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civil air navigation services organisation

Implementing a Safety Management System

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Benefits of an SMS

Apart from being an ICAO requirement, ANSPs derive benefits from *establishing, documenting* and *maintaining* an SMS

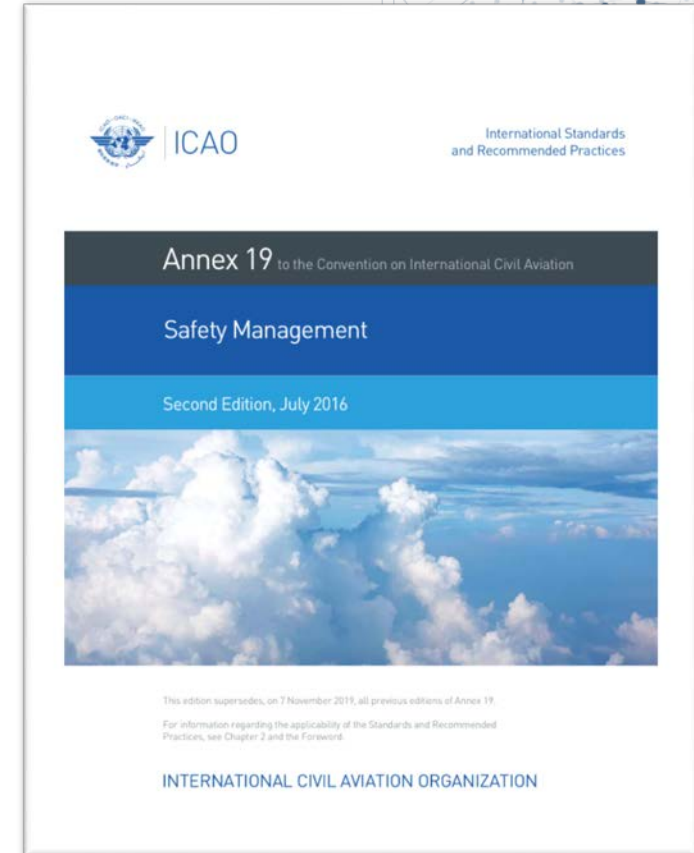
- Improved *safety awareness*
- Focus on *optimisation* and *continuous improvement*
- Identification of *high-risk areas*
- Evidence the organisation places a *high value* on safety
- Assurance to senior leadership that *formal safety management practices* are in place



Understanding SMS Requirements

In order to ensure the SMS meets all applicable safety and regulatory requirements, it is necessary to understand the scope of international and domestic regulations

- *ICAO Annex 19* details the SARPs applicable to the safety management functions related to, or in direct support of, the safe operation of aircraft
- *Additional SMS* requirements may be placed on ANSPs by their state or other regulatory or advisory organisations



Perform a Gap Analysis

Illustrates the current state versus the desired state regarding the various regulatory requirements placed on your organisation

Can also be used to:

- Develop a compliance matrix in which all regulatory requirements are mapped against existing practice
- Support the development of a business case to justify the resources and effort required to implement an SMS
- As a reporting tool against which milestones are tracked as completed



Determining SMS Framework – ICAO Annex 19

Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion
<ul style="list-style-type: none">1) Management commitment and responsibilities2) Safety accountabilities3) Appointment of key safety personnel4) Coordination of emergency response planning5) SMS documentation	<ul style="list-style-type: none">1) Hazard identification2) Risk assessment and mitigation	<ul style="list-style-type: none">1) Safety performance monitoring and measurement2) The management of change3) Continuous improvement of the SMS	<ul style="list-style-type: none">1) Training and education2) Safety communication

SMS Framework Regulatory Compliance

Requirements		Existing Practice	SMS Implementation	
ICAO Annex 19	Domestic Regulations		SMS Group and Element	Expected SMS Output
Annex 19 3.1 Safety performance monitoring and measurement 3.3.1 The service provider shall develop and maintain the means to verify the safety performance of the organisation and validate the effectiveness of risk controls.	Not referenced	Loss of separation data are submitted to CANSO annually	Safety Assurance <i>Safety Performance Monitoring</i>	<p>Process via which key performance indicators associated with key risk controls are identified and validated by senior management</p> <p><i>Document type: procedure</i></p> <hr/> <p>Reporting against the key performance indicators</p> <p><i>SMS Output</i></p>

