Incident Reporting and Data Sharing
The SSAP initiative

Incidents should be seen as a valuable opportunity to prevent more serious events (reactive prevention) and to improve operations through experience feedback and lessons learned (proactive prevention).

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Preventing potential catastrophes

Accidents hardly ever happen without warning. Incidents could be considered as accident precursors. A single occurrence or the recurrence of similar serious events may appear as an incomplete sequence of an accident scenario. Therefore such an occurrence tells us something about the risk of an accident.

Incidents as safety barometers

A comprehensive reporting scheme, in combination with other safety monitoring resources, keeps an air navigation service provider informed about how it is actually performing. It supports the early detection of emerging or potential problems: dangerous trends, changes in the environment, or previously undiscovered unsafe situations.

Incidents are a source to continuously improve operations

Minor events reveal weaknesses in system defences or indicate the existence of error-prone situations. As human and organisational factors dominate ATM risks, a comprehensive scheme allows a better understanding of human errors, and consequently the improvement of system defences.

States have a (legal) obligation, as members of ICAO, the EU, EUROCONTROL and ECAC, to report specific occurrences to these bodies under various schemes:

- to ICAO under the ADREP Accident Reporting Scheme for worldwide statistical purposes;

- to the EC/EU pursuant to Council Directive 2003/42/EC and Council Directive 94/56/EC for statistical purposes at European Union level;
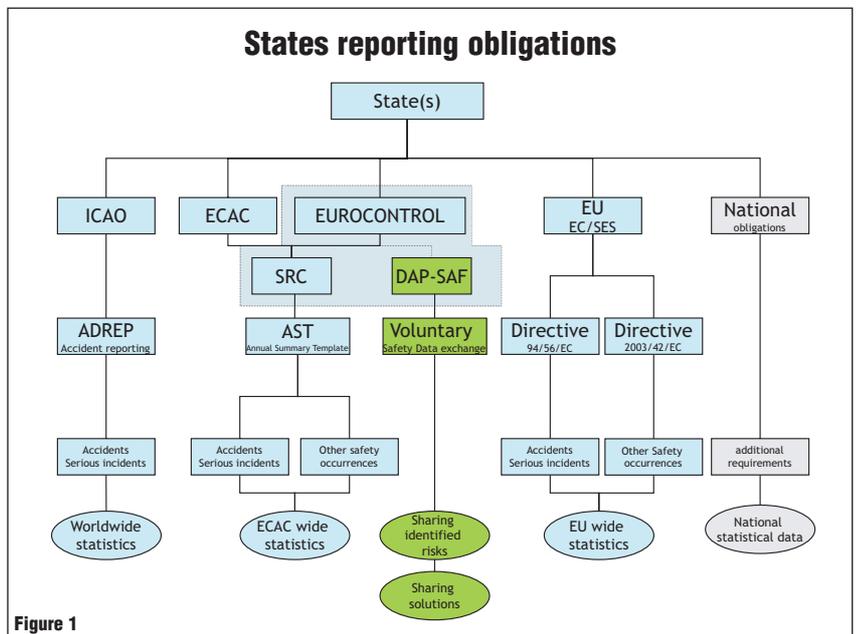

Figure 1

to EUROCONTROL's Safety Regulation Commission (SRC) and ECAC under ESARR2-EUROCONTROL Safety Regulatory Requirement 2 ("Reporting and Assessment of Safety Occurrences in ATM") for statistical purposes at ECAC level and identification of trends.

Further to the provisions for reporting described in Figure 1, which are mandatory in nature, a voluntary scheme has been set up in the framework of the Strategic Safety Action Plan (SSAP) for enhanced ATM safety.

The SSAP Plan calls for immediate action in eight areas, one of which is to introduce incident reporting and data sharing on a non-punitive basis.

To this end, national ATM regulators and air navigation service providers should urgently allocate sufficient resources for data collection, analysis, sharing and dissemination of lessons learned. They should implement the principles of a "just culture" in safety occurrence reporting and cooperate with the EUROCONTROL Agency in defining and adopting industry-wide harmonised mechanisms for sharing safety-related data. This should include cooperating with airlines to derive best practice where possible and to share data on "lessons learned". An industry-wide awareness and education campaign for all stakeholders underlining the safety benefits of a good reporting culture should be initiated.

The EUROCONTROL Agency plays a key role in the process

Most incident reporting schemes in States are mandatory. Yet there is a perception that not all incidents are reported. Some voluntary reporting schemes (where a no-blame culture is in place) do exist and have been shown to increase significantly the number of incident reports[1].

Due to the slow progress made on collecting the raw incident data, a more recent approach is for the EUROCONTROL Agency to collect and disseminate safety information and lessons learned from air navigation service providers on a multinational basis.

