Outline

1- Introduction
2- Elements of an SMS
3- Challenges
4- Points to remember
5 - Conclusions

1- Introduction

"Safety Management"

is defined as the systematic management of the risks associated with flight operations, related ground operations and aircraft engineering or maintenance activities to achieve high levels of safety performance.

Management concept

Realistic implementation

=

Performance based

+

Prescriptive

Safety management

ICAO SARPS
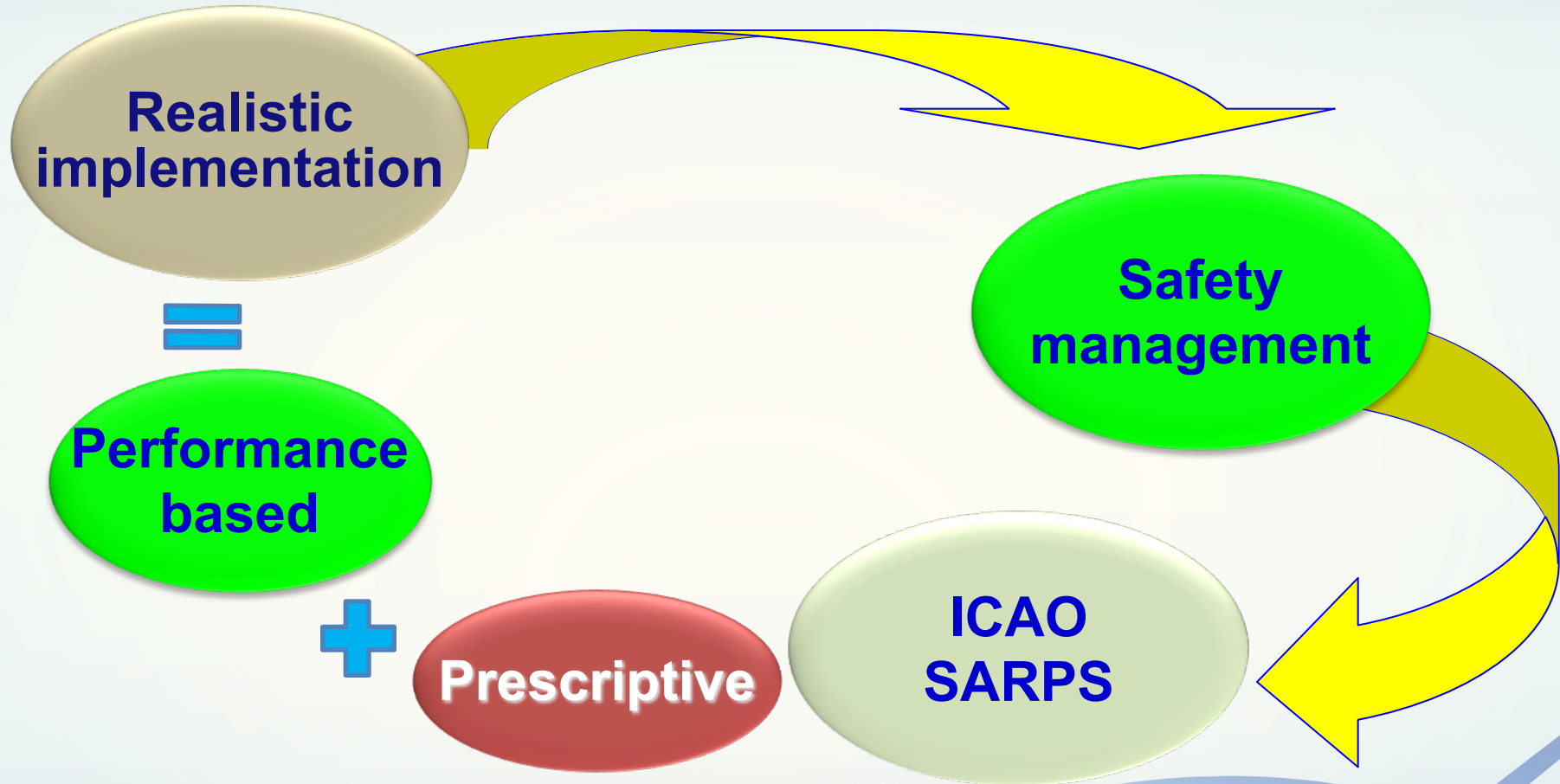
1- Introduction

The regulation specifies the requirement for service providers to implement a safety management system (SMS) operating in accordance with Annex 1 — Personnel Licensing; Annex 6 — Operation of Aircraft; Annex 8 — Airworthiness of Aircraft; Annex 11 — Air Traffic Services; and Annex 14 — Aerodromes, Volume I — Aerodrome Design and Operations.

1- Introduction

➢ The regulation establishes the minimum SMS framework requirements.

➢ The service provider can establish more stringent internal requirements.

1- Introduction

Service provider shall have in place a safety management system (SMS) acceptable to CAA and which addresses four high-level safety objectives as follows:

a) Identifies safety hazards;

 b) Ensures the implementation of the remedial action necessary to maintain agreed safety performance;

1- Introduction

c) Provides for continuous monitoring and regular assessment of safety performance; and

d) Aims at a continuous improvement of the overall performance of the safety management system.

1- Introduction

Concept of safety (Doc 9859)

Safety is 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**

2- The elements of SMS

❶ **Safety policy and objectives**

1.1 – Management commitment and responsibility

1.2 – Safety accountabilities

1.3 – Appointment of key safety personnel

1.4 – Coordination of emergency response planning

1.5 – SMS documentation

❷ **Safety risk management**

2.1 – Hazard identification

2.2 – Risk assessment and mitigation

2- The elements of SMS

❸ **Safety assurance**

    3.1 – Safety performance monitoring and measurement

    3.2 – The management of change

    3.3 – Continuous improvement of the SMS

❹ **Safety promotion**

    4.1 – Training and education

    4.2 – Safety communication

3- SMS Challenges

SMS component 1 : Safety policy and objectives

Qualified personnel:

Establishing SMS requires creating new Polices, Procedures and Processes. Those new (Ps) can only be fulfilled by qualified and skilled personnel. Safety personnel should adopt the new regulations into the company (Ps) .

SMS component 1 : Safety policy and objectives

Qualified personnel:

