FOCA

State Safety Programme for Switzerland

ABBREVIATIONS USED

AAB	Airprox Analysis Board
AAIB	Aircraft Accident Investigation Bureau
ABIS	joint representation within ICAO of Austria, Benelux, Ireland, Switzerland, Portugal and Croatia
ADREP	accident/incident data reporting
AIWG	Airspace Infringement Working Group
ALARP	as low as reasonably practicable
ALoSP	acceptable level of safety performance
AOC	air operator certificate
ATC	air traffic control
ATIR	air traffic incident report
BV	Swiss Federal Constitution
CASO	Civil Aviation Safety Office
CE	critical element
DABS	Daily Airspace Bulletin Switzerland
DASIB	Defence Aviation Safety Investigation Board
DDPS	Swiss Federal Department of Defence, Civil Protection and Sports
DETEC	Swiss Federal Department of the Environment, Transport, Energy and Communications
EASA	European Union Aviation Safety Agency
EASP	European Aviation Safety Programme
EC	European Community
ECAC	European Civil Aviation Conference
ECCAIRS	European Coordination Centre for Accident and Incident Reporting System
EGAST	European General Aviation Safety Team
EHEST	European Helicopter Safety Analysis Team
EPAS	European Plan for Aviation Safety
ESSI	European Strategic Safety Initiative
EU	European Union
FLAG	'Führen mit Leistungsauftrag und Globalbudget' ('management by performance mandate and global budget')
FOCA	Swiss Federal Office of Civil Aviation
GASP	Global Aviation Safety Plan
GEVER	'Geschäftsverwaltung in der Bundesverwaltung' (electronic business management within the Swiss federal administration)
HRR	Hazard and Risk Register
ICAO	International Civil Aviation Organisation
IRFBA	Investigation Bureau for Railway, Funicular and Boat Accidents

LFG	Swiss Federal Aviation Act
LUPO 2016	Swiss Federal Council's 2016 Report on Swiss Aviation Policy
MAA	Military Aviation Authority
MS	management system
NASP	National Aviation Security Programme
NFB	'Neues Führungsmodell für die Bundesverwaltung' ('new management model for the Swiss federal administration')
NOTAM	Notice to Air Missions
OSITI	Ordinance on the Safety Investigation of Transport Incidents
OV-UVEK	'Organisationsverordnung des UVEK' (DETEC Organisation Ordinance)
ROJCA	Reporting Office for Just Culture in Civil Aviation
SAFA	Safety Assessment of Foreign Aircraft
SAFOF	Safety Officer
SAG	Safety Action Group
SASA	Safety Assessment of Swiss Aircraft
SASOC	Swiss Aviation Safety and Operations Conference
SASP	Swiss Aviation Safety Plan
SES	Single European Sky
SMM	Safety Management Meeting *or* (ICAO) Safety Management Manual
SMS	safety management system
SPI	safety performance indicator
SR	'Sammlung der Schweizer Rechtsgrundlagen' (corpus of all Swiss legal documents)
SRM	safety risk management
SSC	Swiss Safety Committee
SSP	State Safety Programme
StGB	Swiss Criminal Code ('Schweizerisches Strafgesetzbuch')
STSB	Swiss Transportation Safety Investigation Board
STSB-AV	Swiss Transportation Safety Investigation Board, Aviation Division
STSB-RN	Swiss Transportation Safety Investigation Board, Rail/Navigation Division
UN	United Nations
USOAP	Universal Safety Oversight Audit Programme
VStrR	Swiss Federal Administrative Criminal Law Act ('Verwaltungsstrafrecht')

CONTENTS

FOREWORD

Civil aviation is a global, ever-growing and ever-evolving form of transport which, through continuous and systematic endeavours, has achieved a high safety level. In view of its dynamic and ever-changing environment, the aviation system must be able to identify complex system risks, and must above all be able to anticipate the effects of such change. This demands advanced methodologies which can maintain the safety levels already achieved and steadily further improve them. The issue of safety is a constant throughout the aviation sector. But appropriate regard must also be paid to further considerations such as cost-effectiveness, environmental factors and traffic flow.

The Global Aviation Safety Plan (GASP) of the International Civil Aviation Organisation (ICAO) sets global safety goals, and further specifies how these are to be achieved. At the European level, both the European Aviation Safety Programme (EASP) and its associated European Plan for Aviation Safety (EPAS) pay due regard to these GASP objectives.

The State Safety Programme (SSP) describes Swiss civil aviation's safety management system (SMS) strategy at the national level. The SSP contains the country's safety policy, along with a top-level description of its legal background, processes and measures. The Swiss Aviation Safety Plan (SASP) defines the application of this national strategy.

The Swiss Federal Office of Civil Aviation (FOCA) utilises the existing national and international safety specifications to create the framework required to ensure safe and sustainable aviation. In doing so, the FOCA puts a particular emphasis on working together with the various further parties involved, in view of the ever-increasing importance of safety-relevant information. A strong safety culture, effective communications between air operators and the authorities and information-based actions in response to safety risks are the foundations on which aviation safety is built. And the aim in providing these is to ensure safe aviation activities and to maintain passengers' confidence and trust in Swiss civil aviation.

