

# EUROCONTROL: CONNECTING PEOPLE FOR SAFETY

EUROCONTROL is an intergovernmental organisation that helps its 41 Member States and 2 Comprehensive Agreement States run safe, efficient and environmentally-friendly air traffic operations throughout the European region. But what exactly does it do for safety? **Tony Licu**, head of the Network Manager Safety Unit, gives an overview of some activities that are relevant to air traffic controllers, pilots and other aviation professionals.

Working collaboratively at the interfaces with stakeholders is at the heart of what we do in the EUROCONTROL Network Manager Safety Unit. It is the most challenging but also most rewarding job. There are many different organisations and people with a variety of goals, needs and constraints. There is always a new issue that pushes us and our ANSP partners to find new ideas, new solutions, and new relations with other players in the aviation industry.

But what is it that we do, to help you the reader, and the safety of ATM and aviation more generally? In this article, I will describe some of the main activities of the Safety Unit, and how we interact with ANSPs, airlines and other stakeholders.

## SKYbrary

SKYbrary (<https://www.skybrary.aero>) is a collaborative initiative open to the aviation safety community with the aim to *"Build and maintain the single point of reference for aviation safety knowledge in partnership with key aviation safety stakeholders"*. The progress towards the achievement of the SKYbrary mission, to *"Organise aviation safety knowledge and make it universally accessible and useable"*, attracted the interest of aviation organisations such as ICAO and the Flight Safety Foundation (FSF), who became SKYbrary partners at launch. The SKYbrary partnership was later extended to include the UK Flight Safety Committee, IFATCA (International Federation of Air Traffic Controllers'

Associations), CAST (US Commercial Aviation Safety Team), IFA (International Federation of Airworthiness) and SM ICG (Safety Management – International Coordination Group – ICAO & FAA & Transport Canada).

SKYbrary provides a single point of reference for aviation safety knowledge and is freely accessible at [www.skybrary.aero](http://www.skybrary.aero). Visitors can browse portals and categories of information, or access a growing bookshelf of reference documents, including accident & serious incident reports. It includes practical tools that you can use, such as SKYclips, toolkits, e-learning modules, videos, posters, cards, and presentations. The safety knowledge base adopts the concept of MediaWiki products – anyone can comment or propose modification to an existing article or submit a new one. However, a robust pre-publishing content control process ensures the needed quality, impartiality and consistency of stored safety data. Over the years, SKYbrary has become the largest aviation safety library in the world, and contains validated content, derived from credible sources.



## IN NUMBERS

### SKYbrary has:

- over 7,700 pages
- over 5 million page views per year
- over 22,000 registered users

## IN NUMBERS

Training has been provided, via the Prosecutor Expert Course, to:

- 58 ATCOs (15 TWR/APP, 5 APP and 32 ACC)
- 35 pilots (30 Cpt and 5 FO)
- 77 judiciary people (63 prosecutors, 8 judges, 6 Legal advisers, 1 President of High Court)
- ...from 35 Member States

## Just Culture

Just culture is about the necessary balance between safety and sanctions at the level of the national criminal judiciary as well as the corporate level. It is a culture where “front line operators are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated.” It is now part of the EU legal order through EU Regulations 996/2010 (accident and incident investigation) and 376/2014 (occurrence reporting). At a pan-European level, States have committed themselves to implement EU legislation and apply the JC principles at national and corporate level.

In 2012 the EUROCONTROL Provisional Council unanimously endorsed two practical just culture deliverables: The promotion of a national aviation prosecution policy and the establishment of a register of high-level aviation experts that will be available for a prosecutor. The EUROCONTROL Just

Culture Task Force, together with IFATCA and the ECA, has worked hard to produce these deliverables.

Air traffic controllers and pilots know that nobody can claim criminal immunity in any civilised country. But it is equally true that a small, but highly visible, number of cases raise questions on the relevance and motives of some criminal prosecutions and court cases. A relevant question is, who will determine whether a mistake was made by a qualified professional acting in a responsible manner, or whether this was a clear case of gross negligence, wilful misconduct or criminal intent (to use just a few of many legal terms for criminally reproachable behaviour)? That cannot be a chief pilot or a control room supervisor. Such a call can only be made by a professional in the judiciary: a prosecutor and ultimately a court of law.

Rather than trying to stifle the judiciary, the EUROCONTROL, ECA and IFATCA initiative has initiated a dialogue between the national authorities concerned – collaboration at the interfaces between justice and safety, accountability and learning. A better understanding of the consequences of a judicial inquiry must be the starting point. In most States, national criminal legislation provides prosecutors with a level of discretion as to how to apply those laws. A clearer appreciation of the associated safety consequences may influence the application of those laws.