➢ An SMS relevant to the size and complexity of the organization's operations

➢ The safety policy is communicated to all employees

People and safety

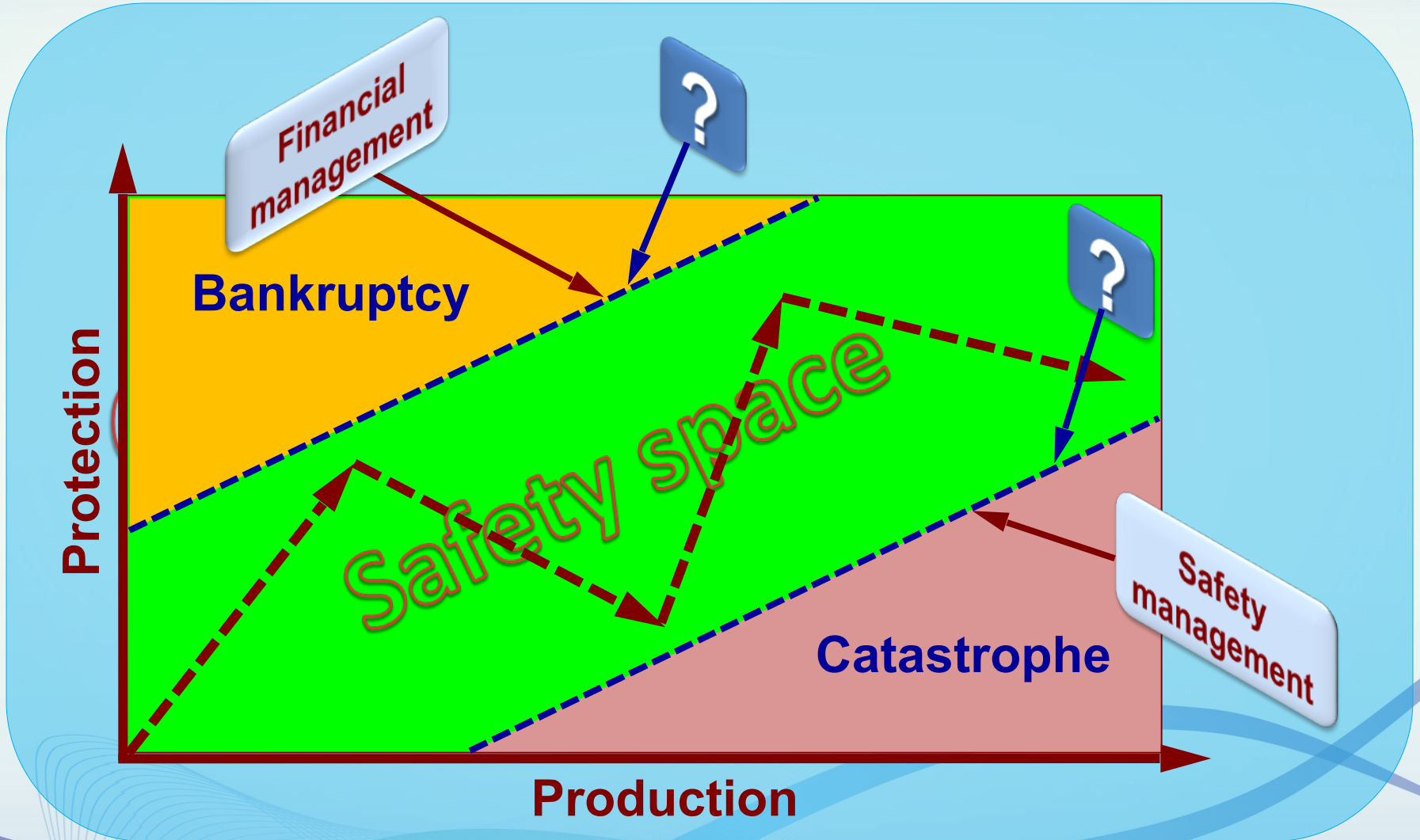- Aviation workplaces involve complex interrelationships among its many components

- To understand operational performance, we must understand how it may be affected by the interrelationships among the various components of the aviation work places