EXECUTIVE SUMMARY

The Convention on International Civil Aviation has 19 annexes which lay down the basic standards and recommendations for international civil aviation. Chapter 3 of Annex 19 thereof contains standards and recommended applications for a state's safety management. These include establishing and maintaining a state safety programme (SSP) which permits the integrative regulation of all safety matters. This SSP is based on eight critical elements (CEs) of safety oversight, and is structured into the four elements of safety management (see Figure 1). The SSP shows how and with what resources from the supervisory authorities (including the STSB and the DETEC Safety Office) Swiss aviation's safety objectives are to be achieved. The present version of the SSP supersedes the version of 2020 and, among other things, describes the regulatory environment in terms of external requirements and national/international obligations (to ICAO, EASA and Eurocontrol) for the Federal Office of Civil Aviation (FOCA) and the existing safety oversight activities over the various parties involved in civil aviation.

The SSP is also subject to the Swiss Federal Council's 2016 Report on Swiss Aviation Policy (LUPO 2016) in its guise as Switzerland's overall civil aviation strategy, while the SSP itself serves as a basis for the Swiss Aviation Safety Plan (SASP) and for further guidelines containing concrete action instructions.

The diagram below shows the structure and the content of the SSP in the form of a Plan/Do/Check/Act loop. In line with this depiction, this SSP is also divided into four chapters:
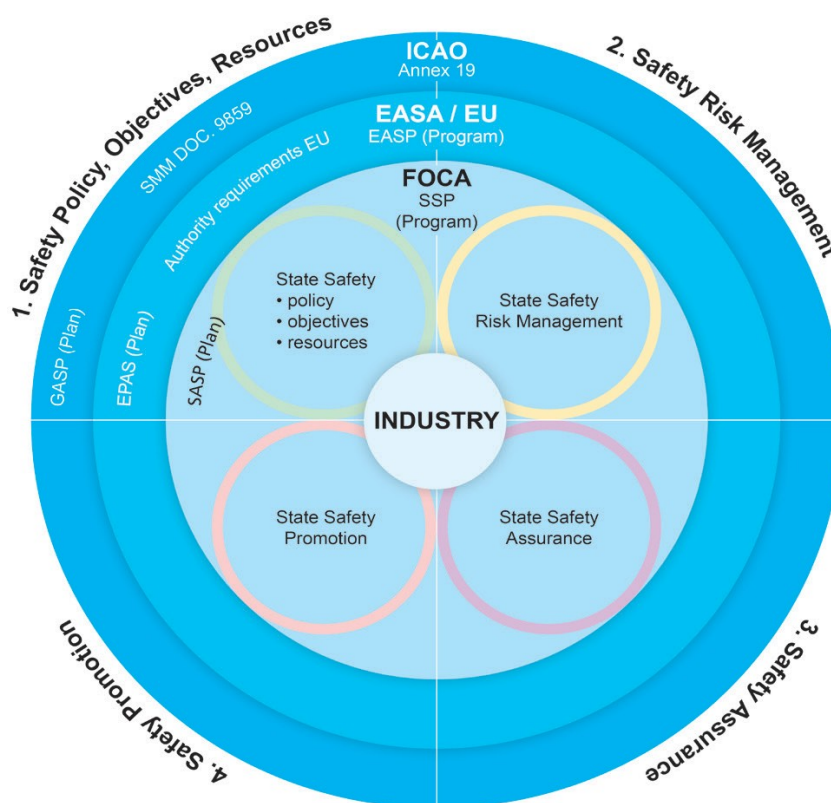
Figure 1: The State safety management system

Chapter 1 (the top-left quadrant) shows how aviation safety is regulated and overseen in Switzerland. This includes the national legal requirements and the enforcement of the same, and their embedding within the international aviation environment. The chapter also explains how the safety objectives enshrined in the FOCA's performance mandate are to be achieved. The second part of the chapter

describes the duties, the resources and the existing tools and bodies within the supervisory authority.

Chapter 2 describes the core purpose of safety and risk management: to identify risks and the scenarios deriving from the same via risk assessments, based on extensive data acquired and collated for information purposes. Such information is used to maintain a Hazard and Risk Register (HRR) for Swiss civil aviation and to determine how such risks are to be addressed (including mitigation measures). Such activities also pay due and full regard to reporting processes and procedures and to the means of such reporting without fear of penalty or punishment (Regulation [EU] No. 376/2014 on occurrence reporting and just culture) within Swiss civil aviation.

Chapter 3 shows how the prevailing safety levels among industry partners are assessed by means of norm- and performance-based audits and inspections. Such assessments compared the existing state of affairs (i.e. the results of the assessment) with the intended state of affairs (i.e. the acceptable level of safety performance), with corrective measures defined and ordered as and where required.

A good safety level can only be achieved within civil aviation if relevant and accurate information is passed on both internally and externally in the correct form and via appropriate channels. Chapter 4 describes the existing internal and external (national and international) communications channels.

Overall responsibility for compiling and publishing the SSP rests with the FOCA, which does so in consultation with the Safety Office of the Federal Department of Transport, Energy and Communications (DETEC) and the Swiss Transportation Safety Investigation Board (STSB). The implementation of the processes described in the programme is the duty of the authorities, the various participants in civil aviation and all the individuals involved therein. Responsibility for the continuous updating of the SSP is delegated by the FOCA Board to its Safety & Risk Management (SRM) staff unit, which also provides the corresponding resources. SRM also conducts the corresponding coordination with the further parties involved, particularly the STSB and its safety and risk management counterpart at the Military Aviation Authority (MAA). Any adjustments to the SSP are made as part of an annual review process, and are formally approved by the FOCA Board.