Scope Out the Plan Before You Begin

Scope of Implementation Plan		Explanation
What needs to be achieved?	Goals	What needs to be achieved
	Objectives	What actions need to be undertaken to achieve the goal
	Enablers	Organisational processes or facilities that may be required to ensure that the SMS process can be implemented (e.g., a software system to allow automatic reporting of incidents).
Who is responsible?	Accountable executive	It should be clear who is accountable for delivering each goal. He/she should be responsible for identifying the necessary resources, including people, equipment and finances, to deliver on the goal. Underpinning objectives may be delivered by others, responsibilities which should also be clearly documented.
When will work commence?	Phase	In which phase of the SMS the work will commence; this could be specified as a date.

Round Out the Scoping Plan

Scope of Implementation Plan		Explanation
How will the work be achieved?	Internal resourcing (within the safety department, cross-functional teams, teams outside the safety department) External resourcing (use of consultant)	The organisation may look to a number of resourcing models to assure that the various components of the SMS are implemented. The resource model used will depend on the urgency with which the SMS component is required, the availability and knowledge of internal staff and budget availability.
Milestones	Reporting milestones	Timeframes for the delivery of all goals and objectives should be specified.
Review of outputs	Acceptance into the SMS	It is good practice to nominate an individual responsible for reviewing the outputs and determining if they are of adequate quality for inclusion in the SMS.

Sample SMS Phased Implementation Plan

Phase, Group and Element of CANSO SoE in SMS	Examples of Associated Goals and Objectives
Phase I Safety Policy <i>Organisational and Individual Safety Responsibilities</i>	Goal 1 – Develop and implement an effective safety organisation. <ul style="list-style-type: none">• Develop safety policy• Document roles, responsibilities and accountabilities in relation to safety and its management• Establish independent safety management function
Phase II Safety Promotion	Goal 2 – Develop and implement a comprehensive safety education and training programme. <ul style="list-style-type: none">• Undertake a gap analysis of baseline safety knowledge of the corporation• Develop a general-knowledge, corporate-wide safety training session• Develop a targeted safety training programme on operational risk management and human factors (based on gap analyses)• Identify those personnel required to receive targeted safety training• Budget for external safety training (e.g., ICAO)

Sample SMS Phased Implementation Plan

Phase, Group and Element of CANSO SoE in SMS	Examples of Associated Goals and Objectives
<p>Phase II Safety Assurance <i>Safety Reporting, Investigation and Improvement</i></p>	<p>Goal 3 – Develop and implement systems and processes to support safety reporting, investigation and improvement.</p> <ul style="list-style-type: none"> • Identify regulated reporting requirements • Identify internal safety data requirements • Develop gap analyses of reporting requirements • Develop a confidential safety reporting system • Develop a system that allows for the collection and dissemination of safety data, both regulated and internal • Develop analysis capabilities based on collection of hazard-based data (including training of specific individuals)
<p>Phase III Safety Policy <i>Timely Compliance with International Obligations</i></p>	<p>Goal 4 – Comply with international obligations.</p> <ul style="list-style-type: none"> • Identify international requirements, (e.g., ICAO) • Identify State (regulator) requirements • Perform gap analyses to determine deficiencies • Develop a template with timelines associated with all international obligations • Assign individuals to respond to international obligations on a timely basis