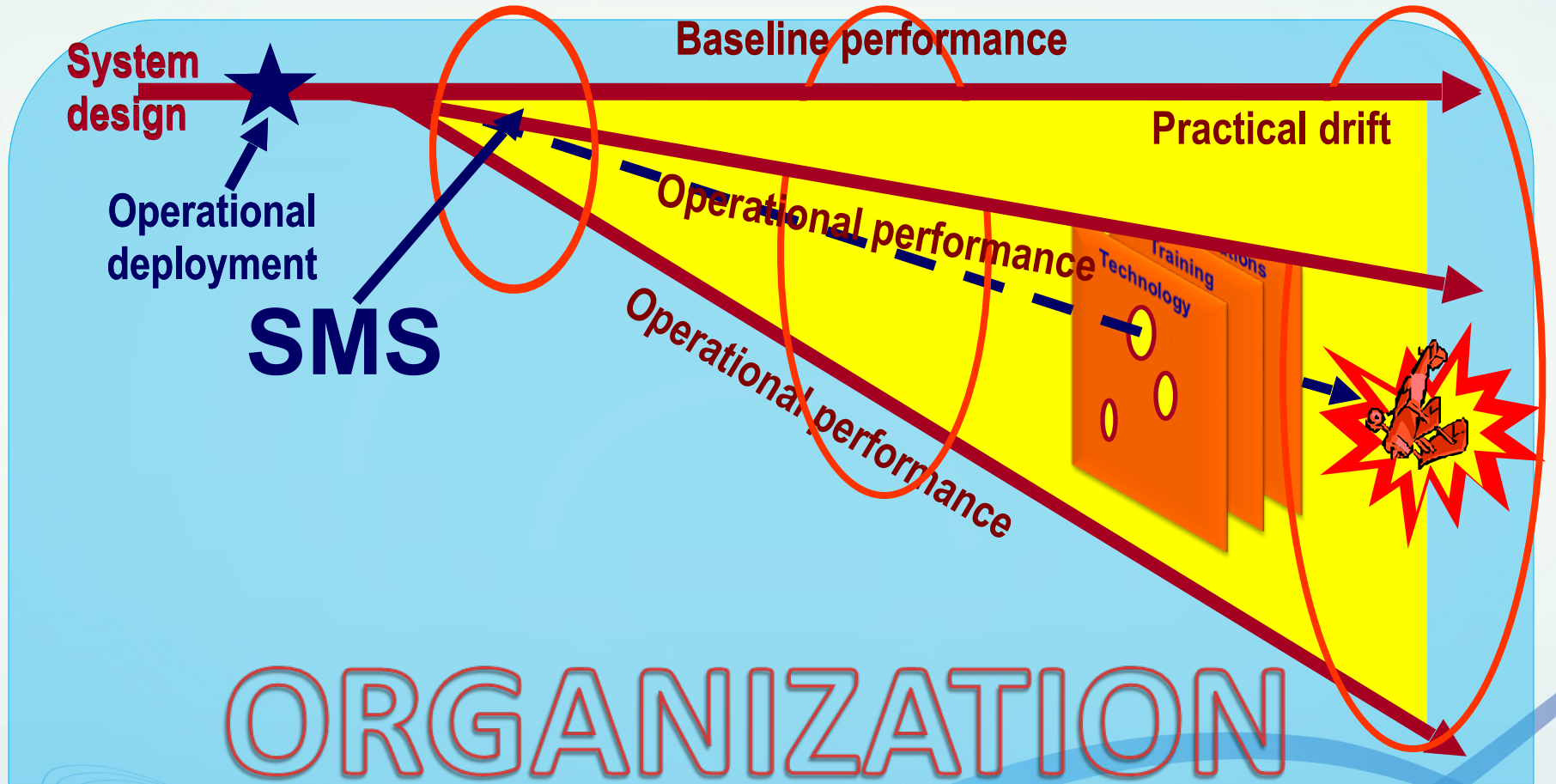# Understanding violations