In this framework, the data from the air navigation service providers and feedback are provided by the Safety Enhancement Business Division of the Directorate for ATM Programmes (DAP-SAF), as shown by the blue arrow in Figure 2. This can take three major forms:

■ Initiating improvement action plans;
■ Disseminating remedial action and lessons learned; and
■ Identifying specific issues.

However, feedback requires activities (represented by the yellow arrow in the diagrams below) to be carried out to process the data and reach meaningful conclusions. This is the role of the various safety groups under the leadership of DAP-SAF:

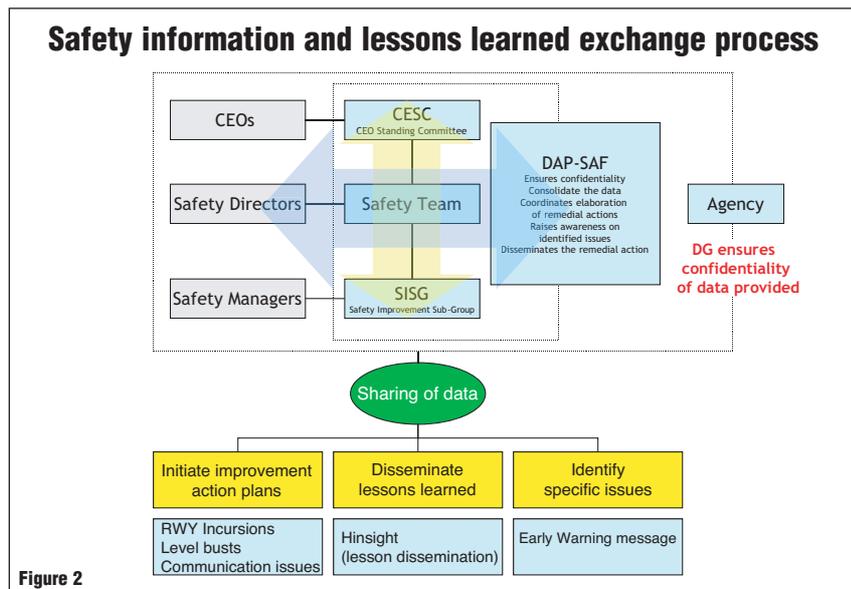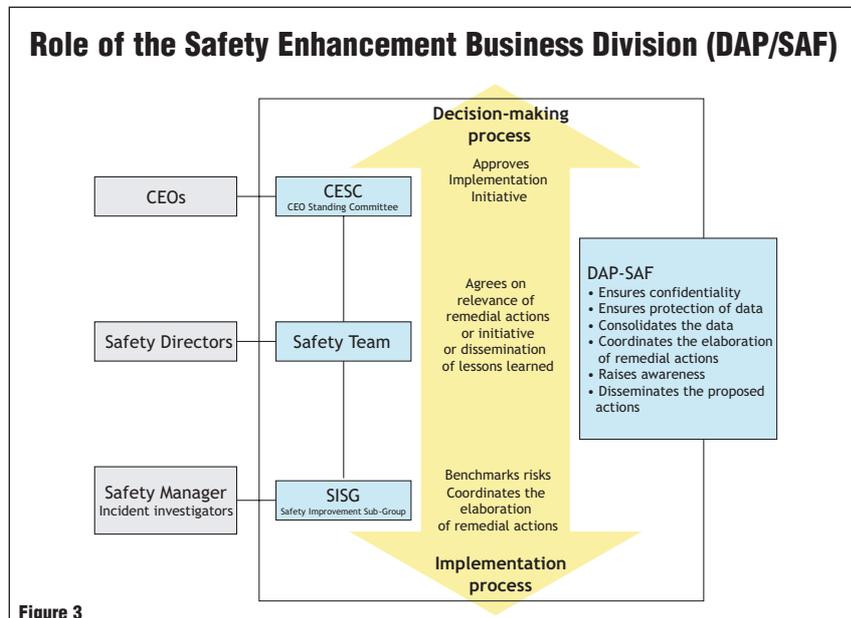■ the SISG-Safety Improvement Sub-Group proposes technical solutions;

Safety information and lessons learned exchange process

Figure 2

Role of the Safety Enhancement Business Division (DAP/SAF)

Figure 3

Incident Reporting and Data Sharing (cont'd)

- the Safety Team endorses the solutions proposed by the SISG; and
- the CESC, (CEO Standing Committee), approves the implementation of the relevant remedial action.

Their interaction is further detailed in Figure 3.

Air navigation service providers' perspective and role

Ultimately, as regards ATM, all data will originate from the air navigation service providers.