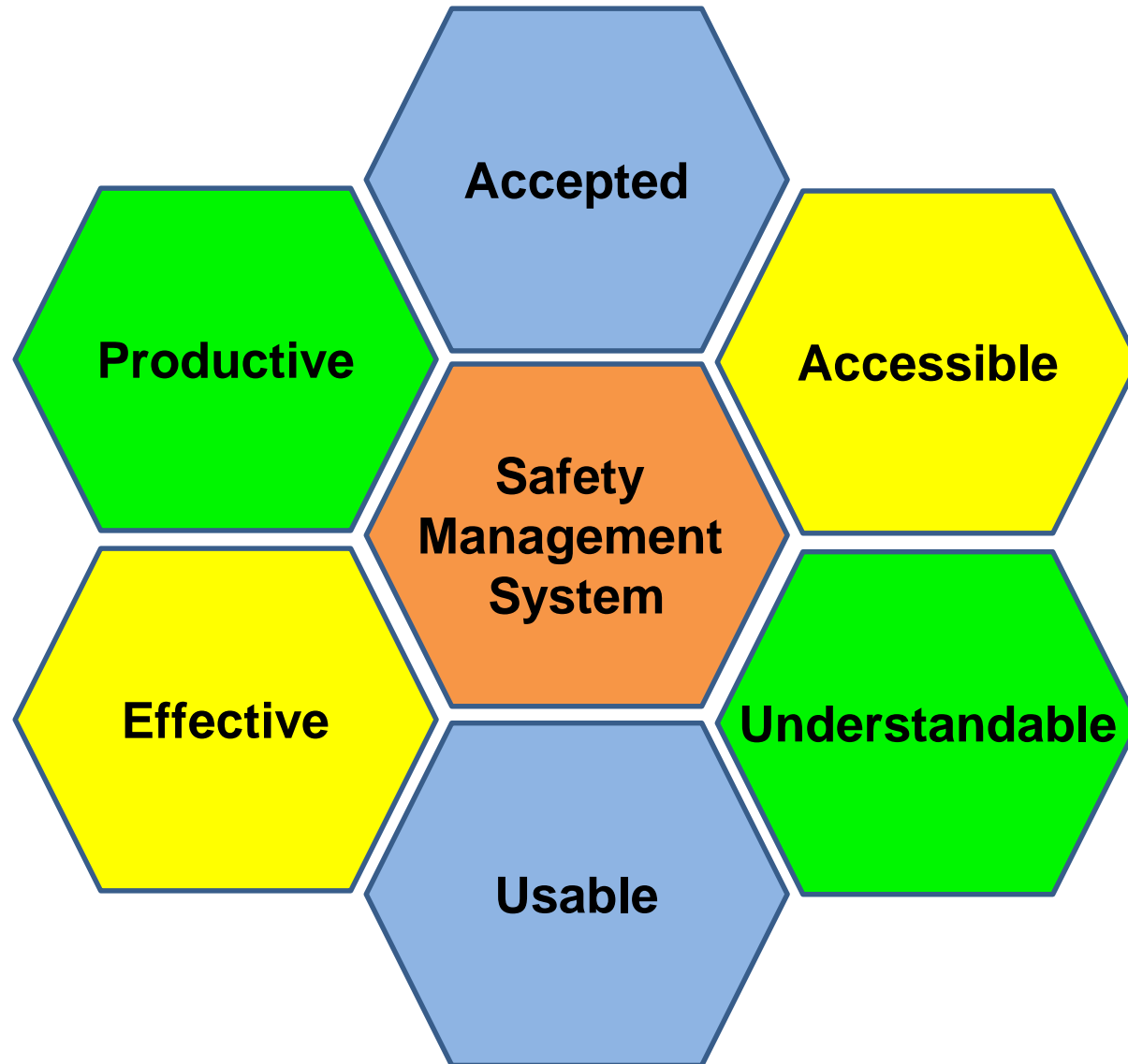
Sample SMS Phased Implementation Plan

Phase, Group and Element of CANSO SoE in SMS	Examples of Associated Goals and Objectives
<p>Phases II & IV Safety Culture <i>Development of a Positive and Pro-active Safety Culture</i></p>	<p>Goal 5 – Pro-actively enhance safety culture.</p> <ul style="list-style-type: none"> • Develop a commitment statement to enhance safety culture (approved and signed by the appropriate level in the organisation) • Develop a just culture programme • Promote safety culture and just culture
<p>Phases II, III & IV Safety Achievement <i>Safety Interfaces</i></p> <p>Safety Promotion <i>Adoption of best practices within the ANSP</i> <i>Adoption of best practices external to the ANSP</i></p>	<p>Goal 6 – Develop and implement processes for internal and external safety interfaces.</p> <ul style="list-style-type: none"> • Develop the Terms of Reference document for the internal safety planning committee • Develop the Terms of Reference for external interfaces with stakeholders, including: <ul style="list-style-type: none"> – Airports – Air carriers – Regulator – Pilots (commercial, general aviation) – Military – Service-level changes

Sample SMS Phased Implementation Plan

Phase, Group and Element of CANSO SoE in SMS	Examples of Associated Goals and Objectives
Phase III Safety Assurance <i>Safety Performance Monitoring</i>	Goal 7 – Develop and implement safety performance monitoring capability. <ul style="list-style-type: none">• Identify regulatory performance metrics• Identify international, industry and aviation safety metrics• Develop a safety performance measurement programme
Phase IV Safety Assurance <i>Operational Safety Surveys and SMS Audits</i>	Goal 8 – Develop and implement survey and audit capabilities. <ul style="list-style-type: none">• Establish authority to conduct surveys and/or audits• Develop the survey process, including cycle timeframes• Develop the audit process, including cycle timeframes• Develop analysis, monitoring and feedback processes on identified gaps and/or deficiencies