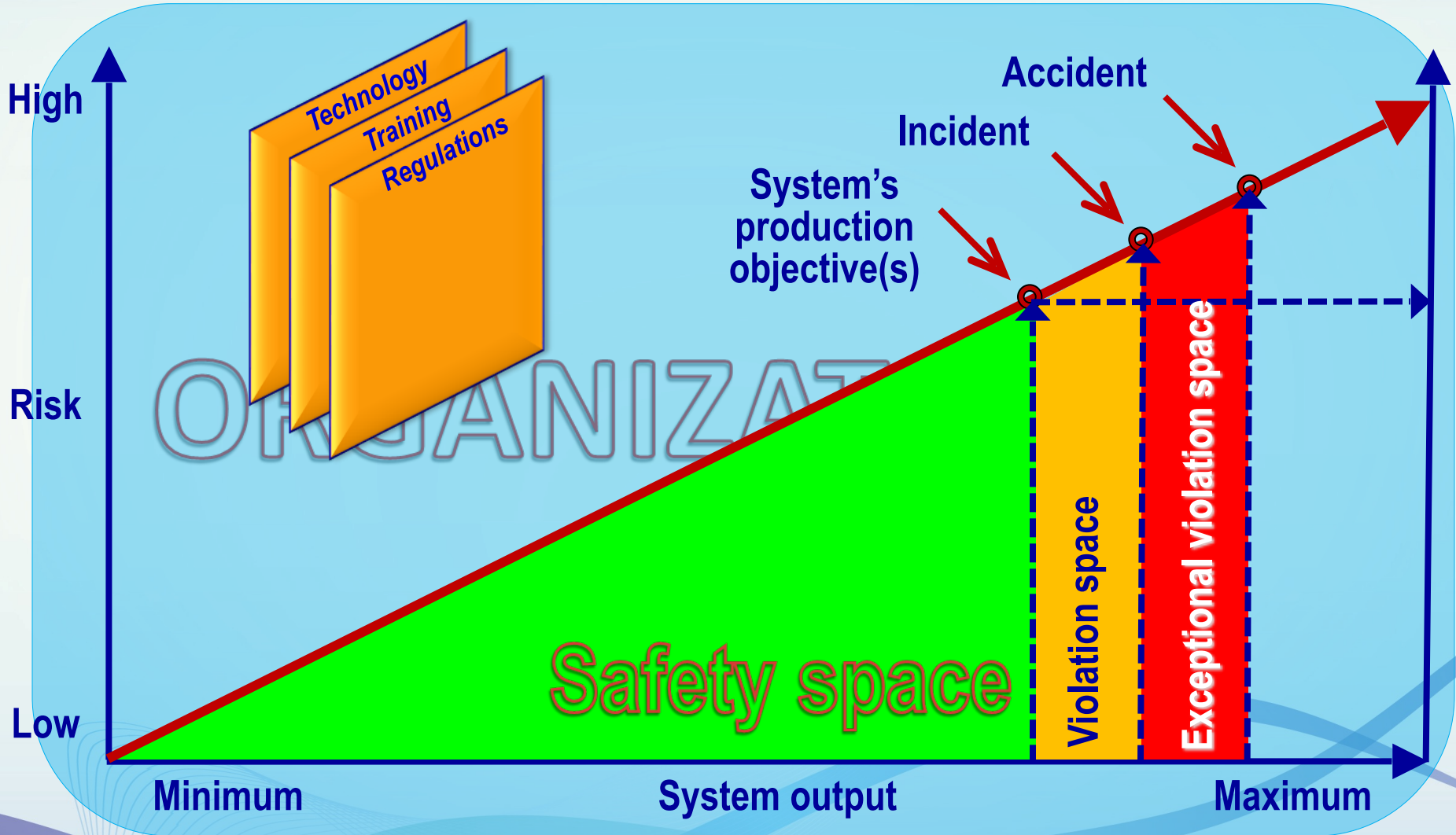
Safety space

