Session No. 3
ICAO Safety Management Standards
ICAO SMS Framework

SMS Senior Management Workshop
Rome, 21 May 2007

The Big Picture

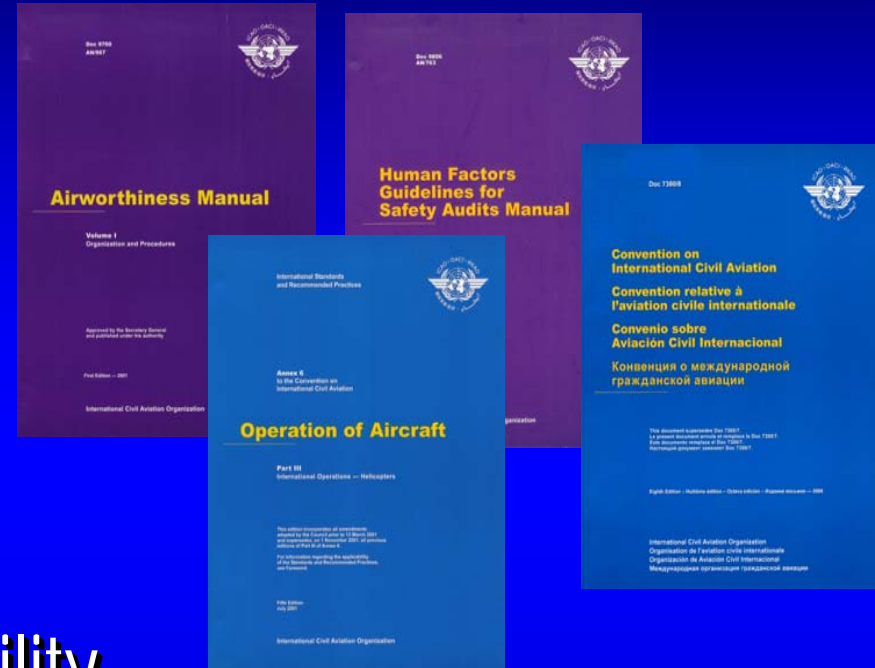✓ Two audience groups
  - ☑ States
  - ☑ Service providers

✓ Three distinct requirements
  - ☑ Safety programme
  - ☑ SMS
  - ☑ Management accountability

As of 23 November 2006

States shall establish a safety programme, in order to achieve an acceptable level of safety in:

- The operation of aircraft
- The maintenance of aircraft
- The provision of air traffic services
- Aerodrome operations

What is a Safety Programme?

An integrated set of regulations and activities aimed at improving safety

- ➢ Safety regulation
- ➢ Safety oversight
- ➢ Accident/incident investigation
- ➢ Mandatory/voluntary reporting systems
- ➢ Safety data analysis
- ➢ Safety promotion
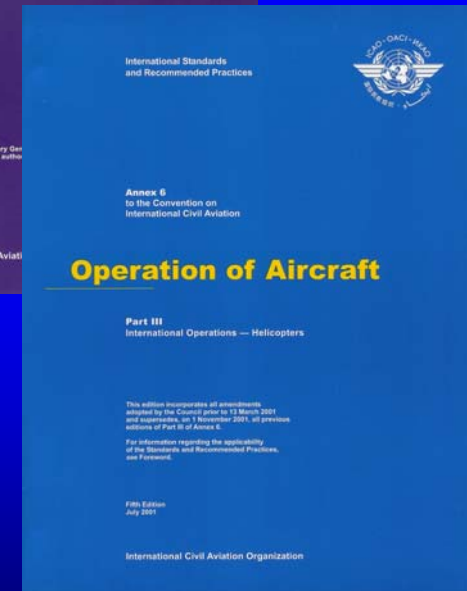
As of 23 November 2006

States shall require, as part of their safety programme, that an *[operator, maintenance organization, ATS provider, certified aerodrome operator]* implements a safety management system accepted by the State that

- ➢ Identifies safety hazards
- ➢ Ensures that remedial action necessary to maintain an acceptable level of safety is implemented
- ➢ Provides for continuous monitoring and regular assessment of the safety level achieved
- ➢ Aims to make continuous improvement to the overall level of safety

What is an SMS?

