

# Safety Oversight Audit Section

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## Regional Seminar on the Preparation, Conduct and Reporting of an ICAO Safety Oversight Audit

Beijing, China, 12 to 15 December 2006

### Introduction to the Comprehensive Systems Approach

**Module 3**

# Module objective

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At the end of this module the participants will have a clear understanding of the USOAP comprehensive systems approach developed by ICAO for the conduct of safety oversight audits.

# Outline

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- ❑ The Annex by Annex approach
- ❑ The Comprehensive Systems Approach
- ❑ Tools used in the implementation of the comprehensive systems approach
- ❑ The overall process
- ❑ Appointment of a National Safety Oversight Coordinator

# Annex by Annex approach

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- ❑ It was applied from 1996 – start of the voluntary assessments until 2004 – end of first cycle of mandatory audits.
- ❑ Assessed the implementation of specific annexes.
- ❑ Experience shows that it was successfully implemented and served the intended purpose:
  - Raised State awareness on their safety oversight responsibilities.
  - Provided reliable information on the status of implementation of ICAO SARPs.
  - Enabled the identification of deficiencies in the global safety of aviation activities in the three areas.

# Annex by Annex approach

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The Annex by Annex approach, however, presented several challenges:

- ❑ Did not give a clear picture of the overall safety level provided by the aviation system in the State.
- ❑ Aviation activities are interrelated. A problem in one area affects the whole system.
- ❑ Safe aircraft operations are not limited to licensing, operations and airworthiness.
- ❑ State oversight capabilities with respect to other aviation activities have an equal impact on safety.

# Annex by Annex approach

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The Annex by Annex approach, however, presented several challenges:

- ❑ Continuing on an Annex-by-Annex approach would have been very lengthy and expensive.
- ❑ It would have also represented an administrative problem, as it would have been necessary to replace technical experts on a three-year or six-year cycle.
- ❑ The overall picture of the health of the aviation system would have been very difficult to assess.

# Comprehensive systems approach

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- ❑ The Comprehensive Systems Approach (CSA) refers to the implementation of a structured process and methodology for the **planning, preparation, conduct, reporting, follow-up** and **evaluation** of ICAO safety oversight audits.
- ❑ It is designed to determine States' capability for safety oversight through the effective implementation of the critical elements of a safety oversight system.

# Comprehensive systems approach

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- ❑ A structured approach that enables an audit process which is methodically conducted and documented to ensure:
  - Standardization,
  - Traceability, and
  - Accountability
- ❑ Compatible with USOAP Principles



# Comprehensive systems approach

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## □ The CSA:

- Looks at States' safety oversight systems from a process perspective.
- Provides a timely picture of the overall health of a State's safety oversight system and its effectiveness.
- Focuses attention on critical safety areas.
- Allows for flexibility depending on the size and complexity of the aviation system established in a State.

# Comprehensive systems approach

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- Benefits of a systems approach:
  - Enables the assessment of a State's capability for safety oversight.
  - Enables the assessment of the effective implementation of the critical elements of a safety oversight system.
  - Evaluates the overall aviation safety system established by States and avoids a piecemeal approach to evaluate aviation safety standards.

# Comprehensive systems approach

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- Benefits of a systems approach:
  - Promotes the uniform implementation of international safety Standards.
  - Promotes the building of confidence among States by making each State aware of the other States' capability for safety oversight.
  - Overall, it will significantly contribute to the safety and efficiency of the international air transport system.

# Comprehensive systems approach

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- ❑ The implementation of the CSA required the development of a plan, processes, procedures and specific tools to be used both by ICAO and Contracting States.
- ❑ It also required the establishment of a Programme which is:
  - Fully transparent; and
  - Works closely with all Contracting States.

# Comprehensive systems approach

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- Endorsed by Assembly Resolution A35-6 (2004):
  - USOAP to be further expanded to include the safety-related provisions in all safety-related Annexes.
  - USOAP to adopt a comprehensive systems approach in conducting safety oversight audits.
  - PEL, OPS, AIR, ATM, AGA and AIG to constitute the core elements (subjects) of the audit Programme.