1. SAFETY POLICY, OBJECTIVES AND RESOURCES

The following chapter describes the top-left quadrant of Figure 1, the 'Plan' element in the Plan/Do/Check/Act loop. The chapter is thus focused on the activities and the prime emphases of Swiss civil aviation's safety policy, the objectives thereof and the resources available and used.

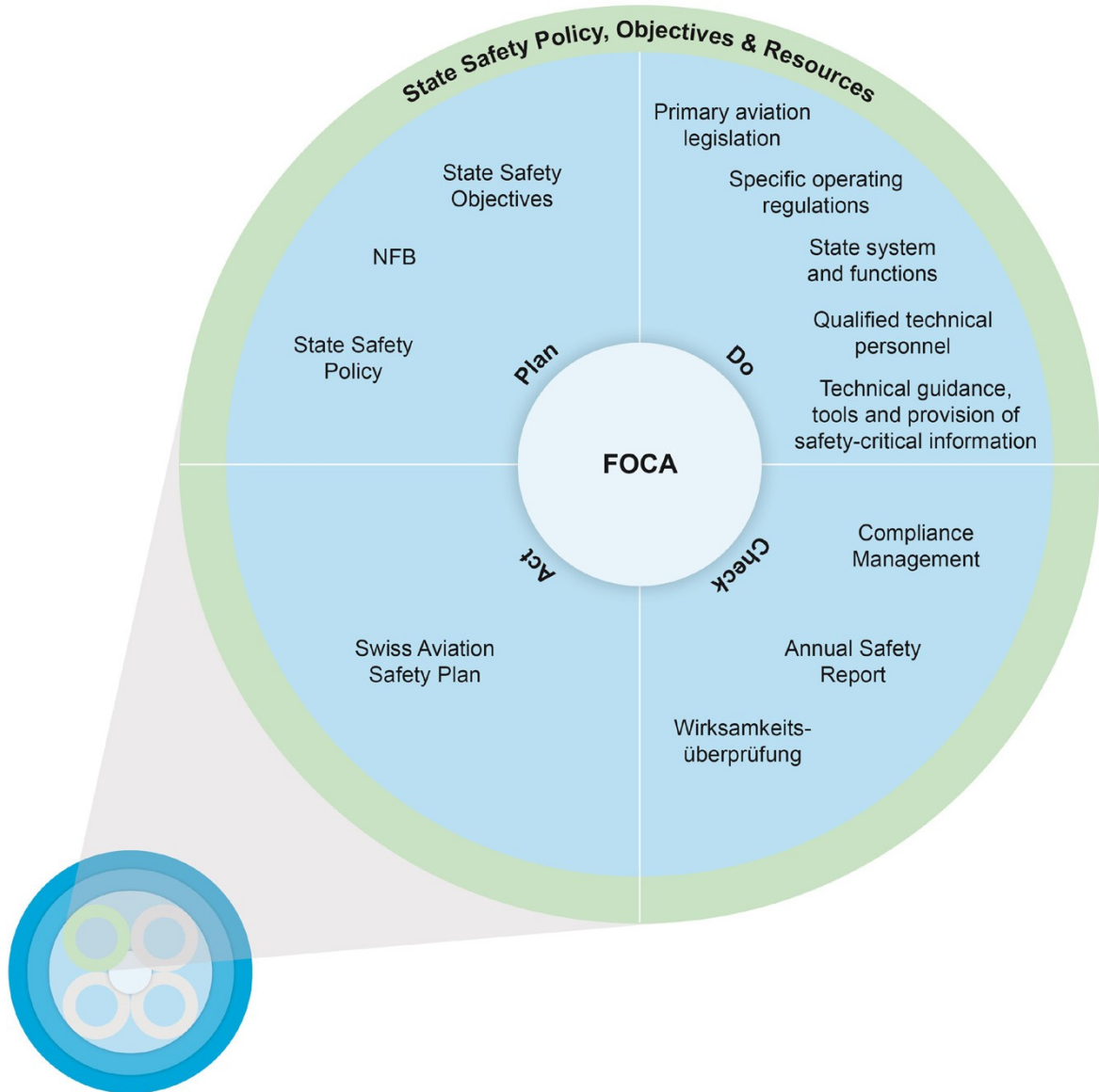Figure 2: State safety policy, objectives and resources

1.1. The law

1.1.1. Legal foundations

The Swiss Federal Constitution (BV, SR 101) grants the Swiss Confederation sole and exclusive authority to issue laws relating to aviation affairs. In accordance with this, the Swiss Federal Aviation Act (LFG, SR 748.0) has been issued, and has been further expanded and clarified via a series of associated Ordinances.

LFG Article 3 assigns responsibility for the supervision of Swiss civil aviation to the Swiss Federal Council. The Federal Council performs this duty via the Federal Department of the Environment, Transport, Energy and Communications (DETEC). The direct supervision of Swiss civil aviation is further delegated to the DETEC's Federal Office of Civil Aviation (FOCA). The Federal Council is further empowered to conclude agreements on international air services, on flight safety, on air navigation services and on exchanges of aviation-related data, and to delegate associated supervisory duties and tasks.

The DETEC's Organization Ordinance (OV-UVEK, SR 172.217.1) specifies the duties and the objectives of the Department's individual Offices. In Article 7 thereof, the FOCA is defined as the specialist authority for public and private civil aviation. In accordance with the corresponding political directives, the FOCA's objectives include ensuring a high safety standard in Swiss civil aviation.

Switzerland has been a member of ICAO since 6 February 1947. The standards set by ICAO (and to some extent also its recommendations) are incorporated by Switzerland into national law.

