk: The assessed predicted likelihood and severity of the consequence(s) or outcome(s) of a hazard.

Risk Analysis: Process whereby possible consequences of hazards are objectively characterized for their severity and probability. The process can be qualitative and/or quantitative.

Risk Assessment: The identification, evaluation, and estimation of the level of risk.

Risk Control: Activities that ensure that safety policies, procedures, and processes minimize the risk of an aviation accident or incident.

Risk Management: An organisational function that assesses the organisation's system design and verifies that the system adequately controls risk. A formal risk management process describes a system, assesses hazards, analyses those hazards to evaluate the risk, and establishes controls to manage those risks.

Risk Mitigation: The process of incorporating defences or preventive controls to lower the severity and/or likelihood of a hazard's projected consequence.

Safety: 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.

Safety Assessment: Documentation that contains hazard descriptions, the related consequences, the assessed likelihood and severity of the safety risks, and required safety risk controls.

Safety *Assurance:* Processes used to ensure risk controls developed under the risk management process achieve their intended objectives throughout the life cycle of a system. This process may also reveal hazards not previously identified and identify or assess the need for new risk control, as well as the need to eliminate or modify existing controls. This is one of the four components of SMS.

Safety Culture: An enduring set of values, norms, attitudes, and practices within an organisation concerned with minimizing exposure of the workforce and the general public to dangerous or hazardous conditions. In a positive safety culture, a shared concern for, commitment to, and accountability for safety is promoted.

Safety Management System (SMS): A systematic approach to managing safety, including the necessary organisational structures, accountabilities, policies and procedures.

Safety Performance Indicator: A data-based parameter used for monitoring and assessing safety performance.

Safety Performance Target: The planned or intended objective for Safety Performance Indicator(s) over a given period.

Safety Promotion: A combination of safety culture, training, and information sharing activities that support the implementation and operation of an SMS in an organisation. This is one of the four components of SMS.

Safety Risk: The predicted probability and severity of the consequences or outcomes of a hazard.

Safety Risk Management: A process used to assess system design and verify that the system adequately controls risk. A formal risk management process describes a system, assesses hazards, analyses those hazards to evaluate the risk, and establishes controls to manage those risks. This is one of the four components of SMS.

Severity: The extent of loss or harm associated with consequences of a hazard.

Severity – Catastrophic: Results in multiple fatalities and/or loss of the aircraft.

Severity – Hazardous: A large reduction in safety margins, physical distress, or workload such that organisations cannot be relied upon to perform their tasks accurately or completely. Serious injury or death to a small number of aircraft occupants, ground personnel, and/or general public. Major equipment damage.

Severity – Major: A significant reduction in safety margins and a reduction in the ability of organisations to cope with adverse operating conditions as a result of an increase in workload, significant discomfort, or conditions impairing their efficiency. Serious incident with physical distress to occupants of aircraft, injuries, and equipment damage.

Severity – Minor: Does not significantly reduce system safety and operator actions are well within their capabilities. May include slight reduction in safety margins, operating limitations, slight increase in workload, some physical discomfort, and/or minor equipment damage.

Severity – Negligible: Little consequence. Has no effect on aspect of safety.

State Safety Programme (SSP): An integrated set of regulations and activities aimed at improving safety.

SUBPART B — PROCEDURES

CAR 100.100 General

(a) This regulation establishes the Safety Management System (SMS) requirements for organisations which are approved / certified in accordance with the CARs, issued under the Civil Aviation Law of the Sultanate of Oman.

(b) Each operator must employ such numbers of qualified personnel as the CAA considers necessary to operate the services proposed by the operator and such personnel must be employed on a full-time basis in appropriate areas.

(c) Have a program, approved by the CAA, to train and assess personnel in human factors and non-technical skills with the aim of minimising human error.

Note: The operator will have regard to the guidance contained in the ICAO Safety Management Manual (Doc 9859) when deciding whether to seek approval for a program to train and assess personnel in human factors and non-technical skills.

(d) Where the organisation holds more than one organisation certificate, the Safety Management System shall be combined and integrated. This includes AOC holders who are at the same time, hold flight training organisation approval.

(e) In the case of one organisation, holding two or more AOCs at different locations; the SMS shall include specific instructions pertinent to those locations.

(f) In the case of an organisation holding an AOC with service providers operating within or are a sub-contracted entity; the SMS shall include specific instructions pertinent to those entities.

(g) The SMS shall correspond to the size of the organisation and the nature and complexity of its activities, taking into account the hazards and associated risks inherent in these activities. Where the term “periodic” or “periodically” is used, the organisation shall define the timeframe within its manuals.

CAR 100.105 Establishment and purposes of a safety management policy

Safety policy outlines the principles, processes and methods of the organisation’s SMS to achieve the desired safety outcomes. The policy establishes senior management’s commitment to incorporate and continually improve safety in all aspects of its activities.

Senior management develops measureable and attainable organisation wide safety objectives to be achieved. *(See GM)*

CAR 100.110 Management Commitment and responsibilities

The organisation shall define its safety policy, which shall:

(a) Establish and maintain an appropriate organisation, with a sound and effective management structure that uses a safety management system approved by the CAA; (See AMC)

(b) Include a clear statement about the provision of the necessary resources for the implementation of the safety policy and achievement of the safety objectives; *(See GM)*

(c) Establish a non-punitive approach which supports safety reporting and encourages an open reporting culture for the purpose of safety improvement, not to apportion blame; *(See GM)*

(d) Clearly indicate that cases of gross negligence, willful misconduct or a significant continuing safety concern are unacceptable in relation to the organisation’s aviation activities and include the circumstances under which disciplinary action would or would not be applicable within the framework of the Safety Management System;

(e) Be signed by the Accountable Manager;

(f) Be communicated, with visible endorsement throughout the organisation;

(g) An SMS Amendment process whereby the SMS is periodically reviewed to ensure it remains relevant and appropriate to the organisation.

CAR 100.115 Safety accountabilities

The organisation shall:

(a) Identify the Accountable Manager who has full control of the resources, final authority over operations under the certificate approval of the organisation and ultimate responsibility and accountability for the establishment, implementation and maintenance of the SMS, safety policies and the resolution of all safety issues. *(See AMC-1 & 2)*
(b) Clearly define lines of safety accountability throughout the organisation, including a direct accountability for safety on the part of senior management;
(c) Identify the accountabilities of all members of management, irrespective of other functions, as well as of employees, with respect to the safety performance of the SMS;
(d) Document and communicate safety responsibilities, accountabilities and authorities throughout the organisation; and
(e) Define the levels of management with authority to make decisions regarding safety risk tolerability.

CAR 100.120 Appointment of key safety personnel

Accountable executive/Manager – SMS

(a) The organisation shall appoint a properly educated, trained and experienced person who fulfils the role of Accountable executive/Manager – SMS for the development and maintenance of an effective Safety Management System.
(b) The appointed person shall have direct access to the Accountable Manager to ensure that the Accountable Manager is kept properly informed on safety matters.
(c) The accountable executive/manager – SMS shall be accepted by the Authority.
(d) The accountable executive/manager – SMS is a senior management position and shall not hold other positions that may conflict or impair his/her role as Manager – SMS unless specifically approved by the Authority.
(See AMC & GM for above)

CAR 100.125 Coordination of emergency response planning

The organisation shall ensure that the Emergency Response Plan (ERP) is properly coordinated with the Emergency Response Plans of those organisations it must interface with, in the event of an emergency. The integration of these plans are pivotal in the coordination of the overall provision of its services. *(See AMC & GM)*

CAR 100.130 SMS Documentation

(a) The organisation shall develop an SMS Manual endorsed by the Accountable Manager and acceptable to the Authority to demonstrate how the organisation will comply with this regulation. *(See AMC tor para (a)) and (See GM to para (a))*
(b) The organisation shall establish a system of record keeping that allows adequate storage and reliable traceability of all records related to the following Safety Management System processes. *(See AMC to para (b))*

CAR 100.135 Safety Risk Management

Safety risk management shall include hazard identification, safety risk assessment and mitigation processes.

Hazard Identification – The organisation shall develop, implement and maintain a process that ensures that hazards associated with its aviation products or services are identified.

In order to ensure continuity of data flow through internal safety reporting systems, the organisation shall ensure that it effectively implements sub-regulation CAR 100.110 para (c) of this regulation. *(See AMC-1 and GM to AMC-1)*

In addition to the proactive and reactive methods of safety data collection the organisation should employ where practical predictive methodologies which could arrest risks from potential hazards. Hazards shall be identified through proactive methodologies, or as a result of accident or incident investigations (reactive), and where practical through predictive methodologies which can arrest the risks from potential hazards.

The internal safety reporting system should contain the following elements:

(a) The collection and evaluation of those errors, near-misses, and hazards reported internally;
(b) Corrective and preventive actions are taken internally to address any safety issues and hazards;
(c) Feedback to the organisation's safety training, whilst maintaining appropriate confidentiality
(d) Provision of feedback to the reporter to ensure his support to the occurrence reporting system and disseminate the results to other relevant parties.
(e) A non-punitive approach which encourages safety reporting within a system that clearly indicates which types of behaviors are unacceptable.
(f) An investigation process to:
    (1) identify and address the factors contributing to occurrences in order to reduce the likelihood of reoccurrence;
    (2) identify adverse trends;
    (3) identify those reports which require further investigation; and
    (4) establish all root causes, including any technical, organisational, managerial, or human factors issues, and any other contributing factors relating to the event. *(See AMC-2 & GM for all of the above)*

CAR 100.140 Safety Risk Assessment and Mitigations

The organisation shall develop, implement and maintain a process that ensures analysis, assessment, and acceptable control of the safety risks associated with identified hazards. Written procedures for developing and implementing Corrective Actions will be established. These specific corrective action plans shall address the following:

(a) Development and proposal of the corrective action;
(b) Analysis and final approval level of the corrective action, including who is responsible for approval of the corrective action;
(c) Who will implement the corrective action;
(d) How the responsible person will implement the corrective action;
(e) When the corrective action completion due date is;
(f) Who will evaluate the outcome and how, including identification of data requiring collection, awareness of the possibility of unintended consequences, and events that should trigger a response;
(g) Who will monitor the status of the corrective action and how; and
(h) Reporting the status of the corrective action (to whom, with what frequency).
(GM for all of above)

CAR 100.145 Safety Assurance

The organisation shall develop, document and maintain safety assurance processes to ensure that the safety risks controls established, as a consequence of the hazard identification and risk management activities, achieve their intended objectives. *(See GM to all of the above)*

CAR 100.150 Safety Performance Monitoring and Measurement

(a) The organisation shall establish safety performance monitoring and measurement processes by the establishment of Safety Performance Indicators (SPI) and Safety Performance Targets (SPT) to verify its safety performance and validate the effectiveness of the safety risk controls.
(b) The indicators, targets, alert levels and relevant action plans defined to achieve the targets shall be agreed with the CAA.
(c) The actual performance shall be regularly provided to the CAA in a form and manner established by the CAA for monitoring purposes along with statistical data required for the CAA to establish and monitor the State Acceptable Level of Safety Performance (ALoSP).
(d) For organisations that do not have sufficient data for the establishment of SPI's and SPT's, the organisation shall establish safety initiatives aiming at continuous improvement in relation to safety standards. These initiatives shall be in line with the safety objectives of the organisation.
(e) If an alert level or a target has been breached, the organisation shall immediately report it the CAA and submit a corrective plan accordingly. (Voluntary Safety Report – VSR)
(See AMC-1 to 4 & GM for all of the above)

CAR 100.155 Management of Change

The organisation shall develop, document, implement and maintain a process to identify changes that may affect the level of safety risk associated with its aviation products or services and to identify and manage the safety risks or hazards that may arise from those changes. *(See AMC and GM)*

CAR 100.160 Continuous Improvement of the SMS

The organisation shall monitor and assess the effectiveness of its SMS processes to enable continuous improvement of the SMS. *(See AMC & GM)*

CAR 100.165 Safety Promotion

(a) **Training and education** –
  (1) The organisation shall develop and maintain a safety-training program that ensures that personnel are trained and competent to perform their duties relevant to the organisation's SMS.
  (2) The scope of the safety training shall be appropriate to the individual's involvement in the SMS.
  (See AMC for above)
(b) **Safety Communication** –
The organisation shall develop, document, implement and maintain formal means for safety communication that:
  (1) Ensures personnel are aware of the SMS to a degree commensurate with their positions in a timely manner;
  (2) Conveys safety-critical information in a timely manner;
  (3) Explains why particular safety actions are taken; and
  (4) Explains why safety procedures are introduced or changed.
  (See GM for above)

Appendix 1 – Safety Culture & Just Culture

Safety Culture is "An enduring set of values, norms, attitudes, and practices within an organisation concerned with minimizing exposure of the workforce and the general public to dangerous or hazardous conditions. In a positive safety culture, a shared concern for, commitment to, and accountability for safety is promoted".