# Comprehensive systems approach

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- Endorsed by Assembly Resolution A35-6 (2004)
  - Audit reports to be structured on the basis of the critical elements of a safety oversight system.
  - Final audit reports to be made available to all Contracting States in their entirety.
  - USOAP to continuously ensure the maintenance of its quality assurance system (ISO certification).

# Comprehensive systems approach

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- **Assembly Resolution A35-6 calls upon States to:**
  - Submit, on a timely manner, and keep up-to-date, all information and documentation associated with the preparation and conduct of an audit.
  - Cooperate with ICAO and, as much as possible, accept audit missions as scheduled by ICAO.
  - Second qualified and experienced technical staff to ICAO on long- or short-term basis.

# Comprehensive systems approach

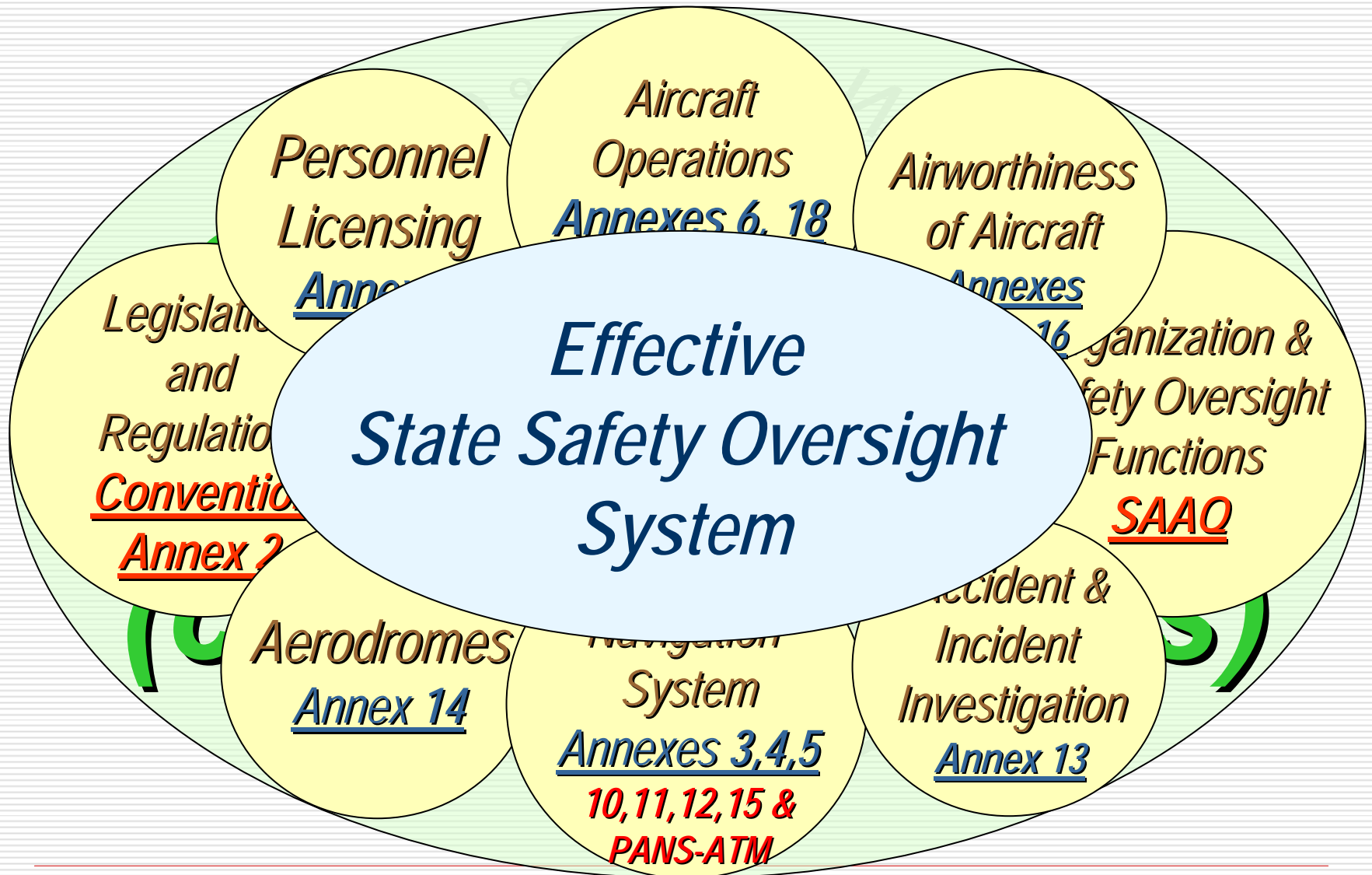
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- Resolution A35-6 also calls upon States to:
  - Accept the primacy of USOAP audit results as meeting the established SARPs.
- In this regard, Assembly Resolution A35-7 requests the Secretary General to continue to foster coordination and cooperation between USOAP and other audit programmes (IATA, EUROCONTROL, etc.).



