

SMS -The Perspective of ICAO

The background features a large, semi-transparent watermark of the ICAO logo. The logo consists of a central globe with latitude and longitude lines, flanked by two stylized wings. Above the globe, the acronym 'OACI' is written in a serif font, and below it, the Chinese characters '国际民航组织' are written in a similar font. The entire logo is set against a circular background with a decorative border.

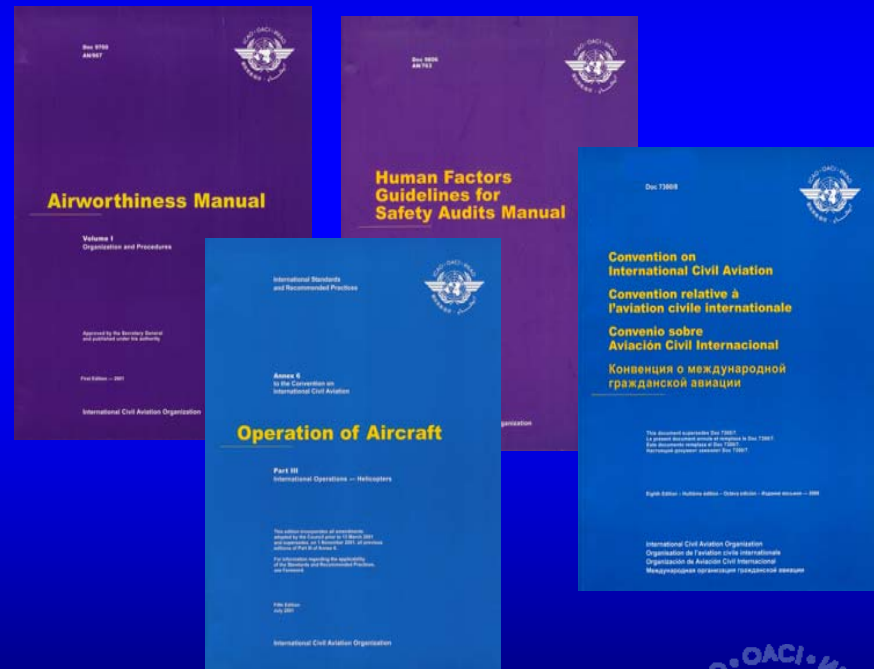
Capt. Miguel Ramos
Flight Safety and Human Factors,
ICAO

Safety Management Systems (SMS) Seminar
for Air Transport Industry
Tokyo – JAPAN, 25 –26 October 2007

The big picture

- Operation of aircraft
- Maintenance of aircraft
- Air traffic services
- Aerodromes

- ✓ Two audience groups
- ✓ Three “chunks”



As of 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, as a minimum:
 - 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



Acceptable Level of Safety & SMS

From prescription to performance

- “Negotiated” between authority and service providers
- Commensurate with complexity of the operational context and available resources
- Implemented through
 - ✓ Safety indicators
 - ✓ Safety targets
 - ✓ Safety requirements
- Does not relieve States/providers from obligations regarding the Convention or national regulations