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

➢ Providers are responsible for establishing an SMS

➢ States are responsible of the acceptance and oversight for providers' SMS
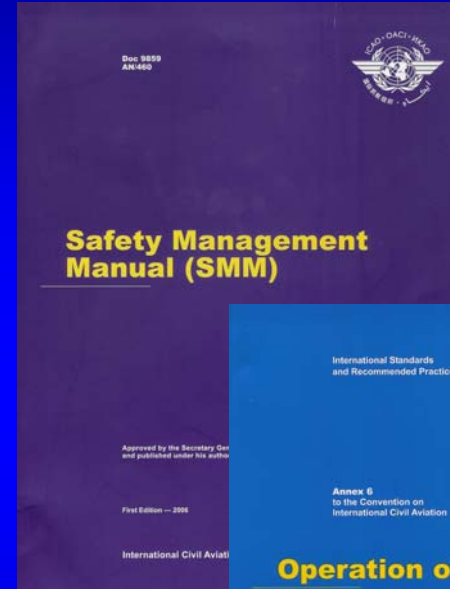
Safety Programme – SMS Relationships

Protection | Production

Objective: Public safety

State safety programme

Objective: Manage and control safety risk

Organization's safety management system (SMS)

Objective: Achieve commercial goals and customer satisfaction

Organization's production processes

Acceptance Oversight

Oversight

Risk management Safety assurance
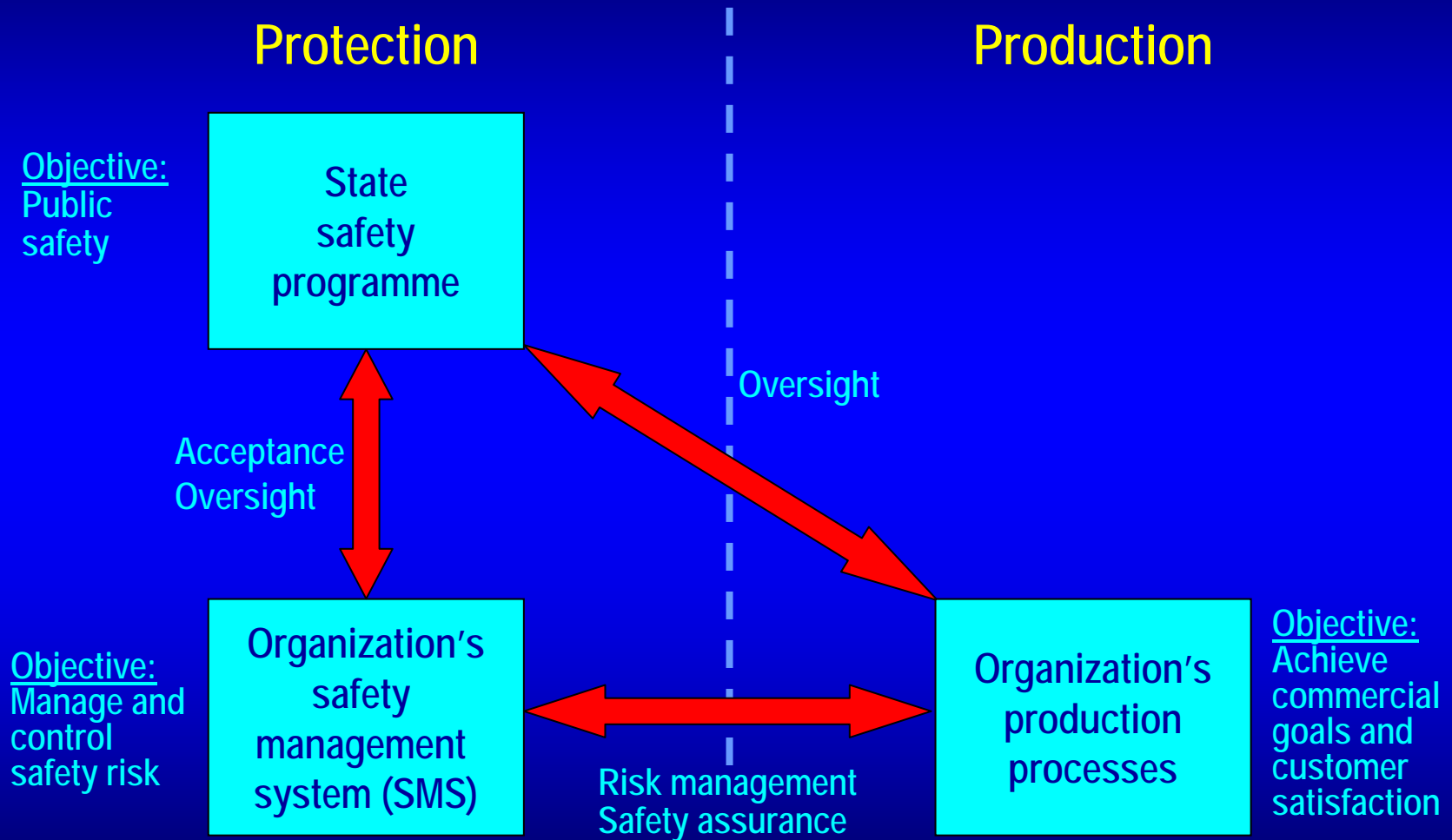
An accepted safety management system shall clearly define lines of safety accountability throughout the *[airline, maintenance, ATS provider, certified aerodrome operator]* organization, including direct accountability for safety on the part of senior management