Safety Culture refers to the extent to which every individual and every group of the organization is aware of the risks and unknown hazards induced by its activities. The group is continuously behaving so as to:

- Preserve and enhance safety;
- Is willing and able to adapt itself when facing safety issues;
- Is willing to communicate safety issues; and
- Consistently evaluates safety related behaviour.

To support the assessment and management of Safety Culture, the six main components (called Characteristics) of Safety Culture are as follows:

(1) Commitment
(2) Behaviour
(3) Awareness
(4) Adaptability
(5) Information
(6) Justness

"Just Culture" is clearly an element of a Safety Culture framework (in the Justness characteristic or component).

Just Culture is defined as: "a culture in which front line operators or others are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but where, gross negligence, willful violations and destructive acts are not tolerated".

An important part of a good just culture depends on how an organization oversees safety reports, which may contain information about potentially unsafe/risky actions, either directly or indirectly taken by its employees. These may be the result of slips, common mistakes, technical failures or can even be related to systematic training issues.

When reviewing such occurrences, consideration should be given as to whether the person's actions were reasonable. It could be that the actions taken were the same as what another competent person may have reasonably taken in a similar situation. Part of this is ensuring that the right level of expertise is available to help understand the context and situation surrounding what occurred.

Employees at all levels should be encouraged to report any occurrences or issues that may affect safety and be open to learning from these. ***A safety culture and a just culture should be fostered.***

Overall, personnel must believe that they will be supported in any decisions made in the interest of safety but must also understand that intentional breaches of safety policy will not be tolerated. Therefore, a voluntary reporting system should be confidential and operated in accordance with appropriate non-punitive policies. The system should also provide feedback to personnel on safety improvements achieved as a result of the reports received. This objective requires secure and easy access to safety reporting systems, active safety data collection and management's proactive treatment of the data.

However, in rare cases in which gross negligence, willful violations or destructive acts are apparent, such acts/behaviour should not be tolerated. Through the application of clear and proper procedures, anyone involved in cases of possible gross negligence should receive fair treatment and proportionate remedial action to prevent a reoccurrence.

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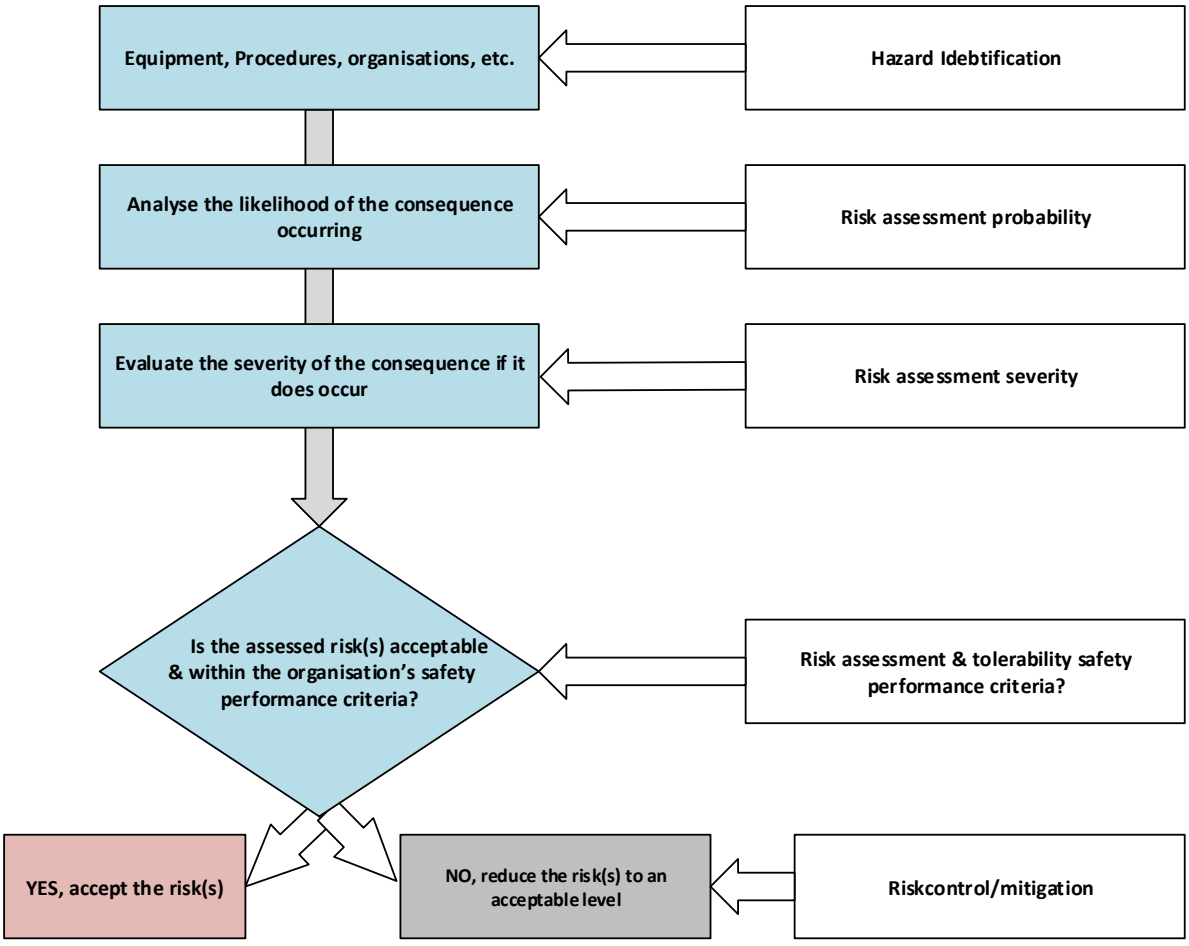
Appendix 2 – Hazard Identification & Risk Management

Hazard identification is a prerequisite to the **safety risk management process**. Any incorrect differentiation between hazards and safety risks can be a source of confusion. A clear understanding of hazards and their related consequences is essential to the implementation of sound safety risk management.

A hazard can be defined as "a condition or an object with the potential to cause death, injuries to personnel, damage to equipment or structures, loss of material, or reduction of the ability to perform a prescribed function".

Within the parameters of aviation safety risk management, the term hazard should be focused on those conditions which ***could cause or contribute to the unsafe operation*** of aircraft or aviation safety-related equipment, products and services.

Hazard Identification & Risk Management



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Appendix 3 – Safety Risk Assessment Matrix

Hazards (or Risks) exist at all levels in the organization and are detectable through use of reporting systems, inspections or audits. Mishaps may occur when hazards interact with certain triggering factors. As a result, hazards should be identified before they lead to accidents, incidents or other safety-related occurrences.

Hazards (or Risks) may be categorized according to their source or location. Objective prioritization of hazards may require categorizations according to the severity/likelihood of their projected consequences these factors will facilitate the prioritization of risk mitigation strategies such that one uses limited resources in the most effective manner, resulting in elimination of or the controlling of that risk at an acceptable level of consequence.

	Risk Severity				
Risk Probability	**Catastrophic A**	**Hazardous B**	**Major C**	**Minor D**	**Negligible E**
Frequent (5)	**5A**	**5B**	**5C**	**5D**	**5E**
Occasional (4)	**4A**	**4B**	**4C**	**4D**	**4E**
Remote (3)	**3A**	**3B**	**3C**	**3D**	**3E**
Improbable (2)	**2A**	**2B**	**2C**	**2D**	**2E**
Extremely Improbable (1)	**1A**	**1B**	**1C**	**1D**	**1E**

Risk Probability	Meaning	Value
Frequent	Likely to occur many times (has occurred frequently)	5
Occasional	Likely to occur sometimes (has occurred infrequently)	4
Remote	Unlikely to occur, but possible (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

Based on the above matrix, risks can be categorised according to an assessment of their potential severity and probability. In the above matrix example, risks reflected as being unacceptable (red or yellow categories) must be mitigated so as to reduce the severity and/or probability. The organisation should consider suspension of any activities that continue to expose the organisation to intolerable safety risks in the absence of mitigating actions that will either eradicate or reduce the risk to a manageable and acceptable level (green).

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Appendix 4 – Emergency Response Plan

An ERP would normally be documented in the format of a manual that shall set out the responsibilities, roles and actions of the various agencies and personnel involved in dealing with specific emergencies. An ERP shall take account of such considerations as:

(a) Governing policies: The ERP should provide direction for responding to emergencies, such as governing laws and regulations for investigations, agreements with local authorities, company policies and priorities.

(b) Organisation: The ERP should outline management's intentions with respect to the responding organisations by:
   (1) designating who will lead and who will be assigned to the response teams;
   (2) defining the roles and responsibilities of personnel assigned to the response teams;
   (3) clarifying the reporting lines of authority;
   (4) setting up an Emergency Management Centre (EMC);
   (5) establishing procedures for receiving a large number of requests for information, especially during the first few days after a major accident;
   (6) designating the corporate spokesperson for dealing with the media;
   (7) defining what resources will be available, including financial authorities for immediate activities;
   (8) designating the company representative to any formal investigations undertaken by State officials;
   (9) defining a call-out plan for key personnel.

   An organisational chart will be used to show the organisational functions and communication relationships.

(c) Notifications: The plan should specify who in the organisation should be notified of an emergency, who will make external notifications and by what means. The notification needs of the following should be considered:
   (1) management;
   (2) State authorities (search and rescue, the regulatory authority, the accident investigation board, etc.);
   (3) local emergency response services (aerodrome authorities, fire fighters, police, ambulance, medical agencies, etc.);
   (4) relatives of victims (a sensitive issue that, in many States, is handled by the police);
   (5) company personnel;
   (6) media; and
   (7) legal, accounting, insurers, etc.

(d) Initial response: Depending on the circumstances, an initial response team may be dispatched to the accident or crisis site to augment local resources and oversee the organisation's interests.

   Factors to be considered for such a team include:

   (1) Who should lead the initial response team?
   (2) Who should be included on the initial response team?
   (3) Who should speak for the organisation at the accident site?
   (4) What would be required by way of special equipment, clothing, documentation, transportation, accommodation, etc.?

(e) Additional assistance: Employees with appropriate training and experience can provide useful support during the preparation, exercising and updating of an organisation's ERP. Their expertise may be useful in planning and executing such tasks as:
   (1) acting as passengers or customers in exercises;
   (2) handling survivors or external parties;
   (3) dealing with next of kin, authorities, etc.

(f) Emergency Management Centre (EMC): An EMC (normally on standby mode) may be established at the organisation's headquarters once the activation criteria have been met. In addition, a command post (CP) may be established at or near the crisis site. The ERP should address how the following requirements are to be met:
   (1) staffing (perhaps for 24 hours a day, 7 days per week, during the initial response period);
   (2) communications equipment (telephones, facsimile, Internet, etc.);
   (3) documentation requirements, maintenance of emergency activity logs;
   (4) impounding related company records;
   (5) office furnishings and supplies; and
   (6) reference documents (such as emergency response checklists and procedures, company manuals, aerodrome emergency plans and telephone lists).

   The services of a crisis centre may be contracted from another airline or other specialist organisation to look after the Organisation's interests in a crisis away from home base. Company personnel would normally supplement such a contracted centre as soon as possible.

(g) Records: In addition to the organisation's need to maintain logs of events and activities, the organisation will also be required to provide information to any State investigation team. The ERP should address the following types of information required by investigators:
   (1) all relevant records about the product or service concerned;
   (2) lists of points of contact and any personnel associated with the occurrence;
   (3) notes of any interviews (and statements) with anyone associated with the event;
   (4) any photographic or other evidence.