SMS Attributes



SMS Attribute Definitions

Term	Definition in Relation to the SMS	Actions Required for SMS Design and Implementation
Accepted	The SMS is viewed as being appropriate and necessary.	What actions will be taken to promote the benefits of the SMS?
Accessible	The SMS is easy to find.	Where will the documents, tools and software associated with the SMS be located?
Understandable	The SMS is easy to comprehend.	What awareness training will be undertaken to ensure that employees know about the SMS and can undertake the safety tasks associated with their roles? Are documents written such that all staff in the organisation will understand them?

SMS Attribute Definitions Continued

Term	Definition in Relation to the SMS	Actions Required for SMS Design and Implementation
Useable	The SMS is easy to apply.	What actions will be taken to design documents and tools that will be easy for employees to use?
Effective	The SMS works well; it does not waste time, effort or expense.	How will the organisation assess whether the SMS is working well?
Productive	The SMS assists the organisation in identifying, mitigating and managing its safety risks.	How will the organisation determine if the SMS is affecting safety outcomes?

Reporting SMS Implementation Plan Progress

Regular updates on the progress of implementation should be provided to the highest levels of the organisation

Reports should include:

- Achievements, including SMS processes that have been implemented and milestones that have been met
- Work programmes underway
- Update timelines
- Potential constraints that could delay successful implementation



WHAT?

WHERE?

WHO?

WHEN?

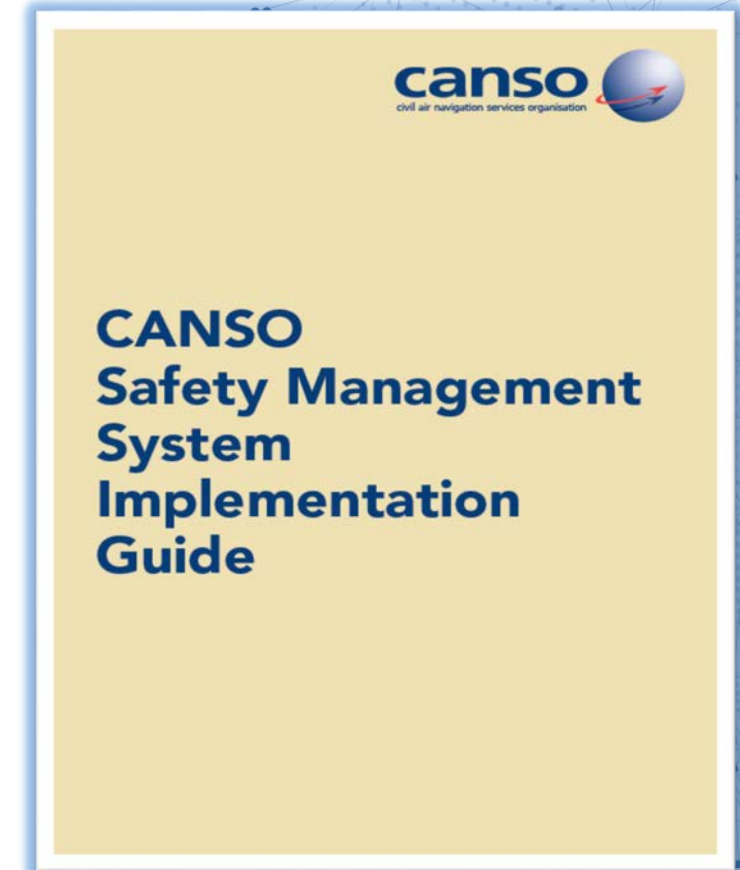
WHY?

