Just Culture Achievements in Airlines Industry

Application to the Flight data monitoring

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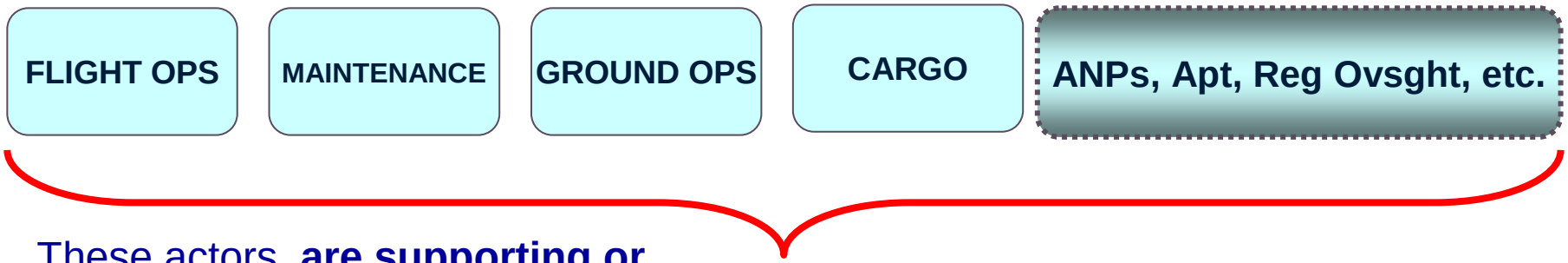
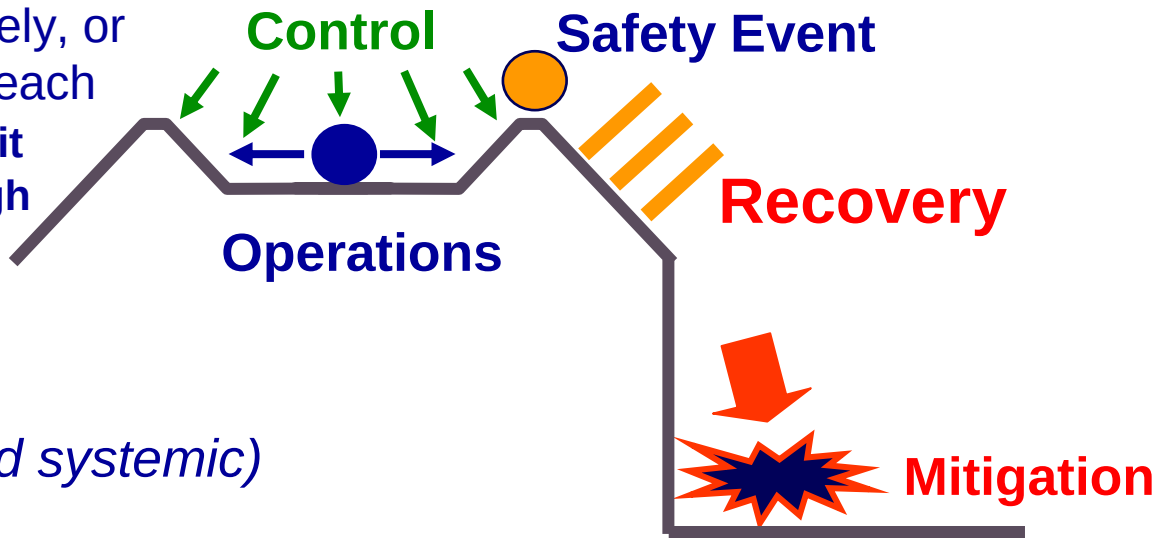
ES2-WS2-12 - JUST CULTURE – TIME TO DELIVER
Implementation, Opportunities & Challenges

20-21 SEPTEMBER 2012 -ISTANBUL

Introduction



These actors **are supporting or affecting the control, recovery or mitigation functions** separately, or collectively by interacting with each other. **We have to know about it on a daily basis, not only through accident investigation.**



Accident

A "loss of control" (local and systemic)

Safety

A "dynamic non event" where operations are kept in a globally stable state within a safe envelope

Birth of a Safety tool

- From autoland certification to flight data monitoring
- Idea of using data recorder for monitoring normal flights
- 1974 : AF first airline Management / Union agreement >
- Period of "quantitative only analysis"
- 1987 : Amendment giving access to crew feed back
- Regulatory requirement (EU Ops 1.037) >
- FDM in Europe and in the world