### Find out more:

- SKYbrary website. Category: Just Culture. <http://bit.ly/SKYJC>
- EUROCONTROL website. Just Culture. <http://bit.ly/ECTRLJC>

## Safety Culture

The EUROCONTROL European Safety Culture Programme began in 2003. It is a survey based on a validated questionnaire, followed by workshops to identify both areas of strength and needs for improvement across eight aspects of safety culture. EUROCONTROL manages the programme and oversees each survey, along with independent scientific and practical support.

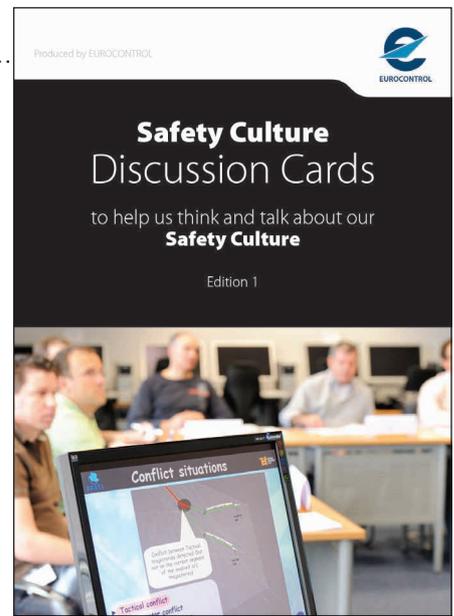
EUROCONTROL safety culture surveys have been performed for the ANSPs in 33 EUROCONTROL Member States, and the process has been used in several other states. Some ANSPs have performed multiple surveys. The EUROCONTROL Safety Culture Survey is voluntary but ANSPs see it as part of their commitment to safety and part of how they manage safety.

The EUROCONTROL programme helps ANSPs and Functional Airspace Blocks (FABs) to understand how they consider operational and organisational safety

in the context of other priorities such as cost-efficiency. The survey focuses on everyday work as well as unusual situations and events, both what works well and what needs to be improved.

Each workshop is facilitated by a minimum of one controller and one human factors specialist or psychologist. The results are a mix of concrete operational issues, organisational issues and cultural issues. A small set of recommendations or needs is highlighted along with a discussion of what staff believe is working well to keep the organisation safe. Workshop attendees tend to value the experience of taking time to talk through some of their ideas and concerns. As an independent survey, the conclusions are derived solely by the data from questionnaires and workshops, and recommendations are informed by the conclusions and relevant good practice in the European Network.

As part of the programme, a set of safety culture discussion cards has been produced, which are available in six



languages. These provide an introduction to the many aspects of safety culture, and provide a tool to help facilitate conversations about specific issues.

### Find out more:

- SKYbrary website. Safety Culture Discussion Cards (EN, FR, ES, PT, HU, FI). <http://bit.ly/SKYSCCARDS>

## EVAIR (EUROCONTROL Voluntary ATM Incident Reporting)

EVAIR is the first voluntary ATM incident data collection scheme organised at a pan-European level. It was set up in 2006 in response to a request from EUROCONTROL's Provisional Council. Within the EVAIR mechanism, ATM incident reports and related feedback are provided on a daily or monthly basis with an aim to learn from low-level incidents and help prevent accidents and serious incidents.

The EVAIR project started with full support of the EUROCONTROL management, airline associations, at first IATA, followed by IACA, ELFAA, and AEA. During the trial period, EVAIR started with 10-12 airlines, which grew to 334 companies so far. I am very proud when looking back to think of what the team has achieved in the past 10 years:

- EVAIR receives ATM safety reports from 130 to 160 different Air Operators yearly. They come from the whole world but all of them fly regularly through European airspace. All European ANSPs SMSs plus those who are bordering ECAC airspace

cooperate with EVAIR and participate either in providing preliminary reports, or in delivering feedback on occurrences reported by the airlines' Safety Managers.

- Within ten years of EVAIR we have collected 22,300 airline occurrence reports and 22,200 reports from ANSPs. ANSP reports encompass feedback, call sign similarity and specific ANSP reports without the involvement of the air operators.
- All reports have been analysed and uploaded in the database by the EVAIR analysts who are ATM experts, mainly air traffic controllers from EUROCONTROL Member States. Within a decade, almost 30 people have worked on EVAIR activities, at the same time bringing back home lessons learnt. Besides air traffic controllers, we involve in the process of incident analysis experienced pilots and engineers for specific type of occurrences like TCAS RAs.