HOW?

CANSO SMS Implementation Guide

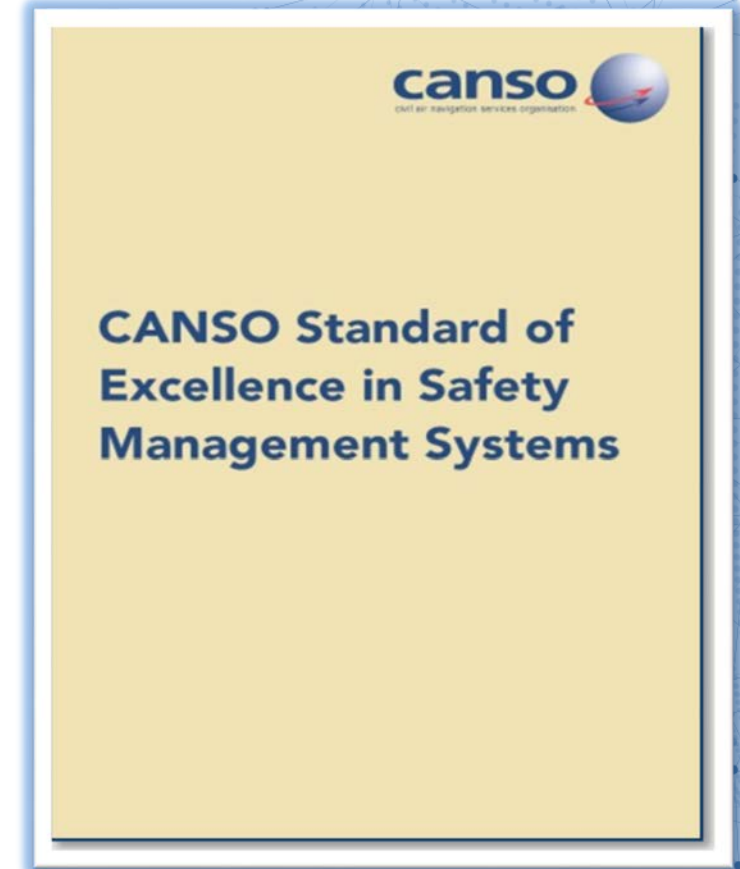
Published in 2015, it aims to provide CANOS Members at maturity levels A, B, and C with guidance that:

- Transfers learning across the industry
- Builds a consistent approach to ANSP safety management practices across the globe
- Allows ANSP management to plan for safety at the corporate, group and project levels, assuring risks to operational service delivery as reduced to 'as low as reasonably practicable' levels
- Aligns to the CANSO SoE on SMS



CANSO Standard of Excellence

- In July 2018, CANSO published an updated version of the *CANSO Standard of Excellence in Safety Management Systems (SoE in SMS)*
- Draws on *experiences* of CANSO Members to develop a framework that helps ANSPs *continually improve* their efforts to manage safety
- Aligns with the *ICAO's Annex on Safety Management (Annex 19)*
- Incorporates the latest developments in *safety management thinking and practice*



