



## Safety Management Systems (SMS) Course

### Module N° 7 – Introduction to SMS

Addis Ababa – Ethiopia  
29 September to 3 October 2008

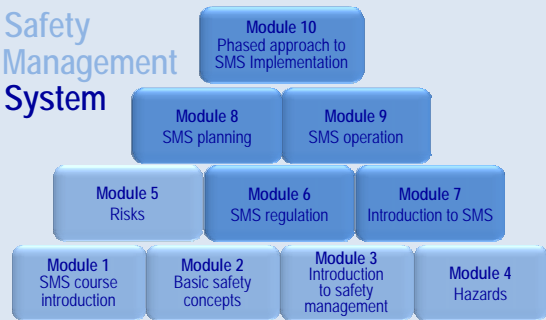
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## Building an SMS

### Safety Management System



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## Objective

- ❖ *At the end of this module, participants will be able to describe the features of an SMS, explain the importance of system description and gap analysis, and the relationship between SMS and QMS.*

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## Outline

- ❖ ICAO requirements
- ❖ SMS – Introductory concepts
- ❖ SMS features
- ❖ First fundamental – System description
- ❖ Second fundamental – Gap analysis
- ❖ Third fundamental – SMS and QMS
- ❖ Clarifying terms
- ❖ Questions and answers
- ❖ Points to remember

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## ICAO requirements

- ❖ Compliance with all relevant regulations and ICAO standards, other than those **specifically** SMS-related, is a key component of an SMS.
- ❖ Many of these regulations and ICAO standards, include operational provisions that will be part of an SMS.



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## SMS – Introductory concepts

### ❖ A toolbox

- The scope of SMS encompasses most of the activities of the organization.
- SMS must start from senior management, and safety must be considered at all levels of the organization.
- SMS aims to make continuous improvement to the overall level of safety.
- All aviation stakeholders have a role to play in SMS.



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## Identifying aviation system stakeholders

- ❖ Aviation professionals
- ❖ Aircraft owners and operators
- ❖ Manufacturers
- ❖ Aviation regulatory authorities
- ❖ Industry trade associations
- ❖ Regional air traffic service providers
- ❖ Professional associations and federations
- ❖ International aviation organizations
- ❖ Investigative agencies
- ❖ The flying public

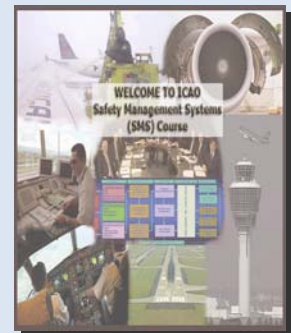
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## Identifying aviation system stakeholders

- ❖ Why is it important to identify aviation system stakeholders?
- To ensure that stakeholders inputs and knowledge relevant to safety risk(s) decisions are taken into consideration before the decisions are taken.



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## SMS features

- ❖ **Systematic** – Safety management activities are in accordance with a pre-determined plan, and applied in a consistent manner throughout the organization.
- ❖ **Proactive** – An approach that emphasizes hazard identification and risk control and mitigation, before events that affect safety occur.
- ❖ **Explicit** – All safety management activities are documented and visible.

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## First fundamental – System description

- ❖ **System description**
  - Most hazards are generated by operational interactions among different system components.
  - It is therefore essential to describe the system in terms of its components as one of the first activities when planning an SMS.

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## System description

- 1) The system interactions with other systems in the air transportation system.
- 2) The system functions.
- 3) Required human performance considerations of the system operation.
- 4) Hardware components of the system.
- 5) Software components of the system.
- 6) Related procedures that define guidance for the operation and use of the system.
- 7) Operational environment
- 8) Contracted and purchased products and services.

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## Second fundamental – Gap analysis

- ❖ An analysis of safety arrangements existing within the organization.
  - The basic organizational structures necessary to start developing an SMS may exist in the organization.
  - Various activities related to an SMS may be in place and working.
  - SMS development should build upon existing organizational structures.

