

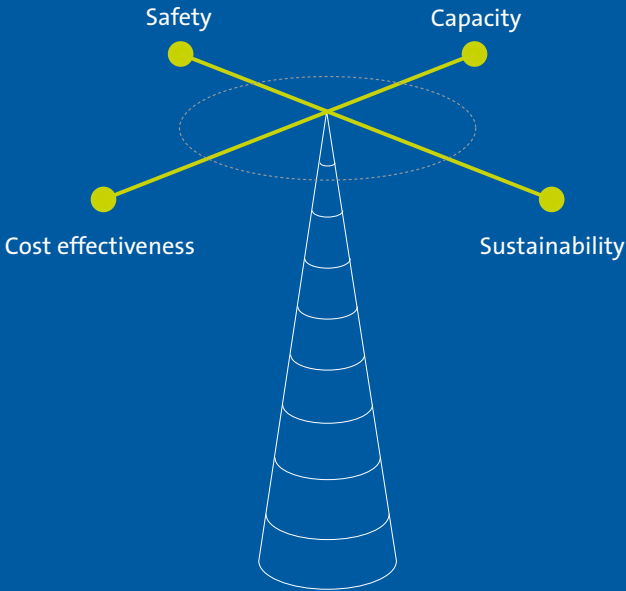
skyguide 

SAFETY

THE ESSENTIALS



Safety in balance



Good air navigation services require adherence to the strictest safety standards whilst maintaining a balance in relation to necessary capacity as well as military mission effectiveness, cost effectiveness, and sustainability in environmental, social and economic terms.

Safety: good is never good enough!

Aeroplanes are one of the safest means of transport that exist, and air navigation services play a key role in ensuring this is so. That is why skyguide personnel always have safety at the forefront of their minds.

Each and every one of them is aware of the great responsibility they bear. They create and nurture an atmosphere of trust, both amongst themselves and in their relationships with customers and partners, which means that, in parallel with safety, it is also possible to constantly improve efficiency and sustainability.

Skyguide is one of the most respected air navigation services organisations in the world. It is proud of that reputation, but never satisfied. Where safety is concerned, good is never good enough!

“ A high level of safety is not simply a given. It must be worked on, and preferably improved upon, on a daily basis. So we are continuously asking ourselves how we can do better, openly addressing possible risks and working on potential solutions together with our partners.”

Alex Bristol, CEO

Planning safety

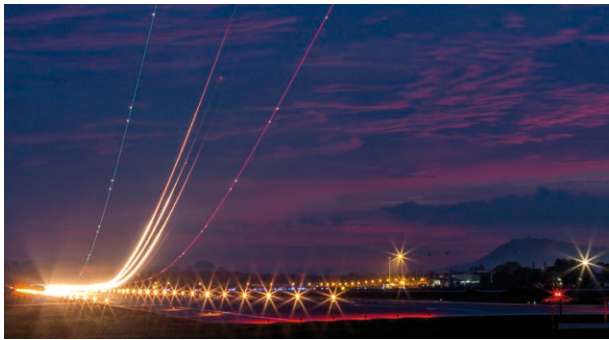
In its quest to constantly improve levels of safety, skyguide sets priorities within its safety culture and monitors measurable safety indicators in order to improve upon them in a targeted way. It has shown itself to be as professional as it is persistent in identifying and thematising safety risks, and relies on an overall system that is already safe and resilient by design.

The responsibility for implementing skyguide's safety strategy does not lie with a single hierarchy level or specialist department within the company, but with every one of its employees, in line with their respective functions.

Of course, the Executive Board does have a particular responsibility – most importantly perhaps through its duty to set an example. It also guarantees that, in every business decision, the necessary priority is given to safety.

“Individuals' professional ethics are the best resource for the continuous improvement of safety.”

Klaus Affholderbach, Chief Safety Officer



The Executive Board takes safety relevant decisions within its “Safety Governance Board”, which consults experts on the subject and is accountable to the Board of Directors. One of its committees is responsible for working out the strategic framework for safety, and monitors adherence to it.

The skyguide Safety Policy offers clear guidance for all on the development of organisational structures, processes and procedures, and the Safety Department assures coordination as well as providing the necessary support.

Living safety

Skyguide cannot afford to cover up errors: there is too much at stake. Rather, every problem it identifies serves as a basis for improvements. In their dealings with one another, staff therefore nurture mutual trust and open exchange. It is this which forms the basis of a good safety culture.