It must be stressed that any reporting system depends on the will of individuals to report, e.g. a report may originate from an air traffic controller making a report after a night shift and will eventually end up as such or in the form of aggregated data at the EURO-CONTROL Agency.

In addition to their responsibility as regards States' obligation to report, there are other good reasons why air navigation service providers should implement reporting systems, which can be summarised as follows:

- They have a moral obligation to investigate what went wrong in their operations and why;
- Also, it is in their own interest, as they are ultimately responsible for safety in a context of increased public interest in safety matters, to be able to demonstrate at any time that they are doing everything (reasonably) possible to mitigate identified risks.

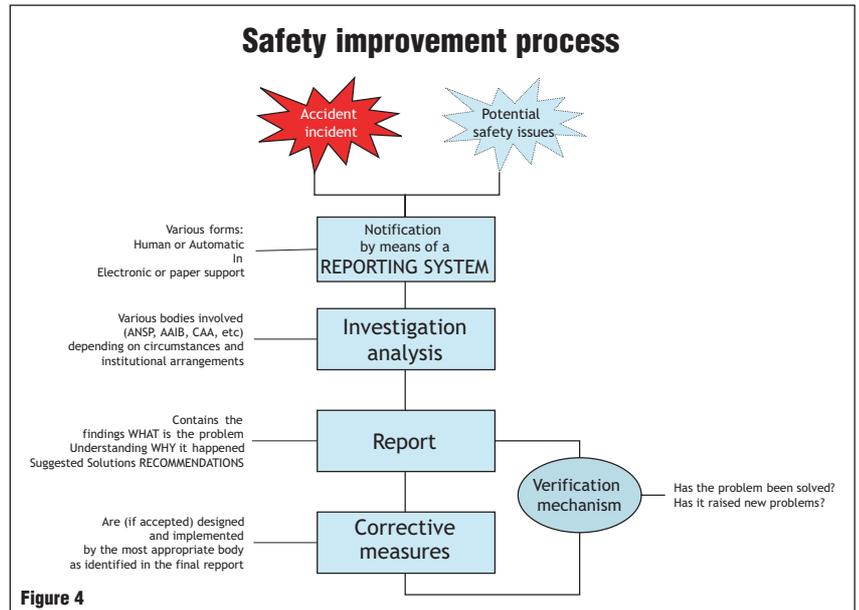
Safety improvement process

Figure 4

The figure above shows the improvement cycle that enables a service provider to improve its safety performance in a controlled manner.

However, it is difficult to make reporting system fully efficient. Experience has shown that current incident reporting schemes have intrinsic limitations and that not all occurrences are reported.

Reasons for non-reporting include:

- Human limitations, such as reportable occurrences undetected by controllers;
- The potential reporter does not feel compelled to report certain occurrences that do not appear important;
- Human factor aspects such as "loss of face" vis-à-vis management and/or colleagues; and
- Contradictions raised by the "trade-off" between capacity and safety.

In this context, un-reported occurrences may constitute the majority and may hide the information needed to detect main ATM system potential failures.
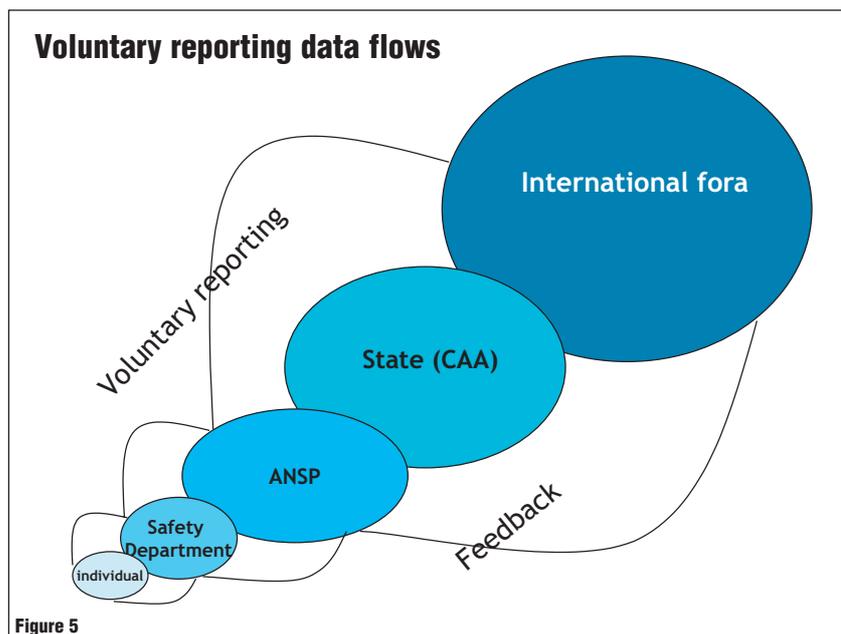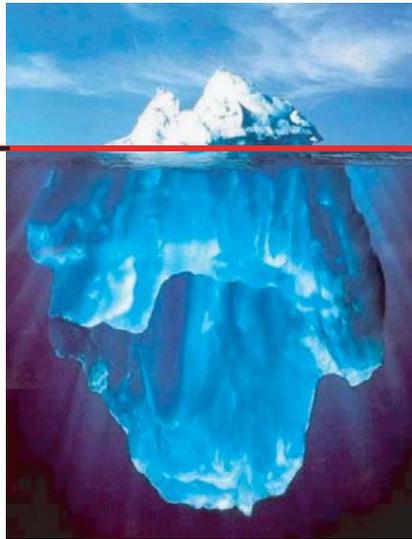