On 21 June 1999 Switzerland and the European Community concluded Bilateral Agreements I and, as part of this, the Air Transport Agreement. Once these had been approved by the Swiss Federal Assembly, they were also accepted by the Swiss electorate in a referendum vote on 21 May 2000. The agreements gave Swiss-based airlines unrestricted access to the European air transport market. The implementation of the Air Transport Agreement is monitored by a Joint European Union/Switzerland Air Transport Committee. The Committee's meetings are used to resolve the adoption by Switzerland of any new EU legislation, all of which Switzerland adopts in the civil aviation field.

Such new legislation consists largely of technical norms and provisions in areas such as operational and technical safety, air navigation services and passenger and cargo security checks. Under the terms of the Air Transport Agreement, such legislation also passes into Swiss law immediately upon its entry into effect. Switzerland is not a full member of the European Union Aviation Safety Agency (EASA). But it is represented on the EASA Management Board, which sets the Agency's priorities and budgets. Switzerland is also involved in the development of new EU legislation which is prepared for the European Commission and approved by the European Parliament. The due and full observance of all ICAO standards must be assured in all such activities.

1.1.2. Law enforcement

To enforce due and full observance of the applicable legal provisions, the Swiss state has various measures at its disposal under both administrative and criminal law.

The foundations for the administrative law measures will be found in various parts of EU law and the LFG. In accordance with Article 92 *et seq* of the LFG, under 'Administrative measures', the FOCA is empowered to suspend or permanently revoke authorisations, permissions, licences and/or concessions and to seize aircraft in the event of the violation of national and/or international legal provisions. Police services and judicial bodies are obliged to notify the FOCA of any criminal offence which could result in such withdrawal of authorisations, permissions or licences.

The applicable provisions under Swiss criminal law will be found in various Swiss laws: the Swiss Criminal Code (StGB, 311.0), the Swiss Federal Administrative Criminal Law Act (VStrR, 313.0) and the LFG. Violations of such laws are punishable by fine or imprisonment, depending on the severity.

Responsibility for criminal proceedings in the event of a violation of the provisions of aviation law is shared in Switzerland between the Office of the Attorney General of the Swiss Confederation, the cantonal public prosecutors and the FOCA. The FOCA is responsible for pursuing minor transgressions. If a criminal offence has been committed aboard an aircraft, responsibility for the corresponding criminal proceedings rests with the Office of the Attorney General of the Swiss Confederation; if the crime was committed on the ground, any resulting criminal proceedings are the responsibility of the public prosecutor for the canton concerned.

Building on the above legal foundations, the FOCA has established legal enforcement procedures which regulate the various steps to be taken in the event of such transgressions. These procedures are also subjected to a validation process, to ensure the consistent application of the law throughout the FOCA. For cases which frequently occur such as airspace infringements, flying without a valid licence or unruly passengers, the FOCA has issued guidelines on the fines to be imposed. The FOCA Board is informed twice yearly on the criminal cases currently in process and on the coherence of the Office's application of the corresponding legal provisions.

In all of the FOCA's considerations of possible actions and/or penalties in response to transgressions, due regard must also be paid to Regulation (EU) No. 376/2014, which, under certain circumstances, protects individuals who report such transgressions themselves from FOCA action or penalty provided their transgression is not the result of gross negligence or wilful intent (see also 2.4.1 'Reporting and Just Culture' below). Any person who is required to report such transgressions but fails to do so may also be fined for such non-reporting. Such protection for self-reporting individuals is intended to enhance aviation safety by helping identify errors and weaknesses within the aviation system for which appropriate countermeasures may then be developed and promoted.

1.2.   Specific operational requirements

Compliance with the international regulations of ICAO and the EU/EASA is regarded as a prerequisite for efficient safety oversight. By adopting the corresponding processes, the FOCA has put a system in place which ensures that all modifications to safety-relevant international standards and European regulations are duly and fully processed and that their incorporation is constantly verified. With the LFG as their foundation, various Ordinances are also in effect regulating further areas such as those not covered by the international provisions. These Ordinances are also regularly reviewed and modified where necessary.

The FOCA will also issue specific guidelines and principles if required. These are either published on the FOCA website or sent directly to the parties affected and involved. By regularly monitoring the activities of its various sections, the FOCA can also determine whether such guidelines and principles remain relevant and appropriate.

1.3.   System and functions in the authorities

1.3.1. The State Safety Programme for Switzerland

Overall responsibility for compiling and publishing the State Safety Programme for Switzerland (SSP) lies with the FOCA. The Head of the DETEC receives the SSP for information purposes. The processes described in the SSP are adopted by the authorities, by the various parties within the civil aviation sector and by its individual participants. Responsibility for the continuous updating of the SSP is delegated by the FOCA Board to its Safety & Risk Management (SRM) staff unit, which provides the corresponding resources. SRM also conducts the corresponding coordination with the further parties involved, particularly the Swiss Transportation Safety Investigation Board (STSB) and its safety and risk management counterpart at the Military Aviation Authority (MAA). Any adjustments to the SSP are made as part of an annual review process, and are formally approved by the FOCA Board.

The SSP is published on the FOCA website, and is fully integrated into the FOCA's management system.

Overarching issues with a far-reaching impact on aviation safety and possible ramifications for the SSP are discussed at the Safety Management Meeting (SMM, see 1.3.9 below). Information on the SSP and its effectiveness should also form part of the work and activities of the Swiss Safety Committee (SSC, see 1.3.9 below).