Skyguide sees itself as a “High Reliability Organisation”; that is to say an organisation which acknowledges that problems and malfunctions can always occur. It develops the skills to prepare for, and react to, unexpected situations. In this endeavour, it follows these principles:

- We focus on problems and malfunctions
- We reject simplistic interpretations
- We place operating workflows centre stage
- We strive for resilience
- We respect specialist expertise

In order to be able to evaluate its safety culture, skyguide developed a new kind of internal survey, the “Safety Culture Survey”, which it has repeatedly conducted since 2006 – and since 2016 using a new procedure developed by Eurocontrol. These surveys enable skyguide to identify

areas in which it can build on its good results and correct certain weaknesses.

A successful reporting system

The reporting system has a long tradition among air traffic controllers. The rate of spontaneous reports of operational incidents has been very high for years. Technical services at skyguide also have a confidential reporting system specially tailored to technical incidents.

This system is complemented by a general safety report whereby all personnel can confidentially report anything they observe that in their opinion constitutes a safety risk.

The reports the organisation receives provide it with well-documented findings that enable it to continually improve its air navigation services system. Skyguide

“Everyone at skyguide is constantly critically reviewing their own work. If we were to stop doing this – learning from our mistakes and continually improving – we would no longer be a High Reliability Organisation.”

Alex Bristol, CEO

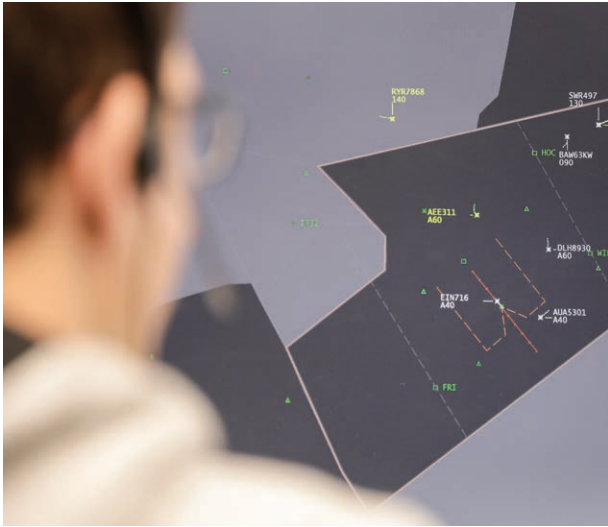
SAFETY CULTURE

awards a Safety Prize for particularly valuable contributions. One of the prerequisites for a successful reporting system is guaranteed confidentiality. Even more important, however, is mutual trust, which can only thrive in a fair and just culture.

A fair and just culture

As has been proven, providing trust and adequate protection for all the individuals involved in aviation encourages them to adopt the best possible attitude and a constructive approach to errors.

Anyone at skyguide who, in their work, act to the best of their knowledge and belief, need have no fear of disciplinary proceedings as a result of their actions and activities. And everyone is free to report any problems openly and fully – including errors of their own. On the other hand, skyguide does not tolerate gross negligence or wilfully harmful behaviour. These principles are formally enshrined in guidelines that apply to all personnel. An internal committee is tasked with resolving any conflicts of interpretation that might arise.



The just culture described above has enabled skyguide to make demonstrably significant progress in the area of safety. A number of other safety-relevant industries are therefore also interested in just culture and its implementation.

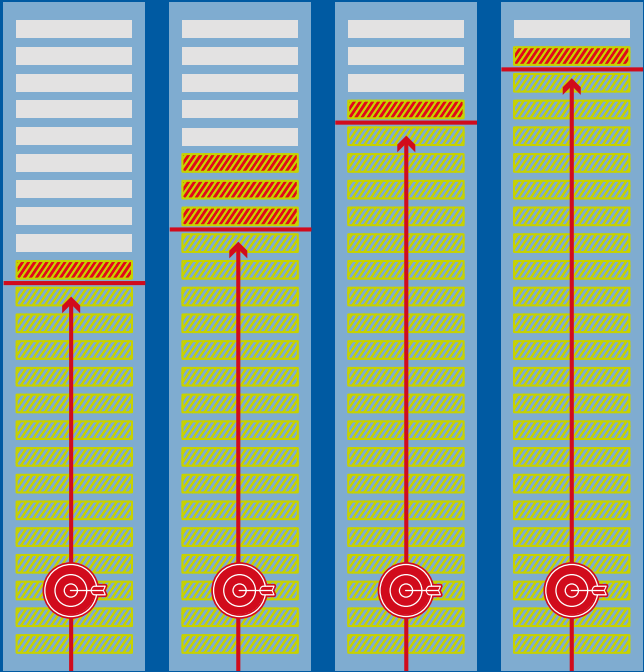
SAFETY CULTURE

Dealing with errors in the public eye is of course not always easy. The professional ethics approach to a just culture can at times be at odds with society's moral expectations, or indeed with current law.