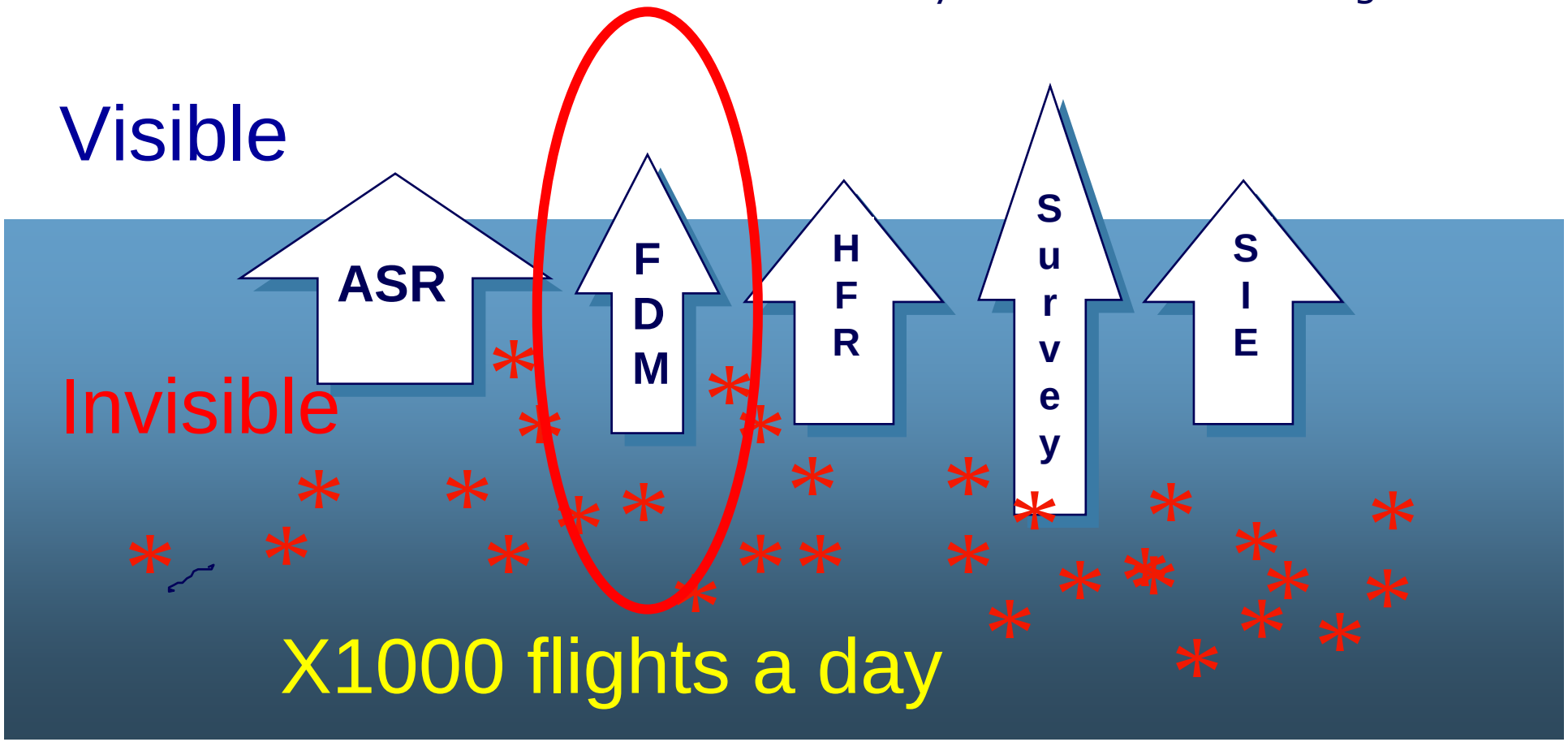
Birth of a Safety tool
The FDM

Advantages and limits

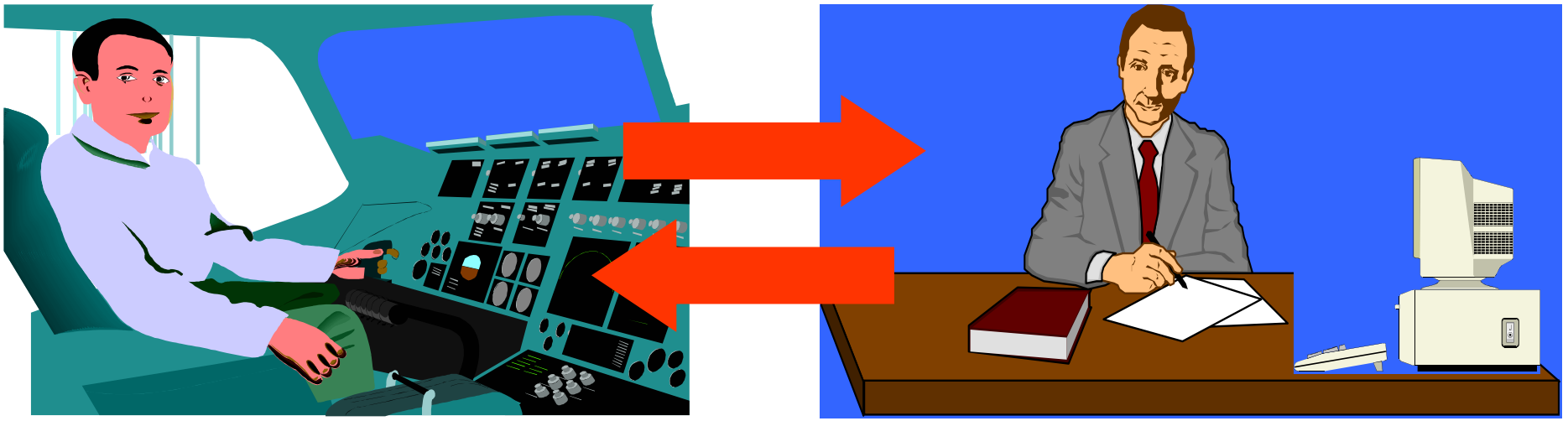
- **Advantages**
  - ✓ **Objectivity of recorded data**
  - ✓ **Statistic can be made**
  - ✓ **Good understanding of the events provided the crew cooperates in an open manner**
- **Limits**
  - ✓ **Trust and cooperation among crews and management**
  - ✓ **Aircraft recorder still too often designed for accident not for routine FDM program**
  - ✓ **Risk domain not or poorly covered mostly ATC related events**

Complementary safety feed back channels

ASR: Air Safety Report
FDM: Flight Data Monitoring
CR: Confidential (Human Factor) Report
SIE: Safety Information Exchange