(h) Accident site: For a major accident, representatives from many jurisdictions have legitimate reasons for accessing the site: for example, police; fire fighters; medics; aerodrome authorities; coroners (medical examining officers) to deal with fatalities; State accident investigators; relief agencies such as the Red Cross (or equivalent) and even the media. Although coordination of the activities of these stakeholders is the responsibility of the State's police and/or investigating authority, the Organisation should clarify the following aspects of activities at the accident site:
   (1) nominating a senior company representative at the accident site if:
      I. at home base;
      II. away from home base;
      III. offshore or in a foreign State;
   (2) management of surviving victims;
   (3) the needs of the relatives of victims;
   (4) security of the wreckage;
   (5) handling of human remains and personal property of the deceased;
   (6) preservation of evidence;
   (7) provision of assistance (as required) to the investigation authorities;
   (8) removal and disposal of the wreckage; etc.

(i) News media: How the company responds to the media may affect how well the company recovers from the event. Clear direction is required regarding, for example:
   (1) what information is protected by statute (FDR data, CVR and ATC recordings, witness statements, etc.);
   (2) who may speak on behalf of the parent organisation at head office and at the accident site (public relations manager, chief executive officer or other senior executive, manager, owner);
   (3) prepared statements for immediate response to media queries;
   (4) what information may be released (what should be avoided);
   (5) the timing and content of the company's initial statement;
   (6) provisions for regular updates to the media.

(j) Formal investigations: Guidance for company personnel dealing with State accident investigators and police should be provided.

(k) Family assistance: The ERP should also include guidance on the organisation's approach to assisting crisis victims or customer organisations. This guidance may include such things as:
   (1) State requirements for the provision of assistance services;
   (2) travel and accommodation arrangements to visit the crisis site;
   (3) programme coordinator and point(s) of contact for victims/customers;
   (4) provision of up-to-date information;
   (5) temporary assistance to victims or customers.

(l) Post-occurrence review: Direction should be provided to ensure that, following the emergency, key personnel carry out a full debrief and record all recognised deficiencies and or improvements which may result in amendments to the ERP and associated procedures.

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Appendix 5 – SMS Implementation Plan

This Appendix includes typical guidance of a SMS implementation plan for Organisations that are transitioning from traditional safety programme in to an integrated SMS or for new Organisations.

A system review and description of the SMS framework and interface with existing systems and processes is the first step in defining the scope and applicability of the SMS. This can be achieved by conducting a gap analysis, which provides an opportunity to identify any gaps related to the organisation's SMS components and elements, including the interfaces within the organisation. The gap analysis facilitates development of an SMS implementation plan by identifying the gaps that must be addressed to fully implement an SMS. Once the gap analysis has been completed and fully documented, the resources and processes that have been identified as missing or inadequate will form the basis of the SMS implementation plan.

The SMS Implementation Plan consists of four implementation phases with each phase associated with various elements (or sub-elements) as per the ICAO framework.

Phase 1

(a) The objective of Phase 1 of SMS implementation is to provide a blueprint of how the SMS requirements can be met and integrated into the organisation's control systems, as well as an accountability framework for the implementation of the SMS.

(b) During Phase 1, basic planning and assignment of responsibilities are established. Central to Phase 1 is the gap analysis. From the gap analysis, an organisation can determine the status of its existing safety management processes and can commence planning for the development of further safety management processes. The significant output of Phase 1 is the SMS implementation plan. (Chapters 5.4 & 5.5, ICAO Doc 9859 – SMM Safety Management Manual provides further guidance).

(c) At the completion of Phase 1, the following activities should be finalized in such a manner that meets the expectations of the CAA, as set forth in relevant requirements and guidance material.

Management commitment and responsibility

(a) Identify the Accountable Manager and the safety accountabilities of managers. This activity is based on sub-regulations CAR 100.110 & CAR 100.115 (framework for SMS Elements).

(b) Establish an SMS implementation team. The team should be comprised of representatives from the relevant departments. The team's role is to drive the SMS implementation from the planning stage to its final implementation. Other functions of the implementation team will include but not be limited to:
   (1) developing the SMS implementation plan;
   (2) ensuring the adequate SMS training and technical expertise of the team in order to effectively implement the SMS elements and related processes; and
   (3) monitoring of and reporting on the progress of the SMS implementation, providing regular updates and coordinating with the Accountable Manager.

(c) Define the scope of the organisation's activities (departments/divisions) to which the SMS will be applicable. The scope of the organisation's SMS applicability will subsequently need to be described in the SMS document as appropriate. This activity is based on sub-regulation CAR 100.130 of this SMS regulation. Guidance on the system description is provided in the AMC & GM of this regulation and also within Phase 2 of the SMS implementation plan.

(d) Conduct a gap analysis of the organisation's current systems and processes in relation to the ICAO SMS framework requirements (or the relevant SMS regulatory requirements).

Phase 1 (for application)	Phase 2 (up to 12mths)	Phase 3 (up to 18mths)	Phase 4 (up to 18mths)
1. SMS Element CAR-100.110: (a) identify the Accountable Manager; (b) establish an SMS implementation team; (c) define the scope of the SMS; (d) perform an SMS gap analysis. ***2. SMS Element CAR-100.130:*** (a) develop an SMS implementation plan. ***3. SMS Element CAR-100.120:*** (a) establish a key person/ and or office responsible for the administration and maintenance of the SMS. ***4. SMS Element CAR-100.165(a):*** (a) establish an SMS training programme for personnel, with priority for the SMS implementation team. ***5. SMS Element CAR-100.165(b):*** (a) initiate SMS/safety communication channels.	***1. SMS Element CAR-100.110:*** (a) establish the safety policy and objectives, ***2. SMS Element CAR-100.115:*** (a) define safety management responsibilities and accountabilities across relevant departments of the organisation; (b) establish an SMS/ safety coordination mechanism/committee; (c) establish departmental/ divisional SAGs where applicable. ***3. SMS Element CAR-100.125:*** (a) establish an emergency response plan. ***4. SMS Element CAR-100.130:*** (a) initiate progressive development of an SMS document/manual and other supporting documentation.	***1. SMS Element CAR-100.135:*** (a) establish a voluntary hazard reporting procedure. ***2. SMS Element CAR-100.140:*** (a) establish safety risk management procedures. ***3. SMS Element CAR-100.150:*** (a) establish occurrence reporting and investigation procedures; (b) establish a safety data collection and processing system for high consequence outcomes; (c) develop high consequence SPIs and associated targets and alert settings. ***4. SMS Element CAR-100.155:*** (a) establish a management of change procedure that includes safety risk assessment. ***5. SMS Element CAR-100.160:*** (a) establish an internal quality audit programme; (b) b) establish an external quality audit programme.	***1. SMS Element CAR-100.110:*** (a) enhance the existing disciplinary procedure/ policy with due consideration of unintentional errors or mistakes from deliberate or gross violations. ***2. SMS Element CAR-100.135:*** (a) integrate hazards identified from occurrence investigation reports with the voluntary hazard reporting system; (b) integrate hazard identification and risk management procedures with the subcontractor's or customer's SMS where applicable. ***3. SMS Element CAR-100.150:*** (a) enhance the safety data collection and processing system to include power consequence events; (b) develop lower consequence SPIs and associated targets/alert settings. ***4. SMS Element CAR-100.160:*** (a) establish SMS audit programmes or integrate them into existing internal and external audit programmes; (b) establish other operational SMS review/ survey programmes where appropriate. ***5. SMS Element CAR-100.165(a):*** (a) ensure that the SMS training programme for all relevant personnel has been completed.

Phase 1 (for application)	Phase 2 (up to 12mths)	Phase 3 (up to 18mths)	Phase 4 (up to 18mths)
			6. SMS Element CAR-100.165(b): (a) promote safety information sharing and exchange internally and externally.
SMS Element CAR-100.130: SMS documentation (Phases 1 to 4)			
SMS Element CAR-100.165(a) and CAR-100.165(b): SMS Training, education and communication (Phase 1 and thereafter)			
Note 1: The implementation period is an approximation. The actual implementation period is dependent on the scope of actions required for each element allocated and the size/complexity of the organisation *Note 2: The SMS Element numbers indicated correspond to the ICAO SMS Element numbers. Suffixes such as (a), (b) & (c) indicate that the element has been subdivided to facilitate the phased implementation approach*			

SMS implementation plan — Element CAR 100.130

(a) Develop an SMS implementation plan on how the organisation will implement the SMS plan applicable to the identified system and process gaps resulting from the gap analysis.

Appointment of key safety personnel — Element CAR 100.120

(a) Identify the key SMS person (safety/quality function) within the organisation who will be responsible for administering the SMS on behalf of the Accountable Manager.
(b) Establish the safety services office.

Training and education — Element CAR 100.165(a)

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

Safety communication — Element CAR 100.165(b)

(a) Initiate a mechanism or medium for safety communication.
(b) Establish a means to convey safety information through any of:
  (1) safety newsletters, notices and bulletins;
  (2) websites;
  (3) email.
  (4) workshops, lectures, posters etc.

Phase 2

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

Management commitment and responsibility — Element CAR 100.110

(a) Develop a safety policy.
(b) Have the Accountable Manager sign the safety policy.
(c) Communicate the safety policy throughout the organisation.
(d) Establish a review schedule for the safety policy to ensure it remains relevant and appropriate to the organisation.
(e) Establish safety objectives for the SMS by developing safety performance standards in terms of:
  (1) Safety Performance Indicators;
  (2) Safety Performance Targets and alert levels; and
  (3) action plans.
(f) Establish the SMS requirements for subcontractors:
  (1) establish a procedure to write SMS requirements into the contracting process; and
  (2) establish the SMS requirements in the bidding documentation.

Safety accountabilities — Element CAR 100.115

(a) Define safety accountabilities and communicate them throughout the organisation.
(b) Establish the Safety Action Group (SAG).
(c) Establish the safety/SMS coordination committee.
(d) Define clear functions for the SAG and the safety/SMS coordination committee.
(e) Establish lines of communication between the safety services office, the Accountable Manager, the SAG and the safety/SMS coordination committee.
(f) Appoint the Accountable Manager as the chairperson of the safety/SMS coordination committee.
(g) Develop a schedule of meetings for the safety services office to meet with the safety/SMS coordination committee and SAG as needed.

Coordination of emergency response planning — Element CAR 100.125

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

Note: Refer to APPENDIX 4 for further guidance on ERP.

SMS documentation — Element CAR 100.130

(a) Create an SMS documentation system to describe, store, retrieve and archive all SMS-related information and records by:
   (1) developing an SMS document that is either a stand-alone manual or a distinct section within an existing controlled organisation manual (refer to APPENDIX 7 for guidance on developing an SMS manual);
   (2) establishing an SMS filing system to collect and maintain current records relating to the organisation's ongoing SMS processes;
   (3) maintaining records to provide a historical reference as well as the current status of all SMS processes such as: a hazard register; an index of completed safety assessments; SMS/safety training records; current SPIs and associated safety objectives; internal SMS audit reports; SMS/safety committee meeting minutes and the SMS implementation plan;
   (4) maintaining records that will serve as evidence of the SMS operation and activities during internal or external assessment or audit of the SMS.

Phase 3

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

Hazard identification — Element CAR 100.135

(a) Establish a voluntary reporting procedure.
(b) Establish a programme/schedule for systematic review of all applicable aviation safety-related processes/equipment that are eligible for the HIRM process.
(c) Establish a process for prioritization and assignment of identified hazards for risk mitigation.

Safety risk assessment and mitigation — Element CAR 100.140

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

Safety performance monitoring and measurement — Element CAR 100.150

(a) Establish an internal occurrence reporting and investigation procedure. This may include mandatory or major defect reports (MDR) where applicable.
(b) Establish safety data collection, processing and analysis of high-consequence outcomes.
(c) Establish high consequence safety indicators (initial ALoSP) and their associated target and alert settings. Examples of high-consequence safety indicators are accident rates, serious incident rates and monitoring of high risk non-compliance outcomes. Refer to APPENDIX 6 for guidance on Safety Performance Indicators.
(d) Reach an agreement with the CAA on Safety Performance Indicators and Safety Performance Targets.