Voluntary reporting data flows

Figure 5

Incidents Reported via Regulatory Mandatory Systems

Unreported Incidents:

The challenge to find these incidents / risks via alternative sources

Our conclusion is borrowed from Prof. Patrick Hudson (Leiden University):

"Sound systems, practices and procedures are not adequate if merely practised mechanically. They require an effective safety culture to flourish."

So you need Safety Management Systems and a Safety Culture. ∎

There are technical reasons for the relative efficiency of reporting systems.

"Problems relate mainly to the implementation of comprehensive reporting systems (aiming to cover all safety issues) and to the adequacy of the safety information extracted from the analysis process (as the basis to elaborate remedial actions): scope, type, quantity and quality of safety data collected in the reporting process varies significantly from State to State, and from service provider to service provider." (AGAS Report – Working Group 2 on Reporting)

This was previously identified by a PRC survey:

"A significant minority (36%) of respondents consider that their organisation's internal procedures are unsatisfactory with regard to safety reporting in ATM […] This is one of the main points of controversy between management and air traffic controllers. Very few managers would countenance that their safety reporting system needed to be improved, while air traffic controllers considered that management is slow or complacent insofar as safety is concerned." (PRC Report on Legal Constraints to Non-Punitive ATM Safety Occurrence Reporting in Europe)

There are also legal impediments.

Few States[2] have so far managed to adopt "non-punitive" provisions in their laws with regard to reporting along the lines of the following Introductory Statement of the Chairman of the UK SRG-Safety Regulation Group:

Assurance regarding prosecution
The CAA gives an assurance that its primary concern is to secure free and uninhibited reporting and that it will not be its policy to institute proceedings in respect of unpremeditated or inadvertent breaches of the law which come to its attention only because they have been reported under the Scheme[3], except in cases involving dereliction of duty amounting to gross negligence.

But more importantly, the safety culture is what binds a reporting system together.

Figure 6 below shows how a safety culture contributes to the efficiency of a Safety Management System and in particular its reporting system[4].

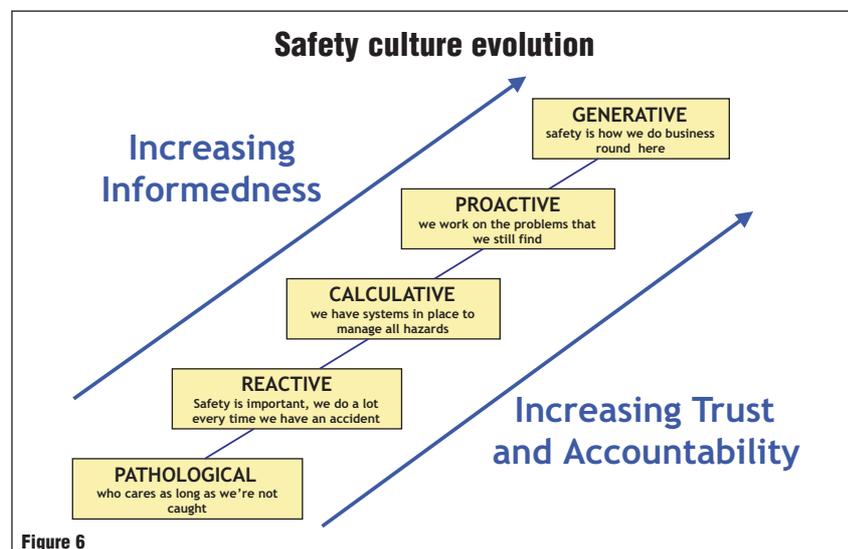*No event reported .... doesn't mean that a system is Safe!*

Figure 6

2 - With the notable exception of Denmark (see article Skyway number 31)

3 - MOR: Mandatory Occurrence Reporting scheme

4 - From Prof. Hudson (derivation of a Westrum classification of organisations)