Establishing a mutual trust



Crew support

=

Better visibility of events

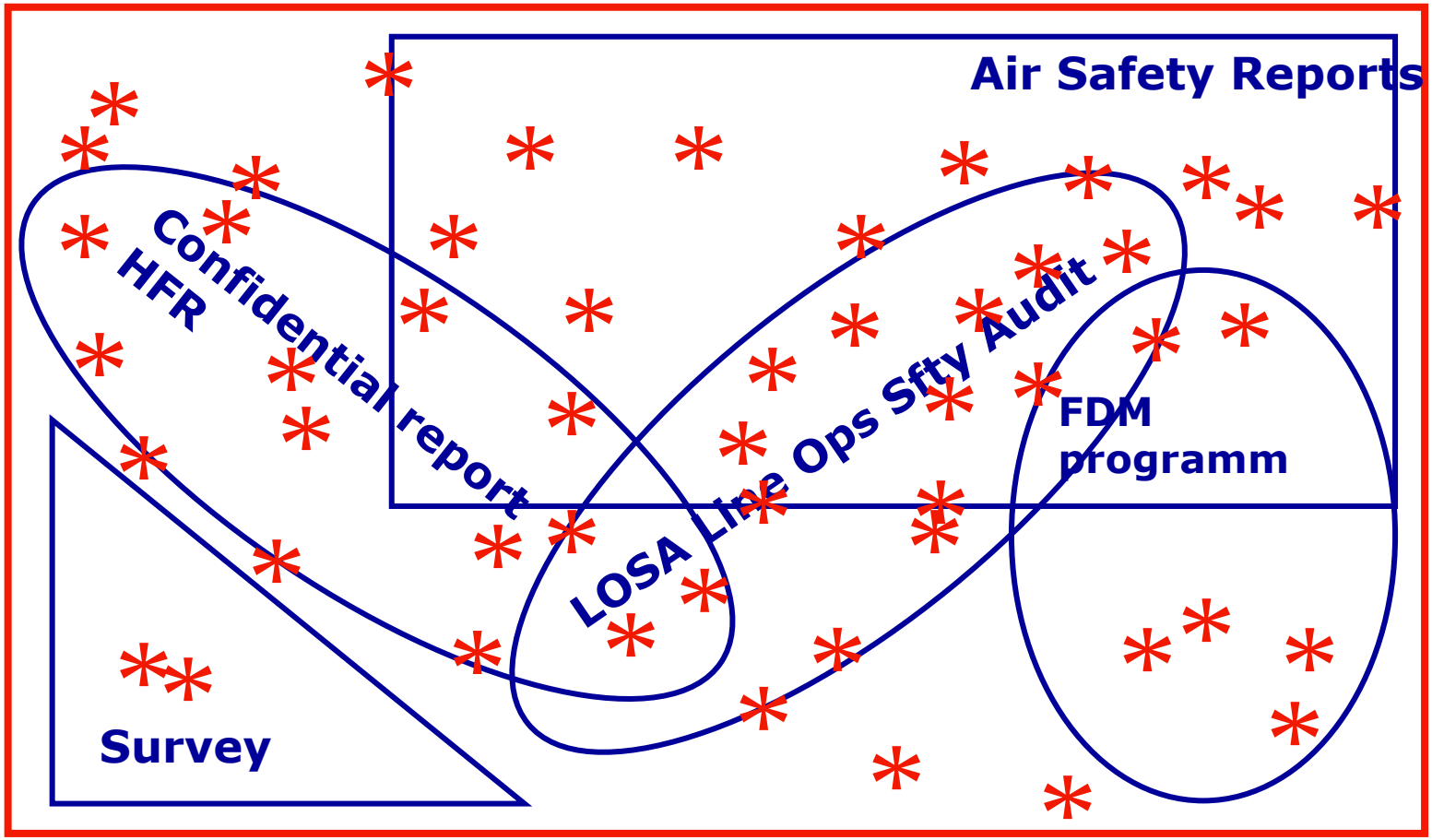
Management support

=

Better safety management

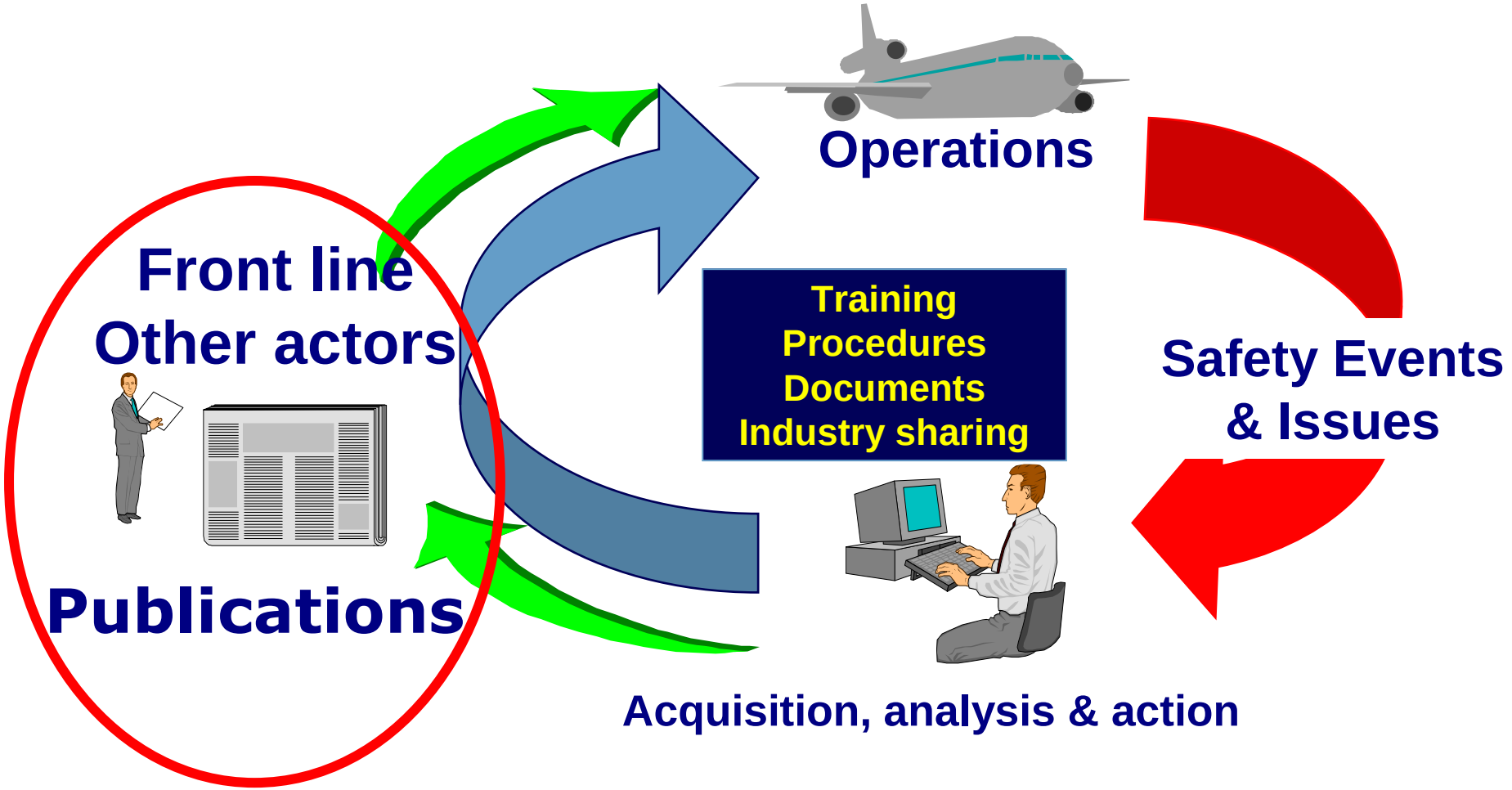
Coverage

* = Relevant safety related event