Skyguide is aware of this, and strives to promote mutual understanding in consultation with all interested parties. This means demonstrating the safety-relevant aspects of a just culture and bringing them into line with the imperative of the rule of law.

One of the aspects being taken into account as part of the international evaluation of air navigation services organisations is the maturity level of their just culture, and in recent years skyguide's has always been rated very highly. Further progress is still possible, even if this means ever greater commitment of resources. The safety of passengers and crew is always worth it.

Continuous improvement



Skyguide's safety culture and safety management are highly rated by independent bodies. Further progress is always possible – ambitious objectives are called for.

Organising safety

Skyguide's safety culture and its safety management system, which is certified to European standards and inspected annually by independent bodies, form the basis for the provision of all services.

A number of different processes and tools make up the safety management system.

Safety risk management

Safety risk management, which is the assessment of safety risks, is a formal process. Through this process, skyguide ensures that the risks associated with planned or proposed changes to the air navigation services system are properly assessed and under control, and are within certain predefined limits. Only then are the relevant changes adopted.

The task of the skyguide experts consists of identifying, analysing and assessing possible risks and intervening where necessary.

Unit surveys

Air navigation services is a complex, living system which is itself connected with other systems such as the flight operations of the airlines, airport operations and environmental protection and noise control. That is why sustainable improvements to safety can only be achieved with the cooperation of multiple stakeholders.

To maintain and further improve its high safety standards, skyguide conducts safety surveys within its operational units, using a methodology developed by its own experts and known as the Unit Safety Risk Assessment. Conducted jointly with the relevant partners, these surveys provide a picture of the risks associated with the operating environment, offer risk reduction strategies, and encourage timely improvement measures.

The methodology has already proved itself in multiple complex settings, and can also be applied in fields other than aviation.

The human factor

In a complex system the individual is both the most unreliable and the most creative factor. Humans commit errors, but they are also capable of solving unforeseen problems. Skyguide therefore puts a lot of effort into understanding these human elements, eliminating negative effects on human performance and fostering the typically human capabilities.

Skyguide is currently focusing on the strategic direction of its future operating concept. What will its operations look like in ten or twenty years? What kinds of automation are possible that will assist humans? What will be the efficiency gains?

The experts in the “Human Factors” team thus provide valuable support, particularly with system changes and on innovation, but also with regard to investigations conducted with the goal of understanding incidents.

Reporting and investigation

A confidential reporting system provides a constructive environment in which weaknesses can be addressed. All operational and technical incidents are disclosed and dealt with in a way that enables improvements to be made where necessary.

In the case of serious incidents, a special procedure applies that protects customers, personnel and skyguide itself from recurrence. The air traffic controllers who experience such an incident are immediately relieved from duty and receive support from trained personnel before returning to work whenever possible.

Skyguide conducts internal investigations into the causes of all serious incidents and assists the authorities in their work in the event of an external investigation. These investigations are important sources of information, and therefore always and exclusively serve to improve safety.

Measuring safety

In air navigation services it is never easy to collect and interpret meaningful data on safety. Available statistics on incidents – which have been so rare – are not very helpful in detecting long-term developments. Nonetheless, to create a reliable picture of developments in safety, skyguide has created a “cockpit” with over 30 indicators.

As well as internationally used indicators, skyguide’s safety cockpit also collects data on, for example, the timing and quality of long-planned measures or short-term improvements as well as qualitative risk assessments.