### Find out more:

- SKYbrary website. EUROCONTROL Voluntary ATM Incident Reporting System (EVAIR). <http://bit.ly/SKYEVAIR>
- EUROCONTROL website. EVAIR (EUROCONTROL Voluntary ATM Incident Reporting). <http://bit.ly/EVAIR>

## Safety-II and Systems Thinking

Safety can be seen from two perspectives, through two lenses. One focuses on things that go wrong (or could go wrong), which has been termed 'Safety-I'. The other focuses more generally on how things go, which has been termed Safety-II (EUROCONTROL, 2013).

According to Safety-I, people are viewed predominantly as a liability or hazard. So we try to respond when something happens or is viewed as an unacceptable risk. We eliminate causes or improve barriers, or both. This approach is fine as far as it goes, but it does not tell us much about how things go on an everyday basis to ensure that things go right – or what to do to keep it that way or stop it going 'into the red'. It tells us about unsafety, about what occasionally goes wrong, and what to avoid.

From a Safety-II perspective, people are a vital source of flexibility, creativity and resourcefulness in the system as a whole. Rather than only reacting to failures and risks, the Safety-II approach emphasises the continuous anticipation of developments and events. This includes understanding 'how things go' (and how they usually go right) as a basis for explaining how things occasionally go wrong.

Systems thinking is a way of seeing a system (a sector, a unit, an organisation, the aviation system...) as a purposeful whole, not simply as a collection of parts. Systems Thinking tries to understand and optimise the interactions between human, technical, information, social, political, economic and organisational components. It means acting on the system, with careful attention to different interfaces and interactions at all levels.

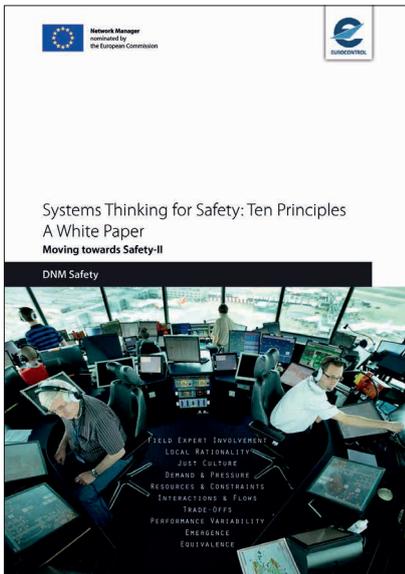
All of this is done with stakeholders and friends (including DFS, NATS, DSNA, Austro Control, NAV-Portugal, IAA, ENAIRE, Belgocontrol and many others) that are at the forefront of new developments within Safety Human Performance Sub Group (SHP-SG) of the Safety Team.



## IN NUMBERS

### In 2016, EVAIR collected

- 105 Air Operators submitted occurrence reports.
- 6144 ATM occurrences (3.28 ATM per 10,000 flights).
- 447 ACAS RAs reports (average 0.6 per 10,000 flights).
- 86 RPAS/drone reports and 494 GPS outages.
- 3,347 callsign similarity reports (from the callsign similarity deconfliction tool).



#### Find out more:

- EUROCONTROL (2013). From Safety-I to Safety-II: A White Paper. Available at <http://bit.ly/ECTRLSii>
- EUROCONTROL (2014). Systems Thinking for Safety: Ten Principles. A White Paper. Available at <http://bit.ly/ST4SAFWP>
- EUROCONTROL (2014). Systems Thinking Learning Cards. Available at <http://bit.ly/ST4SAFETYCARDS>
- SKYbrary website. Toolkit: Systems Thinking for Safety: Ten Principles. <http://www.bit.ly/ST4SAFETY>
- EUROCONTROL website. Systems Thinking for Safety HUM-SYS] Classroom Course. <http://bit.ly/ST4SAFETYIANS>

## Safety Team and its Subgroups

The EUROCONTROL Safety Team aims to drive safety management improvement throughout the provision of Air Navigation Services in ECAC States. As such, the Safety Team:

- Promotes, develops and supports effective European safety management.
- Provides a focus for improvement of ATM operational safety.

The Safety Team is a specialist advisory body, established within the framework of EUROCONTROL, providing a direct channel of consultation between all stakeholders. The Safety Team oversees the EUROCONTROL Safety Unit's work programme through various sub-groups.

## Safety Improvement Sub Group (SISG)

- **Purpose:** Support the Safety Team in driving operational safety improvements in the provision of air navigation services in ECAC states.
- **Members:** Senior safety investigators and safety managers of civil and military ANSPs in the ECAC region, mandated to speak on behalf of their organisation.

