EASA
European Union Aviation Safety Agency

Safety Management System

Jorge Reyes

Aerodrome Certification

Bangkok, Thailand, 20 to 24 of January 2020

Your safety is our mission.

An Agency of the European Union

EU-South East Asia Aviation Partnership Project (EU-SEA APP)
This project is funded by the European Union and implemented by the European Union Aviation Safety Agency - EASA

Safety Management System

State Safety Programme

&

Aerodrome operators SMS

Safety Management System

Safety Management System

LOCAL
(Aerodrome Operators)

STATE
(Aerodrome Authority)

safety policy and objectives;

safety risk management;

safety assurance; and

safety promotion.

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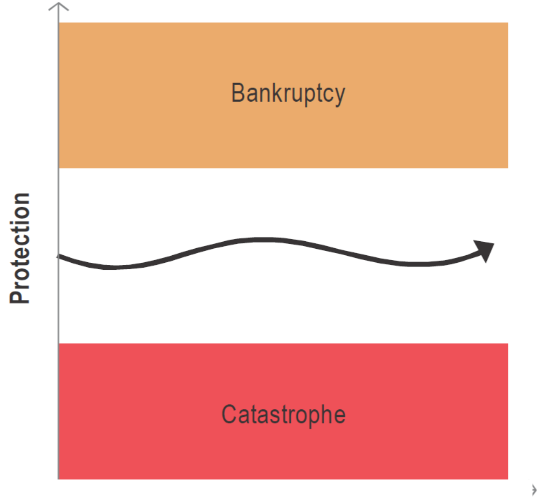
Safety Management System



Concept of a safety space

1.3.5 Size and complexity considerations

1.3.5.1 Each State and each service provider is different. SSPs and SMSs are designed to be tailored to meet the specific needs of each State or service provider. All components and all elements of SSP/SMS are interconnected and interdependent, and necessary to function effectively. It is important that SSP and SMS requirements are not implemented only in a prescriptive manner. The traditional prescriptive requirements are to be complemented with a performance-based approach.

P4.1. Safety Management System

APPROACH 1 (DOC.9870)

APPROACH 2 (ANNEX 19)

LOCAL
(Aerodrome Operators)

National
(Aerodrome Authority)

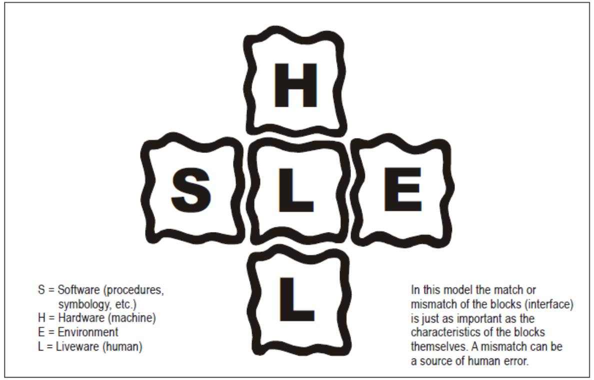


Figure 2-1. The SHEL Model

safety policy and objectives;

safety risk management;

safety assurance; and

safety promotion.

BASED IN INTERFACES

BASED IN STEPS

EASA

Safety Management System

safety policy and objectives;

safety risk management;

safety assurance; and

safety promotion.

LOCAL
(Aerodrome Operators)

STATE
(Aerodrome Authority)

1. Safety policy and objectives
   - 1.1 Management commitment and responsibility
   - 1.2 Safety accountabilities
   - 1.3 Appointment of key safety personnel
   - 1.4 Coordination of emergency response planning
   - 1.5 SMS documentation
2. Safety risk management
   - 2.1 Hazard identification
   - 2.2 Safety risk assessment and mitigation
3. Safety assurance
   - 3.1 Safety performance monitoring and measurement
   - 3.2 The management of change
   - 3.3 Continuous improvement of the SMS
4. Safety promotion
   - 4.1 Training and education
   - 4.2 Safety communication

Safety Management System

safety policy and objectives;

safety risk management;

safety assurance; and

safety promotion.

LOCAL
(Aerodrome Operators)

National
(Aerodrome Authority)

1. State safety policy and objectives
   - 1.1 State safety legislative framework
   - 1.2 State safety responsibilities and accountabilities
   - 1.3 Accident and incident investigation
   - 1.4 Enforcement policy
2. State safety risk management
   - 2.1 Safety requirements for the service provider's SMS
   - 2.2 Agreement on the service provider's safety performance
3. State safety assurance
   - 3.1 Safety oversight
   - 3.2 Safety data collection, analysis and exchange
   - 3.3 Safety-data-driven targeting of oversight of areas of greater concern or need
4. State safety promotion
   - 4.1 Internal training, communication and dissemination of safety information
   - 4.2 External training, communication and dissemination of safety information

P4.1. Safety Management System

INTERACTIONS BETWEEN SMS

P4.1. Safety Management System

CONTRACTED PARTIES

CARRY ACTIVITIES WITHIN THE AERODROME OPERATOR TERMS OF CERTIFICATE (139)

OTHER ORGANIZATIONS

P4.1. Safety Management System

CONTRACTED ACTIVITIES

WHAT EXAMPLES ARE COMMING TO YOUR MIND?

P4.1. Safety Management System

CONTRACTED ACTIVITIES

CONTRACTING — GENERAL

(a) Contracted activities to external organisations for the provision of services may include areas such as:

(1) maintenance of the aerodrome and equipment;

(2) surveying for aeronautical data;

(3) apron management services;

(4) training;

(5) rescue and firefighting services;

(6) aerodrome design, etc.

P4.1. Safety Management System

OTHER ORGANIZATIONS

WHAT EXAMPLES ARE COMMING TO YOUR MIND?

P4.1. Safety Management System

OTHER ORGANIZATIONS

aircraft operators, air navigation service providers, providers of apron management services, ground handling service providers, providers of services to persons with reduced mobility, aircraft maintenance organisations, flying training organisations, public authorities that operate on the movement area, as well as other organisations that perform activities independently at the aerodrome.

P4.1. Safety Management System

INTERACTIONS BETWEEN SMS

P4.1. Safety Management System

INTERACTIONS BETWEEN SMS

CONTRACTED ACTIVITIES

COORDINATION WITH
OTHER ORGANIZATIONS

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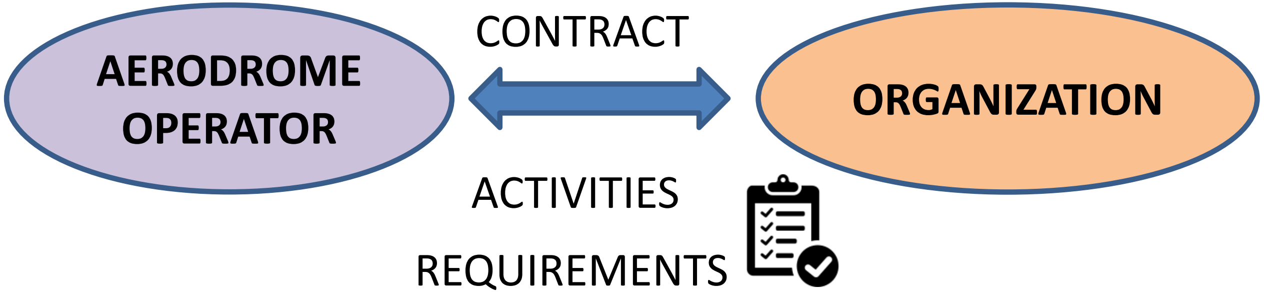
P4.1. Safety Management System

CONTRACTED ACTIVITIES

ACTIVITIES WITHIN THE AERODROME OPERATOR TERMS OF CERTIFICATE,

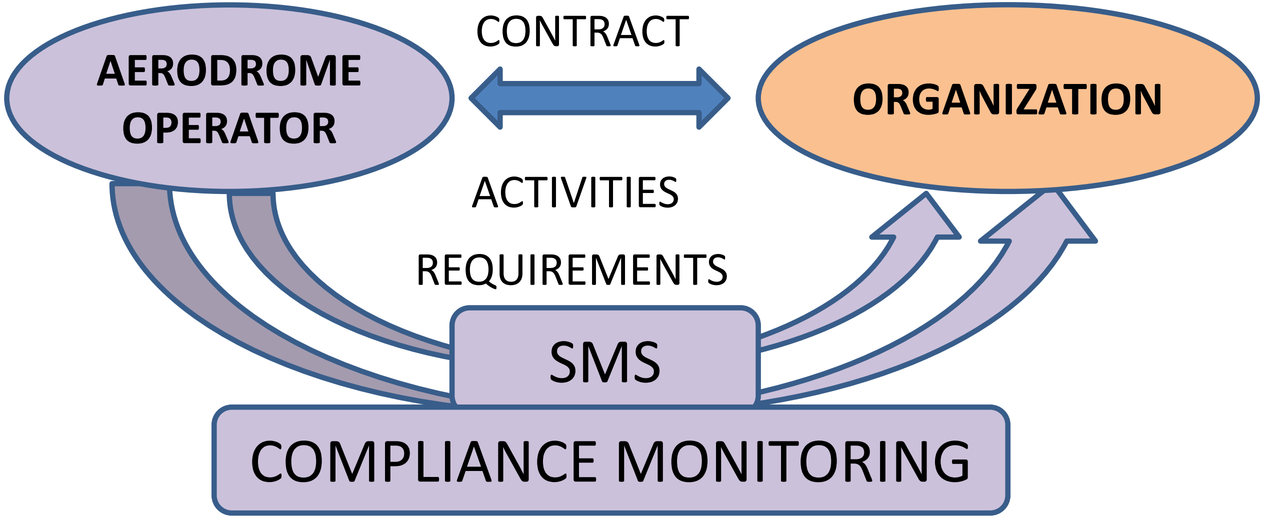
PERFORMED BY ANOTHER ORGANIZATION



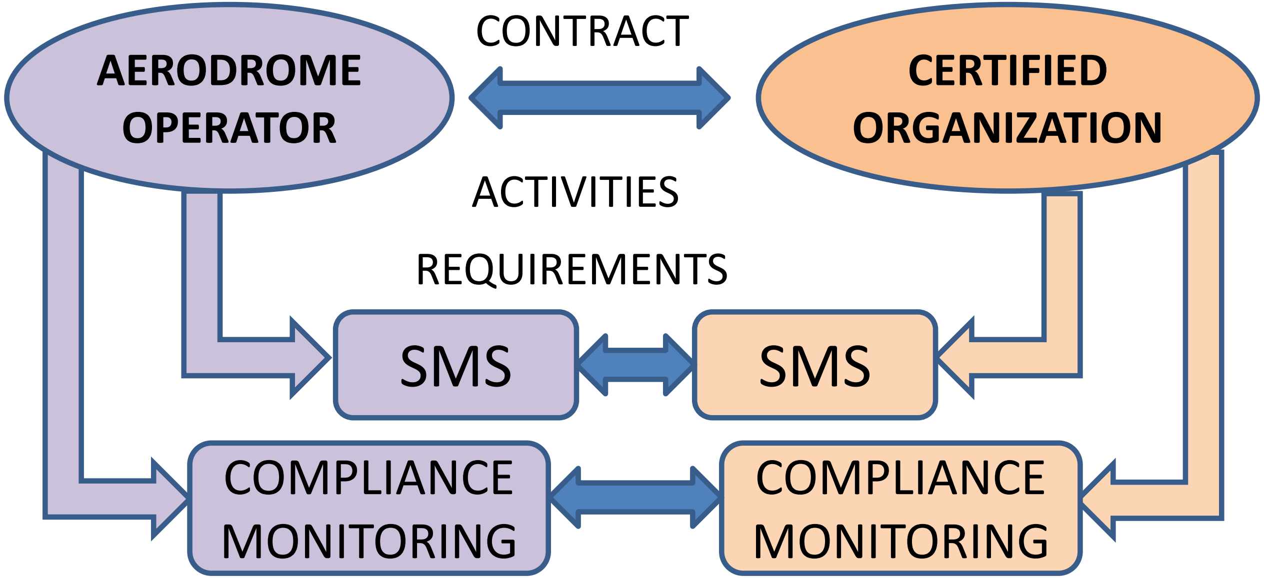
CONTRACTED ACTIVITIES

ACTIVITIES WITHIN THE AERODROME OPERATOR TERMS OF CERTIFICATE,

PERFORMED BY ANOTHER ORGANIZATION



ACTIVITIES WITHIN THE AERODROME OPERATOR TERMS OF CERTIFICATE, PERFORMED BY ANOTHER ORGANIZATION



P4.1. Safety Management System

Safety requirements for third parties, external suppliers

SAFETY PROCEDURES

Objectives:

- To establish the frame of the relationship between the partners
- To establish safety requirements (including safety training)
- To systematize the monitoring for the operation of all third parties

Safety requirements for third parties, external suppliers

SAFETY PROCEDURES

aena Aeropuerto Seve Ballesteros-Santander

Seguridad Operacional
CODIGO: SDR-PGS-02
FECHA: 11/02/16

SDR-PGS-02

"CONTROL DE ASPECTOS DE SEGURIDAD OPERACIONAL A LOS PROVEEDORES EXTERNOS"