In parallel to the SSP, the FOCA also maintains a National Aviation Security Programme (NASP), via which protective actions can be ordered against outside threats such as aircraft hijackings, acts of sabotage or terrorist attacks. The NASP is a confidential classified document. It is not widely published,

but is supplied to the relevant parties on a need-to-know basis. The NASP also provides details on the demarcation between safety and security issues and concerns – in the event, for example, of a cyber attack.

1.3.2. Strategies

Aviation policy

Aviation policy provides the framework and the parameters for the further development of Swiss civil aviation. Such policy is closely aligned to the Swiss Federal Council's sustainability strategy, and pays due and full regard to the economic, the ecological and the social dimensions of Switzerland's sustainability endeavours. Its paramount objective is to ensure that Switzerland is and remains optimally connected with the key centres of Europe and the world.

The Swiss Federal Council laid out the Swiss Confederation's prime civil aviation directions and emphases for the coming years in its 2016 Report on Swiss Aviation Policy (LUPO 2016). The report stipulates, among other things, that Swiss civil aviation activities should be conducted sustainably and with long-term planning, and that they should also be conducted to high safety levels in international comparison terms. They should further meet the mobility needs of the Swiss population and the Swiss economy, while simultaneously minimising their adverse impact on the human and the natural environment. The needs for protection – among both travellers and the broader population – must also be fulfilled.

LUPO 2016 has concrete ramifications in safety terms. These include the following:

- Switzerland has achieved a high level of safety within the European aviation sector. This should be maintained even with higher traffic volumes, and should also be further improved as much as possible through commensurate actions. 'We are a leading aviation nation' is the FOCA vision.

- Compromises on noise issues or attempts to maximise system capacity must not result in any safety risks. In all the planning of and modifications to flight procedures, safety must have priority.

- Switzerland will work at the European level to ensure that safety regulations are consistently applied and maintained throughout the continent and to a consistently high standard. Adequate attention must also be paid to any overregulation issues or concerns.

Safety Policy

The LUPO 2016 principles described above are fleshed out in the FOCA's Safety Policy. The FOCA Safety Policy reflects the Office's commitment to safety, and contains clear statements on its handling of risks, its cultivation of open communications and its promotion of a positive safety culture.

The content of the FOCA Safety Policy is periodically reviewed and revised if necessary. The FOCA Safety Policy is publicly available on the FOCA website, and is also issued to all new FOCA employees. The Policy is binding for all FOCA personnel and all further FOCA-mandated individuals.

In addition to its Safety Policy, the FOCA publishes further internal guidelines for its personnel. These include the FOCA Code of Conduct and the Just Culture Policy (see 2.4.1 below).

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of the Environment, Transport, Energy and
Communications DETEC

Federal Office of Civil Aviation FOCA

Safety policy of the Federal Office of Civil Aviation

1. Basis
The Federal Office of Civil Aviation (FOCA) has the task of creating the framework conditions for safe and sustainable aviation in Switzerland. The foundations for this are the 2016 report of the Federal Council on aviation policy in Switzerland and the 2020 State Safety Program (SSP) of the Department of the Environment, Transport, Energy and Communications (DETEC).

2. Objective
In order to protect the population and travellers effectively, the FOCA, as the supervisory authority for Swiss aviation, strives to achieve a high safety standard in a European cross-comparison.

3. Principles of action
- The FOCA defines specific safety objectives (Target Levels of Safety). It measures safety performance based on indicators and if necessary takes appropriate measures.
- The FOCA operates an effective safety risk management system at the national level. It assesses the damage potential and probability of occurrence of risks. No unacceptable safety risks may arise.
- The Office performs its duties by legislation, licensing and supervision of Swiss civil aviation. The processes for this are clearly described and are applied consistently.
- The FOCA prioritises action areas and uses its resources where protection of the population and travellers can be improved most effectively. This is based on comprehensible risk assessments and the national interest.
- By means of rolling strategic planning in the Swiss Aviation Safety Plan (SASP), the Office prepares for future developments in relation to safety.
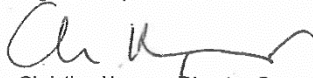
4. Measures
The FOCA takes the following measures to enforce the safety standards:
- It implements the ICAO and EU safety standards. It applies recommendations which conform to best practice. However, disproportionate burdens on the industry must be avoided. All employees make their contribution to further developing Swiss aviation within this framework.
- It is committed to enacting new safety regulations if they lead to an effective improvement in safety.
- When developing new safety regulations, it ensures that the participants active in aviation are involved at an early stage. To this end, it maintains a stakeholder involvement process.
- It supports a positive safety culture, as well as the operation, ongoing development and continuous improvement of safety management systems among aviation participants and internally in the Office. Senior management demonstrate their commitment to this.
- It promotes open reporting on safety-related incidents. Its personnel promote open communication internally and externally.
- It ensures that persons reporting suffer no disadvantages on the basis of the information that they have submitted to the FOCA as part of the reporting process. This principle applies insofar as there is no intent or serious lack of professional due diligence.
- It ensures that its employees are highly competent, act in unison and demonstrate exemplary behaviour. The Office ensures the necessary training.

Federal Office of Civil Aviation,

Ittigen, 1 September 2020

Christian Hegner, Director General

Figure 3: The FOCA Safety Policy

The FOCA is responsible for developing, implementing and monitoring the observance of a national safety plan known as the Swiss Aviation Safety Plan (SASP). The SASP is based on three-year planning and pays due and full regard to European and international safety requirements, issues and concerns. The SASP serves as a reporting system which collates information that is used to support the FOCA Safety Management System (SMS). The Plan is closely modelled on the European Plan for Aviation Safety (EPAS), incorporates the EPAS's 'member state tasks' and derives from these the specific duties and tasks of the FOCA. The SASP is available on the FOCA website.