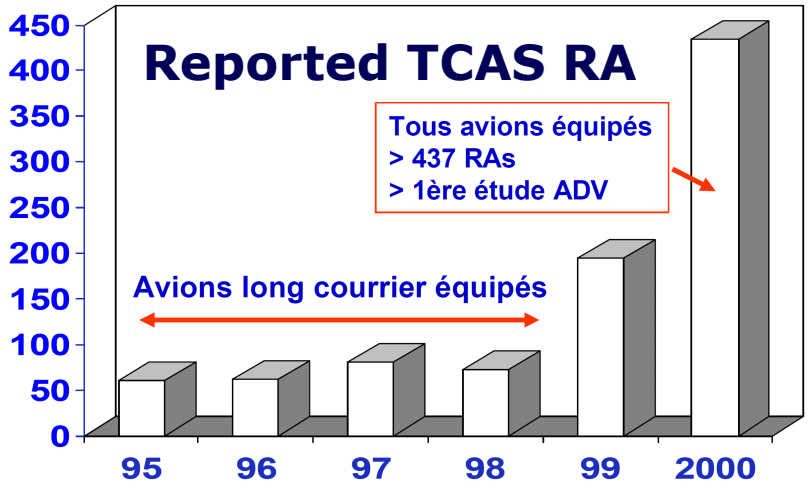


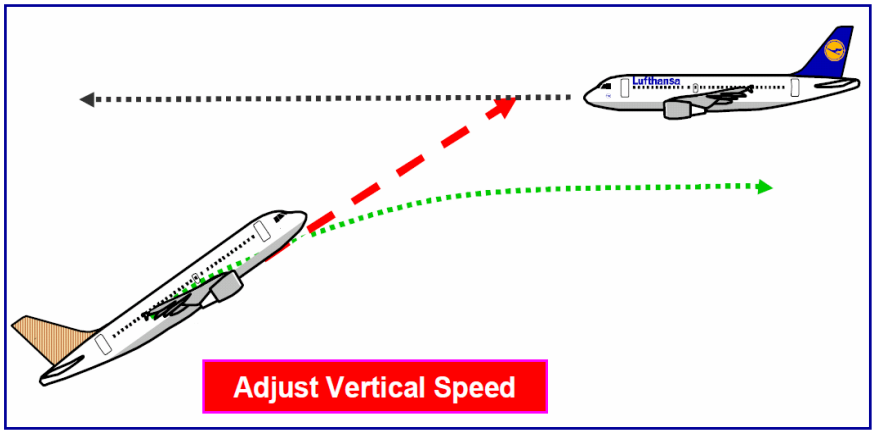
+ Others (Incident investigation, audit, information sharing)

To collect, analyze, act, communicate on the basis of "normal safety related events" which "fuel the safety management engine".