The management of change — Element CAR 100.155

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

Continuous improvement of the SMS — Element CAR 100.160

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

Phase 4

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

Management commitment and responsibility — Element CAR 100.110

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

Hazard identification — Element CAR 100.135

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

Safety performance monitoring and measurement — Element CAR 100.150

(a) Enhance the safety data collection and processing system to include lower-consequence events.
(b) Establish lower-consequence safety/quality indicators with target/alert level monitoring as appropriate (mature ALoSP).
(c) Reach an agreement with the CAA on lower-consequence Safety Performance Indicators and Safety Performance Target/alert levels.

Continuous improvement of the SMS — Element CAR 100.160

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

Training and education — Element CAR 100.165

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

Safety communication — Element CAR 100.165

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

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Appendix 6 – Safety Performance Indicator (SPI) for an Organisation

(a) Air Operators

SMS Safety Performance Indicators (Individual Organisation)

High- consequence indicators (occurrence /outcome based)			*Lower-consequence indicators (event/activity-based)*		
Safety Performance Indicator	***Alert level criteria***	***Target level criteria***	***Safety Performance Indicator***	***Alert level criteria***	***Target level criteria***
Air operator individual fleet monthly serious incident rate (e.g. per 1,000 Flt hrs)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate	Operator combined fleet monthly incident rate (e.g. per 1,000 Flt hrs)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate
Air operator combined fleet monthly serious incident rate (e.g. per 1,000 Flt hrs)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate	Operator internal QMS/SMS annual audit LEI % or findings rate (findings per audit)	Consideration	Consideration
Air operator engine IFSD incident rate (e.g. per 1,000 Flt hrs)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate	Operator voluntary hazard report rate (e.g. per 1,000 Flt hrs)	Consideration	Consideration
			Operator DGR incident report rate (e.g. per 1,000 Flt hrs)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate

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(b) Aerodrome Operators

SMS Safety Performance Indicators (Individual Organisation)

High- consequence indicators (occurrence /outcome based)			*Lower-consequence indicators (event/activity-based)*		
Safety Performance Indicator	***Alert level criteria***	***Target level criteria***	***Safety Performance Indicator***	***Alert level criteria***	***Target level criteria***
Aerodrome operator quarterly ground accident/serious incident rate – involving any aircraft (e.g. per 10,000 ground movements)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate	Aerodrome operator internal QMS/SMS annual audit LEI % or finding rate (findings per audit)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate
Aerodrome operator quarterly runway excursion incident rate – involving any aircraft (e.g. per 10,000 ground movements)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate	Aerodrome operator quarterly ground runway foreign object/debris hazard report rate (e.g. per 10,000 ground movements)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate
Aerodrome operator quarterly runway incursion incident rate – involving any aircraft (e.g. per 10,000 ground movements)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate	Operator voluntary hazard report rate (per operational personnel per quarter)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate
			Aerodrome operator quarterly aircraft ground foreign object damage incident report rate – involving damage to aircraft (e.g. per 10,000 ground movements)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate

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(c) ATS Operator

SMS Safety Performance Indicators (Individual Organisation)

High- consequence indicators (occurrence /outcome based)			*Lower-consequence indicators (event/activity-based)*		
Safety Performance Indicator	***Alert level criteria***	***Target level criteria***	***Safety Performance Indicator***	***Alert level criteria***	***Target level criteria***
ATS operator quarterly FIR serious incident rate – involving any aircraft (e.g. per 100,000 flight movements)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate	ATS operator quarterly FIR TCAS RA incident rate – involving any aircraft (e.g. per 100,000 flight movements)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate
ATS operator quarterly FIR TCAS RA incident rate – involving any aircraft (e.g. per 100,000 flight movements)	Assuming the historical annual average rate is 3, the possible alert could be 5	Assuming the historical annual average rate is 3, the possible target could be 2	ATS operator quarterly FIR level bust (LOS) incident rate – involving any aircraft (e.g. per 100,000 flight movements)	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate
			ATS operator internal QMS/SMS annual audit LEI % or findings rate (findings per audit)	Consideration	Consideration

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(d) DOA, POA or MRO organisation

SMS Safety Performance Indicators (Individual Organisation)

High- consequence indicators (occurrence /outcome based)			*Lower-consequence indicators (event/activity-based)*		
Safety Performance Indicator	***Alert level criteria***	***Target level criteria***	***Safety Performance Indicator***	***Alert level criteria***	***Target level criteria***
MRO/POA quarterly rate of component technical warranty claims	Average + 1/2/3 SD (annual or 2 yearly reset)	_% (e.g. 6%) improvement between each annual mean rate	MRO/POA/DOA internal QMS/SMS annual audit LEI % or findings rate (findings per audit)	Consideration	Consideration
POA/DOA quarterly rate of operational products which are the subject of ADs/ASBs (per product line)	Consideration	Consideration	MRO/POA/DOA quarterly final inspection/testing failure/rejection rate (due to internal quality issues)	Consideration	Consideration
MRO/POA quarterly rate of component mandatory/major defect reports raised (due to internal quality issues)	Consideration	Consideration	MRO/POA/DOA voluntary hazard report rate (per operational personnel per quarter)	Consideration	Consideration

[Back to GM to CAR-100.110(b) or Home]

Appendix 7 – Example of SMS Manual Content

1. Document control

Describe how the manual(s) will be kept up to date and how the organisation will ensure that all personnel involved in safety-related duties have the most current version.

(a) Hard copy or controlled electronic media and distribution list.
(b) The correlation between the SMS manual and other existing manuals such as the maintenance control manual (MCM) or the operations manual.
(c) The process for periodic review of the manual and its related forms/documents to ensure their continuing suitability, adequacy and effectiveness.
(d) The manual's administration, approval and regulatory acceptance process.

Cross-reference documents: Quality manual, engineering manual, etc.

2. SMS regulatory requirements

Address current SMS regulations and guidance material for necessary reference and awareness by all concerned.

(a) Spell out the current SMS regulations/standards. Include the compliance timeframe and advisory material references as applicable.
(b) Where appropriate, elaborate on or explain the significance and implications of the regulations to the organisation.
(c) Establish a correlation with other safety-related requirements or standards where appropriate.

Cross-reference documents: SMS regulation/requirement references, SMS guidance document references, etc.

3. Scope and integration of the Safety Management System

Describe the scope and extent of the organisation's aviation-related operations and facilities within which the SMS will apply. The scope of the processes, equipment and operations deemed eligible for the organisation's hazard identification and risk management (HIRM) programme should also be addressed.

(a) Spell out the nature of the organisation's aviation business and its position or role within the industry as a whole.
(b) Identify the major areas, departments, workshops and facilities of the organisation within which the SMS will apply.
(c) Identify the major processes, operations and equipment, which are deemed eligible for the organisation's HIRM programme, especially those that are pertinent to aviation safety. If the scope of the HIRM-eligible processes, operations and equipment is too detailed or extensive, it may be controlled under a supplementary document as appropriate.
(d) Where the SMS is expected to be operated or administered across a group of interlinked organisations or contractors; define and document such integration and associated accountabilities as applicable.
(e) Where there are other related control/management systems within the organisation, such as QMS, OSHE and SeMS, identify their relevant integration (where applicable) within the aviation SMS.

Cross-reference documents: Quality manual, engineering manual, etc.

4. Safety policy

Describe the organisation's intentions, management principles and commitment to improving aviation safety in terms of the product or Organisation. A safety policy should be a short description similar to a mission statement.

(a) The safety policy should be appropriate to the size and complexity of the organisation.
(b) The safety policy states the organisation's intentions, management principles and commitment to continuous improvement in aviation safety.
(c) The safety policy is approved and signed by the Accountable Manager.
(d) The safety policy is promoted by the Accountable Manager and all other managers.
(e) The safety policy is reviewed periodically.
(f) Personnel at all levels are involved in the establishment and maintenance of the Safety Management System.
(g) The safety policy is communicated to all employees with the intent that they are made aware of their individual safety obligations.

Cross-reference documents: OSHE safety policy, etc.

5. Safety objectives

Describe the safety objectives of the organisation. The safety objectives should be a short statement that describes in broad terms what the organisation hopes to achieve.

Criteria

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

Cross-reference documents: Safety Performance Indicators document, etc.

6. Roles and responsibilities

Describe the safety authorities, responsibilities and accountabilities for personnel involved in the SMS.

(a) The Accountable Manager is responsible for ensuring that the Safety Management System is properly implemented and is performing as required in all areas of the organisation.
(b) An appropriate safety manager (office), safety committee or Safety Action Groups (SAGs) have been appointed as appropriate.
(c) Safety authorities, responsibilities and accountabilities of personnel at all levels of the organisation are defined and documented.
(d) All personnel understand their authorities, responsibilities and accountabilities with regard to all safety management processes, decisions and actions.
(e) An SMS organisational accountabilities diagram is available.

Cross-reference documents: Company exposition manual, SOP manual, administration manual, etc.

7. Safety reporting

A reporting system should include both reactive (accident/incident reports, etc.) and proactive/predictive (hazard reports). Describe the respective reporting systems. Factors to consider include: report format, confidentiality, addressees, investigation/evaluation procedures, corrective/preventive actions and report dissemination.

Criteria

(a) The organisation has a procedure that provides for the capture of internal occurrences including accidents, incidents and other occurrences relevant to SMS.
(b) A distinction is to be made between mandatory reports (accidents, serious incidents, major defects, etc.), which are required to be notified to the CAA, and other routine occurrence reports, which remain within the organisation.
(c) There is also a voluntary and confidential hazard/occurrence reporting system, incorporating appropriate identity/data protection as applicable.
(d) The respective reporting processes are simple, accessible and commensurate with the size of the organisation.
(e) High-consequence reports and associated recommendations are addressed to, and reviewed by the appropriate level of management.
(f) Reports are collated in an appropriate database to facilitate the necessary analysis.

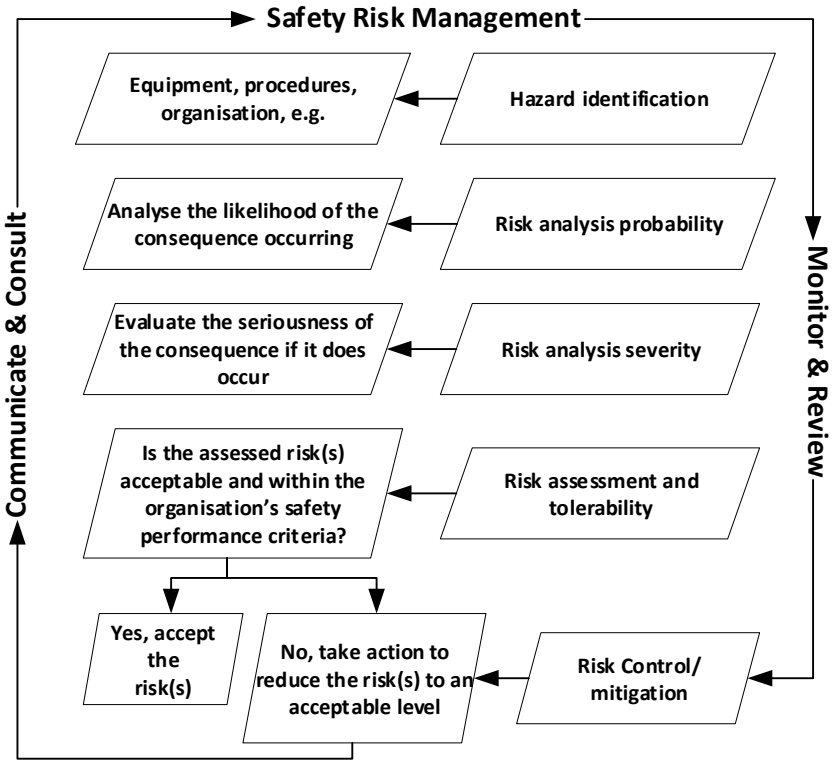
Cross reference documents: Company Risk Register

8. 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.