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SDR-PGS-02 CONTROL DE ASPECTOS DE SEGURIDAD OPERACIONAL A LOS PROVEEDORES EXTERNOS
AEROPUERTO SEVE BALLESTEROS-SANTANDER

+

SDR-PGS-02/ITS-01

CLÁUSULA TIPO DE SEGURIDAD OPERACIONAL

Safety standard information

SDR-PGS-02/ITS-02

Applicable requirements regarding safety matters

SDR-PGS-02/ITS-03

CLASIFICACIÓN Y CRITERIOS DE CONTROL DE PROVEEDORES EXTERNOS (SALVO AGENTES DE ASISTENCIA EN TIERRA)

Classification of external suppliers

SDR-PGS-02/ITS-04

"GUÍA PARA LA ELABORACIÓN DE UN PLAN DE VIGILANCIA DE SEGURIDAD OPERACIONAL"

Guide to make a safety surveillance plan

SDR-PGS-02/ITS-05

CLASIFICACIÓN Y CRITERIOS DE CONTROL DE AGENTES DE ASISTENCIA EN TIERRA

Classification of ground handling services

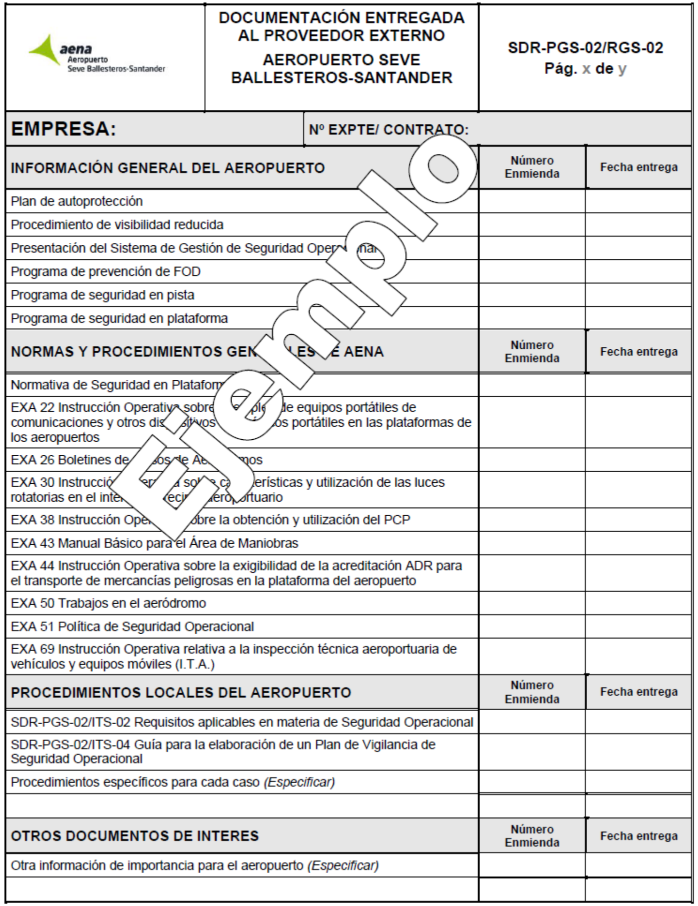
Safety requirements for third parties, external suppliers

SAFETY PROCEDURES

Documentation given to an external provider


SDR-PGS-02

"CONTROL DE ASPECTOS DE SEGURIDAD OPERACIONAL A LOS PROVEEDORES EXTERNOS"



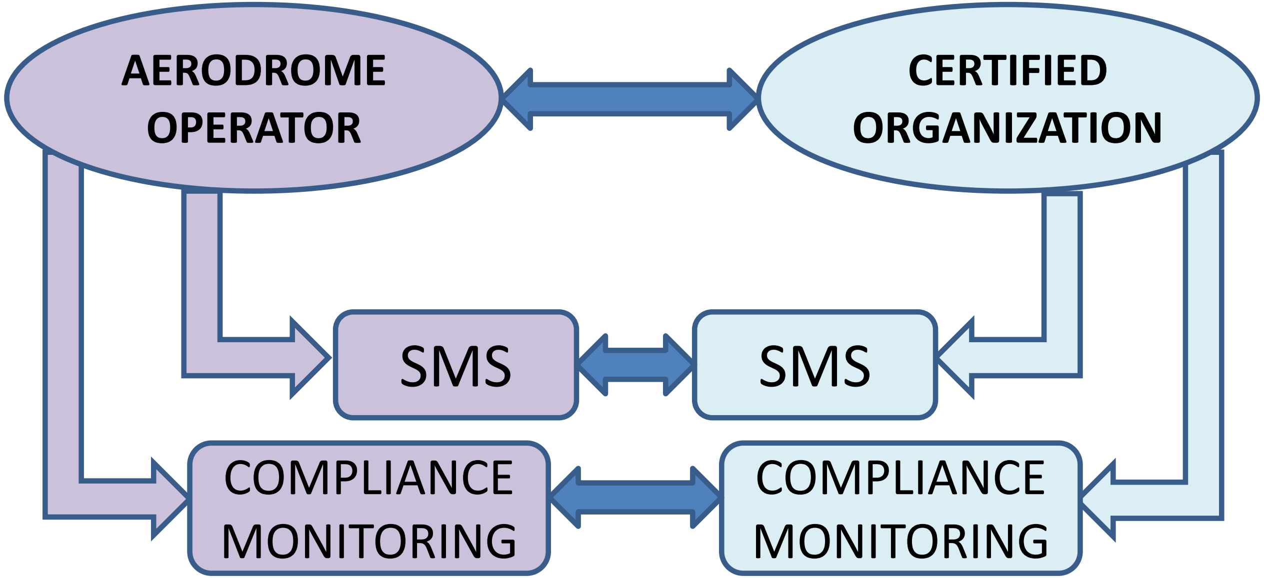
aena Aeropuerto Seve Ballesteros-Santander	DOCUMENTACIÓN ENTREGADA AL PROVEEDOR EXTERNO AEROPUERTO SEVE BALLESTEROS-SANTANDER	SDR-PGS-02/RGS-02 Pág. x de y
EMPRESA:	**Nº EXPTE/ CONTRATO:**	

INFORMACIÓN GENERAL DEL AEROPUERTO	Número Enmienda	Fecha entrega
Plan de autoprotección		
Procedimiento de visibilidad reducida		
Presentación del Sistema de Gestión de Seguridad Operacional		
Programa de prevención de FOD		
Programa de seguridad en pista		
Programa de seguridad en plataforma		
NORMAS Y PROCEDIMIENTOS GENERALES DE AENA	**Número Enmienda**	**Fecha entrega**
Normativa de Seguridad en Plataforma		
EXA 22 Instrucción Operativa sobre el empleo de equipos portátiles de comunicaciones y otros dispositivos electrónicos portátiles en las plataformas de los aeropuertos		
EXA 26 Boletines de Avisos de Aeródromos		
EXA 30 Instrucción Operativa sobre características y utilización de las luces rotatorias en el interior del recinto aeroportuario		
EXA 38 Instrucción Operativa sobre la obtención y utilización del PCP		
EXA 43 Manual Básico para el Área de Maniobras		
EXA 44 Instrucción Operativa sobre la exigibilidad de la acreditación ADR para el transporte de mercancías peligrosas en la plataforma del aeropuerto		
EXA 50 Trabajos en el aeródromo		
EXA 51 Política de Seguridad Operacional		
EXA 69 Instrucción Operativa relativa a la inspección técnica aeroportuaria de vehículos y equipos móviles (I.T.A.)		
PROCEDIMIENTOS LOCALES DEL AEROPUERTO	**Número Enmienda**	**Fecha entrega**
SDR-PGS-02/ITS-02 Requisitos aplicables en materia de Seguridad Operacional		
SDR-PGS-02/ITS-04 Guía para la elaboración de un Plan de Vigilancia de Seguridad Operacional		
Procedimientos específicos para cada caso *(Especificar)*		
OTROS DOCUMENTOS DE INTERES	**Número Enmienda**	**Fecha entrega**
Otra información de importancia para el aeropuerto *(Especificar)*		

Ejemplo

P4.1. Safety Management System

COORDINATION WITH OTHER ORGANIZATIONS



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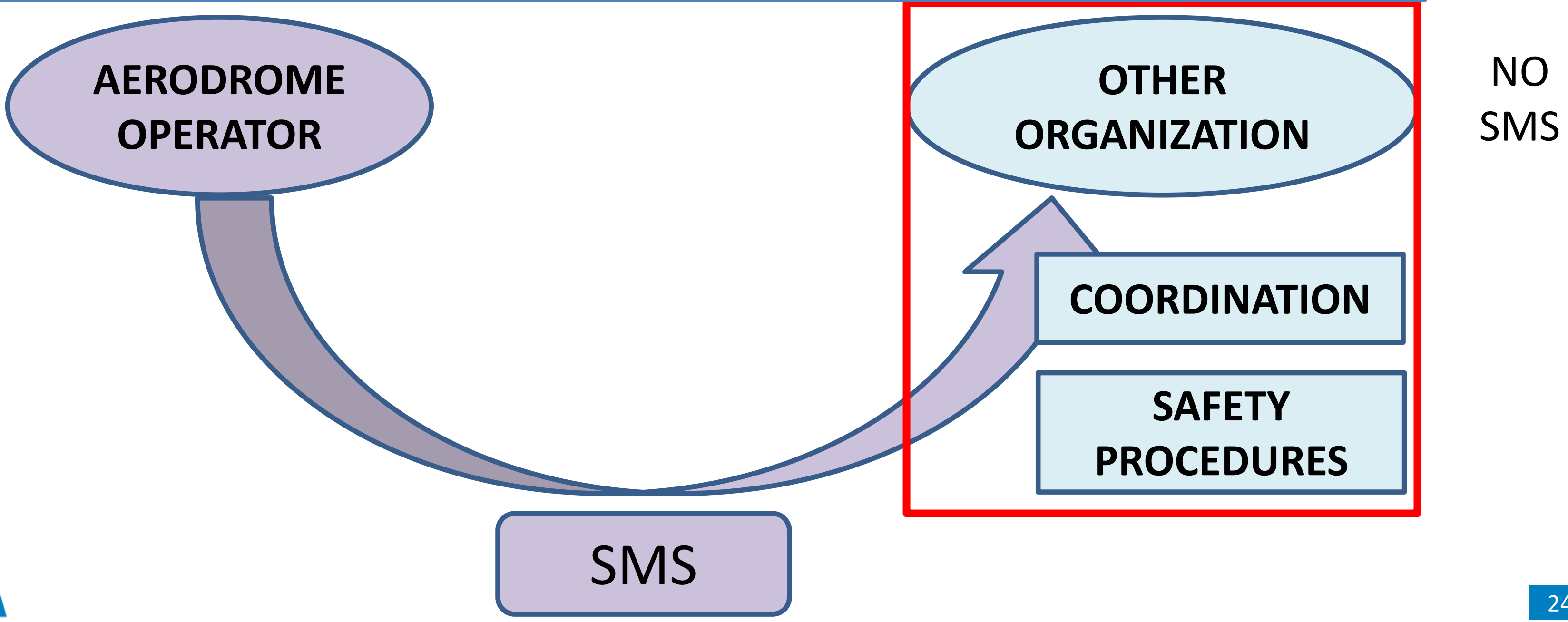
P4.1. Safety Management System

COORDINATION WITH OTHER ORGANIZATIONS



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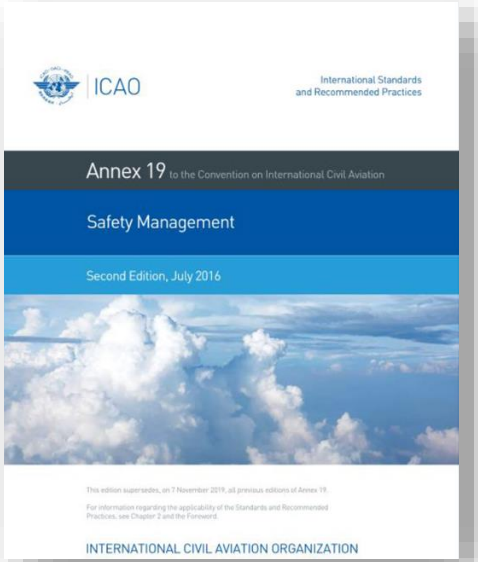
P4.1. Safety Management System

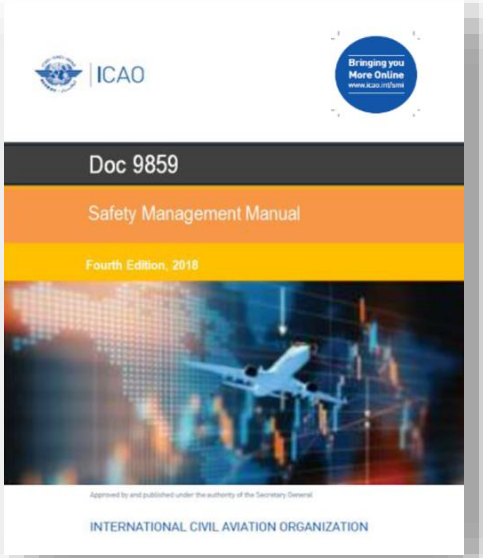
P4.1. Safety Management System

Certification of SMS

P4.1. Safety Management System

WHERE CAN WE FIND REQUIREMENTS FOR SMS?