Note. – Guidance on safety management systems is contained in the ICAO Safety Management Manual (Doc 9859)

Acceptable Level of Safety

The acceptable level of safety to be achieved shall be established by the State (s) concerned

➢ Expressed in practical terms by two measures or metrics

  ✓ Safety performance indicators

  ✓ Safety performance targets

➢ Delivered through various tools and means

  ✓ Safety requirements

Acceptable Level of Safety

➢ **Safety indicators** – Established objectives of a safety programme or an SMS
  ✓ *No more than 0.8 Cat A and B (most serious) runway incursions per million operations through 2009*

➢ **Safety targets** – Medium or long-term objectives of a safety programme or an SMS
  ✓ *By 2010 reduce Cat A and B (most serious) runway incursions to a rate of not more than 0.5 per million operations*

➢ May be different or the same

Acceptable Level of Safety

➢ Safety requirements – Operational procedures, technology and systems, programmes, and contingency arrangements

➢ Measures of reliability, availability and/or accuracy may be added

✓ *Install Airport Surface Detection Equipment-Model XV (ASDE-XV) at (three busiest airports) within the next 12 months, with 98% annual availability*

Acceptable Level of Safety

➢ There will seldom be a single or national acceptable level of safety

➢ Different acceptable levels of safety will be separately agreed between the oversight authority and individual service providers

➢ Each agreed acceptable level of safety should be
  ✓ commensurate to the complexity of individual service provider specific operational context
  ✓ availability of operator/services provider resources

Acceptable Level of Safety

Legal considerations

➢ Establishing acceptable level(s) of safety does not replace legal, regulatory, or other already established requirements, but it must support compliance with them

➢ Establishing acceptable level(s) of safety for their safety programme leaves unaffected the obligations of States, and does not relieve States from compliance with SARPs