(a) Identified hazards are evaluated, prioritized and processed for risk assessment as appropriate.
(b) There is a structured process for risk assessment involving the evaluation of severity, likelihood, tolerability and preventive controls.
(c) Hazard identification and risk assessment procedures focus on aviation safety as their fundamental context.
(d) The risk assessment process utilizes worksheets, forms or software appropriate to the complexity of the organisation and operations involved.
(e) Completed safety assessments are approved by the appropriate level of management.
(f) There is a process for evaluating the effectiveness of the corrective, preventive and recovery measures that have been developed.
(g) There is a process for periodic review of completed safety assessments and documenting their outcomes.

Cross reference documents: Company Risk Register Manual



9. Safety performance monitoring and measurement

Describe the safety performance monitoring and measurement component of the SMS. This includes the organisation's SMS Safety Performance Indicators (SPIs).

(a) The formal process to develop and maintain a set of Safety Performance Indicators and their associated performance targets.
(b) Correlation established between the SPIs and the organisation's safety objectives where applicable and the process of regulatory acceptance of the SPIs where required.
(c) The process of monitoring the performance of these SPIs including the remedial action procedure, whenever unacceptable or abnormal trends are triggered.
(d) Any other supplementary SMS or safety performance monitoring and measurement criteria or process.

10. Safety-related investigations and remedial actions

Describe how accidents/incidents/occurrences are investigated and processed within the organisation, including their correlation with the organisation's SMS hazard identification and risk management system.

(a) Procedures to ensure that reported accidents and incidents are investigated internally.
(b) Dissemination of completed investigation reports internally as well as to the CAA as applicable.
(c) A process for ensuring that corrective actions taken or recommended are carried out and for evaluating their outcomes/effectiveness.
(d) Procedure on disciplinary inquiry and actions associated with investigation report outcomes.
(e) Clearly defined conditions under which punitive disciplinary action would be considered (e.g. illegal activity, recklessness, gross negligence or willful misconduct).
(f) A process to ensure that investigations include identification of active failures as well as contributing factors and hazards.

(g) Investigation procedure and format provides for findings on contributing factors or hazards to be processed for follow-up action by the organisation's hazard identification and risk management system, where appropriate.

11. 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 organisation.

(a) The training syllabus, eligibility and requirements are documented.
(b) There is a validation process that measures the effectiveness of training.
(c) The training includes initial, recurrent and update training, where applicable.
(d) The organisation's SMS training is part of the organisation's overall training programme.
(e) SMS awareness is incorporated into the employment or indoctrination programme.
(f) The safety communication processes/channels within the organisation.

12. Continuous improvement and SMS audit

Describe the process for the continuous review and improvement of the SMS.

(a) The process for regular internal audit/review of the organisation's SMS to ensure its continuing suitability, adequacy and effectiveness.
(b) Describe any other programmes contributing to continuous improvement of the organisation's SMS and safety performance, e.g. Safety surveys, ISO systems.

13. SMS records management

Describe the method of storing all SMS-related records and documents.

(a) The organisation 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.
(b) Records to be kept include hazard reports, risk assessment reports, Safety Action Group/safety meeting notes, Safety Performance Indicator charts, SMS audit reports and SMS training records.
(c) Records should be traceable for all elements of the SMS and be accessible for routine administration of the SMS as well as internal and external audits purposes.

14. Management of change

Describe the organisation's process for managing changes that may have an impact on safety risks and how such processes are integrated within the SMS.

(a) Procedures to ensure that substantial organisational or operational changes take into consideration any impact which they may have on existing safety risks.
(b) Procedures to ensure that appropriate safety assessment is performed prior to introduction of new equipment or processes which have safety risk implications.
(c) Procedures for review of existing safety assessments whenever there are changes to the associated processes or equipment.

Cross-reference documents: Company SOP relating to management of change, etc.

15. Emergency/contingency response plan

Describe the organisation'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 (ERP) can be a separate document or it can be part of the SMS manual.

Criteria (as applicable to the organisation)

(a) The organisation has an emergency plan that outlines the roles and responsibilities in the event of a major incident, crisis or accident.
(b) There is a notification process that includes an emergency call list and an internal mobilization process.
(c) The organisation has arrangements with other agencies for aid and the provision of emergency services as applicable.
(d) The organisation has procedures for emergency mode operations where applicable.
(e) There is a procedure for overseeing the welfare of all affected individuals and for notifying next of kin.
(f) The organisation has established procedures for handling the media and insurance-related issues.
(g) There are defined accident investigation responsibilities within the organisation.
(h) The requirement for preservation of evidence, securing the affected area, and mandatory/ governmental reporting is clearly stated.
(i) There is emergency preparedness and response training for affected personnel.
(j) A disabled aircraft or equipment evacuation plan has been developed by the organisation in consultation with aircraft/equipment owners, aerodrome operators or other agencies as applicable.
(k) A procedure exists for recording activities during an emergency response.
(l) Emergency response exercises are conducted annually or on a two (2) yearly basis.

Cross-reference documents: ERP manual, etc.

Appendix 8 – Safety Risk Register Form

RISK REGISTER

Consequences	
1	= Insignificant
2 - 3	= Minor
4 - 5 - 6	= Moderate - Moderatley High
7 - 8 - 9	= Major - Extremely Major
10	= Catastrophic

Likelihood	
1	= Rare
2 - 3	= Highly Unlikely - Unlikely
4 - 5 - 6	= Possible - Highly Possible
7 - 8 - 9	= Likely - Highly Likely
10	= Almost Certain

Controls	
1	= Totally Effective
2 - 3	= Highly Effective
4 - 5 - 6	= Moderate Effectiveness
7 - 8 - 9	= Marginal Effectiveness
10	= Totally Ineffective

Priority Risk No.: = (Consequence x 60) + (Likelihood x 40) x (Control)	
Up to 1000	= Very Low Risk Severity
1001 - 2000	= Low Risk Severity
2001 - 5000	= Moderate Risk Severity
5001 - 7500	= High Risk Severity
7501 - 10000	= Extreme Risk Severity

		Current Risk Profile									Mitigated Risk Profile							Review		
Risk Ref	Risk Description (Who, What, How, Why)	Date Added	Risk Dimension (Contractual Financial Technical etc.)	Risk Source (Directorate Dept Section or Phase)	Current Controls	Risk Owner (Team or Position)	Conse-quence (1 - 10)	Likeli-hood (1 - 10)	Control Effective -ness (1 - 10)	Risk Priority No.	Risk Handling (Mitigate, Accept, Transfer, or Avail)	Tasks (Detail Mitigation Actions or Proposed Treatment Actions & Control)	Due Date	Revised Conse-quence (1 - 10)	Revised Likeli-hood (1 10)	Revised Control Effectiv e-ness (1 - 10)	Revised Risk Priority No.	Last Review Date	Changes During Review	Next Review Date
1																				

Consequence Rating	Risk Register Rating	Service Disruption	Liability	Reputation Impact	OH&S	Regulatory Impact	Environmental Impact
Catastrophic	10	Prolonged interruption; non-performance; greater	Direct loss or loss greater than OR 150K	Headline exposure; Loss of credibility; Extensive damage to PACA's reputation; Direct adverse impact on CEO and Board	Permanent Disabling injury/ies or death/s	Black listing of country by ICAO; Oman Air placed on restricted route structuring	Legal action due to invironmental impact; Wide spread irriversible & detrimental effect on human, fauna and flora life.
Major	5	Additional resources required; prolonged interruption; loss of full service for greater than 14days	Direct loss or loss greater than OR 80K and less than OR 150K	Headlines; At fault unresolved issues; Major embarassment to CEO and Board	Severe Health crisis (incapacity greater than 3mths)	Regulatory issues concernong non-compliance or lack thereof	Limited detrimental effect on human, fauna and flora life.
Moderate	3	Medium term; Temporary interruption; restored with additional resources; loss of service greater than 2days and less than 14days	Direct loss or loss greater than OR 20K and less than OR 80K	Repeated non-headline exposure; slow resolution; direct adverse impact on reputation of PACA; adverse media; disciplinary action at manager level	Increased level of medical attention (2wks to 3mths incapacity)	Lack of regulatory oversight through random or planned audits	Off-site or on-site release with reversible effect on on human, fauna and flora life.
Minor	2	Temporary interruption; loss of service for less than 1day	Direct loss or loss greater than OR 2K and less than OR 20K	Non-headline exposure; at fault; negligible impact; limited impact on CEO or Board; Disciplinary action likely	Routine medical attention required (up to 2wks incapacity)	Minor regulatory breaches overlooked by inspection staff	Minor effects on environment with reversible effects
Insignificant	1	No disruption	direct loss less than OR 2K	Non-headline exposure; no fault; no impact; no significant impact on CEO or Board; Warning to employee/s only	First aid required (minor cuts, abrasions, bruises etc.	Internal regulatory assessment of operating procedures and or regulations	Negligible impact or reversible effects on non-living physical environment; internal defect hazard investigation

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Appendix 9 – Root Cause Analysis (RCA)

1. Introduction

Principles of RCA are closely related to those of risk assessment, particularly in terms of the thoroughness of the analysis. Both processes consider not simply what caused the issue (person or otherwise), but all aspects of the organisation and each individual in that organisation where that person works. This approach has the premise that human error is a consequence rather than a deliberate action and, as such, proactive measures and continuous reform of different aspects of the processes and organization can address latent conditions in the system and increase the system's resistance to operational hazards. The term "latent conditions" refers to flawed procedures or organizational characteristics capable of creating hazards if the right conditions or actions occur.

Therefore, RCA treats errors as defects in the system rather than in an individual. RCA looks beyond the symptom to find the organizational defect that permitted an error to occur. The more thorough the analysis, the greater the likelihood you will uncover why the system deficiency could occur, and how your organization can respond definitively.

An effective RCA can be as simple as asking and answering a question (five times) about why something happened. A superficial analysis might have led to disciplinary action against one individual, which is indicative of a blame culture, and would, most likely, lead to a recurrence of the same error by a different individual.

2. Considerations for the RCA process

(a) RCA should consider two major areas:

(1) Systems analysis plays an increasingly important role because of the increasing aviation complexity and variety of organisation activities, equipment and multicultural environment issues. Systems analysis emphasizes a harmonized approach to an enterprise, including specific written procedures and planning for all activities, clearly established authority and responsibilities, communications processes, and methods of measuring results, detecting system errors, and preventing recurrence. This harmonized approach recognizes the wide range of interrelated issues that are potentially associated with a problem in the system.

(2) Human factors analysis begins with the field organization itself where the occurrence happens (flight operations, ground operations, training, maintenance, ATS, etc. Each of those organisations

i. Defines the environment where staff conducts their tasks.