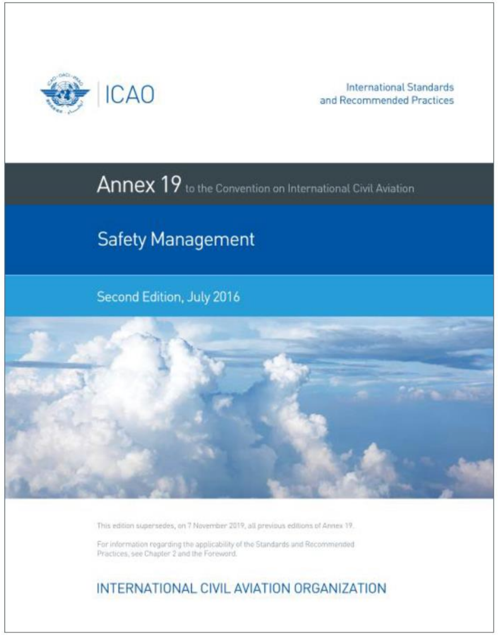


Safety Management System

Amendment 1 to Annex 19

Adopted by ICAO Council on 2 March 2016 → Effective from 11 July 2016 → Applicable from 7 November 2019

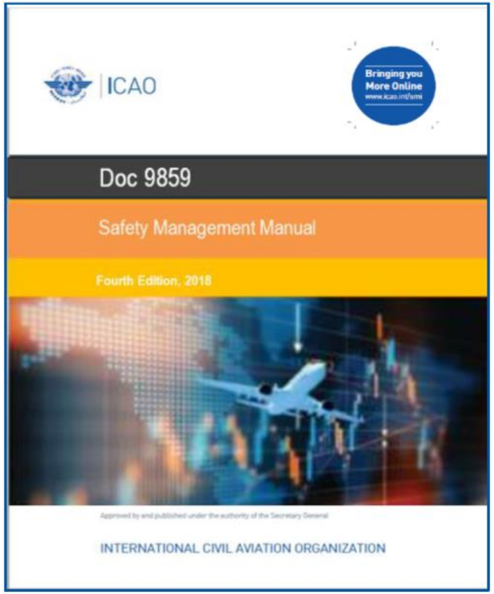
- ✓ The applicability for the existing safety management provisions as originally introduced continue to apply.
- ✓ The new applicability date only relates to the changes introduced with Annex 19, Amendment 1.
- ✓ States are expected to already be working on implementing the new/amended SARPs, to ensure implementation is achieved by the applicability date.



Safety Management System

Doc 9859 Safety Management Manual (SMM), 4th ed.

- ✓ Updated supporting guidance for Annex 19
- ✓ The finalized version has been posted ICAO-NET and available for purchase from ICAO store
- ✓ Final publication was in October 2018



SMM eBook available in all ICAO languages

Safety Management System

Structure of SMM, 4th ed.

Safety management fundamentals

- Chapter 1 - Introduction
- Chapter 2 - Safety management fundamentals
- Chapter 3 - Safety culture

Developing safety intelligence

- Chapter 4 - Safety performance management
- Chapter 5 - Safety data collection and processing systems
- Chapter 6 - Safety analysis
- Chapter 7 - Protection of safety data, safety information and related sources

Safety management implementation

- Chapter 8 - State safety management
- Chapter 9 - Safety management systems

Safety Management System

Safety Management Implementation (SMI) website

Note: Examples and tools from ***the 3rd edition of SMM updated and moved (not lost)*** ***to the SMI website***

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P4.1. Safety Management System

OPEN ICAO/MSI WEB SITE

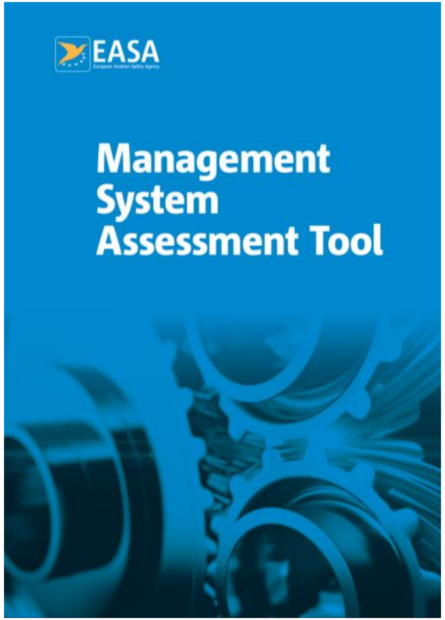
P4.1. Safety Management System

P4.1. Safety Management System

Safety Management System

ASSESSMENT TOOL

P4.1. Safety Management System



SMS TOOL FOLLOWS ANNEX 19 REQUIREMENTS

1.1 MANAGEMENT COMMITMENT

Annex 19 reference & text

1.1.1 The service provider shall define its safety policy in accordance with international and national requirements.

The safety policy shall:

e) be signed by the accountable executive of the organization

g) be periodically reviewed to ensure it remains relevant and appropriate to the service provider

PRESENT	SUITABLE	OPERATIONAL	EFFECTIVE
There is a safety policy that includes a commitment to continuous improvement, observe all applicable legal requirements, standards and considers best practice signed by the accountable manager.		It is reviewed periodically to ensure it remains relevant to the organisation.	The accountable manager is familiar with the contents of the safety policy.

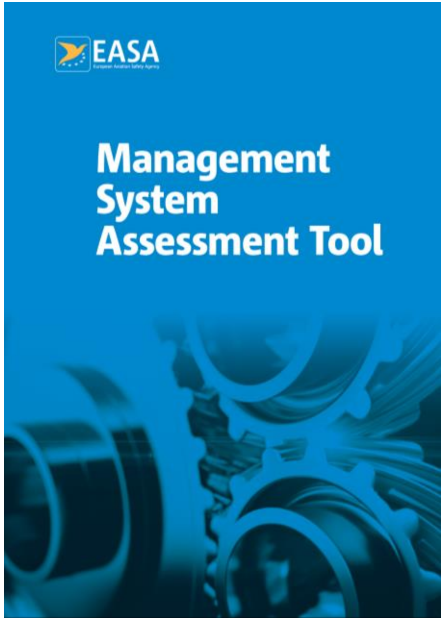
What to look for

- Talk to accountable manager to assess their knowledge and understanding of the safety policy.
- Confirm it meets EU Regulations.
- Interview staff to determine how readable and understandable it is.

And IDENTIFIES EASA Applicable Requirements for each Domain

Corresponding EU/EASA Requirements				
Air Operations	**Aircrew**	**Aerodromes**	**ATM/ANS**	**ATCO Training Org.**
ORO.GEN.200 'Management system' point (a)(2) and (a)(6) AMC1 ORO.GEN.200(a)(2) 'Management system' - [complex operators] AMC1 ORO.GEN.200(a)(1)(2)(3)(5) 'Management system' point (e) - [non-complex operators]	ORA.GEN.200 'Management system' point (a)(2) and (a)(6) AMC1 ORA.GEN.200(a)(2) 'Management system' - [complex organisations] AMC1 ORA.GEN.200(a)(1)(2)(3)(5) 'Management system' point (e) - [non-complex organisations]	ADR.OR.D. 005 'Management system' point (b)(2) and AMC1 ADR.OR. D.005 'Management system' point (b)(2)	ATS.OR.200 'Safety management system' Point (1) AMC1 ATS.OR.200(1)(i) Safety management system SAFETY POLICY — COMPLEX ATS PROVIDERS AMC1 ATS.OR.200(1); (2); (3) Safety management system GENERAL [non-complex ATS providers]	ATCO.OR.C.001 'Management system of training organisations 'point (b) AMC1 ATCO.OR.C.001(b) Management system of training organisations SAFETY POLICY

EASA



Assesses compliance and effectiveness of SMS based on:

- ICAO Annex 19 Second Edition

- EASA SMS Requirements

PSOE: Present, Suitable, Operating, Effective

Present	There is evidence that the feature is documented within the organisation's Management system/SMS Documentation.
Suitable	The feature is suitable based on the size, nature, complexity of the organisation and the inherent risk in the activity.
Operating	There is evidence that the feature is in use and an output is being produced.
Effective	There is evidence that the feature is achieving the desired outcome and has a positive safety impact.

P4.1. Safety Management System

- Designed to be used by competent authorities
- But it could also be used by organizations, to assess the effectiveness of their own Management System/SMS
- Organizations could also use the tool to assess the Management System/SMS of contracted organizations.

P4.1. Safety Management System

- Certification
  - Before issuing the certificate, all processes should be "Present" and "Suitable"

- Continuous Oversight
  - Within the first oversight planning cycle the organisation's Management System/SMS processes should be "Present", "Suitable" and "Operating"

P4.1. Safety Management System

- Present

- Suitable

- Operating

- Effective

Is not AS simple as That Obviously, but for initial understanding may be usefull to read it this way

Implementation Plan in Spain

STEP 1: CAA Initial GAP Analysis

<table>
<tr><th>C</th><th>Annex 19 text</th><th colspan="5">PRESENT</th><th colspan="2">SUITABLE</th><th colspan="2">OPERATIONAL</th><th>EFFECTIVE</th></tr>
<tr><td rowspan="9">1.1.1</td><td rowspan="9">The service provider shall define its safety policy in accordance with international and national requirements.

The safety policy shall:

e) be signed by the accountable executive of the organization

g) be periodically reviewed to ensure it remains relevant and appropriate to the service provider</td><td colspan="5">There is a safety policy that includes a commitment to continuous improvement, observes all applicable legal requirements, standards and considers best practice signed by the accountable manager. OK</td><td colspan="2"></td><td colspan="2">It is reviewed periodically to ensure it remains relevant to the organisation. OK</td><td>The accountable manager is familiar with the contents of the safety policy. OK.</td></tr>
<tr><td colspan="10">Assessment results</td></tr>
<tr><td colspan="5"></td><td colspan="2"></td><td colspan="2"></td><td></td></tr>
<tr><td colspan="10">What to look for</td></tr>
<tr><td colspan="10">- Talk to accountable manager to assess their knowledge and understanding of the safety policy. Ok.
- Confirm it meets EU Regulations. OK
- Interview staff to determine how readable and understandable it is. Plantearíamos como alternativa encuestas de Seguridad Operacional sobre el tema.</td></tr>
<tr><td colspan="10">Corresponding EU/EASA Requirements</td></tr>
<tr><td colspan="2">Air Operations</td><td colspan="2">Aircrew</td><td colspan="2">Aerodromes</td><td colspan="2">ATM/ANS[1]</td><td colspan="2">ATCO Training Org.</td></tr>
<tr><td colspan="2">ORO.GEN.200 'Management system' point (a)(2) and (a)(6) AMC1 ORO.GEN.200(a)(2) 'Management system' - [complex operators] AMC1 ORO.GEN.200(a)(1)(2) (3)(5) 'Management system' point (e) - [non- complex operators]</td><td colspan="2">ORA.GEN.200 'Management system' point (a)(2) and (a)(6) AMC1 ORA.GEN.200(a)(2) 'Management system' - [complex organisations] AMC1 ORA.GEN.200(a)(1)(2) (3)(5) 'Management system' point (e) - [non- complex organisations]</td><td colspan="2">ADR.OR.D. 005 'Management system' point (b)(2) and AMC1 ADR.OR. D.005 'Management system' point (b)(2)</td><td colspan="2">ATS.OR.200 'Safety management system' Point (1)

AMC1 ATS.OR.200(1)(i) Safety management system SAFETY POLICY — COMPLEX ATS PROVIDERS AMC1 ATS.OR.200(1); (2); (3) Safety management system
GENERAL [non-complex ATS providers]</td><td colspan="2">ATCO.OR.C.001 'Management system of training organisations 'point (b)
AMC1 ATCO.OR.C.001(b)
Management system of training organisations SAFETY POLICY</td></tr>
</table>

Implementation Plan in Spain

STEP 1: CAA Initial GAP Analysis

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<tr><td rowspan="9">1.1.2</td><td rowspan="9">The safety policy shall