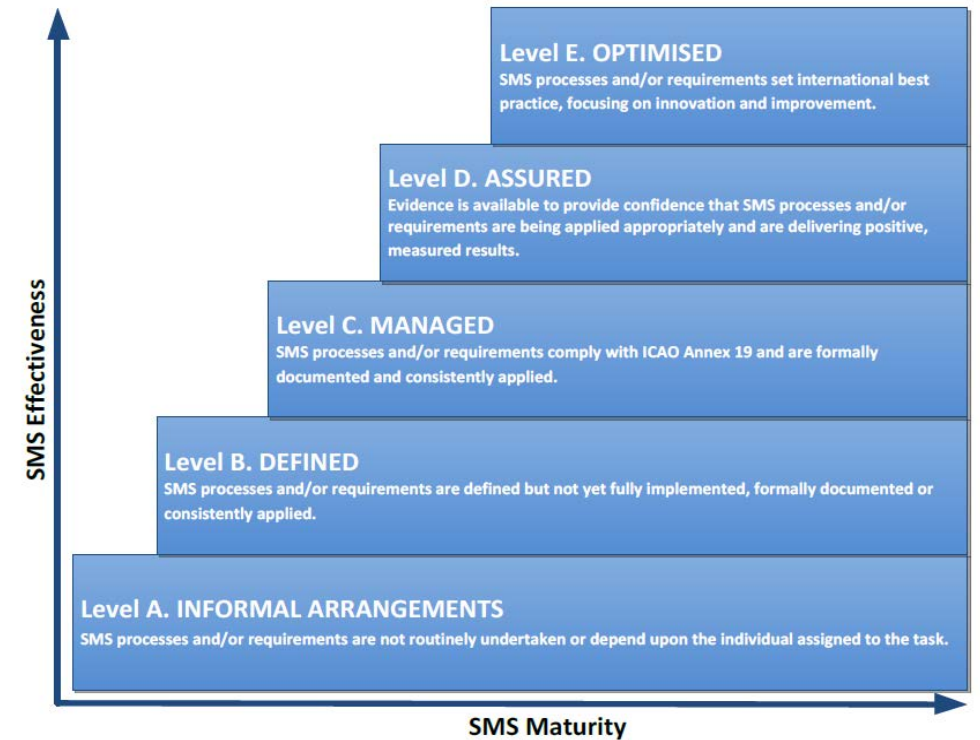
Objectives of the CANSO SoE in SMS

- Encourage *improvement within and transfer learning across* the CNS industry
- Help CANSO Members demonstrate alignment with *SMS aspects of Annex 19*, and build an SMS that *fits the size and complexity* of its operation
- Provides a path for *continuous improvement beyond* the requirements set by regulators
- Enables ANSP management to *directly and deliberately plan* for safety *at all levels*, thereby ensuring risks to operational service delivery are minimised



Utility and Benefits of CANSO SoE in SMS

- Emphasises a *phased, step-by-step approach* to implementing an SMS
- Identifies *5 distinct levels*, starting from the most basic, informal arrangements, and works toward optimised systems
- Allows safety managers to *prioritise their safety efforts* and to initially focus on fundamentals
- Enables ANSP management to *measure and understand SMS maturity in their organization*, as well as be measured against the CNS industry standard