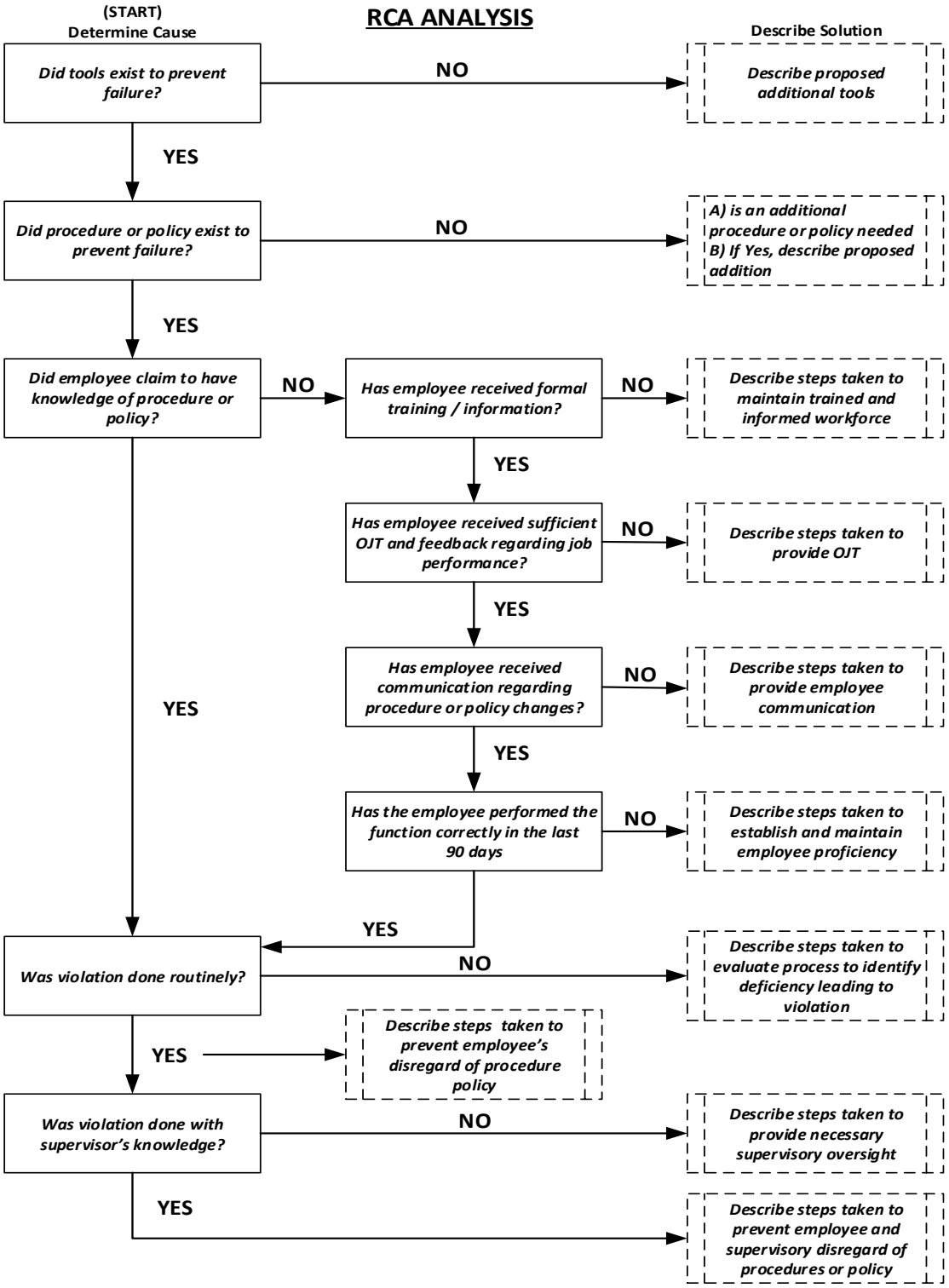
ii. Defines the policies and procedures that staff must follow and respect.

iii. Allocates the resources that staff needs to achieve the safety and production goals.

(b) Within the field organisation, human factors analysis looks at how their staffs communicate and perform in the work environment and then seeks to incorporate that knowledge into the design of equipment, processes, and organisations. This enhances safety and maximizes the human contribution, partly by designing systems to anticipate the inevitability of human error. The human factors discipline addresses a wider range of issues affecting how people interface with technology and the operational system; how people learn about new or changed equipment, technology, and documentation; and how people adapt to the general workplace environment.

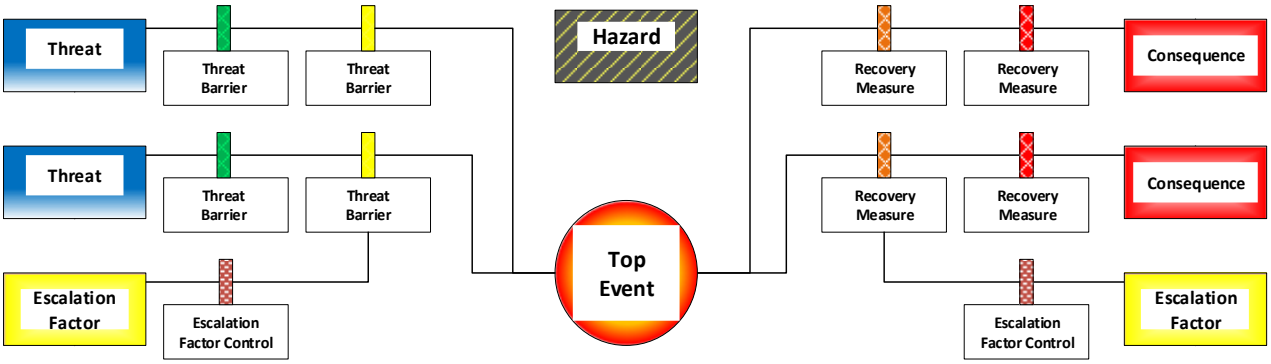
(c) Any organisation should be aware that knowledge gained from "human factors" can help to avoid operational staff errors, ensure that individuals' initial skill sets match task requirements, ensure that individuals maintain and improve their skills, and enhance the work environment.
The CAA expects that any RCA considers "human factors" as a part of the investigation of individual events, by any personnel designated to respond to safety related occurrences. Otherwise, data reviewed in a quality assurance process could be incomplete.

(d) A proper implementation of RCA, need a suitable and sustainable "Just Culture" environment, which should discourage the temptation to quick fixes by blaming operational and looking for corrective actions on unrealistic and unachievable human performance.



[Back to AMC to CAR-100.130, AMC to CAR-100.135 or Home]

Appendix 10 – Example of the BowTie Model



Definitions related to the Bowtie Model:

Threats: A possible direct cause that will potentially release a hazard by producing a top event.

Consequences: A potential event resulting from the release of a Hazard, which directly results in loss or damage.

Top Event: A point in time which describes the release or loss of control over a Hazard (the undesired system state).

Hazard: The condition, object or activity with the potential of causing injuries to personnel, damage to equipment or structures, loss of material or reduction of ability to perform a prescribed function.

Escalation Factors: A condition that leads to increased risk by defeating or reducing the effectiveness of controls (a control decay mechanism).

Escalation Factor Control: A control that manages the conditions which reduce the effectiveness of other controls

Threat Barrier: Measures that are considered to reduce the likelihood of the top event to occur.

Recovery Measure: Measures that are considered to reduce the likelihood of the top event developing into a consequence as well as mitigating the severity of the consequence.

Acceptable Means of Compliance & Guidance Material

The following is to be read in association with the applicable sub-regulation as stated in the heading or in association with the stated Appendix within the regulation.

GM to CAR 100.105

A safety policy outlines what your organisation will do to manage safety. Your policy is a reminder of 'how we do business around here'.

Safety policy statements typically include:

(a) The overall safety objectives of the organisation
(b) The commitment of senior management to provide the resources necessary for effective safety management
(c) A statement about responsibility and accountability for safety at all levels of the organisation
(d) Management's explicit support of a 'positive safety culture', as part of the overall safety culture of the organisation.

Safety objectives:

The safety objectives should state an intended safety outcome – what you are going to do? These objectives may be expressed in terms of short, medium and long-term safety goals.

To be able to measure the effectiveness of operational safety objectives, they should be SMART (**S**pecific, **M**easurable, **A**chievable and **R**ealistic; and have a specified **T**imeframe within which they are to be achieved).

SMS implementation:

SMS implementation involves spelling out all aspects of developing and implementing the SMS. It is expected that the SMS program will mature over time through a process of continuous improvement.

Organisations should conduct a gap analysis to determine which parts of their safety management system are currently in place, and which parts need to be added to, or modified, to meet their own, as well as regulatory, requirements.

The chief executive officer (CEO) of the organisation should demonstrate a commitment to safety by:

(a) recruiting a management team appropriate to the size and complexity of the organisation
(b) developing and disseminating a safety policy and safety objectives
(c) establishing a safety strategy and safety goals
(d) creating and adequately resourcing the SMS program
(e) specifying the roles, responsibilities and accountabilities of the management team in relation to aviation safety. [Home]

AMC to CAR 100.110 para (a)

(a) A ***safety management system*** or ***SMS*** is a systematic approach to managing safety that must:
  (1) include the organisational structures, accountabilities, policies and procedures necessary to manage safety in a systematic way; and
  (2) an SMS must, as a minimum, include the following:
    A. a statement of the operator's safety policy and objectives, including documented details of the following:
      i. the management commitment to, and responsibility for, safety risk management;
      ii. the safety accountabilities of managers;
      iii. the appointment of key safety personnel;
      iv. the SMS implementation plan;

v. the relevant third party relationships and interactions;
vi. the coordination of the emergency response plan;

B. a safety risk management plan, including documented details of the following:
i. hazard identification processes;
ii. risk assessment and mitigation processes;

C. a safety assurance system, including documented details of the following:
i. safety performance monitoring and measurement;
ii. management of change;
iii. continuous improvement of the SMS;

D. a safety promotion system, including documented details of the following:
i. training and education;
ii. safety communication;

(b) An SMS approved by the CAA under sub-regulation CAR-100.110 para (a) may only be amended in accordance with the following:

(1) An SMS may have a process for the amendment of the SMS in accordance with this subsection.

(2) ***SMS amendment process*** is a process within an SMS for amendment of the SMS, or a specified part of the SMS, in accordance with this subsection.

Note: The SMS amendment process can only be altered in accordance with para (c) below.

(3) An operator, who does not have an SMS amendment process approved by CAA, must not amend the operator's approved SMS without the CAA's approval.

(4) For paragraph (3), the CAA's approval may only be given in the form of a new SMS approval.

(5) If an operator has an SMS amendment process, it must be approved in writing by the CAA at the time CAA approves the operator's SMS.

(6) An approved SMS amendment process must have the capacity to identify and record reliable information from which a reasoned and persuasive safety case may be developed to demonstrate whether or not a proposed amendment to the SMS is likely to:

A. maintain at least the same level of safety as that which exists under the SMS at the time of the proposed amendment; or

B. increase the level of safety above that which exists under the SMS at the time of the proposed amendment.

(7) Subject to paragraph (11), if an operator has an approved SMS amendment process, the operator may, without the CAA's approval, make a proposed amendment to the operator's SMS, but only if:

A. the proposed amendment is:
i. merely editorial; or
ii. such that no reasonable person could doubt that the proposed amendment increases the level of safety above that which exists under the SMS at the time of the proposed amendment; or

B. a safety case, developed in the SMS amendment process, demonstrates that the proposed amendment is likely to:
iii. maintain at least the same level of safety as that which exists under the SMS at the time of the proposed amendment; or
iv. increase the level of safety above that which exists under the SMS at the time of the proposed amendment.

(8) If an operator makes an amendment to the operator's SMS in accordance with this subsection, the amendment must not take effect until it is documented by being incorporated into every copy of the documents mentioned in para (a)(2) above, used by the operator to which the amendment is relevant.

(9) If an operator makes an amendment to the operator's SMS in accordance with this subsection, the amendment must be notified in writing to the CAA in accordance with a procedure and timetable that must be set out in the operator's approved SMS amendment process.

(10) An approved SMS amendment process may itself only be altered in accordance with para (c) below.

(11) An amendment to part of an SMS, on which an approved SMS amendment process directly depends in order to comply with paragraph (6), is deemed to be an alteration of the SMS amendment process to which para (c) applies.

*Note: If, as part of its general capacity to demonstrate the safety of SMS amendments, the SMS amendment process **directly** depends on some feature of the SMS itself, a proposed amendment to that SMS feature would be considered an amendment of the SMS amendment process. Paragraph (c) would, therefore, apply to the proposed amendment.*

(c) **Alteration of an approved SMS amendment process:** An operator with an approved SMS amendment process must not alter that process without the CAA's written approval. [Home]

GM to CAR 100.110 para (b)

Safety objectives identify what the organisation intends to achieve in terms of safety management. The safety objectives are expressed as a top-level statement describing the organisation's commitment to achieving safety. The safety objectives are linked with the Safety Performance Indicators, targets and mitigation plans (For more guidance see also APPENDIX 6 – Safety Performance Indicators). [Home]

GM to CAR 100.110 para (c)

Just and Safety culture concept is explained in APPENDIX 1. [Home]

AMC-1 to CAR 100.115 para (a)

The Accountable Manager's authorities and accountabilities should include, but are not limited to:

(a) communication and promotion of the safety policy;
(b) establishment of the organisation's safety objectives and safety targets;
(c) establishment, implementation and maintenance of the organisation's competence to learn from the analysis of data collected through its safety reporting system and others Safety Data Collection and Processes Systems (SDCPS) in place; and
(d) establishment of a just culture which encourages safety reporting. (See APPENDIX 1) [Home]

AMC-2 to CAR 100.115 para (a)

Depending on the size, structure and complexity of the organisation, the Accountable Manager should be:

(a) the chief executive officer (CEO) of the Organisation; or equivalent;
(b) the chairperson of the board of directors;
(c) A person holding an appropriate delegation by a legally authorised person to act as an Accountable Manager
(d) a partner; or
(e) the proprietor. [Home]

AMC-1 to CAR-100.120

By requiring that the service provider identify the accountable executive, the responsibility for the overall safety performance is placed at a level in the organisation having the authority to take action to ensure that the SMS is effective. Defining the specific safety accountabilities of all members of the management team clarifies the accountability framework throughout the organisation.