SMS Component 2:   Safety Risk Management

Setting the hazard analysis and risk assessment tools: As part of the SMS implementation, operators are expected to develop their own methodology for risk management in a certain period of time.

They needed to set effective hazard analysis and risk assessment tools.

SMS Component 2: **Safety Risk Management**

ICAO provided a reference risk assessment matrix, but it may not be suitable for all organizations. Therefore, in a short period of time, the organizations had to create their risk matrix and clearly record them in the SMS documentation. Risk management methodology was not mature or even not available in many organizations .

Risk probability

Probability of occurrence		
Qualitative definition	**Meaning**	**Value**
Frequent	Likely to occur many times *(has occurred frequently)*	**5**
Occasional	Likely to occur some times *(has occurred infrequently)*	**4**
Remote	Unlikely, but possible to occur *(has occurred rarely)*	**3**
Improbable	Very unlikely to occur *(not known to have occurred)*	**2**
Extremely improbable	Almost inconceivable that the event will occur	**1**

Risk severity

Severity of occurrences		
Aviation definition	**Meaning**	**Value**
Catastrophic	➢ Equipment destroyed. ➢ Multiple deaths.	**A**
Hazardous	➢ A large reduction in safety margins, physical distress or a workload such that the operators cannot be relied upon to perform their tasks accurately or completely. ➢ Serious injury. ➢ Major equipment damage.	**B**
Major	➢ A significant reduction in safety margins, a reduction in the ability of the operators to cope with adverse operating conditions as a result of increase in workload, or as a result of conditions impairing their efficiency. ➢ Serious incident. ➢ Injury to persons.	**C**
Minor	➢ Nuisance. ➢ Operating limitations. ➢ Use of emergency procedures. ➢ Minor incident.	**D**
Negligible	➢ Little consequences	**E**