Self-Assessment Tool and Annual Survey

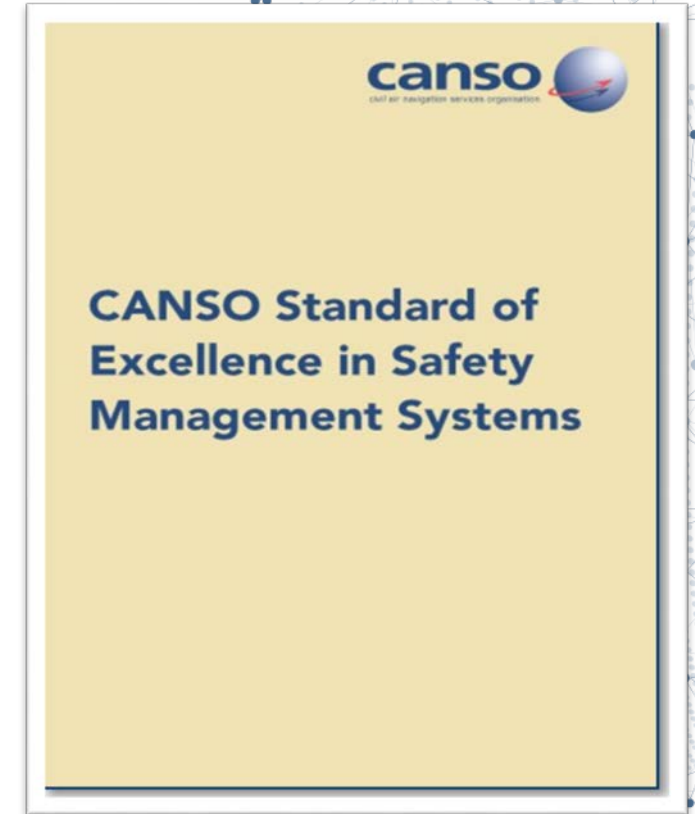
To allow individual ANSPs to conduct a self-assessment of their SMS against the SoE in SMS, CANSO partnered with EUROCONTROL to develop the *EUROCONTROL/CANSO Standard of Excellence in Safety Management Systems Questionnaire*

- Walks user through specific questions about their SMS covering the 17 study areas in the SoE in SMS
- By answering the questionnaire, the ANSP is able to *identify areas of strength*, as well as areas that *need improvement* in their SMS
- Issued by CANSO in May/June of each year
- Answers are due in July



CANSO Expert Assessment Programme

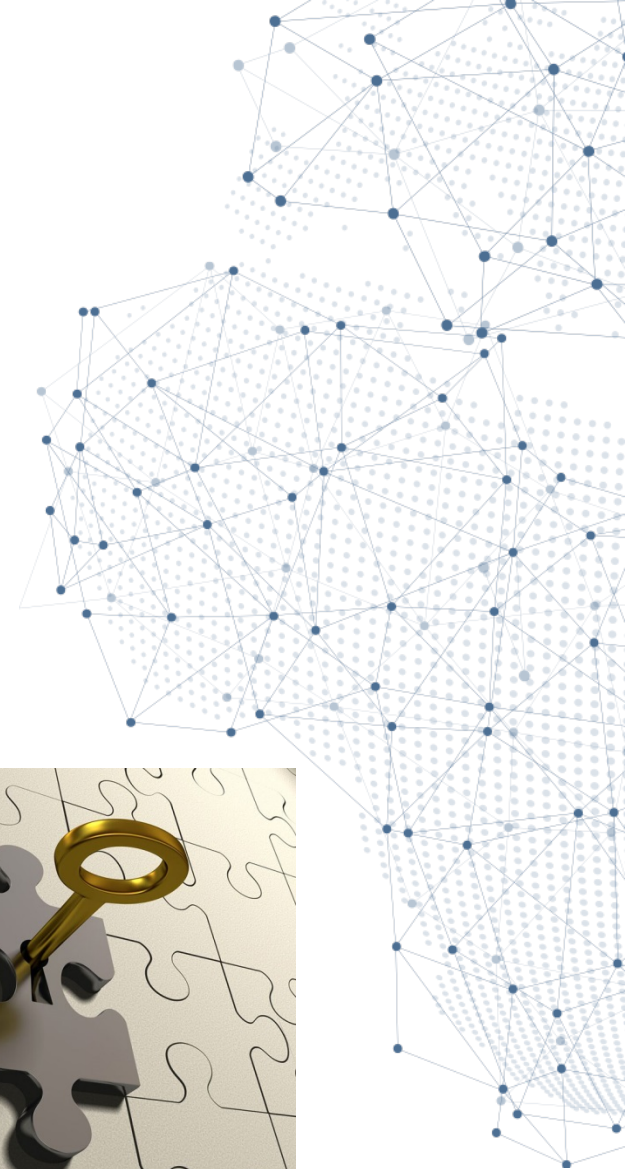
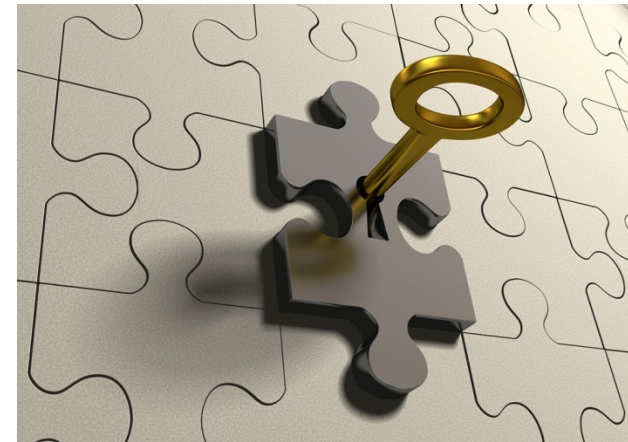
- *SEANS-Safety* provides an independent, expert assessment and validation of the SMS maturity levels of CANSO Member ANSPs
- The *CANSO Standards of Excellence in Safety Management Systems* is the guidance for all SEANS-Safety assessments
- SEANS-Safety assessments are *confidential*
- Assessments can be used to determine compliance with *ICAO Annex-19*