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

Política de SO (EXA 51)</td><td colspan="2">The safety policy includes a statement to provide appropriate resources. OK</td><td colspan="2"></td><td>The organisation is assessing the resources being provided to deliver a safe service and taking action to address any shortfalls. OK</td><td>The organisation is reviewing and taking action to address any forecasted shortfalls in resources. OK</td></tr>
<tr><td colspan="6">Assessment results</td></tr>
<tr><td colspan="2"></td><td colspan="2"></td><td></td><td></td></tr>
<tr><td colspan="6">What to look for</td></tr>
<tr><td colspan="6">- Review available resources including personnel, equipment and financial. Ok. Análisis de cumplimiento de los compromisos adquiridos en el certificado de aeropuerto.
- There are sufficient and competent personnel. Mantenimiento de las condiciones en que se elaboró el TRA
- Review planned manpower vs actual manpower. OK</td></tr>
<tr><td colspan="6">Corresponding EU/EASA Requirements</td></tr>
<tr><td>Air Operations</td><td colspan="2">Aircrew</td><td>Aerodromes</td><td>ATM/ANS</td><td>ATCO Training Organisations</td></tr>
<tr><td>AMC1 ORO.GEN.200(a)(2) 'Management system' - [complex operators] AMC1 ORO.GEN.200(a)(1)(2) (3)(5) 'Management system' point (e) - [non- complex operators]</td><td colspan="2">AMC1 ORA.GEN.200(a)(2) 'Management system' - [complex organisations] AMC1 ORA.GEN.200(a)(1)(2) (3)(5) 'Management system' point (e) - [non- complex organisations]</td><td>AMC1 ADR.OR. D.005 'Management system' point (b)(2)</td><td>ATS.OR.200 ‘Safety management system’ Point (1) and related AMCs/GM</td><td>ATCO.OR.C.001 ‘Management system of training organisations ‘point (b) and related AMCs/GM</td></tr>
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Implementation Plan in Spain

STEP 1: CAA Initial GAP Analysis

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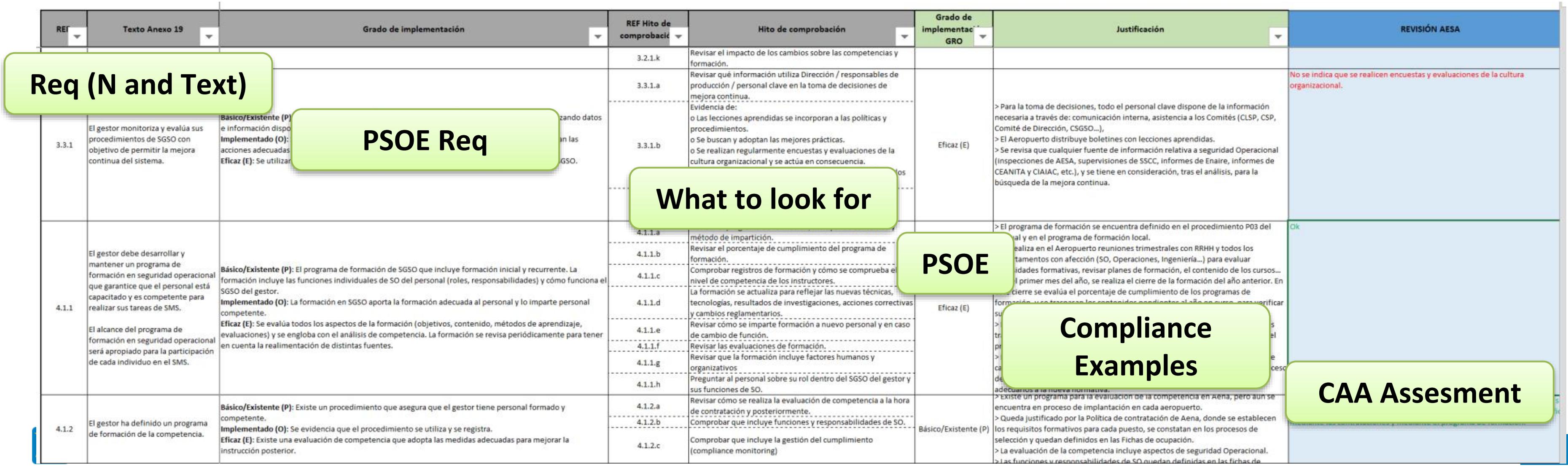
<tr><td rowspan="8">1.3.1</td><td rowspan="8">The service provider shall appoint a safety manager who is responsible for the implementation and maintenance of the SMS.

MGS</td><td colspan="5">A competent safety manager who is responsible for the implementation and maintenance of the SMS has been appointed with a direct reporting line with the accountable manager. OK</td><td colspan="2">See Annex 19 Note:</td><td colspan="2">The safety manager has implemented and is maintaining the SMS.
The safety manager is in regular communication with the accountable manager and escalates safety issues when appropriate. OK</td><td colspan="2">The safety manager is competent to manage the SMS and identifying improvements in a timely manner. There is a close working relationship with the accountable manager and the safety manager is considered a trusted advisor and given appropriate status in the organisation. OK</td></tr>
<tr><td colspan="11">Assessment results</td></tr>
<tr><td colspan="5"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="11">What to look for</td></tr>
<tr><td colspan="11">- Review safety manager role including credibility and status. OK
- Appropriate safety training received. OK
- Evidence of maintained competency. OK
- Review how the safety manager gets access to internal and external safety information. OK
- Review how the safety manager communicates and engages with operational staff and senior management. OK
- Review safety manager workload / allocated time to fulfil role. OK
- Check there are sufficient resources for SMS activities such as safety investigation, analysis, auditing, safety meeting attendance and promotion. OK
- Review of safety report action and closure timescales.
- Interviews with accountable manager and safety manager. OK</td></tr>
<tr><td colspan="11">Corresponding EU/EASA Requirements</td></tr>
<tr><td colspan="2">Air Operations</td><td colspan="2">Aircrew</td><td colspan="3">Aerodromes</td><td colspan="2">ATM/ANS</td><td colspan="2">ATCO Training Organisations</td></tr>
<tr><td colspan="2">ORO.GEN.210 'Personnel requirements' point (b) AMC1 ORO.GEN.200(a)(1) 'Management system' point (a)(1)- [complex operators] AMC1 ORO.GEN.200(a)(1);(2);(3);(5) 'Management system' point (c)- [non-complex operators]</td><td colspan="2">ORA.GEN.210 'Personnel requirements' point (b) AMC1-ORA.GEN.200 (a)(1) 'Management system' point (a)(1)- [complex organisations] AMC1-ORA.GEN.200(a)(1);(2);(3);(5) 'Management system' point (c)- [non- complex organisations]</td><td colspan="3">ADR.OR.D.015 'Personnel requirements' point (c) and AMC1 ADR.OR.D.015(c) 'Personnel requirements'</td><td colspan="2">ATS.OR.200(1)(iii)</td><td colspan="2">ATCO.OR.C.010 Personnel requirements</td></tr>
</table>

Implementation Plan in Spain

STEP 2: CAA Delivers Template to all Aerodrome Operators



P4.1. Safety Management System

Implementation Plan in Spain

STEP 3: 6 Months period to autoasses SMS

STEP 4: Documental Review by CAA

STEP 5: On site Review on every SMS Audit

P4.1. Safety Management System

P4.1. Safety Management System

Safety Management System

STATE / AERODROME

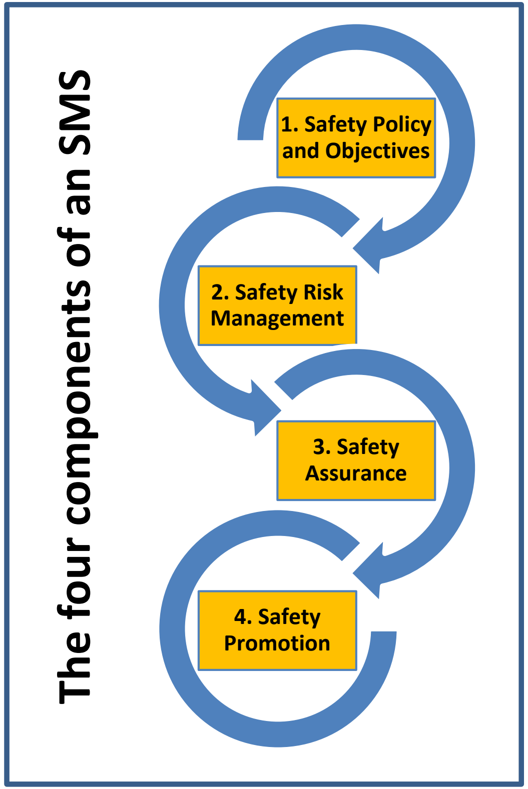
P4.1. Safety Management System

What is a Safety Management System (SMS)?

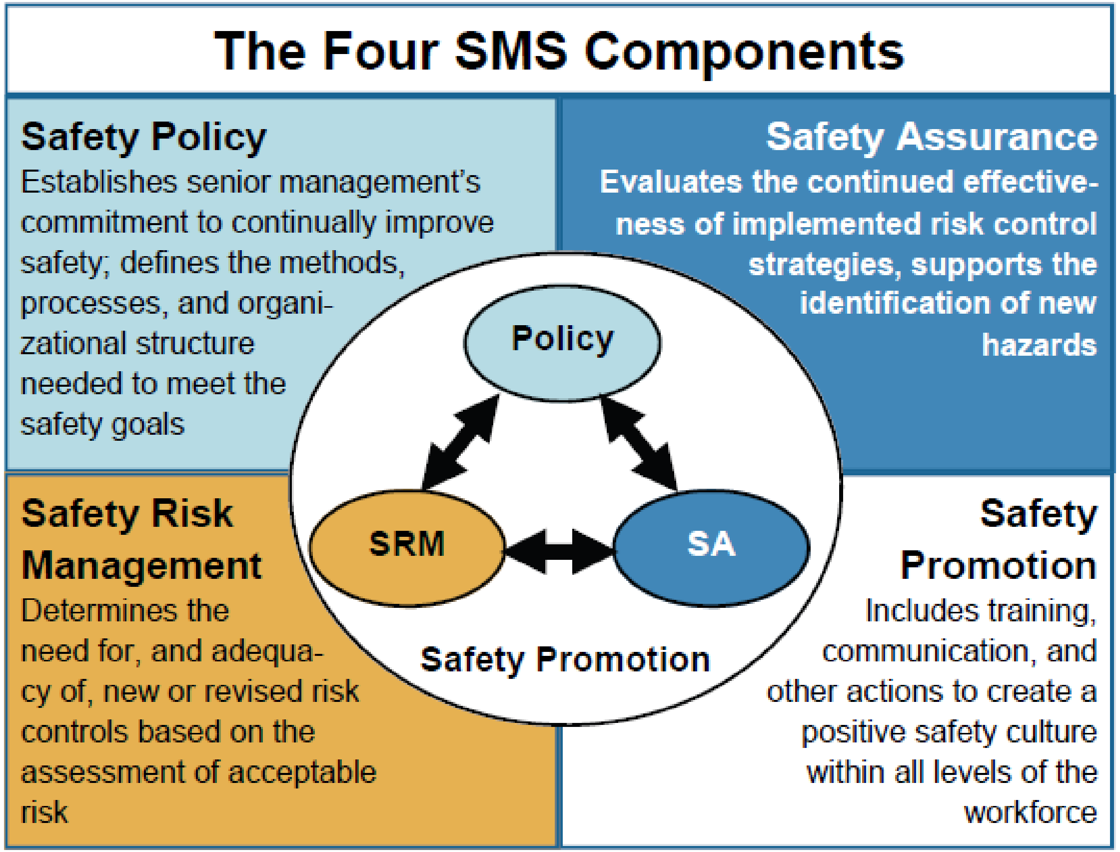
A **systematic approach to managing safety**, including the necessary organizational structures, accountabilities, policies, and procedures.

It strives to continually **identify safety hazards** and ensures that the associated **safety risks** have been managed properly.