The prime objective of the SASP is to identify the key safety issues for Swiss civil aviation and to determine the current status of actions that have already been taken at the national level to enhance safety performance.

1.3.3. Organisation of authorities

The FOCA is the supervisory authority for Swiss civil aviation. The FOCA is part of the DETEC. Both the FOCA and the DETEC Safety Office, which is located within the DETEC General Secretariat, are directly subordinated to the Head of the DETEC. Systemic oversight is the prime focus of the Safety Office's work and activities. This entails studying the DETEC safety oversight system as a whole and analysing any malfunctions or risks – but also opportunities – that can have an impact on the overall system. It is not the Safety Office's task to intervene in the supervisory activities of the DETEC's Offices: responsibility for these remains with the specialist Offices concerned, including the FOCA. The Swiss Transportation Safety Investigation Board (STSB) is affiliated to the DETEC Department for administrative purposes.

1.3.4. The Federal Office of Civil Aviation

The FOCA serves as a supervisory authority, overseeing whether the various parties involved in Swiss civil aviation observe and abide by its national legal foundations and international norms. The FOCA also negotiates bilateral air services agreements with other nation states, further develops and refines national law and creates optimum overall conditions and parameters for civil aviation.

As defined in LUPO 2016, it is the task of the supervisory authority to ensure high safety standards in Swiss civil aviation and to promote the provision of an attractive range of Swiss civil aviation services and activities which meet user needs – the latter by helping strengthen the competitive credentials of Swiss air transport companies in the Swiss and the international marketplace.

The safety and the development potential of civil aviation depend to a large degree on the competencies and the resources of its supervisory authority. This body must be able to enforce its safety requirements and demands. In addition to overseeing safety, the FOCA must also create, via policy, conditions and parameters that are conducive to the development of aviation companies. These two functions are clearly separated within the FOCA organisation (see 'Responsibilities within the FOCA' in 1.3.7 below).

In the light of the above, the alignment and thrust of the FOCA's work on the safety and the sustainable development of civil aviation are channelled from the uppermost hierarchical level of LUPO 2016 via the Office's safety vision, policy and strategy down to its organisational culture, so that its various documents all convey the same consistent message.

In performing its duties and activities, the FOCA views Swiss civil aviation as an overall system whose participants are closely interlinked at both the national and the international level. The Office also conducts its supervisory activities from this viewpoint and perspective.

As a Swiss federal office, the FOCA performs a mission for its Federal Department. From 2008 to 2016 the Office was assigned its mandate and the corresponding financial framework in accordance with the 'Führen mit Leistungsauftrag und Globalbudget' ('management by performance mandate and global budget') or FLAG model. Since 2017 the entire Swiss federal administration has been managed using the 'Neues Führungsmodell Bund' ('new management model for the Swiss Confederation') or NFB

model. Under both models strategic emphases and objectives have been set, divided into 'Aviation development' and 'Aviation safety'.

In the safety field, the FOCA's strategic emphases under NFB have included contributing to ensuring a safety standard for Swiss civil aviation that is high by European comparison, supporting aviation's aspirations to sustainably further enhance safety and raise the efficiency of the Swiss civil aviation system, and devising and taking actions to optimise Swiss airspace.

As Swiss civil aviation's regulator and supervisory authority, the FOCA is required to create conditions and parameters under which civil air traffic can be handled safely. In doing so, the FOCA is also required to balance and to reconcile the differing economic, ecological and social interests and concerns.

The basic mandate in the Aviation Safety Performance Group states: To help ensure a safety standard in Swiss civil aviation which is high by European comparison, the FOCA shall approve and oversee infrastructural facilities, air navigation service providers and aviation companies together with aviation personnel and materials. The prime guide and criterion for such activities shall be the observance of national and international norms, with due regard to a risk-based approach. The Aviation Safety Division shall further ensure the provision of the technical and operational foundations needed to promote innovative approach and departure procedures and for the appropriate training of aviation personnel.

The corresponding goals are performance-based, and are explained in 3.2 'Monitoring and measuring safety performance' below.

1.3.5. Interface with military aviation

The Military Aviation Authority (MAA) is the supervisory authority for Swiss military aviation, and is part of the Swiss Federal Department of Defence, Civil Protection and Sports (DDPS). In its regulatory capacity the MAA works in coordination with the FOCA to provide a framework within which the Swiss Air Force and other state participants in Swiss military aviation can develop as safely, freely and efficiently as possible. In its supervisory function the MAA helps such state participants to observe regulations, identify deviations and modifications and formulate risk-reducing measures. The MAA also ensures the provision of a standardised procedure for the certification of new systems, and represents the interests of military aviation both in and outside Switzerland.

The Swiss Air Force and the FOCA work together in implementing actions to maintain Swiss airspace sovereignty and prevent serious violations of air traffic rules and regulations.

The Swiss Air Force is mandated by the FOCA to perform aerial policing services in times of peace, the Rescue Coordination Centre (RCC) and also to conduct search and rescue operations in collaboration with Rega Swiss Air-Rescue.

1.3.6. International integration of Swiss civil aviation

Most air traffic crosses national borders. As a result, international cooperation is very important within the civil aviation sector. Almost every activity in aviation today is governed by international regulations. In addition to ICAO, the European Union (EU) plays a key role within Europe in designing the framework parameters for civil aviation.