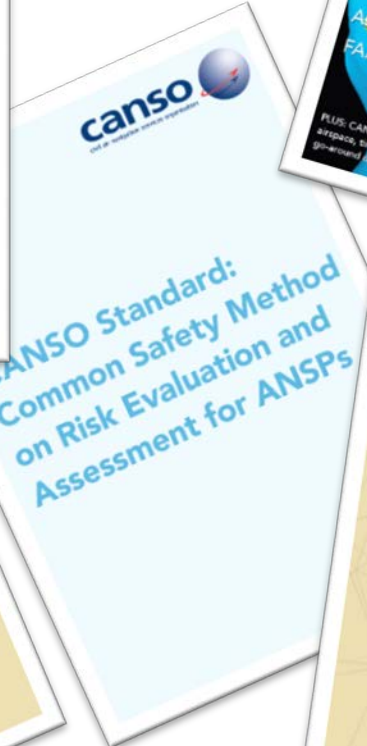
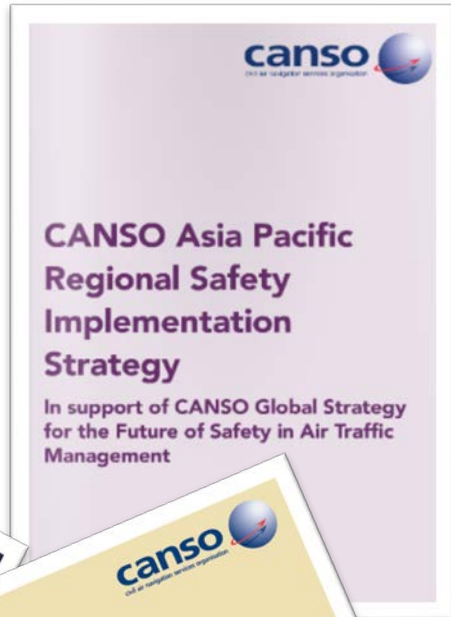
Partnership is Key

While it is important for ANSPs to collaborate on safety improvements, it is just as important for a ***strong relationship between regulator and service provider***

- The regulator and the ANSP have a ***shared responsibility***, to improve overall safety performance
- A proper system at the national level is a must to ensure good and supportive interaction between the SSP and the SMS, thereby facilitating a ***strong relationship between regulator and ANSP***
- Establishment of a framework for ***regular consultation and dialogue***, as well as a mutually agreed reporting structure helps to foster a more integrated, transparent operation



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