The safety risk management process



P4.1. Safety Management System



P4.1. Safety Management System

1. Safety policy and objectives

1.1 Management commitment and responsibility

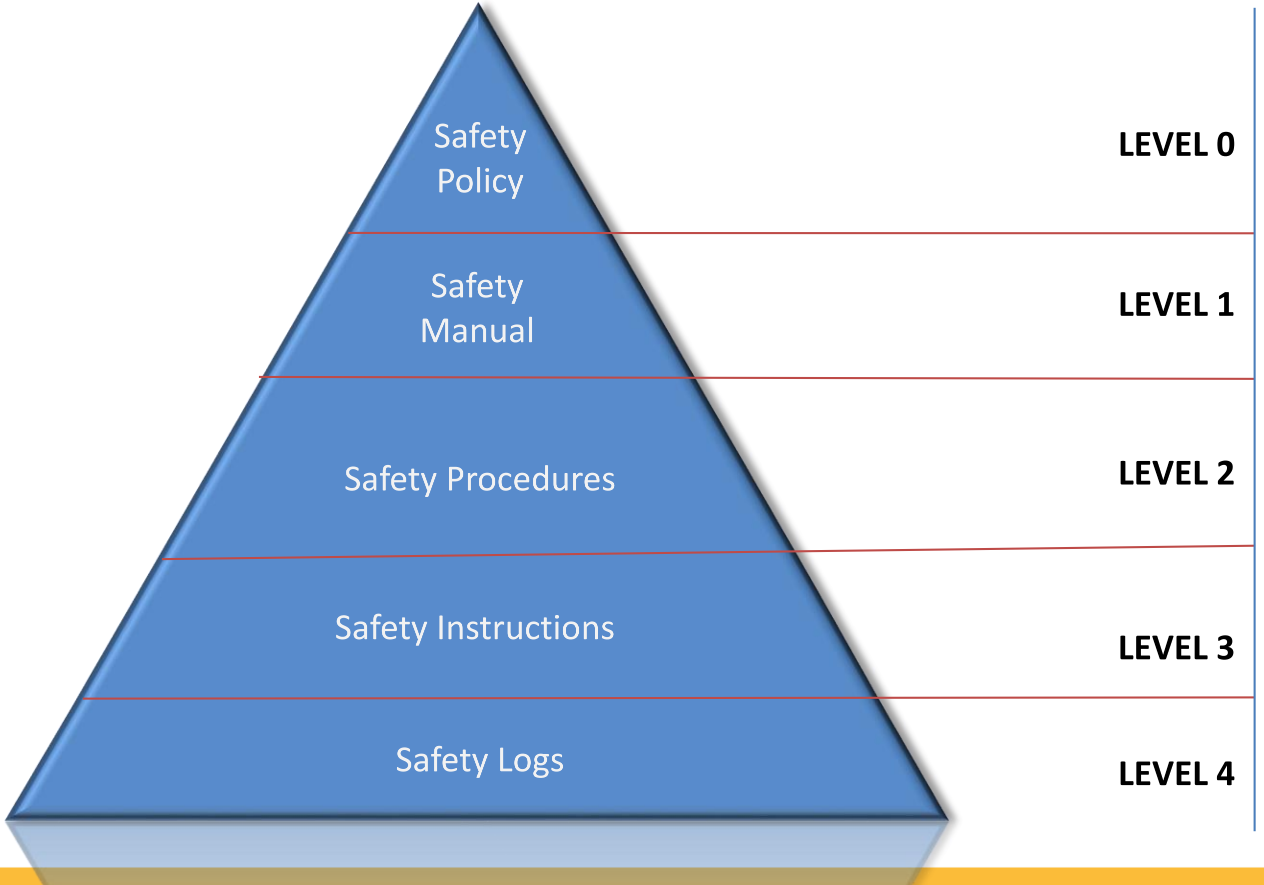
1.2 Safety accountabilities

1.3 Appointment of key safety personnel

1.4 Coordination of emergency response planning

1.5 SMS documentation

P4.1. Safety Management System



P4.1. Safety Management System

ORGANIZATION COMMITMENT

- Endorsed by the accountable manager;
- Identifies **safety as the highest organizational priority** over commercial, operational, environmental, or social pressures;
- **Communicated**, with visible endorsement, throughout the organization.

EASA

P4.1. Safety Management System

SAFETY POLICY

Objectives:

- To establish the philosophy and basic action line in terms of safety
- To clearly identify safety as the highest organizational priority over commercial, operational, environmental, or social pressures
- To continually improve safety in all aspects of its activities
- To promote and improve the *Just Culture* and safety reporting procedures
- To settle the commitment of the aerodrome operator with safety, specially for the accountable manager.

Senior management should:

- Continually promote the safety policy to all personnel, and demonstrate their commitment to it;
- Provide necessary human and financial resources for its implementation
- Establish safety objectives and performance standards.

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P4.1. Safety Management System

SAFETY ACCOUNTABILITIES

- Accountable manager;
- Safety Manager;
- Senior Managers (Operations, Maintenance, etc.)
- Safety Services Office (Central Safety Services Office?)
- Safety Review Board (Safety + Management Committee?)

P4.1. Safety Management System

<u>APPOINTMENT OF KEY SAFETY PERSONNEL</u>

- Accountable manager;
- Safety Manager;
- Senior Managers (Operations, Maintenance, etc.)
- Safety Services Office (Central Safety Services Office?)
- Safety Review Board (Safety + Management Committee?)

P4.1. Safety Management System

COORDINATION OF EMERGENCY PLANNING

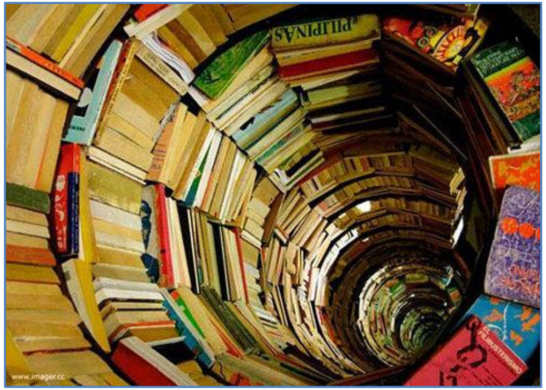
- delegation of emergency authority;
- assignment of emergency responsibilities;
- documentation of emergency procedures and processes;
- coordination internally and with external parties;
- safe continuation of essential operations while the crisis is being managed;
- identification of all possible emergency events/scenarios.
- Training and practices (exercises)

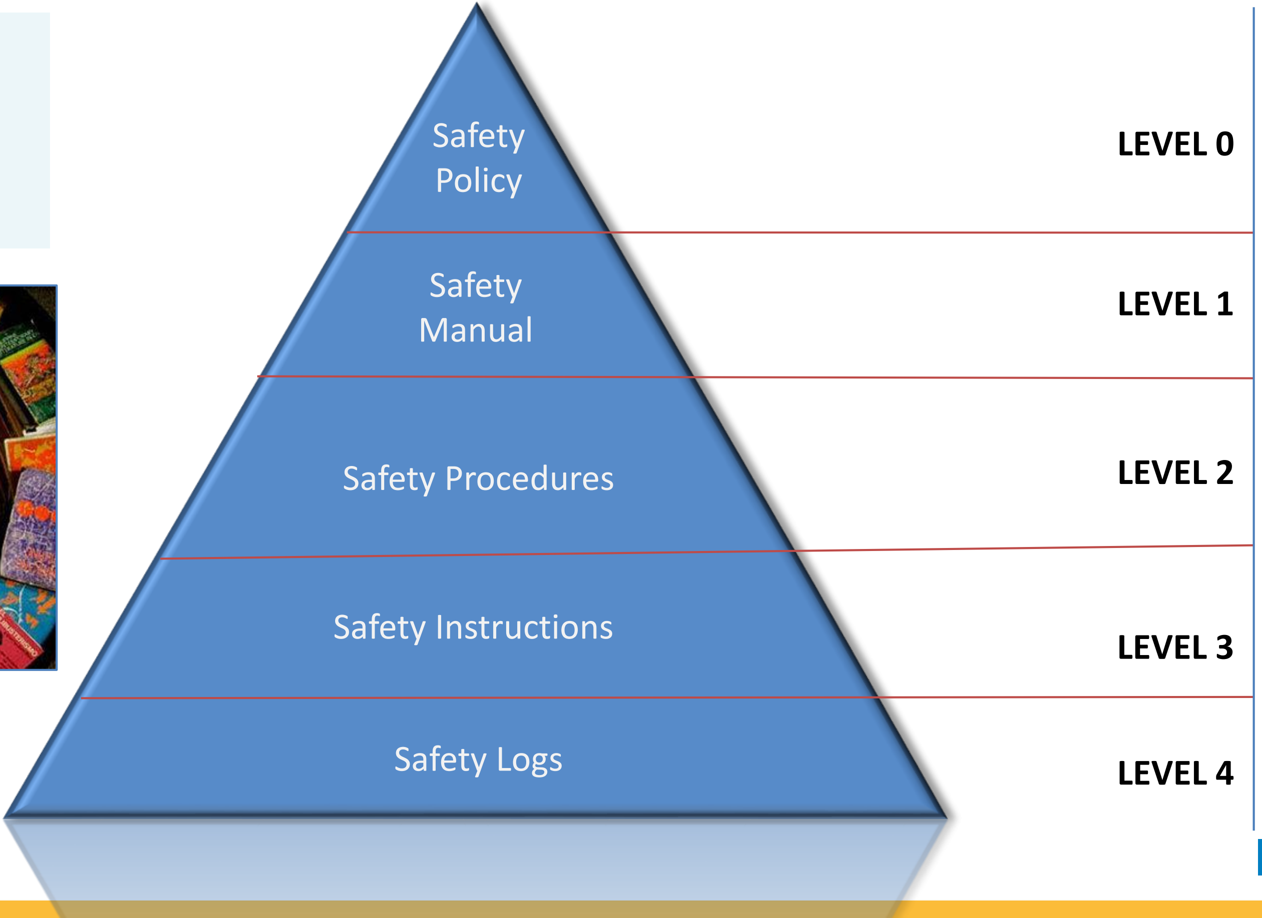
P4.1. Safety Management System

SMS DOCUMENTATION

P4.1. Safety Management System

SMS Documentation





P4.1. Safety Management System

SAFETY MANUAL

Safety Manager

Objectives:

- To identify safety responsibilities and key safety personnel inside the SMS
- To establish key procedures inside SMS
- To establish safety committees in the aerodrome, according to the size and complexity of the infrastructure
- To establish coordination with other safety stakeholders
- To set a coordination of SMS with the emergency response plan

P4.1. Safety Management System

Seguridad Operacional
CODIGO: SDR-MGS
FECHA: 22/02/16

SDR-MGS

"MANUAL DEL SISTEMA DE GESTIÓN DE SEGURIDAD OPERACIONAL"

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SAFETY MANUAL

Contents

- **Description of the SMS.** *How is it's documentation organized?*

DOCUMENTO DE REFERENCIA	NIVEL	CÓDIGO	APLICACIÓN
Política de Seguridad Operacional de ***Aena***	0	EXA 51	Compromiso de la dirección de Aeropuertos de ***Aena*** de alcanzar, mantener y promocionar la Seguridad Operacional en sus aeródromos.
Manual del Sistema de Gestión de Seguridad Operacional	1	MGS	Documento de aplicación e implantación del SGSO.
Procedimientos del SGSO	2	PGS	Descripción de las actividades y aspectos específicos del SGSO, detallando como se van a llevar a cabo las directrices dadas en el Manual del Sistema.
Instrucciones técnicas de Seguridad Operacional	3	ITS	Son descripciones detalladas y concisas de cómo se debe realizar determinadas actividades derivadas de los Procedimientos.
Registros del SGSO	3	RGS	Formularios o fichas que presentan los resultados obtenidos en una determinada actividad relacionada son el Sistema.

P4.1. Safety Management System

SAFETY PROCEDURES

1. Risk management system
2. Change management
3. Requirements for third parties, external suppliers
4. Safety performance indicators
5. Safety Reporting system - Accident and incident investigation
6. Safety Documentation management
7. Safety compliance monitoring - Safety Audits
8. Safety training
9. Safety communications
10. Safety Program

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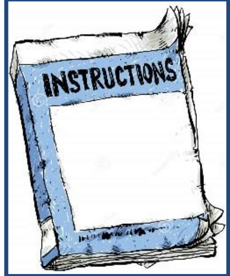
P4.1. Safety Management System

SAFETY PROCEDURES

Safety INSTRUCTIONS AND LOGS

Objectives:

- ❖ For each defined procedure, instructions and/or logs are established
- ❖ The aim of the instructions is to give a guideline in a specific issue
- ❖ The aim of the logs is to standardize the format and the information included in the registers



Example for a instruction:

- ❖ Instruction (ITS-01) inside the incidents procedure, identifies which events are mandatory to be reported

Example for a log:

- ❖ Register (RGS-01) inside the incidents procedure, provides the means and the format for incident reporting (including required information to be reported)

P4.1. Safety Management System

P4.1. Safety Management System

2. **Safety risk management**
   2.1 Hazard identification
   2.2 Safety risk assessment and mitigation

TYPE OF HAZARDS

- Hazards coming from Changes (works, new aircrafts, new procedures, new regulations, etc.)
- Deviations from the Operation Manuals and Procedures
- Inadequate Procedures or lack of procedures
- Inadequate Infrastructure (Pavements, signals, lights)
- Inadequate or Inoperative Equipment (vehicles, radars, CNS)
- Events or Activities
- Obstacles

P4.1. Safety Management System

MECHANISMS TO IDENTIFY HAZARDS

- Occurrences trend analysis and Indicators
- Incidents/Accidents analysis
- Change Management
- Committees
- Compliance Monitoring
- Information coming from stakeholders SMS
- Preventive Maintenance (monitoring infrastructure and Equipment)

P4.1. Safety Management System

RISK MANAGEMENT

- **Risk Analysis** (in terms of probability and severity of occurrence);
- **Risk Assessment** (in terms of tolerability); and
- **Risk Control** (in terms of mitigation) of risks.