As of 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

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



More Definitions

Safety management system

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

As of 23 November 2006

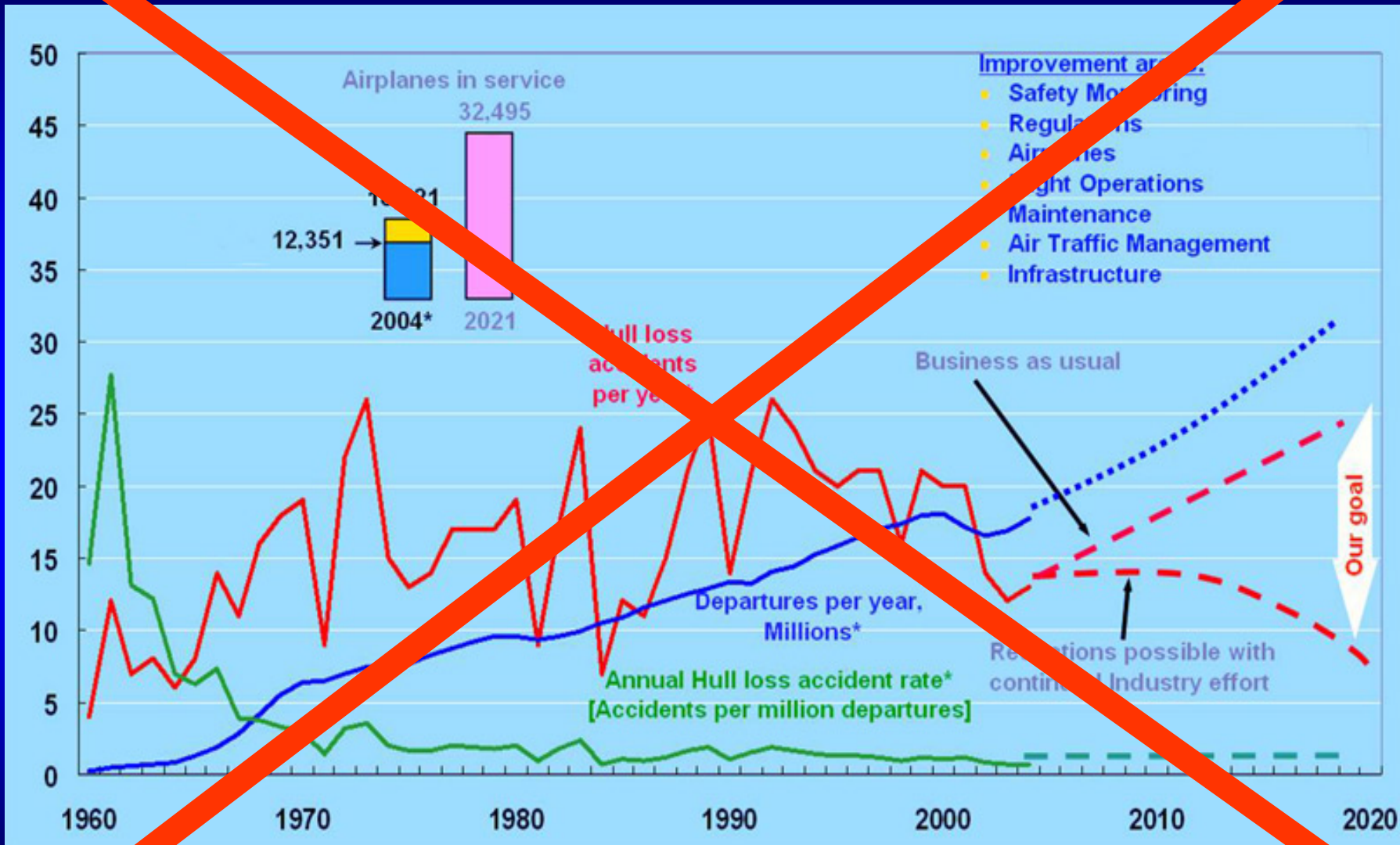
An accepted safety management system shall clearly define lines of safety accountability throughout the *[airline, maintenance, ATS provider, aerodrome operator]* organization, including direct accountability for safety on the part of senior management