Switzerland's international activities are concentrated on:

- the International Civil Aviation Organization (ICAO)
- the European Civil Aviation Conference (ECAC)
- the European Union Aviation Safety Agency (EASA)
- Eurocontrol
- the Joint EU/Switzerland Air Transport Committee.

Switzerland plays varying roles within these organisations.

ICAO is a sub-organisation of the United Nations (UN), and has 193 member states. Its executive body is the ICAO Council, on which sit 36 elected member states. Since 1980 Switzerland has worked within ICAO as part of the ABIS Group (Austria-Benelux-Ireland-Switzerland-Portugal-Croatia). The ABIS members have adopted a rotation principle under which they take turns to propose a candidate for the Council's elections every three years. This enables Switzerland to have its interests represented on the Council either directly by its own delegate or indirectly via the current Council member from the ABIS Group. The ABIS Group is also represented on the Air Navigation Commission, an ICAO technical advisory body.

ECAC is an independent regional ICAO organisation. It currently has 44 members, including Switzerland. ECAC today is primarily a discussion forum for developing new concepts (largely in the security and environmental fields) for the EU's subsequent adoption. ECAC also performs a bridging function, bringing together the EU member states and those of Central and Eastern Europe. Switzerland plays an active role in ECAC and its work.

EASA is coming increasingly to define, manage and monitor Europe's civil aviation norms and regulations on the EU's behalf. Switzerland participates in EASA on the basis of its bilateral air transport agreement with the EU. In doing so, Switzerland gives its aviation sector the requisite connections with and recognition within the European market. Switzerland holds a seat on EASA's Management Board, albeit with no voting rights. Swiss specialists are also free to participate in the Agency's various working groups which discuss the further development of its norms and regulations.

Eurocontrol is tasked with coordinating air traffic services in Europe for all international flights using the continent's upper airspace, with the aim of ensuring their safe and efficient handling. Eurocontrol presently has 41 member states. Switzerland is a member, and is also represented on the corresponding management bodies.

As specified in LUPO 2016, Switzerland's collaborations in and with international bodies should be in line with the following principles:

- Switzerland should play an active part in the design and development of civil aviation's rules and regulations, and should represent its interests within ICAO, EASA, Eurocontrol and ECAC and in the creation of a Single European Sky (SES).

- Certain basic safety concepts and rules must be developed and adopted globally, i.e. under ICAO's auspices. In such cases, caution should be exercised in developing European regulations, and particular care should be taken to avoid any Europe-only approach.

- Pan-European organisations such as Eurocontrol and ECAC are particularly important to Switzerland, in view of its non-EU-member status.

- Switzerland is committed to helping ensure that the scope and the degrees of detail of international regulations remain proportionate to their purpose.

A concept has been devised in the form of a directive to cover the representation of the FOCA within international bodies. This directive specifies the criteria for deciding whether, when and how the FOCA should participate in such international activities. The directive further serves as a reminder of the general principles which must be observed in the context of international negotiations.

In participating in EASA, Switzerland also plays its part in EASA's development of aviation-related legislation. Switzerland takes over Europe's new legislation via the Joint EU/Switzerland Air Transport Committee, with the legislation concerned incorporated into the Annex to the Agreement between the European Community and the Swiss Confederation on Air Transport (SR 0.748.127.192.68). The Joint EU/Switzerland Air Transport Committee meets once a year and is tasked with monitoring the application of the bilateral agreement and integrating new regulations into it. New EU air transport legislation may also be adopted by Switzerland via a written procedure.

The EU/EASA regulations consist of a Basic Regulation with additionally-published Implementing Rules.

The rules and regulations of ICAO are also applicable to Swiss civil aviation. Under Article 6a of the LFG, the Federal Council may exceptionally declare specific annexes (including the associated technical regulations) to the Convention on International Civil Aviation of 7 December 1944 (the 'Chicago Convention', SR 0.748.0) to be directly applicable. The Federal Council can also prescribe a particular form of publication of such provisions, and can further determine that all or parts thereof should not be translated. The Chicago Convention has 19 annexes, which contain standards and recommended practices.

The published rules and regulations of Eurocontrol are also directly applicable to and in Switzerland, in view of Switzerland's full membership thereof.