# Comprehensive systems approach

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# Comprehensive systems approach

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Legislation  
and  
Regulations  
Convention  
Annex 2

Personnel  
Licensing  
Annex 1

Aircraft  
Operations  
Annexes 6, 18  
PANS-OPS

Airworthiness  
of Aircraft  
Annexes  
7, 8, 16

Organization &  
Safety Oversight  
Functions  
SAAQ

Aerodromes  
Annex 14

Air  
Navigation  
System  
Annexes 3,4,5  
10,11,12,15 &  
PANS-ATM

Accident &  
Incident  
Investigation  
Annex 13

# Comprehensive systems approach

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- **Audit processes and procedures:**
  - A three-phase audit process has been established (it will be discussed phase-by-phase, in Modules 6, 8 and 9).
  - The process and procedures are highly transparent and available to all Contracting States.
  - The entire process, from initial planning and scheduling of an audit to the publication of a final safety oversight report takes approximately two years to complete.

# Comprehensive systems approach

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## Selection criteria for States to be audited:

- ❑ Expressed urgency to audit a particular State
- ❑ Requests by a Contracting State
- ❑ Size and complexity of aviation activities
- ❑ Results of previously conducted audits
- ❑ Regional balance
- ❑ Aircraft accident and incident rates
- ❑ Completion of documentations required for the audit (auditors' tools)
- ❑ Language requirements
- ❑ Proximity to a State selected for an audit

# Comprehensive systems approach

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## □ Audit tools:

- Audit tools are used throughout the three phases of the audit process, from the initial planning stage to the publication of the final audit report.
- The main audit tools include:
  - State Aviation Activities Questionnaire (SAAQ).
  - Compliance Checklists (CCs)
  - Safety Oversight Audit Manual - Audit Protocols
  - SOA Quality Manual and related documents.

# Comprehensive systems approach

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## State Aviation Activities Questionnaire (SAAQ)

- ❑ Designed to enable ICAO to collect useful information on the organization and system established by a State to meet its safety oversight-related obligations as a signatory to the Convention on International Civil Aviation.
- ❑ Used in the planning and customization of an audit.

# Comprehensive systems approach

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## State Aviation Activity Questionnaire (SAAQ)

- ❑ All States have to complete it and submit it to ICAO.
- ❑ States have to update the information contained in their respective SAAQ whenever there is a change in their civil aviation system.
- ❑ An updated SAAQ must be submitted at least 90 days prior to the conduct of the on-site phase of the audit.
- ❑ The SAAQ can be completed online.

# Comprehensive systems approach

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## Contents of the SAAQ:

- ❑ Part I — General administrative information
- ❑ Part II — Legislation
- ❑ Part III — Organization
- ❑ Part IV — Operational activities
- ❑ Part V — Air navigation services
- ❑ Part VI — Aerodromes
- ❑ Part VII — Aircraft accident and incident investigation



# Comprehensive systems approach

## SAAQ, Web-based version

The screenshot shows a web browser window titled "State Aviation Activity Questionnaire 2005 - Microsoft Internet Explorer". The address bar shows the URL "http://www.developersgroup.com/saaq/saaq.aspx". The page header includes the ICAO logo and the text "ICAO Universal Safety Oversight Audit Programme State Aviation Activity Questionnaire 2005".