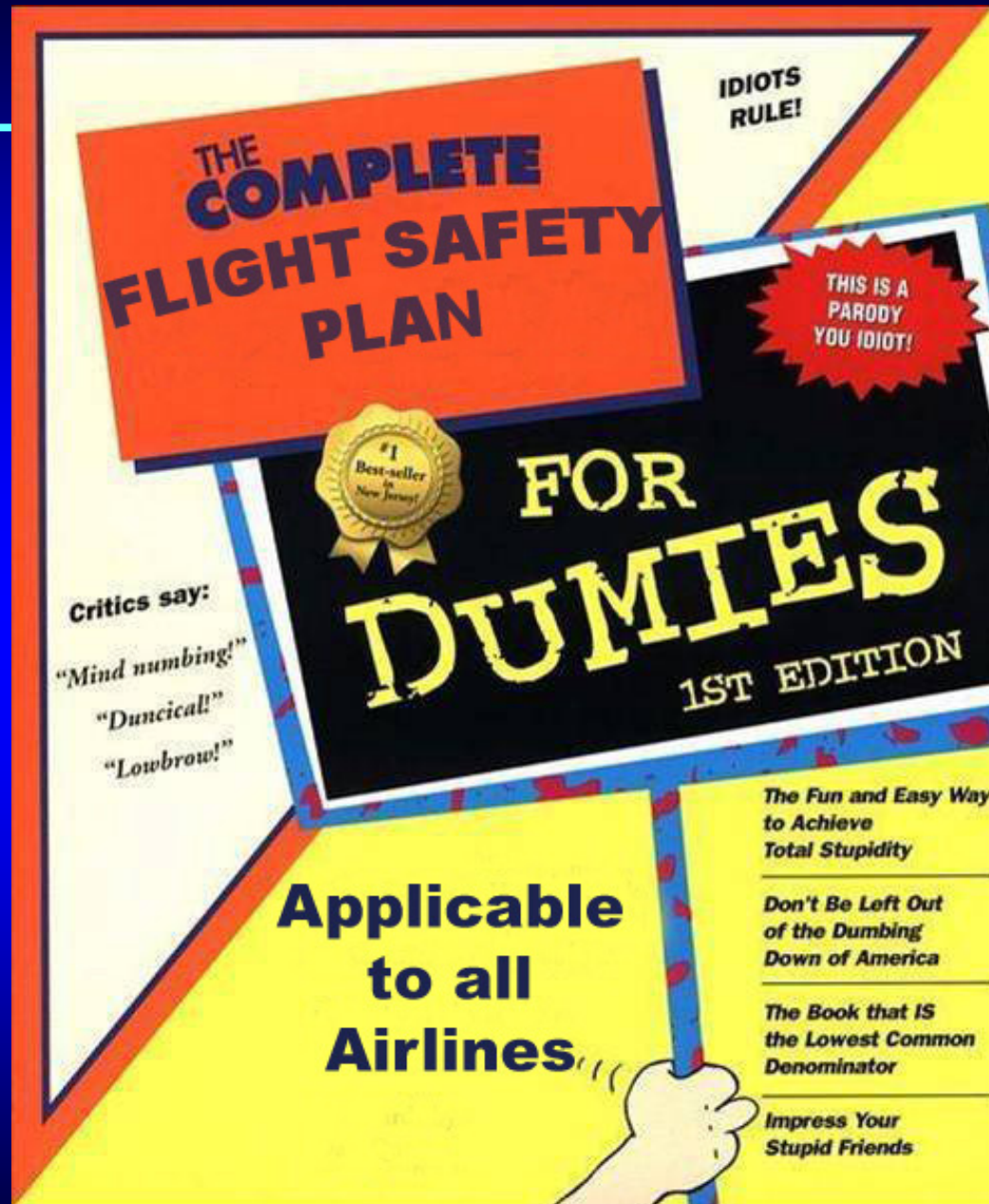
Note. – Guidance on safety management systems is contained in the ICAO Safety Management Manual (Doc 9859)