Risk index/tolerability

Risk probability	Risk severity				
	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent 5	5A	5B	5C	5D	5E
Occasional 4	4A	4B	4C	4D	4E
Remote 3	3A	3B	3C	3D	3E
Improbable 2	2A	2B	2C	2D	2E
Extremely improbable 1	1A	1B	1C	1D	1E

SMS Component 2: **Safety Risk Management**

Safety Information Protection

➢FDA, Voluntary Reports

➢Building Positive Safety Culture

➢Company Risk Profile

3- SMS Challenges

SMS Component 3:   Safety Assurance

➢ There are identified safety performance indicators for measuring and monitoring the organization's safety performance

➢There are alert and/or target level settings within the safety performance indicators where appropriate

SMS Component 4: **Safety promotion**

Training:

➢The fundamental requirement of SMS constitutes a positive safety culture. In order to achieve this, SMS training is necessary for all staff. Responsibilities for safety can only be learnt through appropriate training programmes.

3- SMS Challenges

SMS Component 4:   Safety promotion

Training:

People should be encouraged to report significant safety concerns. Also, they should be ensured that all their safety suggestions are responded to. To complete such kind of a process may take years in an organization in relation to the complexity of the organization.
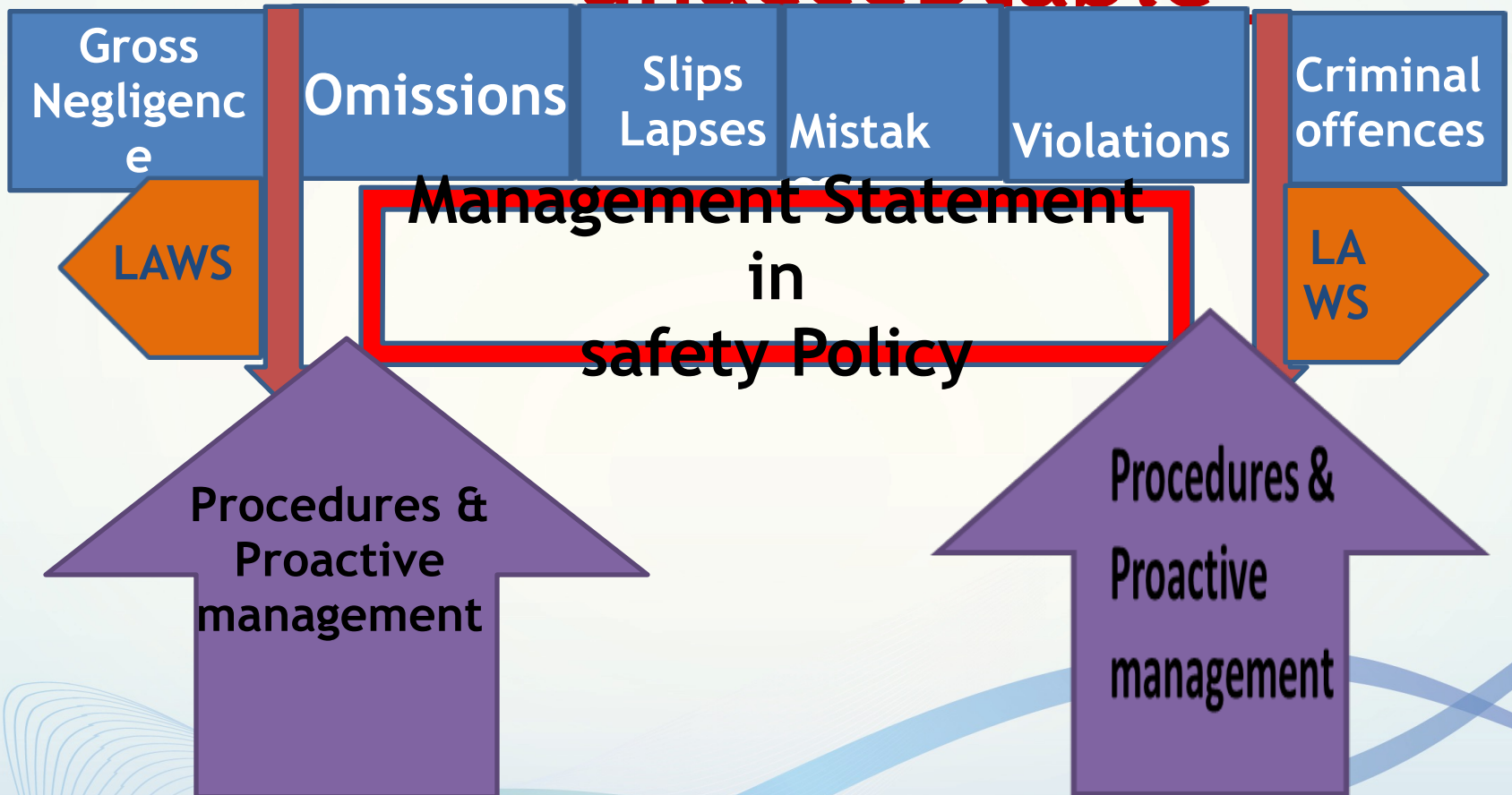
3- SMS Challenges