## Safety nets Performance Improvement Network Sub Group (SPIN SG)

- **Purpose:** Support the Safety Team in the development, implementation, use and evolution of specifications and guidance material for ground-based safety nets and for ACAS Resolution Advisory (RA) Downlink; and a coordinated, overall concept for airborne and ground-based safety nets.
- **Members:** Experts in ground-based safety nets in ATC and the potential implications of airborne safety nets on ATC in the ECAC region, mandated to speak on behalf of their organisation.

## Safety Human Performance Sub Group (SHPSG)

- **Purpose:** Support the Safety Team in driving safety human performance improvement in the provision of air navigation services in the ECAC States.
- **Members:** Senior operational, engineering, safety practitioners and human factors experts of ECAC civil and military ANSPs.

## Safety Management Tools User Group (SMT UG)

- **Purpose.** Ensure that all SAF Management Tools are continuously reviewed and improved; fostering the harmonised use of the SAF Management Tools irrespective of the organisation a user belongs to.
- **Members:** Users of the Safety Management Tools (Risk Analysis Tool (RAT), TOKAI (TOolKit for ATM Occurrence Investigation), APF (Aerospace Performance Factor) and ASMT (Automatic Safety Monitoring Tool).

## Call Sign Similarity User Group (CSS UG)

- **Purpose:** Develop and support the implementation of Callsign Similarity Management Cell (CSMC), supported by service and detection/de-confliction tools, to be operated by NMOC.
- **Members:** Aircraft Operators (AOs) and air navigation service providers (ANSPs) with understanding of call sign similarity issues (safety, operational, engineering as necessary) and the potential implications of call sign similarity detection and resolution on ATC.

## Network Manager Safety Management Tools

The Network Manager Safety Management Tools help ANSPs to balance risk management and decision-making between subject matter expertise and data. Today we have about 60 ANSPs from all over the world that use our tools: (Risk Analysis Tool (RAT), TOKAI (TOolKit for ATM Occurrence Investigation), APF (Aerospace Performance Factor) and ASMT (Automatic Safety Monitoring Tool).

We are trying also here to shift from counting numbers to telling stories. These are, of course, at the heart of HindSight magazine. If you follow an event from start to finish, you begin to understand why and how it unfolded that way. The flow of a story helps us understand causes and influences between parts of the story. It turns a collection of facts into a compelling and memorable narrative. Well-structured stories help to learn lessons in a way that facts often do not. That's why we've been telling stories for so long. They are excellent tools for passing knowledge from one person to another.

## HindSight Magazine

Last but not least, we produce the magazine that you are reading as we speak. HindSight is a magazine for the safety of air traffic services. The concept is based on carefully balancing the style, content and scope around:

- Air traffic controller points of view, balanced against others' points of view (pilots, airport personnel, engineering, safety specialists, etc.).
- Lessons from the past and what happens in the present, balanced against what may come in the future.
- Presenting 'official' positions (policies, standards, guidelines, EUROCONTROL Safety Alerts), balanced against discussion and expression of opinions.
- Practical 'do's and don'ts' for everyday practice, balanced against reflecting on theory and giving the floor to researchers, developers, manufacturers and scientists.

### Find out more:

- SKYbrary website.  
HindSight – EUROCONTROL.  
<http://bit.ly/HindSightMagazine>



Tony Licu is Head of the Safety Unit within the Network Manager Directorate of EUROCONTROL. He leads the deployment of safety management and human factors programmes of EUROCONTROL. He has extensive ATC operational and engineering background, and holds a Masters degree in Avionics.



# BUILDING 'HEALTHY' TEAMS: MULTIPROFESSIONAL TEAM TRAINING FOR THE OPERATING THEATRE ENVIRONMENT

Healthcare is perhaps the most complex of industries, with many interfaces between professions for each patient, and therefore many opportunities for problems to arise. Team training has to span these many staff groups. In this article, **Bryn Baxendale** describes the experience of implementing a team training and improvement programme for multi-professional teams working in the operating theatres at Nottingham University Hospitals NHS Trust.

## KEY POINTS

1. Safe and effective care in the operating theatre relies on skilled surgeons, anaesthetists, nursing staff and other theatre professionals working together as a team and adapting to dynamic, complex situations.
2. Relatively little attention is paid in daily practice to highlighting and strengthening the team skills and behaviours that support effective performance, as these tend to be regarded as 'routine work' by the staff involved.
3. 'NUH TEAMS' is an evidence-based team training and development programme that is being implemented in the operating theatre setting and that brings these team-based capabilities into clearer focus.
4. Organisational resilience will be strengthened by teams actively engaged in improving their performance and by enabling them to highlight systems-level issues for senior management.