The safety cockpit is presented to the Executive Board on a regular basis so that trends and “hotspots”, as well as prompt corrective action, can be discussed. Assessments performed over time have shown the following positive trends:

- A continuous decline in separation minima infringements
- Stability of operation and of technical systems (stabilising phase of new processes and system components not taken into account)



- Sufficient resources for the adoption of improvement measures
- Existence for many years of a good reporting culture

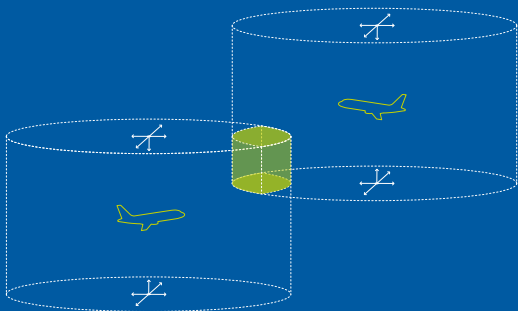
Even small, sporadic, statistically insignificant deviations and isolated local risks are systematically investigated: statistics cannot be allowed to gloss over critical observations.

Always progress

Reports and investigations of observations, lively national and international exchanges between experts, or more acute observation of apparently functioning operations – all these aspects and more help to improve safety. Here are a few examples.

The radar system not only records, for example, actual near-misses between two aircraft, but also infringements of the minimum separation distance. The air traffic controllers then provide additional information via a report.

A separation minimum is infringed when an aircraft is flown at even only slightly less than the minimum distance that must be maintained between two aircraft. In fact, individual incidents (of which there are approximately 10 per 100.000 flights) are seldom problematic. However, increases in the number of such events at a particular location or point in time, or certain patterns being identified, can be clear indicators of an underlying problem.



Separation minima infringement

For aircraft en route the minimum vertical distance is 1000 feet (305 metres) and the minimum horizontal distance – when two aircraft are travelling at the same altitude – is 5 nautical miles (9.26 kilometres).

SAFETY IMPROVEMENT

Safety in military operations

The approach to military flight operations is different from the approach to civil flight operations. In the case of, for example, training exercises, or when the air police are deployed, the air traffic controllers guide the pilots to other objects and offer tactical assistance. Here too, sufficient separation is important, although it is not the actual objective. In military aviation, it is the effectiveness of the mission that matters. Accordingly, it is a different understanding of risk that defines the framework for operations. Within this framework, safety standards are adhered to equally systematically.

Skyguide investigates also military or mixed civilian-military incidents and accidents internally, using the data available to it. Skyguide works within the common “Safety Investigation Management” in close collaboration with the Air Force safety experts. Paths of communication are intentionally short here, which allows joint investigations and promotes dialogue relating to safety issues.

Availability of technical systems

In exactly the same way as modern aircraft, modern air navigation services rely increasingly on high-performance technical systems, which therefore need to offer the highest levels of reliability and availability. For all radar, navigation, communication and air traffic management systems, the target values for failures are a maximum of 80 hours accumulated over two years. For failures in instrument landing systems in Geneva and Zurich, which allow landing in fog, a maximum of 12 hours accumulated over one year applies, if there is an impact on the operation.

In the case of most failures, the fall-back systems take over seamlessly. When major problems occur, procedures apply that allow reduced operations to be maintained: in the worst cases this leads to delays, but never to compromises in safety.

Technical failures are the subject of analyses in the same way as incidents in operations. The results flow into software development, the maintenance process and the procurement cycle, but also into operational processes.

Innovation and a new start

In recent years, a safety deficit has become apparent which can no longer be corrected by existing means, and that deficit is in airspace structure. In Switzerland, airspace structure has become increasingly complex in recent years, and now taxes the safety system to its limits. It's time for a radical new start on a fresh page.

The Swiss Federal Office of Civil Aviation (FOCA), together with all the stakeholders, is developing a completely new basis for airspace design and aviation infrastructure. Freed from hitherto insurmountable constraints, a simplified, future-proof system is being created that is capable of integrating rising traffic volumes and new user groups (drones, near-space flights, power-generating kite systems, etc.).

On the booming drone industry front, skyguide already offers highly innovative solutions, and by 2025 will be able to make available a fully automatic, networked digital infrastructure by means of which drones can be safely and efficiently integrated into urban airspace.

Further information

- **Skyguide** – www.skyguide.ch
- **Swiss Transportation Safety Investigation Board (STSB)**
– www.sust.admin.ch
- **Federal Office of Civil Aviation (FOCA)** –
www.bazl.admin.ch
- **European Aviation Safety Agency EASA** –
www.easa.europa.eu

You will find detailed information
on our website

www.skyguide.ch

skyguide

swiss air navigation services ltd

p.o. box 796

CH-1215 geneva 15

tel +41 22 417 41 11

www.skyguide.ch

© skyguide

© photo: iStock (Cover) – Getty Images (P,5)