These accountability frameworks need to include accountability for the safety performance of the sub-product or sub-contracted service providers that do not separately require safety certification or approval.

These safety responsibilities, accountabilities and authorities must be documented and communicated throughout the organisation, and they need to identify the levels of management with authority to make decisions regarding safety risk tolerability. Additionally, the safety accountabilities of managers should include the allocation of the human, technical, financial or other resources necessary for the effective and efficient performance of the SMS. (ICAO 9859 – Safety Management Manual) [Home]

AMC-2 to CAR 100.120

The Accountable executive/manager – SMS functions should include but are not limited to:

(a) managing the SMS implementation;
(b) performing/facilitating hazard identification and safety risk analysis;
(c) monitoring corrective actions and evaluating their results;
(d) providing periodic reports on the organisation's safety performance;
(e) maintaining records and safety documentation;
(f) planning and facilitating staff safety training;
(g) providing independent advice on safety matters;
(h) monitoring safety concerns in the aviation industry and their perceived impact on the organisation's operations aimed at service delivery;
(i) managing that processes for SDCPS such as safety reporting, Flight Data Monitoring (FDM) and other safety data collection methods are established, and ensuring that they are implemented; and
(j) advising the Safety Review Board on safety issues, in case the organisation has established such a board. [Home]

GM to AMC to CAR 100.120 para (d)

Depending on size, complexity and nature the organisation may need to establish a Safety Review Board (SRB), which is a high level committee that considers matters of strategic safety importance in support of the Accountable Manager's safety accountability. The SRB provides the platform to achieve the objectives of resource allocation and to assess the effectiveness and efficiency of risk mitigation strategies.

The SRB is chaired by the Accountable Manager and composed of senior managers, including line managers responsible for functional areas as well as those from relevant administrative departments. The Accountable executive/manager – SMS participates in the SRB in an advisory capacity. The SRB meets periodically.

The SRB:

(a) monitors the effectiveness of the SMS;
(b) monitors that any necessary corrective action is taken in a timely manner;
(c) monitors safety performance against the organisation's safety policy and objectives;

(d) monitors the effectiveness of the organisation's safety management processes which support the declared corporate priority of safety management as another core business process;
(e) monitors the effectiveness of the safety supervision of subcontracted operations;
(f) ensures that appropriate resources are allocated to achieve safety performance beyond that required by regulatory compliance.

The SRB is strategic and deals with high-level issues related to policies, resource allocation and organisational performance monitoring. Once a strategic direction has been developed by the SRB, implementation of safety strategies should be coordinated throughout the organisation.

This can be accomplished by creating a Safety Action Group (SAG). SAGs are composed of line managers and front-line personnel and are normally chaired by a designated line manager. [Home]

GM-1 to CAR-100.120

In the SMS context, accountability means being ultimately responsible for safety performance, whether at the overall SMS level (Accountable Manager), the designated Accountable Executive level or specific product/process levels (members of the management team). This includes being responsible for ensuring appropriate corrective actions are taken to address hazards and errors reported, as well as responding to accidents and incidents. [Home]

GM-2 to CAR 100.120

Below are examples of which may be considered to meet the proper education, training and experience requirement:

(a) safety/quality management experience;
(b) operational experience;
(c) technical background to understand the systems that support operations;
(d) people skills;
(e) analytical and problem-solving skills;
(f) project management skills; and
(g) oral and written communications skills. [Home]

GM-3 to CAR 100.120

Organisations may establish a Safety Action Group to achieve the established performance, which reports to and takes strategic direction from the SRB.

(a) A Safety Action Group may be established as a standing group or as an ad hoc group to assist the Accountable executive/manager – SMS or Safety Review Board.
(b) More than one Safety Action Group may be established depending on the scope of the task and specific expertise required.
(c) The Safety Action Group should report to, and take strategic direction from the Safety Review Board.
(d) The Safety Action Group may, assist the Accountable executive – SMS in:
    (1) oversee operational safety performance within the functional areas of the organisation and ensures that appropriate safety risk management activities are carried out with staff involvement as necessary to build up safety awareness;
    (2) coordinate the resolution of mitigation strategies for the identified consequences of hazards and ensures that satisfactory arrangements exist for safety data capture and employee feedback;
    (3) assess the safety impact related to the introduction of operational changes or new technologies;
    (4) coordinate the implementation of corrective action plans and ensures that corrective action is taken in a timely manner;

(5) oversee safety promotion activities as necessary to increase awareness of safety issues among relevant employees, to ensure that employees are provided appropriate opportunities to participate in safety management activities.

(e) The Safety Action Group may also be tasked with the review the effectiveness of previous safety actions and safety promotion.

(f) The Accountable executive/manager – SMS may also be included in the SAG. [Home]

AMC to CAR 100.125

The ERP should be documented in the format of a manual or directly integrated into the SMS Manual and reflect the size, nature and complexity of the activities performed by the organisation. If the Emergency Response Plan is documented in a separate document, it should be cross-linked to SMS manual.

The ERP should also:

(a) ensure an orderly, safe and efficient transition from normal to emergency operations, and back to normal;
(b) ensure delegation of emergency authority;
(c) ensure authorisation by key personnel for actions contained in the plan;
(d) ensure coordination of efforts to cope with the emergency;
(e) ensure that the responsibilities, roles and actions of various agencies and personnel involved in dealing with emergencies are defined and personnel are trained;
(f) periodically be tested for the adequacy of the plan and the results reviewed to improve its overall effectiveness.
(g) take into account considerations such as:
  (1) governing policies;
  (2) organisation;
  (3) notifications;
  (4) initial response;
  (5) additional assistance;
  (6) Crisis Management Centre (CMC);
  (7) records;
  (8) accident site;
  (9) news media;
  (10) formal investigations;
  (11) family assistance;
  (12) post-critical incident stress counselling; and
  (13) post-occurrence review. [Home]

GM to CAR 100.125

The Emergency Response Plan addresses all possible or likely emergency/crisis scenarios relating to the organization's aviation product or service deliveries. [Home]

GM to AMC to CAR 100.125

APPENDIX 4 provides guidelines for typical contents of an ERP manual. [Home]

AMC to CAR 100.130 para (a)

An SMS manual defines the organisation's approach to the management of safety in a manner that meets the organisation's safety policy and the requirements of this regulation. The organisation should develop and maintain SMS documentation that describes how the organisation is going to comply with this regulation; and describes its:

(a) safety policy and objectives;
(b) SMS requirements;
(c) SMS processes and procedures;
(d) accountabilities, responsibilities and authorities for SMS processes and procedures. [Home]

GM to AMC CAR 100.130 para (a)

APPENDIX 7 provides an example of typical contents of an SMS manual. [Home]

AMC to CAR 100.130 para (b)

(a) The format of the records should be specified in the organisation's procedures.
(b) Records should be stored in a manner that ensures protection from damage, alteration, and theft.
(c) The record keeping system should ensure that all records are accessible whenever needed and records should be organised in a way that ensures traceability throughout the required retention period.
(d) Paper systems should use robust material that can withstand normal handling and filing. Computer systems should have at least one backup system, which is updated within twenty-four (24) hours of any new entry. Computer systems should include safeguards against the ability of unauthorized personnel altering the data.
(e) All computer hardware used to ensure data backup should be stored in a different location from that containing the working data, and in an environment that ensures they remain in good condition. When hardware or software changes take place, special care should be taken that all necessary data continues to be accessible at least through the full period specified in the relevant provision. In the absence of such indication, all records should be kept for a minimum period of seven (7) years.
(f) The records should remain legible throughout the required retention period. The retention period starts from when the record was created or last amended.
(1) Records related to Safety Management System processes should include but are not limited to:
    (1) The results of the assessment of the potential adverse consequences or outcome of each hazard;
    (2) Safety Performance Indicators, targets and related charts;
    (3) record of completed or in-progress safety assessments;
    (4) SMS internal review or audit records;
    (5) safety promotion records;
    (6) personnel SMS/safety training records;
    (7) SMS/safety committee meeting minutes; and
    (8) SMS implementation plan (during implementation process).
    (See Appendix 7 para (7) for additional GM) [Home]

AMC-1 to CAR 100.135

(a) Hazards should be identified through proactive methodologies or as a result of accident or incident investigations (reactive), and where practical through predictive methodologies.
(b) Data sources of hazard identification should be both internal and external to the organisation.
(c) Organisations should establish internal confidential reporting channels to maximise data capturing. [Home]

GM to AMC-1 to CAR 100.135

(a) In addition to the internal reporting systems, flight data analysis and internal audits, Internal hazard identification data sources may include:
  (1) normal operation monitoring schemes;
  (2) safety surveys;
  (3) feedback from training; and
  (4) investigation and follow-up reports on accidents/incidents.

(b) External data sources for hazard identification may include:
  (1) industry accident reports;
  (2) CAA mandatory occurrence reporting systems (MORs);
  (3) CAA audits; and
  (4) information exchange systems. [Home]

AMC-2 to CAR 100.135

The internal safety reporting system should contain the following elements:

(a) the collection and evaluation of those errors, near-misses, and hazards reported internally;
(b) corrective and preventive actions are taken internally to address any safety issues and hazards;
(c) feedback to the organisation's safety training, whilst maintaining appropriate confidentiality;
(d) provision of feedback to the reporter to ensure his support to the occurrence reporting system and disseminate the results to other relevant parties.
(e) A non-punitive approach which encourages safety reporting within a system that clearly indicates which types of behaviours are unacceptable.
(f) an investigation process to:
  (1) identify and address the factors contributing to occurrences in order to reduce the likelihood of reoccurrence;
  (2) identify adverse trends;
  (3) identify those reports which require further investigation; and
  (4) establish all root causes, including any technical, organisational, managerial, or human factors issues, and any other contributing factors relating to the event (APPENDIX 9). [Home]

GM-1 to CAR 100.135

An example of the safety risk management process is illustrated in APPENDIX 2, in addition, other risk management methods e.g. the BowTie can be useful particularly in the implementation of the mitigations and controls. (APPENDIX 10 shows an Example of the BowTie model). [Home]

GM-2 to CAR 100.135

The following may be considered while engaged in the hazard identification process:

(a) design factors, including equipment and task design;
(b) human performance limitations (e.g. physiological, psychological and cognitive);
(c) procedures and operating practices, including their documentation and checklists and their validation under actual operating conditions;
(d) communication factors, including media, terminology and language;
(e) organisational factors, such as those related to the recruitment, training and retention of personnel, the compatibility of production and safety goals, the allocation of resources, operating pressures and the corporate safety culture;
(f) factors related to the operational environment of the aviation system (e.g. ambient noise and vibration, temperature, lighting and the availability of protective equipment and clothing);
(g) regulatory oversight factors, including the applicability and enforceability of regulations and the certification of equipment, personnel and procedures;

(h) performance monitoring systems that can detect practical drift or operational deviations; and human-machine interface factors.
(i) Stem from the existence of complex, (sub-) contract and other operational arrangements. [Home]

GM to CAR 100.140

The process starts with the identification of hazards and their potential consequences. The safety risks are then assessed in terms of probability and severity, to define the level of safety risk (safety risk index). An example of a safety risk matrix is illustrated in APPENDIX 3. The completed hazard identification and safety risk assessment and mitigation process is then documented and approved as appropriate.