P4.1. Safety Management System

ASSESS PROBABILITY

Likelihood	*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

P4.1. Safety Management System

ASSESS SEVERITY

Safety Risk		*Severity*				
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

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P4.1. Safety Management System

ASSIGN TOLERABILTY

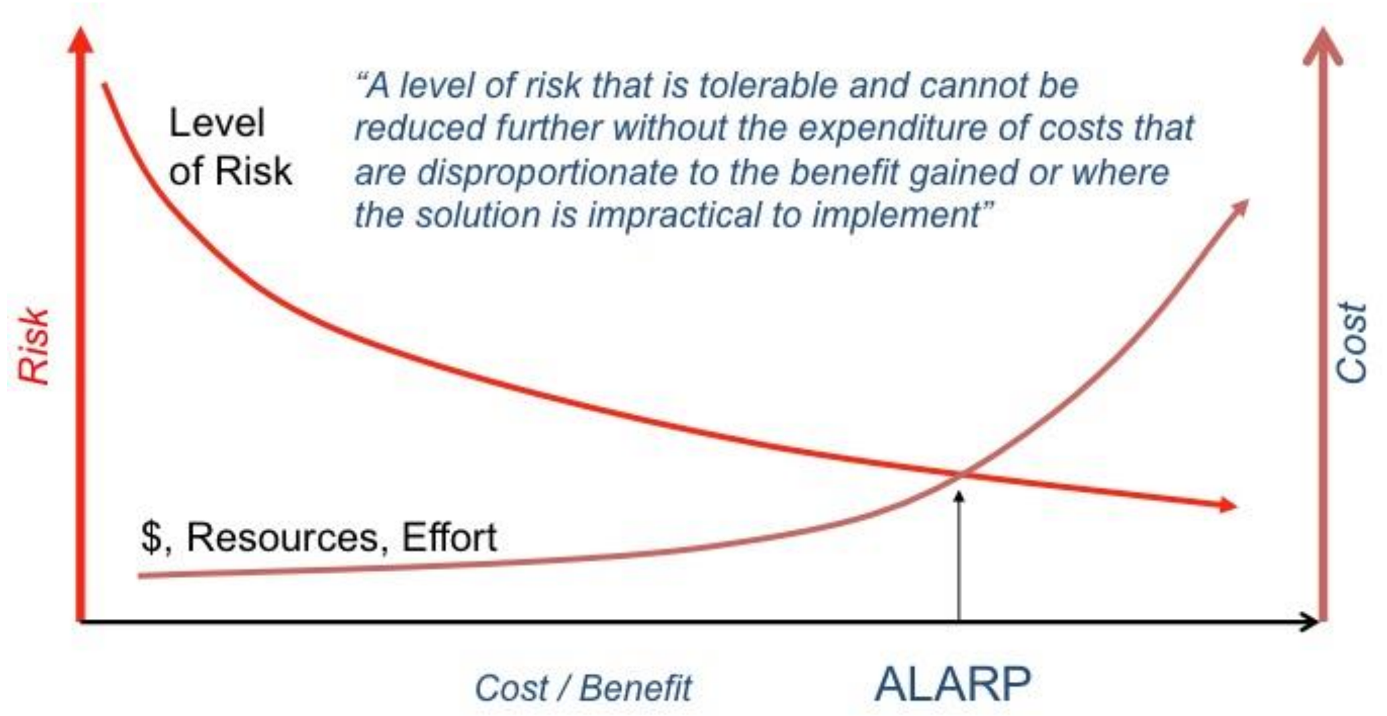
Safety Risk Index Range	*Safety Risk Description*	*Recommended Action*
5A, 5B, 5C, 4A, 4B, 3A	INTOLERABLE	Take immediate action to mitigate the risk or stop the activity. Perform priority safety risk mitigation to ensure additional or enhanced preventative controls are in place to bring down the safety risk index to tolerable.
5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D, 2A, 2B, 2C, 1A	TOLERABLE	Can be tolerated based on the safety risk mitigation. It may require management decision to accept the risk.
3E, 2D, 2E, 1B, 1C, 1D, 1E	ACCEPTABLE	Acceptable as is. No further safety risk mitigation required.

Probabilidad	Gravedad				
	1. Insignificante	*2. Leve*	*3. Moderado*	*4. Grave*	*5. Catastrófico*
A. Seguro/frecuente	**Moderado (1A)**	**Moderado (2A)**	**Alto (3A)**	**Extremo (4A)**	**Extremo (5A)**
B. Probable/ocasional	**Bajo (1B)**	**Moderado (2B)**	**Moderado (3B)**	**Alto (4B)**	**Extremo (5B)**
C. Posible/remoto	**Bajo (1C)**	**Bajo (2C)**	**Moderado (3C)**	**Moderado (4C)**	**Alto (5C)**
D. Poco probable/ improbable	**Insignificante (1D)**	**Bajo (2D)**	**Bajo (3D)**	**Moderado (4D)**	**Moderado (5D)**
E. Excepcional	**Insignificante (1E)**	**Insignificante (2E)**	**Bajo (3E)**	**Bajo (4E)**	**Moderado (5E)**

e

Frequent						
Occasional	Occasional 4	**4A**	**4B**	**4C**	**4D**	**4E**
Remote	Remote 3	**3A**	**3B**	**3C**	**3D**	**3E**
Improbable	Improbable 2	**2A**	**2B**	**2C**	**2D**	**2E**
Extremely improbable	Extremely improbable 1	**1A**	**1B**	**1C**	**1D**	**1E**

P4.1. Safety Management System



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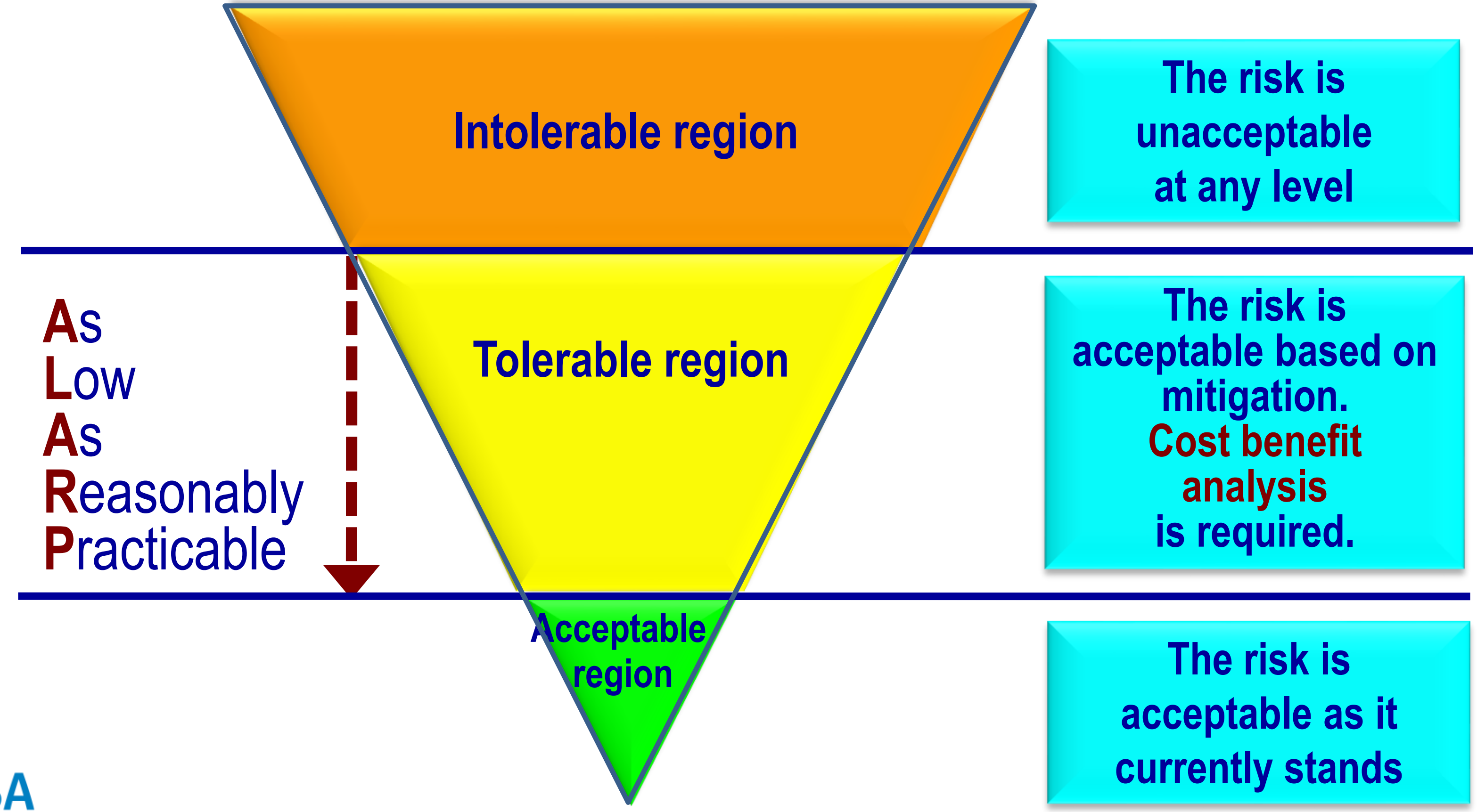
P4.1. Safety Management System



P4.1. Safety Management System

MITIGATION ACTIONS

- **WHAT,** define a clear and explicit definition of the action
- **WHO,** define responsible of the mitigation action
- **WHEN,** define Implementation date
- **Effectiveness,** define how can be the effectiveness measured
- **Follow UP,** periodically assess implementation and effectiveness

P4.1. Safety Management System

2.5.9 Cost-benefit analysis

Cost-benefit or cost-effectiveness analysis is normally carried out during the safety risk mitigation activities. It is commonly associated with business management, such as a regulatory impact assessment or project management processes. However, there may be situations where a safety risk assessment may have a significant financial impact. In such situations, a supplementary cost-benefit analysis or cost-effectiveness process to support the safety risk assessment may be warranted. This will ensure cost-effectiveness analysis or justification of recommended safety risk control actions has been taken into consideration, with the associated financial implications.

P4.1. Safety Management System

P4.1. Safety Management System

3. Safety assurance

   3.1 Safety performance monitoring and measurement

   3.2 The management of change

   3.3 Continuous improvement of the SMS

P4.1. Safety Management System

Performance Monitoring - Safety reporting system

Objectives:

- To establish and implement a safety reporting system (both mandatory and voluntary) for all personnel and organizations operating and providing services at the aerodrome *(including aircraft operators, ATC, ground handling operators, etc.)*
- To establish the reporting system to the competent authority (SNS)
- To analyze and assess all the incidents reports, to prevent further similar events from happening in the future
- To establish the coordination with all the stakeholders during the investigation of the occurrence
- To implement corrective / mitigating measures, as appropriate
- To communicate all the learned lessons
- IMPORTANT: **JUST CULTURE** and the **PROTECTION OF THE IDENTITY OF THE REPORTER**

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Performance Monitoring - incident investigation

- **How the investigation of the incident has to be done?**
  - Just culture.
  - Confidentiality of the investigation process.
  - The analysis may have to be done individually or globally.
- **Events of special relevance:**
  - RWY incursions.
  - RWY excursions.
  - Birdstrikes.
  - Near-collisions.

✓ ***24-72h after the event: analysis***

✓ ***3-4 weeks: extraordinary safety committee.***

✓ ***4-5 weeks: Final report.***

Performance Monitoring – Safety Performance Indicators

4.3.2 Selecting and defining SPIs

4.3.2.1 SPIs are the parameters that provide the organization with a view of its safety performance: where it has been; where it is now; and where it is headed, in relation to safety. This picture acts as a solid and defensible foundation upon which the organization's data-driven safety decisions are made. These decisions, in turn, positively affect the organization's safety performance. The identification of SPIs should therefore be realistic, relevant, and linked to safety objectives, regardless of their simplicity or complexity.

SPIs should be:

a) related to the safety objective they aim to indicate;

b) selected or developed based on available data and reliable measurement;

c) appropriately specific and quantifiable; and

d) realistic, by taking into account the possibilities and constraints of the organization.