www.icao.int/anb/safetymanagement

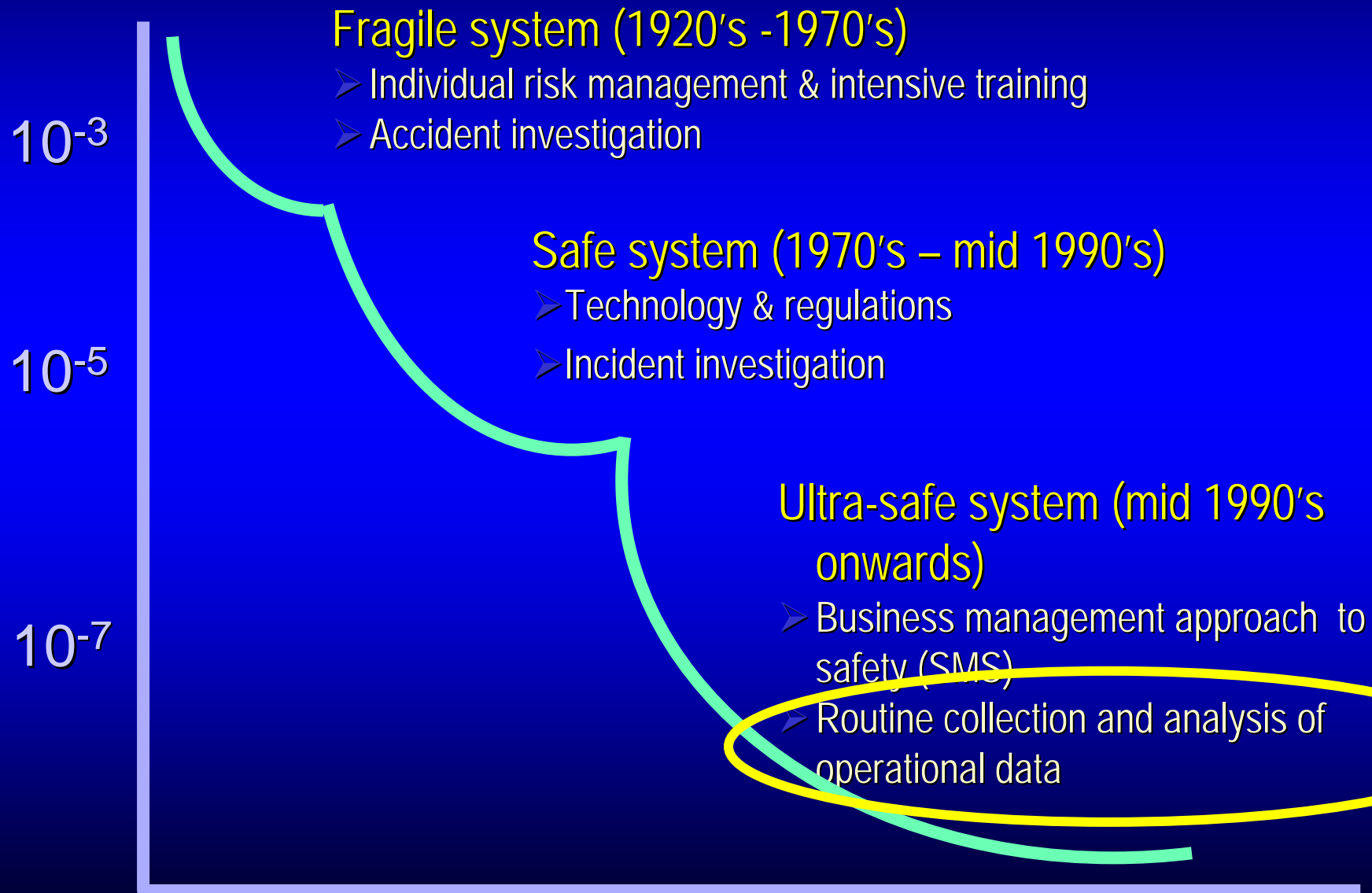
The Safety Concern – Prologue

What is the safety concern(s) in aviation for which safety management requirements might provide an answer?