The main content area displays a table with the following structure:

Reference	SAAQ Question	Comments	1 of 66		Prev	Ne:
			Yes	No		
GEN 1.1	<b>PART 1. - GENERAL ADMINISTRATIVE INFORMATION</b> Provide the name, position and address of the person designated as the State coordinator with respect to the ICAO Universal Safety Oversight Audit Programme (USOAP).  Specify: Name: Position: Contact address: Tel: Fax: E-mail :		<input type="checkbox"/>	<input type="checkbox"/>		
GEN 1.2	What is the normal workweek, e.g. Mon to Fri; Sat to Wed?		<input type="checkbox"/>	<input type="checkbox"/>		
GEN 1.3	What are the normal working hours, e.g. 0900 to 1700; 0730 to 1430?		<input type="checkbox"/>	<input type="checkbox"/>		
GEN 1.4	What statutory holidays should be considered as not suitable for planning an audit?		<input type="checkbox"/>	<input type="checkbox"/>		
GEN 1.5	Is there an annual vacation period when many of the essential staff may not be available and, therefore, that should be avoided when scheduling the audit?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
GEN 1.6	What documentation will be required from and made available to ICAO audit members to access operational sites for audit purposes, e.g. passes, photo ID?		<input type="checkbox"/>	<input type="checkbox"/>		
GEN 1.7	Has the State established a civil aviation website(s)? If yes, indicate the URL(s).		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

The table footer shows "1 of 66" and "Prev Ne:".

# Comprehensive systems approach

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## Compliance Checklists CCs:

- ❑ 16 CCs were developed, one for each of the Annexes being audited.
- ❑ The CCs provide ICAO with information on a State's level of implementation of international Standards and Recommended Practices (SARPs).
- ❑ The CCs enable States to identify any difference which may exist between their own practices and those established by international standards (Article 38 of the Chicago Convention).

# Comprehensive systems approach

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## Compliance Checklists:

- ❑ The completed CCs submitted by States allow ICAO to maintain a database on each State's level of compliance of the ICAO SARPs.
- ❑ States are required to maintain the compliance checklists up-to-date and, in any case, update them at least 90 days prior to the scheduled audit.

# Comprehensive systems approach

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## Contents of the Compliance Checklists:

- ❑ A foreword providing States with instructions on how to complete the document.
- ❑ The Foreword also defines the categories to be considered in determining differences to be identified and submitted to SOA.
- ❑ Standards and Recommended Practices contained in all safety-related Annexes (all ICAO Annexes except Annexes 9 and 17).

# Comprehensive systems approach

## Compliance Checklist – sample page

ICAO SARP's compliance and status of implementation

NINTH EDITION - JULY 2001

Annex Reference & SARP Identifier	ANNEX 13 AIRCRAFT ACCIDENT AND INCIDENT INVESTIGATION  Annex Standard or Recommended Practice	Legislation Compliance Quote Relevant State Act/ Regulation or Document Reference	No	Difference Yes			Not Applicable	Text of the difference identified by the State including the reason for the difference	Comments
				Level of implementation of SARP's					
				More exacting or Exceeds	Difference in character or Other means of compliance	Less protective or partially implemented or not implemented			
AIG0003250 Chapter 5 5.5 Std.	<i>Investigator-in-charge - Designation</i>  The State conducting the investigation shall designate the investigator-in-charge of the investigation and shall initiate the investigation immediately.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
AIG0003300 Chapter 5 5.6 Std.	<i>Investigator-in-charge - Access and control</i>  The investigator-in-charge shall have unhindered access to the wreckage and all relevant material, including flight recorders and ATS records, and shall have unrestricted control over it to ensure that a detailed examination can be made without delay by authorized personnel participating in the investigation.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
AIG0003350 Chapter 5 5.7 Std.	<i>Flight recorders - Accidents and incidents</i>  Effective use shall be made of flight recorders in the investigation of an accident or an incident. The State conducting the investigation shall arrange for the read-out of the flight recorders without delay.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Space for comments