ICAO SMS FRAMEWORK

❶ Safety policy and objectives

      1.1 – Management commitment and responsibility

      1.2 – Safety accountabilities of managers

      1.3 – Appointment of key safety personnel

      1.4 – SMS implementation plan

      1.5 – Coordination of the emergency response plan

      1.6 – Documentation

❷ Safety risk management

      2.1 – Hazard identification processes

      2.2 – Risk assessment and mitigation processes

      2.3 – Internal safety investigations

❸ Safety assurance

      3.1 – Safety performance monitoring and measurement

      3.2 – The management of change

      3.3 – Continuous improvement of the safety system

❹ Safety promotion

      4.1 – Training and education

      4.2 – Safety communication

❶ Safety Policy and Objectives

1.1 – Management commitment and responsibility

➢ Identify the accountable executive
- ✓ Single, identifiable person
- ✓ Full responsibility for the organization's SMS
  - ☑ CEO/Chairman Board of Directors
  - ☑ A partner
  - ☑ The proprietor

➢ Develop and communicate, with visible endorsement, the safety policy, signed by the accountable executive

1.2 – Safety Accountabilities
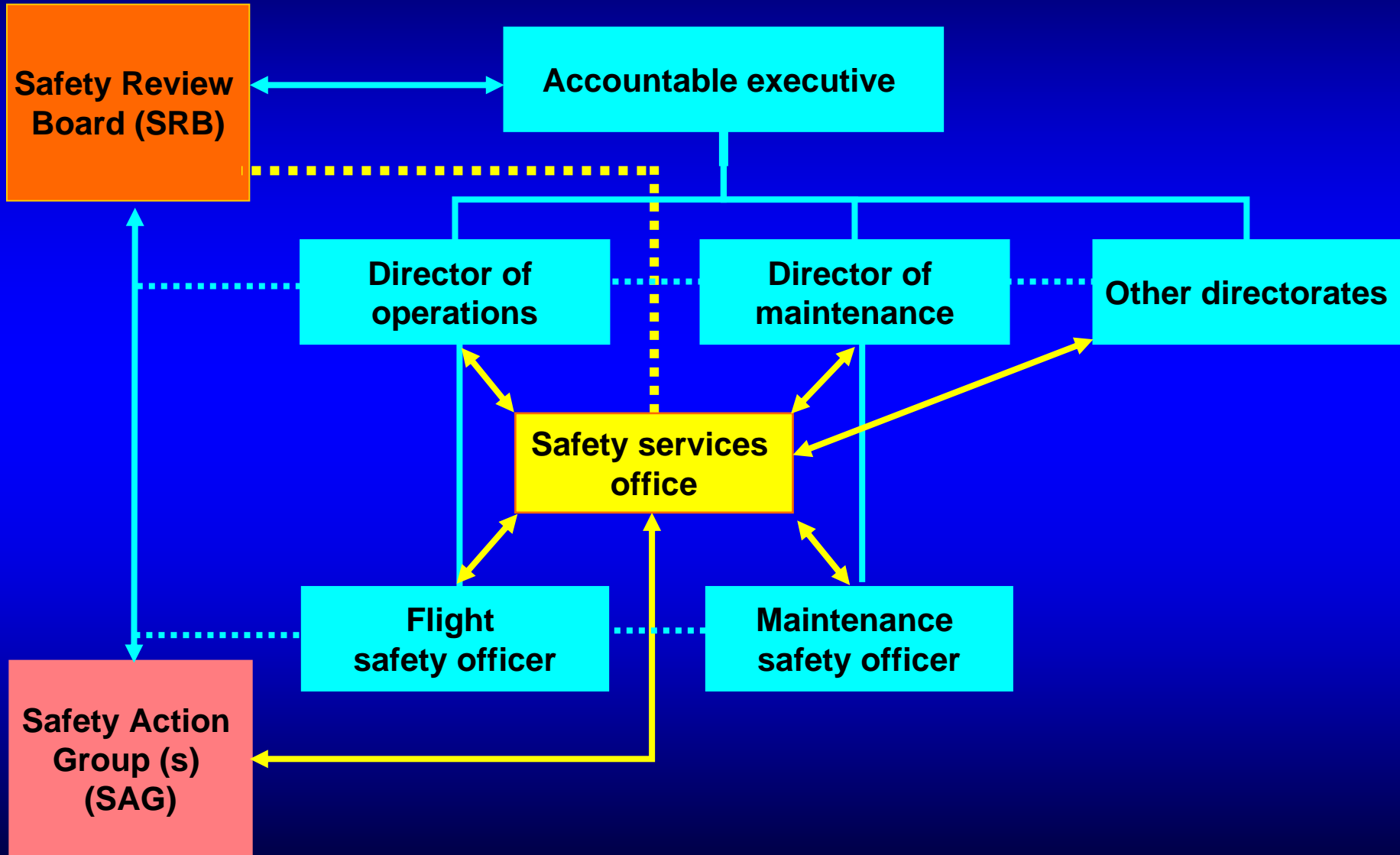
❶ Safety Policy and Objectives