Defining the boarder of "Unacceptable behavior"

The difficult task is to discriminate the truly "bad behaviours" and the vast majority of unsafe acts to which discipline is neither appropriate nor useful ,

It is necessary to agree on a set of principles for drawing this line

Boarders between "acceptable" and "unacceptable"

Gross Negligence	Omissions	Slips Lapses	Mistak	Violations	Criminal offences

LAWS

LAWS

Management Statement in safety Policy

Procedures & Proactive management
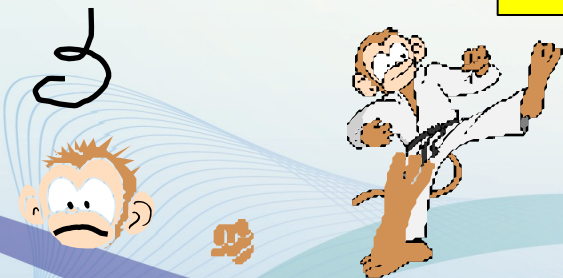
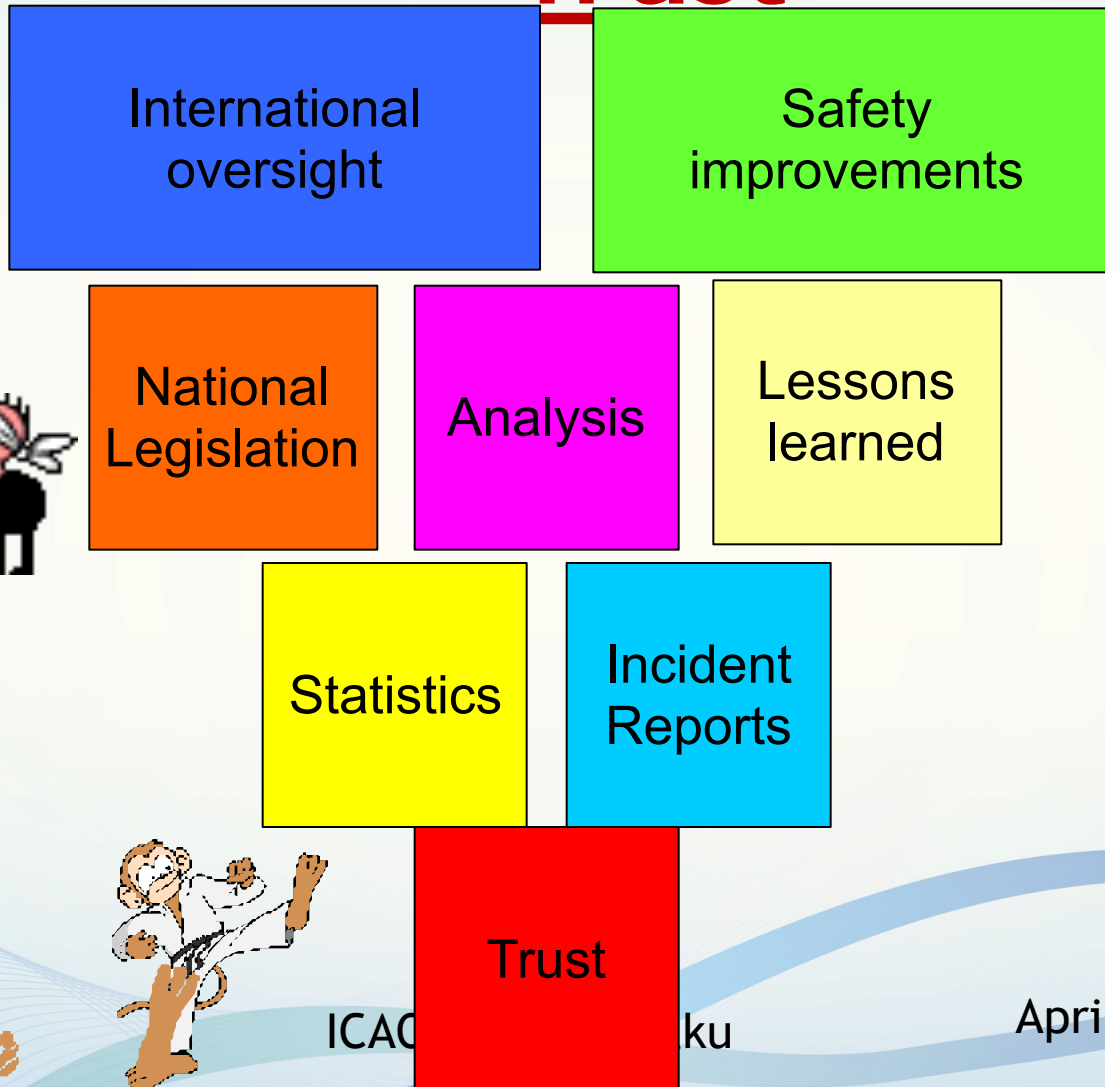**Procedures & Proactive management**

3- SMS Challenges

Defining the acceptable level:

Drawing the line between tolerable and intolerable has always been one of the most difficult challenges. Who should draw the line between acceptable and unacceptable? This question may remind and be pertinent to safety targets and monitoring safety performance.

Learning from Errors requires Trust

International oversight

Safety improvements

National Legislation

Analysis

Lessons learned

Statistics

Incident Reports

Trust

ICAO ... ku

April 2006

4- Points to Remember

➤Effective safety reporting of hazards by operational personnel is a cornerstone of the management of

   safety.

➤Organizational culture is the atmosphere created by senior management which shapes workers' attitudes towards, among others, safety practices.

➤There is no right and no wrong culture; they are what they are and they each possess a blend of strengths and weaknesses.

4- Points to Remember

- In the same way the CEO manages financial

performances, the CEO must manage safety

- Good people can make any organizational

structure

work- Poor people will fail in the best of

organizations

- If senior management feels that accident

prevention is the responsibility of the safety

- SMS is not a simple programme that can easily be understood.

- SMS involves active participation of the entire organization.

- The various challenges should be considered while evaluating SMS implementation of an organization.

5- CONCLUSIONS

- Depending on an organization's size, structure, attitudes and culture, establishing and maintaining an SMS with regard to developing the hazard analysis and risk assessment tools, providing the appropriate trainings, identifying qualified personnel and determining the acceptable level of safety may take a considerable amount of time, effort and resources.