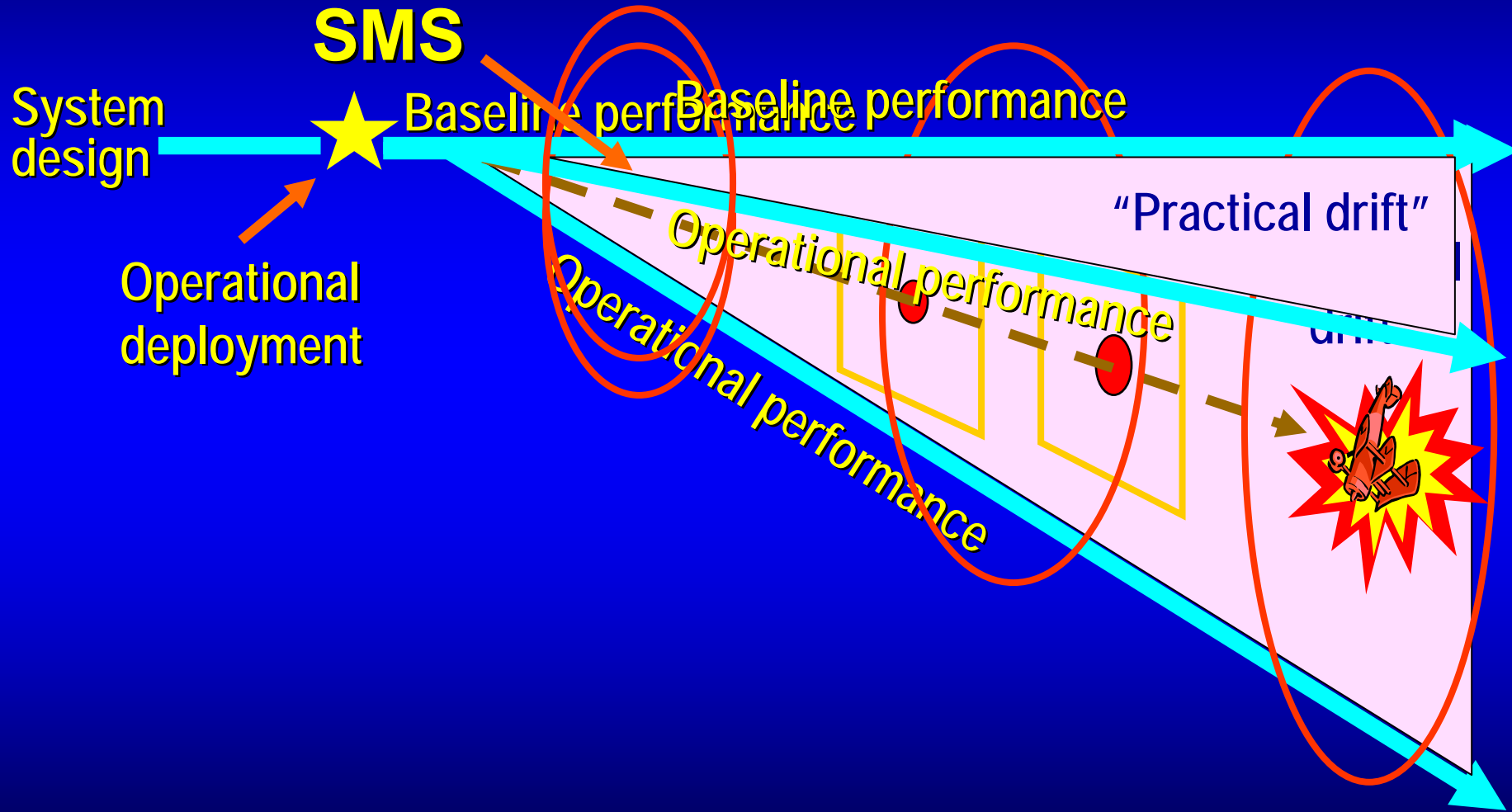




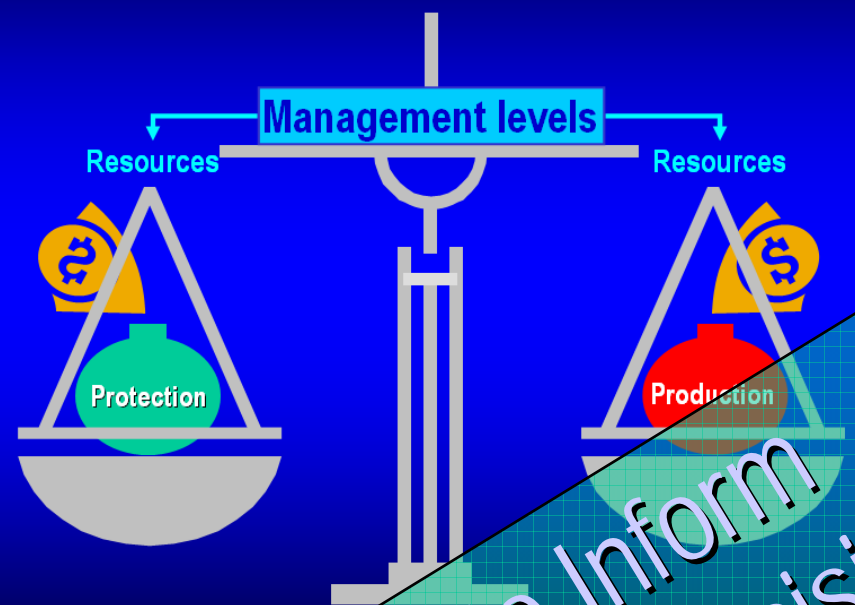
Aviation: The First Ultra-Safe Industrial System