1.3 – Appointment of key safety personnel

➤ The safety office – *Corporate functions*
- ✔ Advising senior management on safety matters
- ✔ Assisting line managers
- ✔ Overseeing hazard identification systems

➤ The safety manager
- ✔ Responsible individual and focal point for the development and maintenance of an effective safety management system

❶ Safety Policy and Objectives

1.4 – SMS implementation plan

➢ Developed by a planning group, which:
  - ✓ Comprises an appropriate experience base.
  - ✓ Meets regularly with senior management.
  - ✓ Receives resources (including time for meetings)

➢ A realistic implementation strategy for the SMS

➢ Senior management endorses the plan

➢ Typical implementation time frame: one to four years (Phased approach)

❶ Safety Policy and Objectives

1.4 – SMS implementation plan – Contents

1)   Safety policy
2)   Safety planning, objectives and goals
3)   System description
4)   Gap analysis
5)   SMS components
6)   Safety roles and responsibilities
7)   Safety reporting policy
8)   Means of employee involvement
9)   Safety communication
10) Safety performance measurement
11) Management review of the safety performance

❶ Safety policy and objectives

1.6 – Documentation – Safety management system manual (SMSM)

➢ Key instrument for communicating the organization's approach to safety to the whole organization

➢ Documents all aspects of the SMS, including the safety policy, objectives, procedures and individual safety accountabilities

❶ Safety policy and objectives

1.6 – Documentation – SMSM contents

1. Scope of the safety management system
2. The safety policy and objectives
3. Safety accountabilities
4. Key safety personnel
5. Documentation control procedures
6. Hazard identification and risk management schemes
7. Safety performance monitoring
8. Emergency response planning
9. Management of change
10. Safety auditing
11. Safety promotion
12. Contracted activities

❷ Safety Risk Management

2.1 – Hazard identification processes – A formal means of collecting, recording, acting on and generating feedback about hazards in operations

- ✓ Reactive
- ✓ Proactive
- ✓ Predictive

2.2 – Risk assessment and mitigation processes – The analysis and elimination, and/or mitigation to an acceptable level of risks that threaten the capabilities of an organization

- ✓ The risk tolerability matrix

❸ Safety assurance

3.1 – Safety performance monitoring and measurement

The process by which the safety performance of the organization is verified in comparison to the approved safety policies and objectives.

- Safety reporting
- Safety studies
- Safety reviews
- Audits
- Surveys
- …

❸ Safety assurance

3.2 – The management of change

➤ Identify changes within the organization which may affect established processes and services

➤ Prior to implementing changes describe the arrangements to ensure safety performance

3.3 – Continuous improvement of the safety system

➤ Determining causes of below standard performance and their implications in the operation of the SMS

➤ Rectifying situations involving below standard performance identified through safety assurance activities

❹ Safety Promotion

4.1 – Training and education – To ensure that personnel are trained and competent to perform the SMS duties

➢ Who?
- ✓ Operational personnel
- ✓ Managers and supervisors
- ✓ Senior managers
- ✓ Accountable executive

➢ How much?
- ✓ Appropriate to the individual's involvement in the SMS

❹ Safety Promotion

4.2 – Safety communication

➢ An essential foundation for the development and maintenance of a positive culture

➢ The means to communicate may include
- ✓ Safety policies and procedures
- ✓ News letters
- ✓ Bulletins
- ✓ Website