Risk acceptance criteria is established based on the organisation's safety policy and objectives. Once risks have been assessed, the organisation should engage in a decision-making process to determine the need to implement risk mitigation measures. Each safety risk mitigation measure should be examined from the following perspectives:

(a) Effectiveness: The extent to which the measure reduces or eliminates the safety risk. Effectiveness can be determined in terms of the technical, training and procedural defences that can reduce or eliminate safety risks.
(b) Cost/benefit: The extent to which the perceived benefits of the mitigation outweigh the costs.
(c) Practicality: The extent to which the mitigation is implementable and appropriate in terms of available technology, financial and administrative resources etc…
(d) Acceptability: The extent to which the stakeholders willingly adopt and embrace them.
(e) Enforceability: The extent to which compliance with new operating procedures can be monitored.
(f) Durability: The extent to which the measure will be sustainable and effective.
(g) Residual safety risks: The degree of safety risk that remains subsequent to the implementation of the initial mitigation, and which may necessitate additional risk control measures.
(h) Unintended consequences: The introduction of new hazards and related safety risks associated with the implementation of any mitigation alternative.

The three generic safety risk mitigation approaches include:

(a) Avoidance. The activity is suspended, either because the associated safety risks are intolerable or deemed unacceptable vis-à-vis the associated benefits.
(b) Reduction. Some safety risk exposure is accepted, although the severity or probability associated with the risks are lessened, possibly by measures that mitigate the related consequences.
(c) Segregation of exposure. Action is taken to isolate the potential consequences related to the hazard or to establish multiple layers of defences to protect against them.

A risk mitigation strategy may involve one of the approaches described above, or may include multiple approaches. It is important to consider the full range of possible control measures to find an optimal solution. The effectiveness of each alternative strategy should be evaluated before a decision can be taken.

Once the mitigation has been approved and implemented, any associated impact on safety performance provides feedback to the Organisation's safety assurance process. This is necessary to ensure integrity, efficiency and effectiveness of the defences under the new operational conditions.

The effective implementation of all above mentioned processes, including evidences of its day by day proper implementation, should be available and used on the internal organisation quality assurance process, with the aim to accomplish its utmost objectives.

Quality assurance process should be developed in a documented continuous monitoring audit approach. It should ensure, that investigations are effectively performed to find occurrences' root causes and issue targeted and feasible recommendations to implement corrective actions by the accountable managerial staff on due time. [Home]

GM to CAR 100.145

Safety assurance consists of processes and activities undertaken by the organisation to determine whether the SMS is operating according to expectations and requirements. The organisation should continually monitor its internal processes as well as its operating environment to detect changes or deviations that may introduce emerging safety risks or the degradation of existing risk controls. Such changes or deviations may then be addressed together with the safety risk management process.

The safety assurance process complements the quality assurance process, with each having requirements for analysis, documentation, and management reviews to ensure that certain performance criteria are met. While quality assurance typically focuses on the organisation's compliance with regulatory requirements, safety assurance specifically monitors the effectiveness of safety risk controls. [Home]

AMC-1 to CAR 100.150

Safety Performance Monitoring processes and systems should include processes and systems for the following:

(a) Continuous monitoring of operational processes including establishment and monitoring of SPIs and SPTs, SPTs, alert levels and the required reporting of safety performance or other statistics data to the CAA;
(b) Periodic monitoring of the operational environment to detect changes;
(c) Auditing of operational processes and systems;
(d) Evaluations of the SMS;
(e) Evaluations of safety data; and
(f) Evaluation of contextual data related the organisation environment, conditions, resources and management.

Note 1: Upon completion of the assessments, evaluations and reviews, if ineffective controls, new hazards, or potential hazards are identified, the Organisation should use the safety risk management process. [Home]

AMC-2 to CAR 100.150

The continuous acceptance of an SMS requires that the CAA is satisfied that the proposed SPIs are appropriate and pertinent to the organisation's aviation activities prior to any agreement. The agreement should be between the CAA Principal Inspector and the organisation. The CAA Principal Inspector will review the proposed SPIs, SPTs, and alert levels to ensure that:

- They are appropriate, and relevant to the scope and complexity of the specific operational context; and
- Their development has used the appropriate measuring matrix and is dependent on the size and complexity of the organisation.

The SPIs, SPTs and alert levels should be:

(a) a combination of high and lower-consequence SPIs as appropriate;
(b) pertinent to the organisation's aviation activities;
(c) consistent with other organisations of the same sector/category;
(d) congruent with the State's SSP aggregate safety indicators for the organisation sector/category. [Home]

AMC-3 to CAR 100.150

The baseline objectives for organisations with insufficient data should target matters of concern for the organisation such as enhancing the safety culture, just culture, reporting and/or improving the level of safety.

These initiatives have broad spectrum and may range from Internal low consequence events having a direct bearing on the way activities and processes are implemented; to major possible safety risks, adoption of best industry practices and maintaining zero occurrence levels for particular events even if the organisation did not encounter such events.

In this sense, these initiatives act as proactive defences without the presence of actual SPIs. Such defences should be checked for effectiveness as part of the safety assurance processes. [Home]

AMC-4 to CAR 100.150

For the CAA to periodically monitor the SPTs and also the State ALoSP, organisations should submit flight hours, engine hours, cycles, number of movements and other required information to the CAA.

Form CAA SMS-005 should be used and provided by mid-month of following the month for organisations operating aircraft (i.e. regulated by CAR OPS-1, and CAR OPS-3). [Home]

AMC-5 to CAR 100.150

The agreed safety performance of an organisation's SMS should be periodically reviewed to ensure it remains relevant and appropriate to the organisation. To facilitate this monitoring, the organisation should provide the CAA with the actual safety performance for every quarter of year (n) as per the following schedule:

Safety Performance Monitoring (SPM) Reports of YEAR (n)	Due date for SPM submission to the Principal Inspector	Due date for "face-to-face" review with the Principal Inspector
No later than 31st April of YEAR (n)	Quarterly SPM Report for Q1 of YEAR (n)	No later than mid-May of YEAR (n)
Quarterly SPM Report for Q2 of YEAR (n)	No later than 30th July of YEAR (n)	No later than mid-August of YEAR (n)
Quarterly SPM Report for Q3 of YEAR (n)	No later than 31st October of YEAR (n)	No later than Mid-November of YEAR (n)
Quarterly SPM Report for Q4 of YEAR (n)	No later than 31st January of YEAR (n+1)	No later than Mid-February of YEAR (n+1)

The Quarterly SPM Reports for every quarter of year (n) should be made using form SMS-004.

Immediately after submission of a Quarterly SPM Report as per above schedule, the organisation should coordinate with the CAA Principal Inspector for a review and agree on the need for adjustments to ensure SPIs, SPTs and alert levels remain relevant and appropriate to the organisation. Adjustments should be substantiated by the appropriate safety data and duly documented. [Home]

GM-1 to CAR 100.150

APPENDIX 6 provides examples of SPIs and SPTs. [Home]

AMC to CAR 100.155

The organisation should demonstrate that:

(a) it has established a process, and conducts formal hazard analyses/risk assessment for major operational changes, major organisational changes, and changes in key personnel
(b) safety assessment/risk assessments are aviation safety focused;

(c) key stakeholders are involved in the change management process, as appropriate. [Home]

GM-1 to CAR 100.155

Considerations for management of change are:

(a) Unless properly managed, changes in organisational structure, facilities, scope of work/approval, personnel, documentation, policies and procedures, etc., may result in the inadvertent introduction of new hazards, exposing the Organisation to new or increased risk.
(b) The management of change should be a process aiming at identifying external and internal changes that may have an adverse effect on safety before implementation. It should make use of the organisation's existing hazard identification, risk assessment, and mitigation processes.
(c) Regardless of the magnitude of change, large or small, there should always be a proactive consideration for safety implications. This is primarily the responsibility of the team proposing and/or implementing the change. However, change can only be successful if all personnel affected by the change are engaged, involved, and participate in the process. The magnitude of change, its safety criticality, and its potential impact on human performance should be assessed in any change management process. *(See GM-2 to CAR 100.155 below)*.
(d) Management of change provides principles and a structured framework for managing all aspects of the change. Disciplined application of change management can maximise the effectiveness of the change, engage staff, and minimise the risks inherent in change.
(e) Some examples of change include, but are not limited to:
    (1) organisational restructuring;
    (2) acquisition of equipment;
    (3) new aircraft type included in the approval;
    (4) additional aircraft or equipment of the same or similar type;
    (5) significant changes in personnel (affecting key personnel and/or large numbers of personnel, high turnover);
    (6) new or amended regulations, procedures;
    (7) competition;
    (8) customer base;
    (9) security;
    (10) financial status;
    (11) new schedule(s), location(s), type(s) of maintenance, and/or operational procedures;
    (12) the generation or alteration of maintenance data; and
    (13) change of a safety significant subcontractor.
    (14) changes to risk control, policy, etc.
(f) The change also has the potential to introduce new, or exacerbate pre-existing, human factors issues. For example, changes in machinery, equipment, technology, procedures, work organisation, or work processes are likely to affect performance.
(g) The purpose of integrating human factors into the management of change is to minimise potential risks by specifically considering the impact of the change on the people within a system.
(h) Special consideration, including any human factors issues, should be given to the 'transitional period'. In addition, the activities utilised to manage these issues should be integrated into the change management plan. [Home]

GM-2 to CAR 100.155

The organisation's management of change process should take into account the following three considerations:

(a) Criticality: Criticality assessments determine the systems, equipment or activities that are essential to the safe operation of aircraft. While criticality is normally assessed during the

system design process, it is also relevant during a situation of change. Systems, equipment and activities that have higher safety criticality should be reviewed following change to make sure that corrective actions can be taken to control potentially emerging safety risks.

(b) Stability of systems and operational environments: Changes may be planned and under the direct control of the organisation. Such changes include organisational growth or contraction, the expansion of products or services delivered, or the introduction of new technologies. Unplanned changes may include those related to economic cycles, labour unrest, as well as changes to the political, regulatory or operating environments.

(c) Past performance: Past performance of critical systems and trend analyses in the safety assurance process should be employed to anticipate and monitor safety performance under situations of change. The monitoring of past performance will also assure the effectiveness of corrective actions taken to address safety deficiencies identified as a result of audits, evaluations, investigations or reports. [Home]

AMC to CAR 100.160

Monitoring and assessment activities conducted for the purpose of this requirement should be conducted by persons that are functionally independent of the technical processes being evaluated. [Home]

GM to CAR 100.160

Importance of continuous improvements:

(a) Continuous improvement is measured through the monitoring of an organisation's Safety Performance Indicators, evaluations and independent SMS audits and is related to the maturity and effectiveness of an SMS. Safety assurance processes support improvements to the SMS through continual verification and follow-up actions.

(b) Internal evaluations/ audits involve assessment of the organisation's aviation activities that can provide information useful to the organisation's decision-making processes.

(c) The internal evaluation function includes evaluation of safety management functions, policymaking, safety risk management, safety assurance and safety promotion throughout the organisation. [Home]

AMC to CAR 100.165 para (a)

The following are elements that should be established and maintained as part of the Safety training programme:

(a) Safety training and education curricula should consist of the following:
  (1) organisational safety policies, goals and objectives;
  (2) organisational safety roles and responsibilities related to safety;
  (3) basic safety risk management principles;
  (4) safety reporting systems;
  (5) safety management support (including evaluation and audit programmes);
  (6) lines of communication for dissemination of safety information; and
  (7) initial indoctrination and, if required, recurrent training requirements.

(b) Training requirements should be consistent with the needs and complexity of the organisation.

(c) Training procedures should specify initial and, if required, recurrent safety training standards for operational personnel, managers and supervisors, senior managers and the Accountable Manager. The SMS training documentation should also specify responsibilities for development of training content and scheduling.

(d) Safety training for senior managers should include content related to compliance with national and organisational safety requirements, allocation of resources and active promotion of the SMS including effective interdepartmental safety communication. In addition, safety training for

senior managers should include material on establishing Safety Performance Targets and alert levels.

(e) The Accountable Manager training should be at a high level providing an understanding of the SMS and its relationship to the organisation's overall business strategy. [Home]

GM to CAR 100.165 para (b)

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

(a) newsletters;
(b) presentations;
(c) safety notices;
(d) safety awareness posters;
(e) lectures;
(f) workshops; and
(g) workplace safety oriented meetings between staff and the Accountable Manager or Senior Managers [Home]