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## Second fundamental – Gap analysis

- ❖ Conduct the gap analysis against the components and elements of the SMS  
*(Presented in Module 8).*
- ❖ Once completed and documented the gap analysis forms the basis of the **SMS implementation plan**.



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## Third fundamental – SMS and QMS

- ❖ SMS differs from QMS in that:
  - SMS focuses on the safety, human and organizational aspects of an organization
    - *i.e. safety satisfaction*
  - QMS focuses on the product(s) and service(s) of an organization
    - *i.e. customer satisfaction*



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## SMS and QMS

- ❖ SMS results in the design and implementation of organizational processes and procedures to identify safety hazards and control/mitigate safety risks in aviation operation.
- ❖ QMS provides a structured approach to monitor that processes and procedures to identify safety hazards and control/mitigate safety risks in aviation operations function as intended and, when they do not, to improve them.

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## SMS and QMS – Striking a balance

- ❖ SMS builds partly upon QMS principles.
- ❖ SMS should include both safety and quality policies.
- ❖ The coverage of quality policies – insofar as SMS is concerned – should be limited to quality in support of the management of safety.



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## Systems integration

- ❖ There is a tendency in civil aviation to integrate the different systems of management:
  - Quality management system (QMS).
  - Environment management system (EMS).
  - Occupational health and safety management system (OHSMS).
  - Safety management system (SMS).
  - Security management system .

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## Systems integration benefits

- ❖ Reduce duplication and therefore costs.
- ❖ Reduce risks and increase profitability.
- ❖ Balance potentially conflicting objectives.
- ❖ Eliminate potentially conflicting responsibilities and relationships.
- ❖ Diffuse the power system.

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## Systems integration considerations

- ❖ There are different ways to integrate a safety management system in the operation of the organization.
- ❖ Aviation organizations should be encouraged to integrate their management system for quality, safety, security, occupational health and safety, and environmental protection management.
- ❖ *This integration, however, is presently beyond the scope of the harmonized ICAO safety management requirements and of this training course.*

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## Clarifying the use of terms

### ❖ Safety oversight

- Is what the CAA performs with regard to the operators/service providers SMS.

### ❖ Safety assurance

- Is what the operators/service providers do with regard to safety performance monitoring and measurement

### ❖ Safety audit

- Is what the CAA performs with regard to its safety programme and the operators/service providers perform with regard to the SMS.

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## SMS – Nothing new?

### ❖ Rounding up the usual suspects.

- In aviation, safety is first.
- Safety is everybody's responsibility.
- If ain't broke, why fix it?
- If you believe safety is expensive, try an accident.
- 70% accidents are due to human error.

**SMS sets forth to destroy  
all these misperceptions.**

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## In summary

❖ Safety – The state in which the risk of harm to persons or property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and risk management.

❖ Management – Allocation of resources.

❖ System – Organized set of processes and procedures.

**SMS – An organized set of processes and procedures, based upon a principled allocation of resources, that allows the control of safety risks to an acceptable level**

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Introduction to SMS

**Questions and answers**

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## Questions and answers

❖ Q: Why is it important to SMS development to involve stakeholders?

❖ A:

- To ensure that stakeholders inputs and knowledge relevant to safety risk(s) decisions are taken into consideration before the decisions are taken.

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## Questions and answers

❖ Q: One of the three main characteristic features of SMS is that it is systematic. Explain?

❖ A:

- **Systematic** – Safety management activities are in accordance with a pre-determined plan, and applied in a consistent manner throughout the organization.

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## Questions and answers

❖ Q: Explain the importance of gap analysis.

❖ A:

- The basic organizational structures necessary to start developing an SMS may exist in the organization.
- Various activities related to an SMS may be in place and working.
- SMS development should build upon existing organizational structures.

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## Questions and answers

❖ Q: Explain the difference between SMS and QMS.

❖ A:

- SMS focuses on the safety, human and organizational aspects of an organization
  - **i.e. safety satisfaction**
- QMS focuses on the product(s) and service(s) of an organization
  - **i.e. customer satisfaction**

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### Points to remember

1. *SMS main features*
2. *The importance of system description*
3. *The importance of gap analysis*
4. *The relationship between SMS and QMS*

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