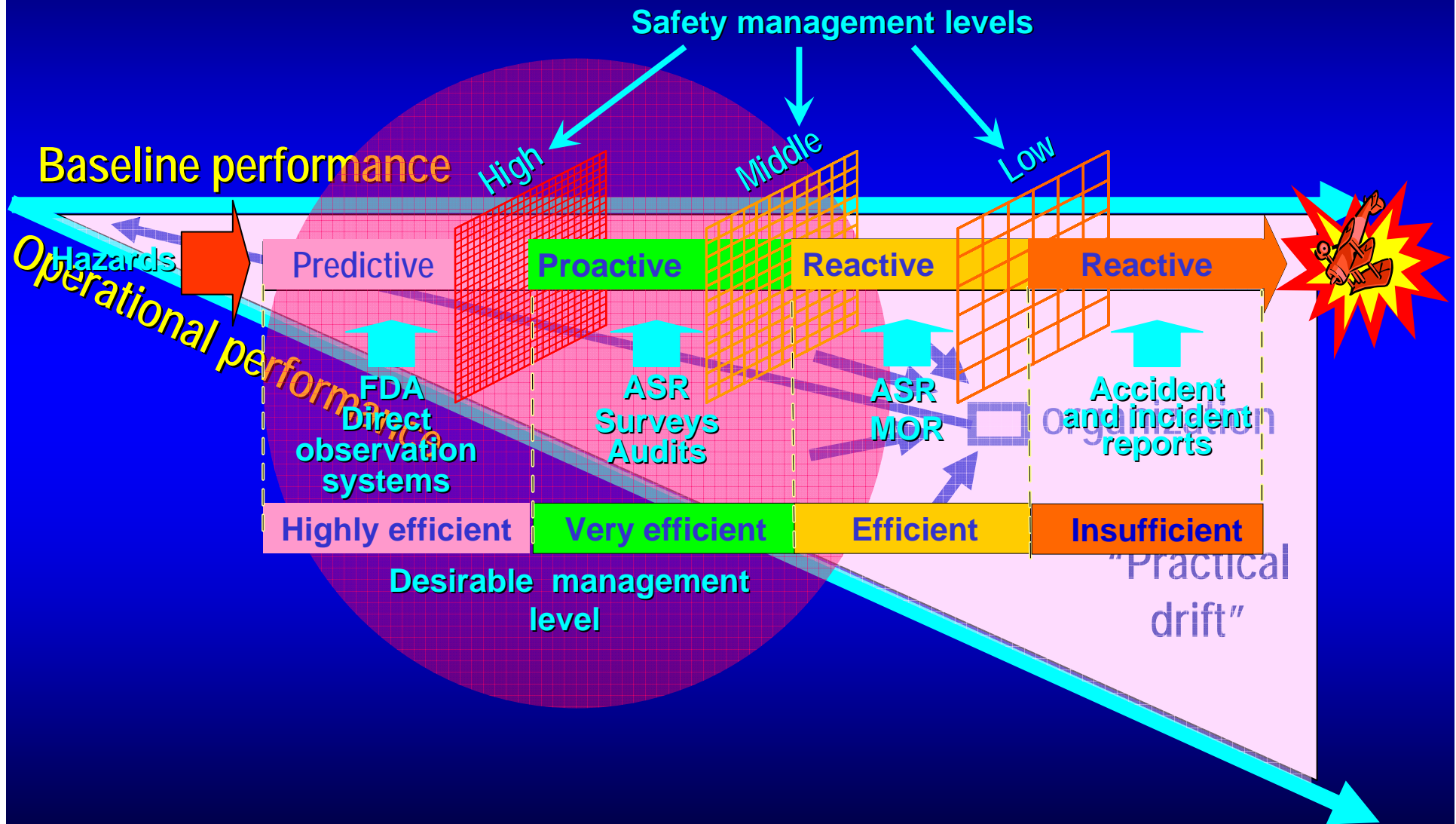
Why SM? An imperfect system



Safety Data to Inform Risk Management Decisions



Strategies – Levels of intervention and tools



Managing safety

- Managing safety requires resources.
- Allocation of resources is a managerial function.
- Management has the authority and the responsibility to manage safety risks in the organization.

Managing safety

→ Safety management

- Includes the entire operation
- Focus on processes (Clear difference between processes and outcomes)
- Data-driven (constant monitoring)
- Strictly documented
- Gradual improvement as opposed to dramatic change
- Strategic planning as opposed to piecemeal initiatives

SMS sets forth to destroy all these misperceptions

- 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 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.