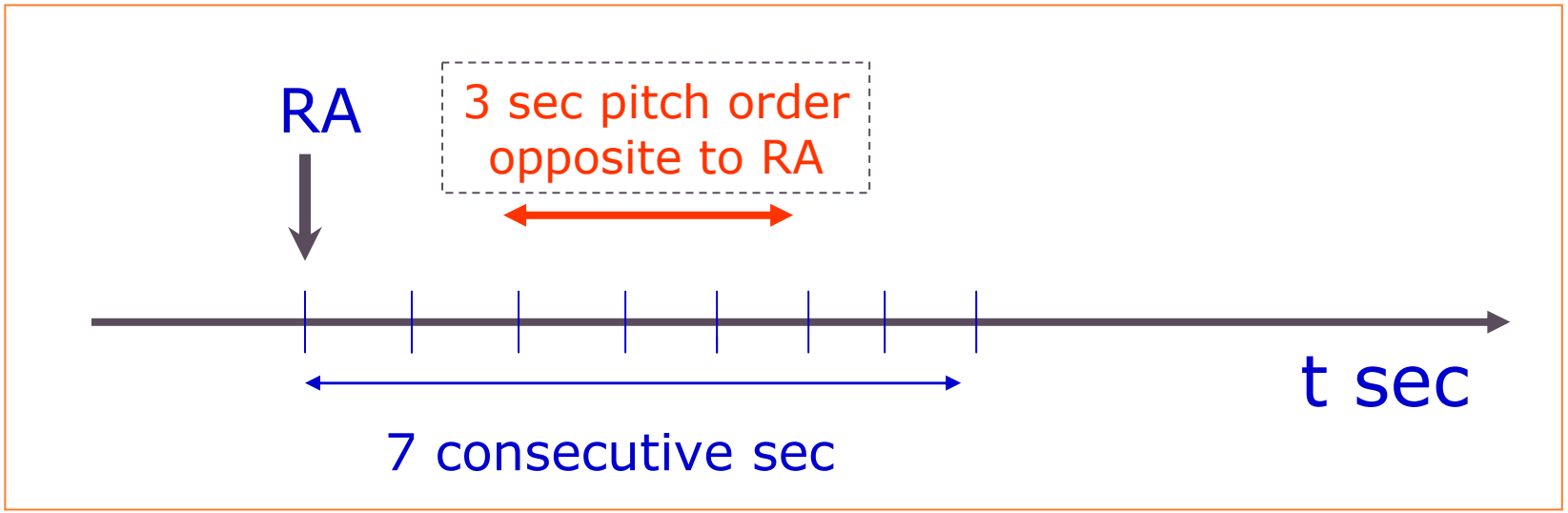
From Safety Occurrences to Risk Management
Contribution of FDM : Safety case 1



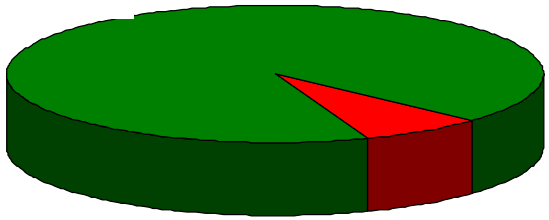


- ✓ First report of wrong pilot response to ‘AVS’ RA TCAS
- ✓ Quick risk assessment
- ✓ Decision to publish this single « isolated » event
- ✓ Two similar reports received referring to the publication
- ✓ Implementation of a dedicated FDM algorithm

From Safety Occurrences to Risk Management : Contribution of FDM



Pilot response to
RA TCAS ''AVS''



Correct response
93%

7%
Opposite response

From Safety Occurrences to procedure, training and instrument design

Safety information sharing : ACAS Bulletins

Airline operational feedback on initial "Adjust Vertical Speed" RAs

A major European airline is routinely monitoring flight crew responses to RA indications. It has identified an issue related to the "Adjust Vertical Speed" RAs.