Performance Monitoring – Safety Performance Indicators

The contents of each SPI should include:

a) a description of what the SPI measures;

b) the purpose of the SPI (what it is intended to manage and who it is intended to inform);

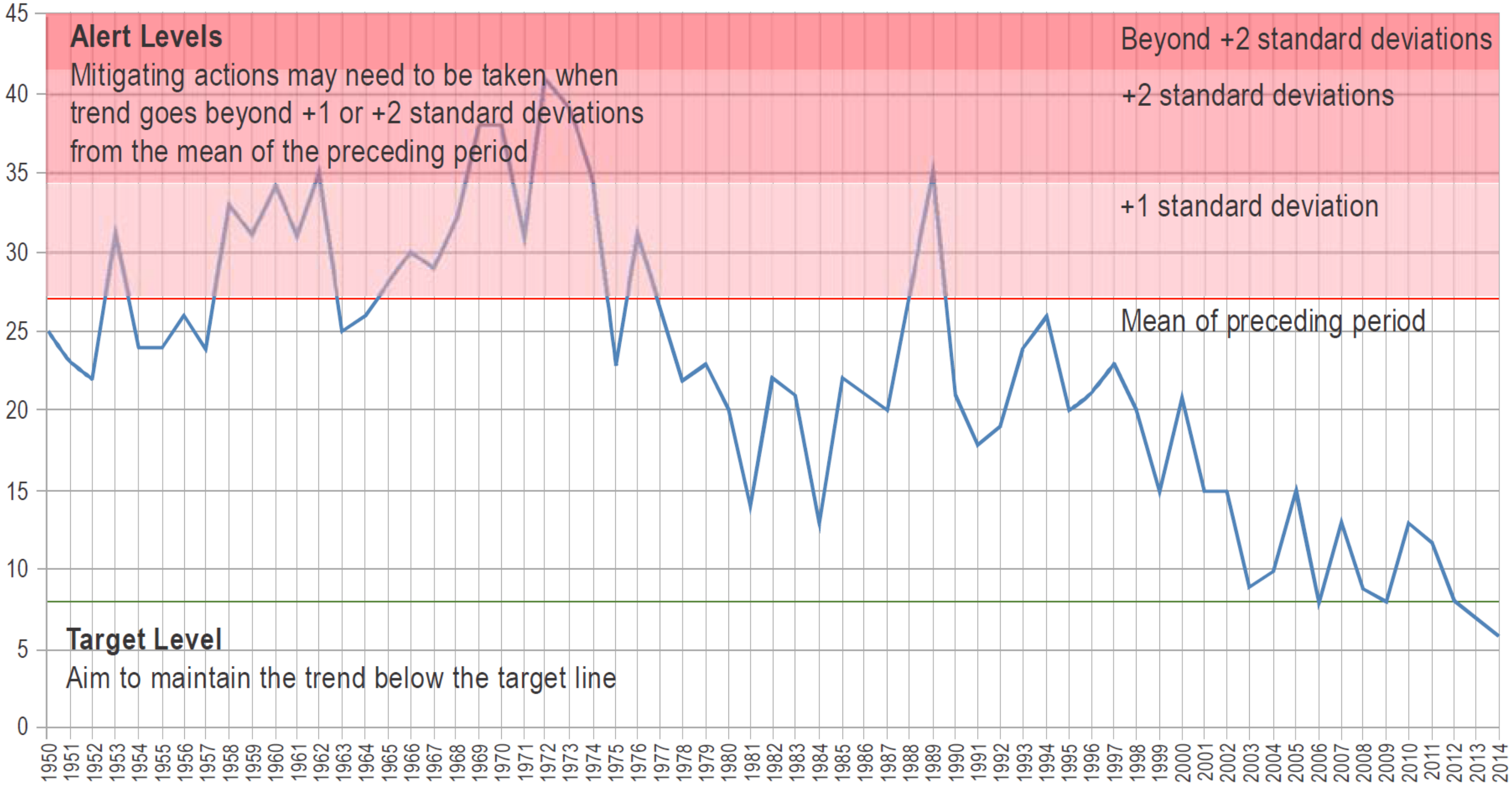
c) the units of measurement and any requirements for its calculation;

d) who is responsible for collecting, validating, monitoring, reporting and acting on the SPI (these may be staff from different parts of the organization);

e) where or how the data should be collected; and

f) the frequency of reporting, collecting, monitoring and analysis of the SPI data.

Performance Monitoring – Safety Performance indicators



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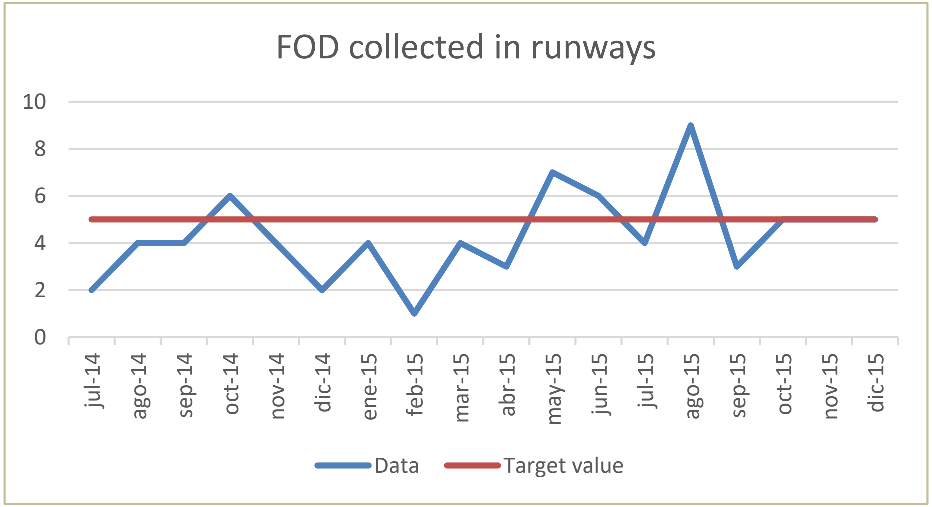
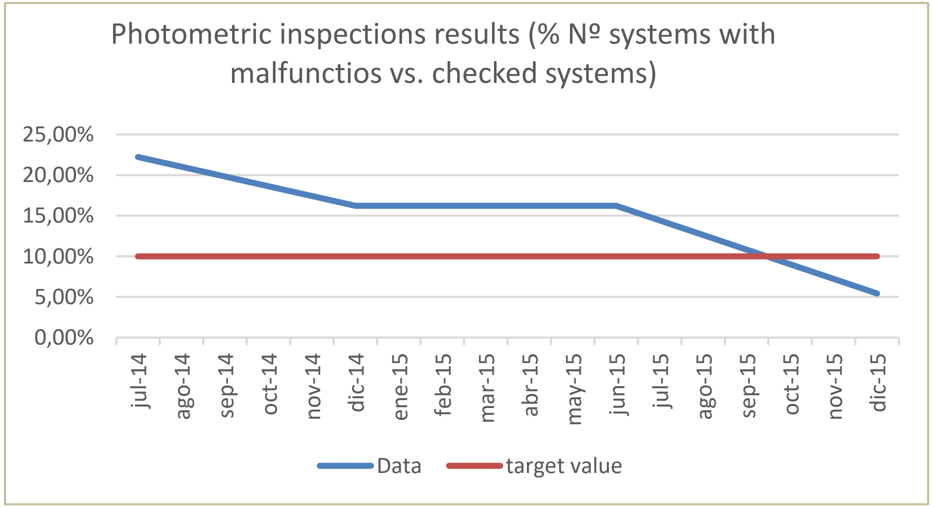
Performance Monitoring – Safety Performance indicators





OCURRENCE TREND ANALYSIS ≠ INDICATOR

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Safety Case: INDICATORS

P4.1. Safety Management System

Think about these 2 indicators: Define the objective, the data needed, the responsibilities, the frequency of calculation, the calculation method, the target level, the alert level.

- *Simple indicator:*

  (Nº of RWY Incurions) / (Nº of operations)

- *Complex indicator:*

  (Nº of hours of lights out of service) / Nº of operative airport hours)

P4.1. Safety Management System

Think about new Indicators for your Aerodrome operators:

- *Objective of the indicator*
- *Data you need for the indicator*
- *Calculation method*
- *Frequency of calculation*
- Who will be responsible of measuring and calculation
- Target level
- Alert level

P4.1. Safety Management System

Safety compliance monitoring

COMPLIANCE MONITORING

- What for? To enable the aerodrome operator to **monitor compliance with the applicable regulatory requirements**.
- How?
  - Properly implemented, maintained and continually reviewed and improved as necessary.
  - **Structured according to the size of the organization** and the complexity of the activities to be monitored (including the subcontracted ones).
  - Should include a feedback system of findings to the accountable manager.

Safety compliance monitoring

COMPLIANCE MONITORING

What has to be monitored?

- Compliance with the procedures it has designed, to ensure safe activities.
- As a minimum, monitor compliance with:
  - Privileges of the aerodrome operator;
  - Manual, logs and records;
  - Training standards;
  - Required resources; and
  - Management system procedures and manuals.

Safety compliance monitoring

COMPLIANCE MONITORING

Organizational set-up

- **A person should be responsible** for compliance monitoring.
- The accountable manager should ensure that sufficient resources are allocated for compliance monitoring.
- **Independence of the compliance monitoring**: ensure that audits and inspections are carried out by personnel not responsible for the function, procedure, etc. being audited.
- Personnel involved in compliance monitoring: should have access to any part of the aerodrome organization, and any contracted organization as required.

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Safety compliance monitoring – safety audits

COMPLIANCE MONITORING

Responsibility for compliance monitoring

- The responsibility should be with a person who has direct access to, and is **responsible to the accountable manager.**
- **Not be one of the nominated persons**: Manager of Operational Services, Maintenance manager or the Safety Manager.
- **Exception**: less complex aerodrome organizations / operations, it may be with the accountable manager or with the Safety Manager.

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Safety compliance monitoring – safety audits

COMPLIANCE MONITORING

INTERNAL AUDITS

SDR-PGS-06/ITS-01

"PLAN DE LA SUPERVISIÓN INTERNA"

Internal safety audit plan

SDR-PGS-06/ITS-01

"PLAN DE LA SUPERVISIÓN INTERNA"

Guidelines for internal audit

SDR-PGS-06/ITS-03

"INFORME DE SUPERVISIÓN INTERNA"

Report of an internal audit

SDR-PGS-06

"SUPERVISIONES INTERNAS DEL SGSO"

Internal Audit Action Plan

Safety compliance monitoring – safety audits

COMPLIANCE MONITORING

EXTERNAL AUDITS

- USOAP 4-14 NOV 2019. SSP OPS AGA
- EASA APRIL 2020

EASA

Safety compliance monitoring – safety audits

COMPLIANCE MONITORING

Audit scheduling

- A defined audit schedule should be established.
- The compliance monitoring itself should also be audited.
- The schedule should allow for unscheduled audits when trends are identified.
- Follow-up audits should be scheduled to verify that corrective action was carried out, and that it was effective and completed.

EASA

Safety compliance monitoring – safety audits

COMPLIANCE MONITORING

Audit scheduling

- Within the first 12 months since the date of the issuance of the certificate:

  The aerodrome, its management system key processes, and its operation should be audited.

Safety compliance monitoring – safety audits

COMPLIANCE MONITORING

Audit scheduling

- After that:
  - Definition of the calendar period within which and audit (or a series of audits) should be conducted, considering the results of its safety risk assessments and of its past compliance monitoring activities.
  - To cover the whole aerodrome, its management system key processes, procedures and its operation.
  - The calendar should be consistent with de competent authority's oversight planning cycle.
  - **May be increased, up to 36 months**, provided that there are no level 1 findings, and subject to the aerodrome operator having a good record of rectifying findings in a timely manner.

P4.1. Safety Management System

P4.1. Safety Management System

3. Safety assurance

3.1 Safety performance monitoring and measurement

3.2 The management of change

3.3 Continuous improvement of the SMS

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P4.1. Safety Management System

4. **Safety promotion**
   - **4.1 Training and education**
   - 4.2 Safety communication

SAFETY
INVOLVES
EVERYONE

P4.1. Safety Management System

SAFETY MANAGEMENT SYSTEM TRAINING

The amount and level of the detail of safety **training should be proportionate and appropriate** to the individual's responsibility and involvement in the safety management system.

For which personal of the aerodrome?

- Aerodrome operations,
- Rescue and firefighting,
- Maintenance,
- Management personal (supervisors, managers, senior managers and the accountable manager)

Regardless of their level in the aerodrome operator's organization.

SAFETY MANAGEMENT SYSTEM TRAINING

Staff SMS training requirements

Operations, RFF and maintenance personnel:

- Safety responsibilities should be addressed (including adherence to all operating and safety procedures, and recognizing and reporting hazards).
- Contents:
    - Definition of hazards;
    - Consequences and risks;
    - Safety risk management process (including roles and responsibilities)
    - Safety reporting and the organization's safety reporting system(s).

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SAFETY MANAGEMENT SYSTEM TRAINING

Staff SMS training requirements

Senior managers:

Safety responsibilities should be addressed (including compliance con EU, national and the organization’s own safety requirements, allocation of resources, ensuring effective inter-departmental safety communication, and active promotion of the safety management system).

Accountable manager:

General awareness of the organization's safety management system, including safety management system roles and responsibilities, safety policy and objectives, safety risk management, and safety assurance.