Level of compliance

SARP Identifier

Annex Reference

Annex SARP

Legislation Reference

Text of difference

# Comprehensive systems approach

## Compliance checklist, Web-based version

Compliance Checklist - Microsoft Internet Explorer

Address: http://www.developersgroup.com/checklist/checklist.aspx

Select Annex Home Page

Annex Reference & SARP Identifier	Annex 01 PERSONNEL LICENSING NINTH EDITION - JULY 2001 Amendment 165 Annex Standard or Recommended Practice	Legislation Compliance Quote relevant State Act/Regulation or Document Reference	Difference			Not Applicable	Text of the difference identified by the State	Comment: including the reason for difference
			Yes					
			Level of implementation of SARPs					
		No	More Exacting or Exceeds	Different in character or Other means of compliance	Less protective or partially implemented or not implemented			
Chapter 1 Reference# 1.1 ID Number PEL0001100 Std.	CHAPTER 1. DEFINITIONS AND GENERAL RULES CONCERNING LICENCES Definitions When the following terms are used in the Standards and Recommended Practices for Personnel Licensing, they have the following meanings:		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		

Done Internet

# Comprehensive systems approach

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## Audit Protocols (PQ):

- ❑ Developed by SOA with the assistance of relevant ANB Sections.
- ❑ Used for the conduct of the on-site audit.
- ❑ Enable auditing against the critical elements of a safety oversight system.
- ❑ Provide guidelines to the auditor on what evidence should be requested and reviewed.
- ❑ Can be used by States to conduct internal audits.

# Comprehensive systems approach

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## Additional/Support Tools - Guidance material:

- ❑ Designed to assist States in the implementation of SARPs and associated Procedures:
  - Doc 9734 Safety Oversight Manual, Part A – provides guidance on the establishment and management of a State’s safety oversight system (2nd Edition, 2006).
  - Doc 9734 Safety Oversight Manual, Part B – provides guidance on the establishment and management of a regional safety oversight system (First Edition 2006).



# Comprehensive systems approach

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## Additional/Support Tools - Guidance material:

- Doc 9735 Safety Oversight Audit Manual— provides detailed information on USOAP and on the conduct of safety oversight audits (2nd Edition, 2006).
- Additional guidance material is listed under each of the audit protocols in Module 6.