- ***About 4% of initial responses are wrong and opposite to the RAs;***
- *Most of the errors are **quickly corrected** but a few serious events have occurred.*

Some contributing factors have been identified by this operator:

- *Only "Climb" and "Descend" RA scenarios are exercised on its flight simulators. An "Adjust Vertical Speed" RA can only be generated subsequently, depending upon the pilots' reactions;*
- *The aural "Adjust Vertical Speed, Adjust" does not specify the direction of the manoeuvre required;*
- *Interpretation of the RA display on the vertical speed tape of the PFD is less intuitive than the pitch cue.*

This experience is shared by some other major European airlines.

ACAS II

SAFETY FLASH **ACAS II bulletin No 3**

EUROCONTROL

Wrong reaction to "Adjust Vertical Speed" RAs

"Adjust Vertical Speed" as an Initial RA

ACAS II training programme in Air France

Both initial training and aircraft type qualification includes:

- Detailed TCAS II system and procedure description in the Flight Crew Operating Manual (FCOM);
- Course on how TCAS II works using CBT programmes;
- Study with a ground instructor covering all the TCAS II alerts;
- Practice session on the corresponding aircraft simulator involving TCAS II scenarios with RAs.

Subsequently, the required 6 month aircraft simulator practice session also includes some scenarios with RAs.

In addition to this training, Air France provides regular information and feedback on actual TCAS II events to all pilots. This additional information includes:

- Safety communication on specific TCAS II items (Flight Safety Bulletins, poster, etc.) when a significant issue is identified (e.g. inappropriate reactions to "Adjust Vertical Speed" RAs);
- Annual reports with the analysis of Air Safety Reports with RAs;
- Internal monthly publication of most relevant Air Safety Reports, which can include TCAS II events experienced by flight crews;
- External material relevant for TCAS II training (e.g. EUROCONTROL ACAS Safety Bulletins).

Poster developed by Air France to catch pilots attention regarding Adjust Vertical Speed" RAs (Je diminue le vario = I reduce the vertical rate)

From Safety Occurrences to regulatory recommendation: Safety case 2

EASA Safety Information Bulletin

SIB No.: 2009-10R1

Issued: 05 July 2011

Subject: Monitoring of Take-Off Slats/Flaps Settings during Departure

1. Operations Procedures – Take-Off Flap/Slat Selection

It is therefore recommended that operators review and amend their operations manual procedures, as applicable, so that take-off slats/flaps selections are made before the aeroplane taxis away from the ramp, provided that:

2. Monitoring of Take-Off Slats/Flaps Checklist Effectiveness

Operators are encouraged to check the effectiveness of Take-off slats/flaps check list items by examining available in-service recorded data, and by monitoring the instances that they are not set at the expected time.

FDM Cooperative initiative dedicated to European Operators

Taking the Best from FDM to support Operator SMS

- Dedicated to European Operators
  - ✓ Facilitate implementation of FDM by operators
  - ✓ Voluntary partnership between operators & between operators and authority
  - ✓ Support operators in drawing the best safety benefits from their programme
- WG A : ("Monitoring Operational Safety Issue")

✓What is to be monitored ? (SMS related strategy)

- WG B: "Programming and equipment related aspects"

✓How to monitor ? (Equipement, Software, Data handling …)

- **WG C:** "Integration of FDM into operator internal processes"

✓How to be efficient ?

FDM Cooperative initiative dedicated to European Operators

WG "C" objectives

"Integration of the FDM programme into operator internal processes"

✓To define solutions for the integration of FDM into an operator SMS

✓To provide guidance that will help an operator to best manage:

- limited resources;
- **relationships with top-management and unions;**
- **application of "just culture" to the use of FDM data;**
- **dissemination of safety teachings of FDM (…).**

✓(…)

Thank you for listening

Birth of a safety tool April 24, 1974
AF Management/Pilot union agreement

Preliminary statement in the document

- ✓ *"This agreement is set in accordance with French regulation".*
- ✓ *"It is driven by a common commitment from both AF management and pilots union to enhance flight safety while preserving the legal, material and moral interest of the pilots as well as traditional in flight team work characteristics ".*

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Quick review of FDM history & regulatory aspects

❑ EU Ops regulatory requirement (1-037)

Accident prevention and flight safety programme

(a) An operator shall establish and maintain an accident prevention and flight safety programme (…) including:

(…)

4. a flight data monitoring programme for those aeroplanes in excess of 27 000 kg MCTOM. Flight data monitoring (FDM) is the pro-active use of digital flight data from routine operations to improve aviation safety. **The flight data monitoring programme shall be non-punitive and contain adequate safeguards to protect the source(s) of the data;**