ICAO SMS FRAMEWORK

Service Providers

- 1 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 emergency response planning
 - 1.6 – Documentation
- 2 Safety risk management**
 - 2.1 – Hazard identification processes
 - 2.2 – Risk assessment and mitigation processes
- 3 Safety assurance**
 - 3.1 – Safety performance monitoring and measurement
 - 3.2 – The management of change
 - 3.3 – Continuous improvement of the safety system
- 4 Safety promotion**
 - 4.1 – Training and education
 - 4.2 – Safety communication



Why a phased approach to SMS?

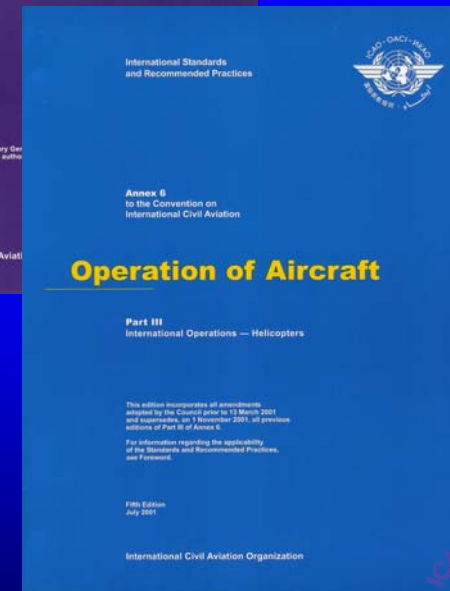
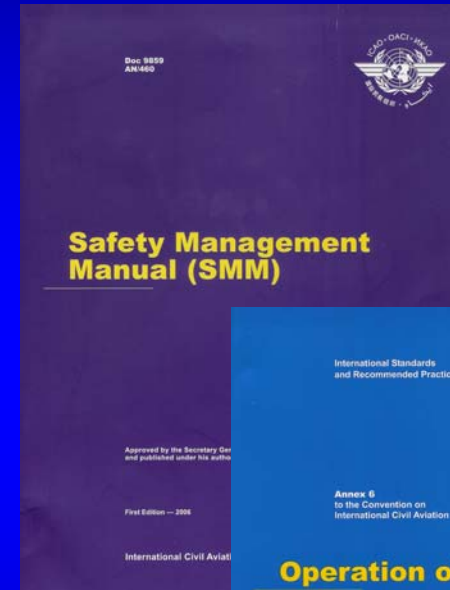
- To provide a manageable series of steps to follow in implementing an SMS.
- To effectively manage the workload associated with SMS implementation.
- To pre-empt a “ticking boxes” exercise.
- **Four** implementation phases are proposed.
- Each phase is based upon the introduction of specific SMS elements.

Four Phases

- Phase 1 - Blueprint on how the SMS requirements will be met and integrated to the organization's work activities and an accountability framework for the implementation of the SMS.
- Phase 2 - Puts into practice those elements of the SMS implementation plan that refer to the safety risk management component of reactive processes
- Phase 3 - Puts into practice those elements of the SMS implementation plan that refer to the safety risk management component of proactive and predictive processes
- Phase 4 - Operational safety assurance
 - Development of acceptable level (s) of safety
 - Development of safety indicators and targets
 - SMS continuous improvement

SMS – Managing different roles

- Providers are responsible for establishing an SMS.
- States are responsible of the acceptance and oversight of providers' SMS



The Bridge

Civil
Aviation
Authority



Service
Providers
SMS



State's safety programme

An integrated set of regulations and activities aimed at improving safety

- Develop the State's safety programme around the four components of the ICAO SMS framework.
- State's safety programme components:
 1. State's safety policy and objectives
 2. State's safety risk management
 3. State's safety assurance
 4. State's safety promotion



ICAO State's Safety Programme Framework

CAAs

1. State's safety policy and objectives
 - 1.1 CAA safety standards
 - 1.2 CAA safety responsibilities and accountabilities
 - 1.3 Enforcement policy
2. State's safety risk management
 - 2.1 Safety requirements for service providers SMS
 - 2.2 Approval of service providers acceptable levels of safety
3. State's safety assurance
 - 3.1 Safety oversight (Inspections, audits and surveys)
 - 3.2 Safety data collection, analysis and exchange
 - 3.3 Safety data driven targeting of oversight on areas of greater concern or need
4. State's safety promotion
 - 4.1 Internal training, communication and dissemination of safety information
 - 4.2 External training, communication and dissemination of safety information