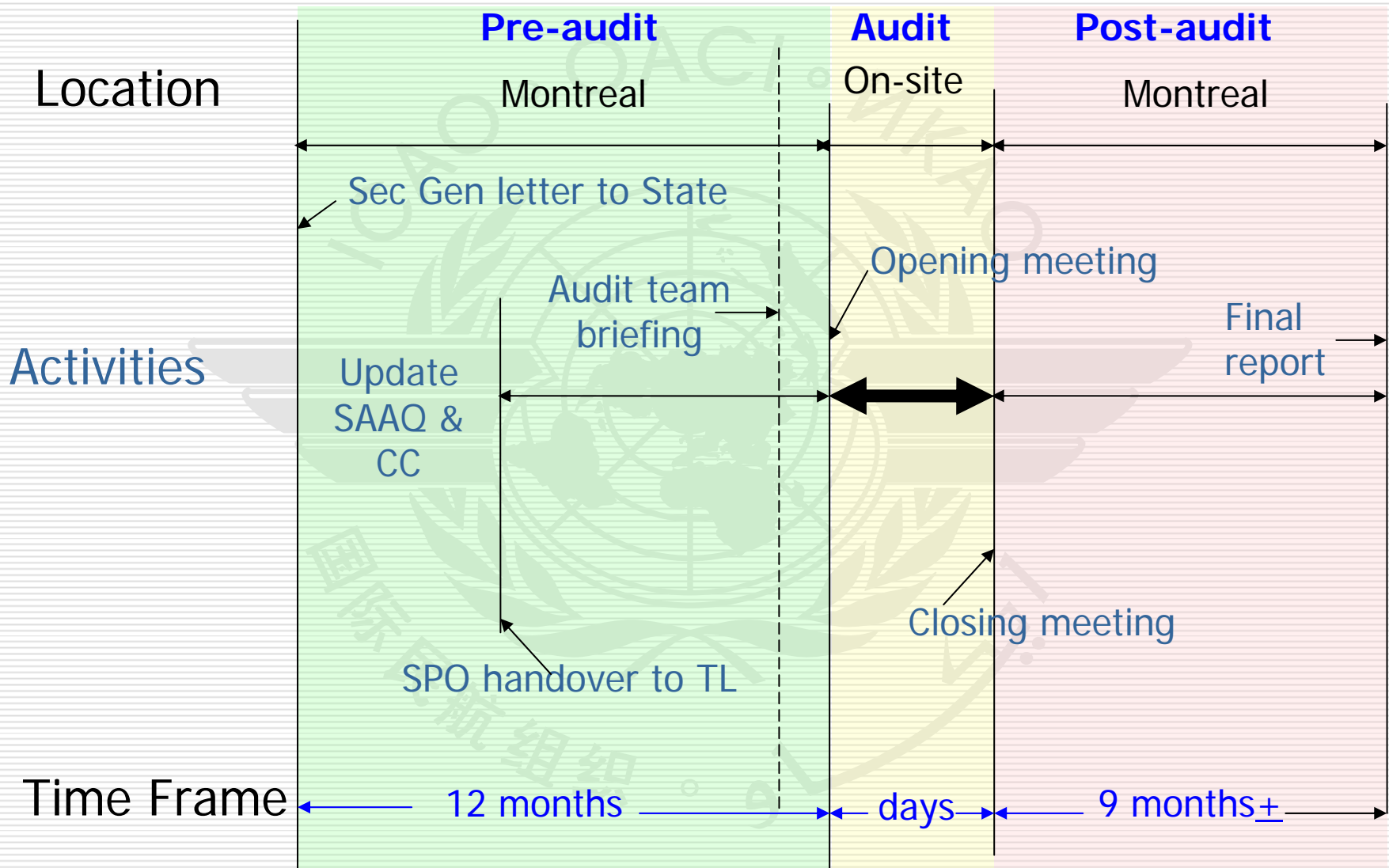
# Comprehensive systems approach

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## Additional/Support Tools - Seminars and workshops

- ❑ One of the main tools used to assist States to establish an effective safety oversight system.
- ❑ Seminar/workshops provide States information on USOAP and on how to prepare for an ICAO audit.
- ❑ A means of sharing knowledge and experience with experts from other States and organizations.

# Safety oversight audit process



# Appointment of the National Safety Oversight Coordinator

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- ❑ The scope of safety oversight audits during the initial audit cycle was limited to Annexes 1, 6 and 8.
- ❑ This meant that ICAO, for the most part, only had to deal with one State entity, namely the Civil Aviation Administration or Authority.
- ❑ The scope of safety oversight audits under the comprehensive systems approach has expanded to 16 of the 18 Annexes to the Convention.
- ❑ As a result, in many States, ICAO has to deal with several entities responsible for safety oversight (and investigation) tasks, besides the Civil Aviation Authority. .../

# Appointment of the National Safety Oversight Coordinator

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- ❑ To facilitate the audit process, and to ensure proper communication and coordination with Contracting States, the Safety Oversight Audit Section (SOA) requested all States to appoint a National Safety Oversight Coordinator (NSOC).
- ❑ The NSOC serves as focal point between the Safety Oversight Audit Section (SOA) and the State concerning safety oversight matters.
- ❑ The NSOC plays an active role during the three phases of the audit process: pre-audit, on-site and post-audit phase.

# Review

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- ❑ The Annex by Annex approach
- ❑ The Comprehensive Systems Approach
- ❑ Tools used in the implementation of the comprehensive systems approach
- ❑ The overall process
- ❑ Appointment of a National Safety Oversight Coordinator

# Safety Oversight Audit Section

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**Thank you!**