P4.1. Safety Management System

4. **Safety promotion**
    4.1 Training and education
    4.2 Safety communication

P4.1. Safety Management System

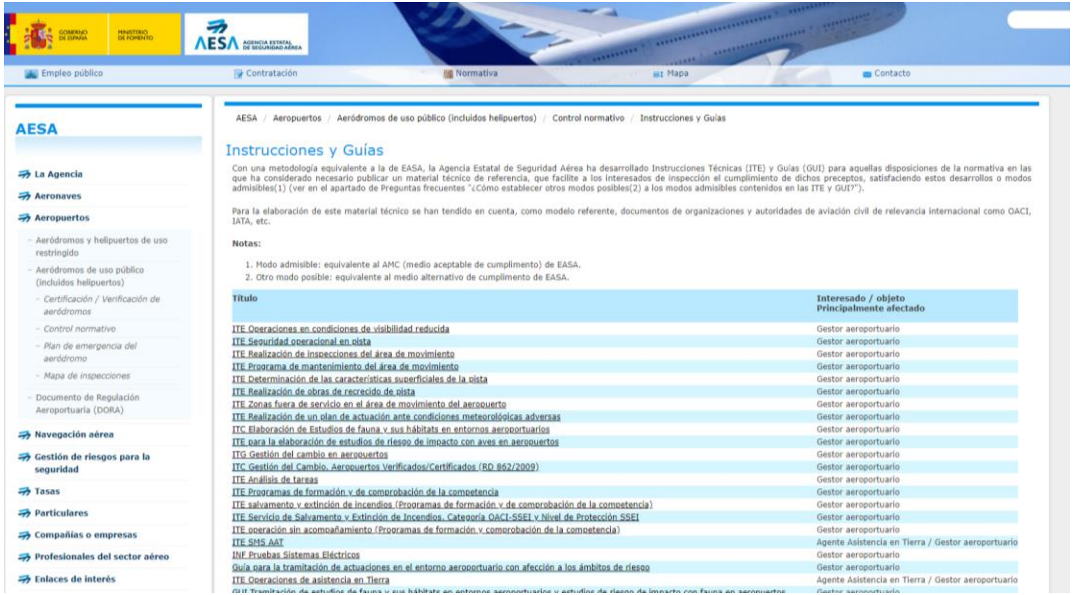
SAFETY COMMUNICATION

- The aerodrome operator should **communicate** safety management system objectives and procedures to all operational personnel.
- Communication should flow between the safety manager and operational personnel throughout the organization.
- What should the safety communications aim to?
  - Ensure that the staff are fully aware of the SMS.
  - Convey safety-critical information.
  - Explain why particular actions are taken.
  - Explain why safety procedures are introduced or changed.

P4.1. Safety Management System

SAFETY SUPPORT

- GUIDANCE MATERIAL (TECHNICAL INSTRUCTIONS)



Instrucciones y Guías

Con una metodología equivalente a la de EASA, la Agencia Estatal de Seguridad Aérea ha desarrollado Instrucciones Técnicas (ITE) y Guías (GUI) para aquellas disposiciones de la normativa en las que ha considerado necesario publicar un material técnico de referencia, que facilite a los interesados de inspección el cumplimiento de dichos preceptos, satisfaciendo estos desarrollos o modos admisibles(1) (ver en el apartado de Preguntas frecuentes "¿Cómo establecer otros modos posibles(2) a los modos admisibles contenidos en las ITE y GUI?").

Para la elaboración de este material técnico se han tendido en cuenta, como modelo referente, documentos de organizaciones y autoridades de aviación civil de relevancia internacional como OACI, IATA, etc.

Notas:

1. Modo admisible: equivalente al AMC (medio aceptable de cumplimento) de EASA.
2. Otro modo posible: equivalente al medio alternativo de cumplimento de EASA.

Título	Interesado / objeto Principalmente afectado
ITE Operaciones en condiciones de visibilidad reducida	Gestor aeroportuario
ITE Seguridad operacional en pista	Gestor aeroportuario
ITE Realización de inspecciones del área de movimiento	Gestor aeroportuario
ITE Programa de mantenimiento del área de movimiento	Gestor aeroportuario
ITE Determinación de las características superficiales de la pista	Gestor aeroportuario
ITE Realización de obras de recrecido de pista	Gestor aeroportuario
ITE Zonas fuera de servicio en el área de movimiento del aeropuerto	Gestor aeroportuario
ITE Realización de un plan de actuación ante condiciones meteorológicas adversas	Gestor aeroportuario
ITC Elaboración de Estudios de fauna y sus hábitats en entornos aeroportuarios	Gestor aeroportuario
ITE para la elaboración de estudios de riesgo de impacto con aves en aeropuertos	Gestor aeroportuario
ITG Gestión del cambio en aeropuertos	Gestor aeroportuario
ITC Gestión del Cambio. Aeropuertos Verificados/Certificados (RD 862/2009)	Gestor aeroportuario
ITE Análisis de tareas	Gestor aeroportuario
ITE Programas de formación y de comprobación de la competencia	Gestor aeroportuario
ITE salvamento y extinción de incendios (Programas de formación y de comprobación de la competencia)	Gestor aeroportuario
ITE Servicio de Salvamento y Extinción de Incendios. Categoría OACI-SSEI y Nivel de Protección SSEI	Gestor aeroportuario
ITE operación sin acompañamiento (Programas de formación y comprobación de la competencia)	Gestor aeroportuario
ITE SMS AAT	Agente Asistencia en Tierra / Gestor aeroportuario
INF Pruebas Sistemas Eléctricos	Gestor aeroportuario
Guía para la tramitación de actuaciones en el entorno aeroportuario con afección a los ámbitos de riesgo	Gestor aeroportuario
ITE Operaciones de asistencia en Tierra	Agente Asistencia en Tierra / Gestor aeroportuario
GUI Tramitación de estudios de fauna y sus hábitats en entornos aeroportuarios y estudios de riesgo de impacto con fauna en aeropuertos	Gestor aeroportuario

P4.1. Safety Management System

SAFETY SUPPORT

- TOOLS (CERTIFICATION BASIS TOOL)

P4.1. Safety Management System

SAFETY SUPPORT

- Safety Information sharing flows / links (Focal Points, Periodic Meetings)
  - CAA to each individual Aerodrome Operator
  - CAA to all Aerodrome Operators
  - CAA to Aerodrome Operator Central Offices

P4.1. Safety Management System

SAFETY COMMUNICATION

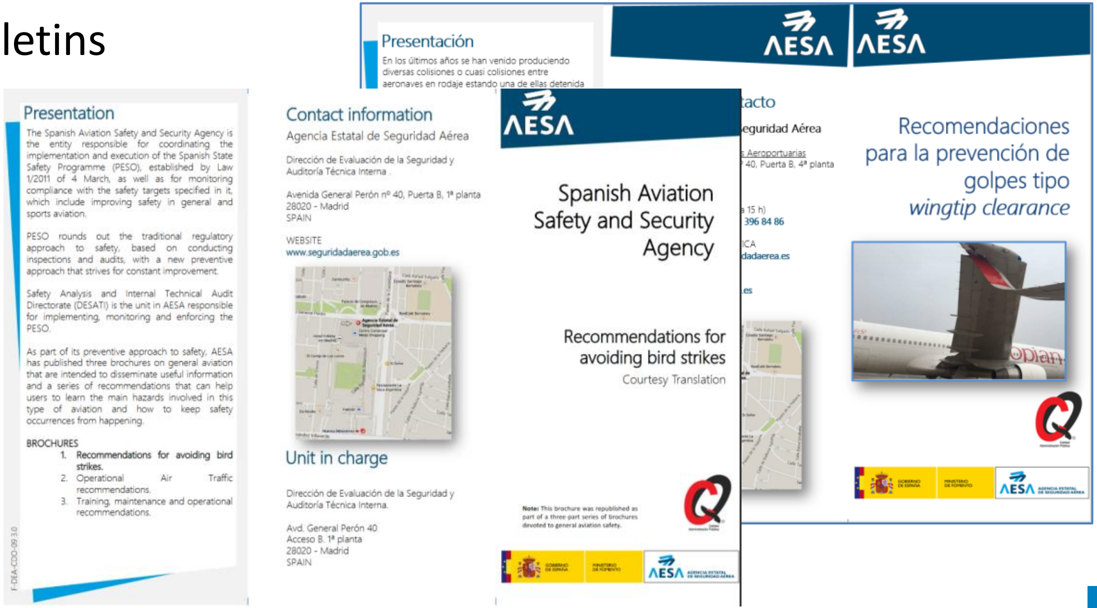
- **Outgoing communications / safety promotion:** To establish safety communication that ensures that personnel (both INTERNAL AND EXTERNAL) are fully aware of the SMS, and that lessons learned from investigations, safety related events, or other safety related experiences are distributed widely

P4.1. Safety Management System

SAFETY COMMUNICATION

❖ **Outgoing communications / safety promotion:**

- Safety Information Bulletins

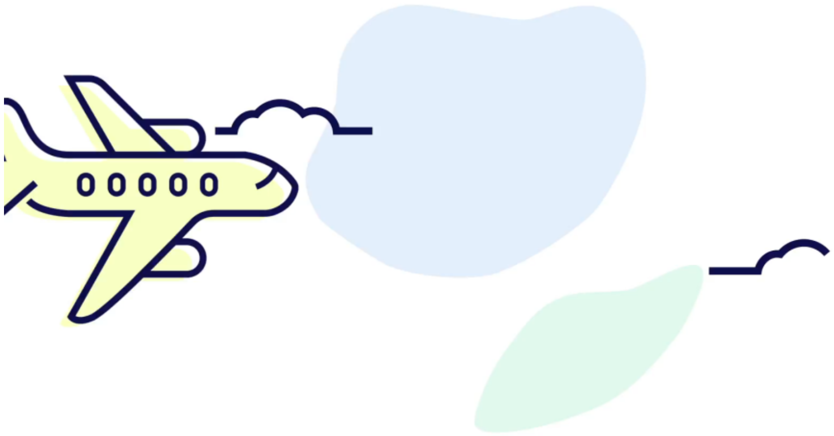


P4.1. Safety Management System

SAFETY COMMUNICATION

❖ **<u>Outgoing communications / safety promotion:</u>**

- Safety Videos



P4.1. Safety Management System

SAFETY COMMUNICATION

❖ **Outgoing communications / safety promotion:**

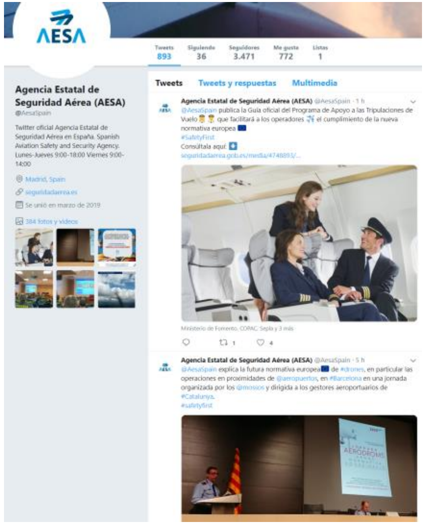
- Safety Campaigns

P4.1. Safety Management System

SAFETY COMMUNICATION

- Safety Information sharing TOOLS
  - Website

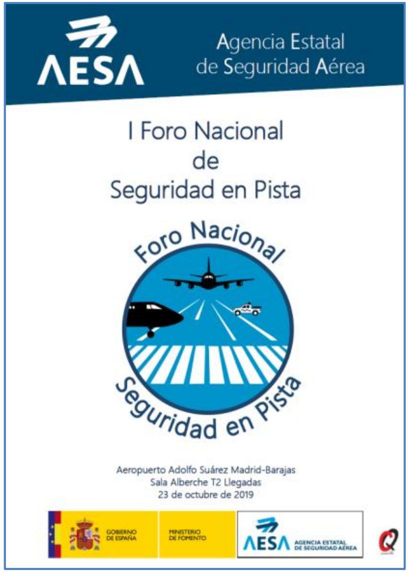
  - Social Media (Facebook, Twitter, etc.)

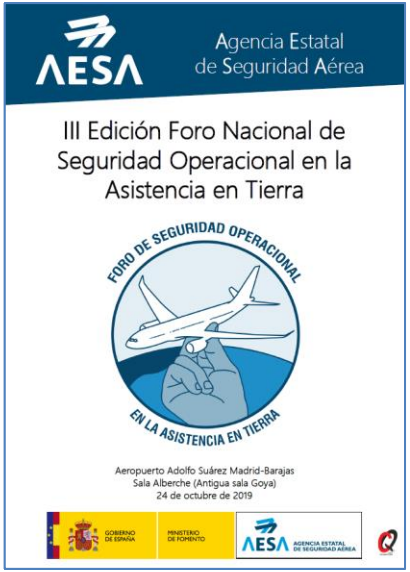


P4.1. Safety Management System

SAFETY COMMUNICATION

- Safety Information Sharing **Forums**, Workshops





P4.1. Safety Management System

SAFETY COMMUNICATION

- Safety Information Sharing Forums, **Workshops**

P4.1. Safety Management System

SAFETY COMMUNICATION

- **<u>Incoming communications</u>:** To establish a voluntary communication flow (of any defect, fault and safety hazard which could impact safety) <u>INTERNAL AND EXTERNAL</u>
  - Email
  - Mail boxes
  - One to one conversations
  - Meetings and Comittees

  All safety communications would need:
  - to be recorded
  - to receive an initial answer (received, we are analyzing, we will answer you soon)
  - to be analysed and actions taken if needed
  - To be answered (final answer)

EASA

P4.1. Safety Management System

European Union Aviation Safety Agency

Dealing with deviations

www.eu-sea-app.org

easa.europa.eu/connect

Your safety is our mission.

An Agency of the European Union