CAAs – Four steps to support SMS implementation

STEP 1

→ CAA safety programme gap analysis

STEP 2

→ CAA training programme

STEP 3

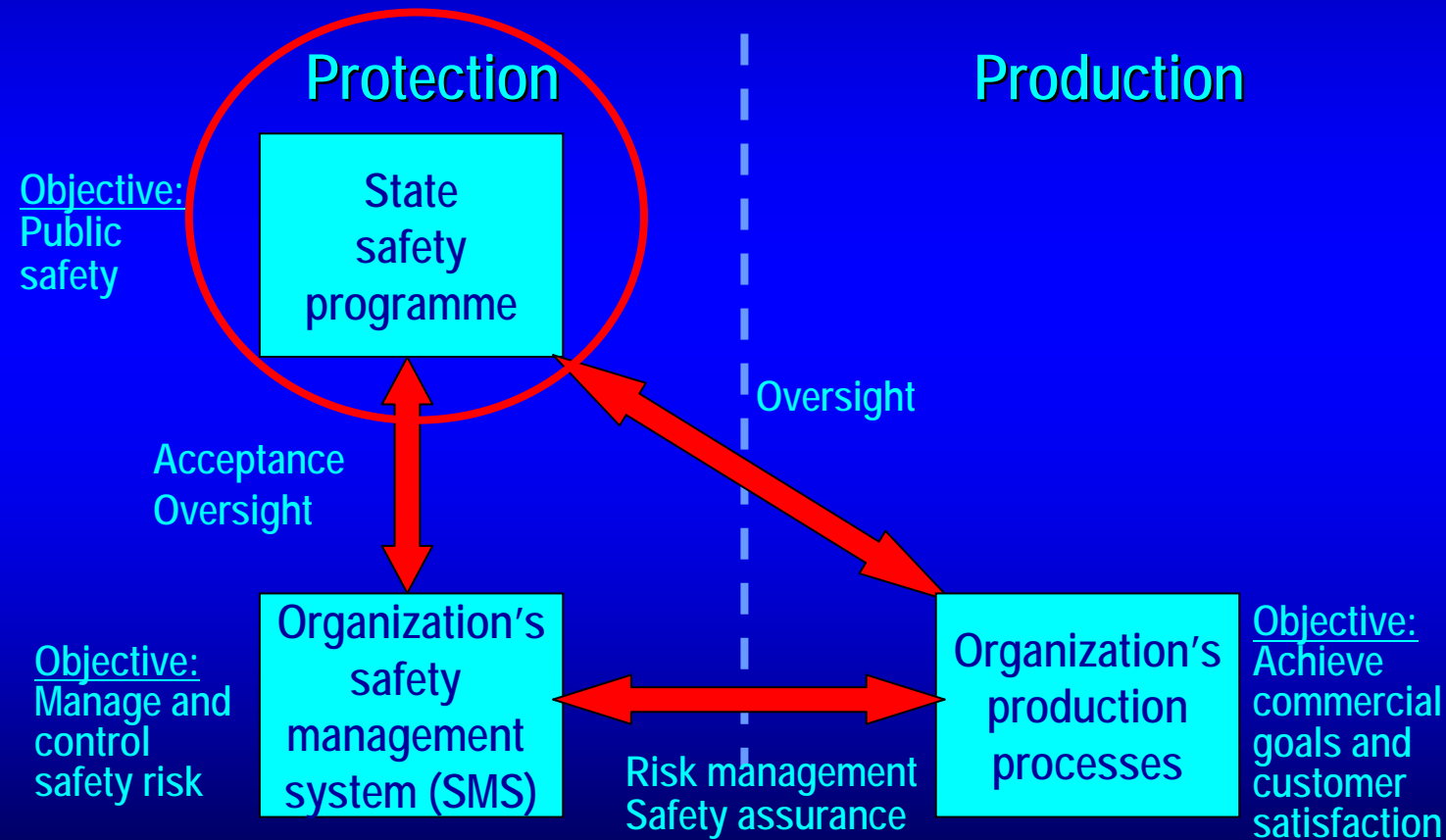
→ Implementation SMS SARPs

STEP 4

→ CAA enforcement policy

A vision of the future – Integration

State's safety programme + Service providers SMS =
Integrated safety system



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The SMS Strategies in ICAO

THANK YOU!

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