1.3.7. Duties, tasks, processes and tools

Responsibilities within the FOCA

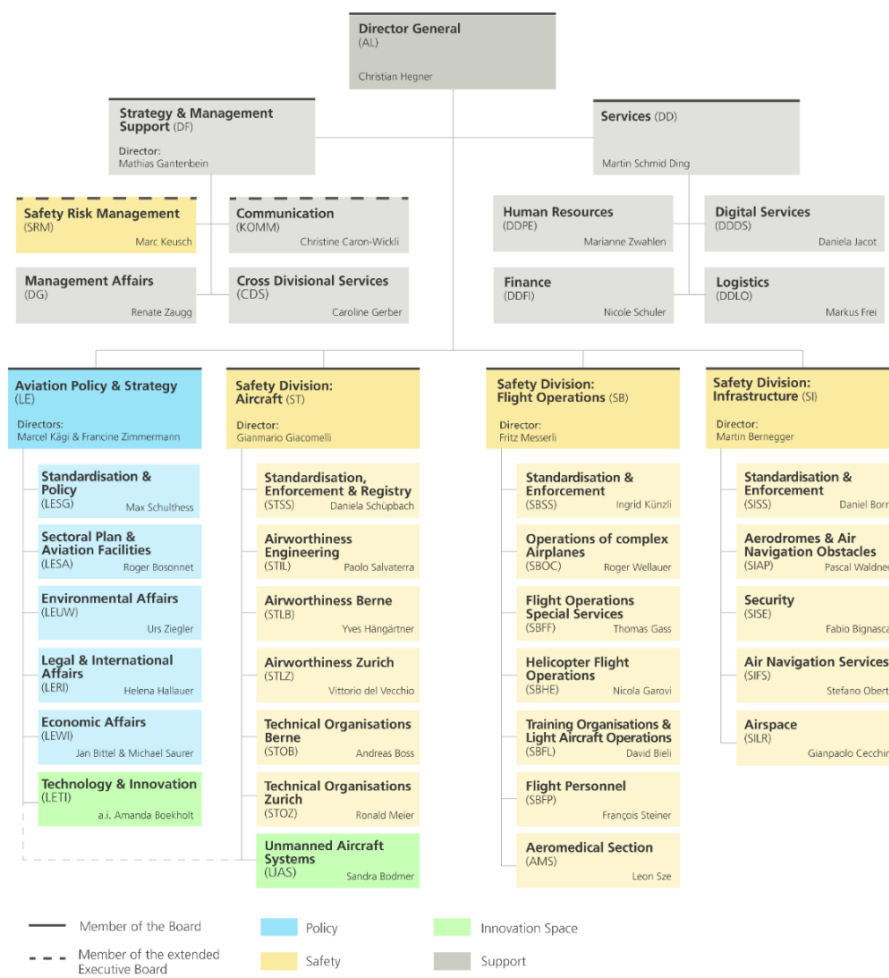In structural terms the FOCA is organised as follows:

Figure 4: FOCA organisation chart

The FOCA is not only the direct supervisory authority for Swiss civil aviation. It is also responsible for making preparations for and implementing aeropolitical decisions which are taken by the Federal Council and the Swiss Parliament. The Office plays a key part in designing the parameters to permit safe and sustainable aviation. The FOCA uses the GEVER electronic business administration system to monitor its business, manage its processes and document its activities.

LUPO 2016 requires the supervisory authority for Swiss civil aviation to ensure that it will remain able to perform its supervisory role and ensure high levels of aviation safety even if it has new technologies to regulate and oversee and even if air traffic volumes increase. To ensure that such future requirements can be met, adequate technical competencies must be secured and resources must be specifically focused on avoiding and rectifying shortcomings at companies and other organisations whose safety performance is in need of improvement.

The FOCA Board

The duties and responsibilities of the FOCA Director General, the FOCA Board's conduct of business, Board signatory authorities and Board deputisation arrangements are all specified in an internal directive. The Board supports the Director General in their exercise of their office and concerns itself with business such as FOCA strategy and policies, including the approval of the State Safety Programme and the State Safety Plan.

The Safety Officers

Each of the FOCA's three Safety divisions has its own Safety Officer (SAFOF). The Safety Officer supports their divisional head and the division's section heads in all safety-relevant matters. The Safety Officers also serve as a link between their division and Safety & Risk Management (SRM).

1.3.8. Organisational units

Aviation Policy & Strategy

The Aviation Policy & Strategy division designs the parameters for the development of Swiss civil aviation. In doing so the division aligns itself to the sustainability strategy of the Swiss Federal Council, which covers the three areas of economic, ecological and social sustainability, and dedicates itself to ensuring that Switzerland is optimally connected to the further key centres of Europe and the world.

Safety Division: Infrastructure

A well-developed infrastructure is essential to the safe and orderly handling of air traffic. This extends to both airports and airspace areas. In controlled airspace, air traffic control manages and monitors aircraft and ensures that they maintain adequate separations. The FOCA certificates and oversees the air navigation service providers. Operating permits for airports are also issued by the FOCA.

Safety Division: Flight Operations

The Flight Operations Safety division protects passengers, the general population and personnel within the civil aviation sector from personal injury or material damage by ensuring that high levels of safety are achieved and maintained in:

- the operation of (commercial and private) civil aircraft;
- the qualifications of flying personnel and the industry's training facilities.

The division's safety goals and the actions it takes to achieve them are based on the applicable (ICAO/EASA/EU/national) legal foundations and on best-practice principles. These goals and actions form part of a systematic and comprehensive safety management which primarily entails:

- issuing and overseeing authorisations (certificates, permits and licences) for aircraft operations, flying personnel and their training facilities, training devices, aviation medicine specialists and centres and the functions within the dangerous goods transport chain;
- ensuring the provision of an aeromedical service for pilots, flight attendants and air traffic controllers.

Safety Division: Aircraft

Safety in aviation depends to a large extent on the reliability of the materials. The Aircraft Safety division is responsible for certifying new aircraft and components and for overseeing aircraft and component maintenance.

Any operation which performs maintenance on aircraft or their components requires a corresponding authorisation to do so from the FOCA. The Office also certificates companies which are active in developing and manufacturing aircraft components, and further issues licences to maintenance personnel.

Services

The duties of the Services division include coordinating and overseeing all the FOCA's official duties, providing HR services, maintaining and further developing its IT systems, financing and operational accounting, financial controlling, the FOCA's post and courier services and logistics.

Strategy & Management Support

The Strategy & Management Support division was created as a staff function in 2022 to provide assistance and advice on management and strategy matters. The division comprises the following sections: Safety Risk Management (SRM), Communication (Komm), Management affairs (DG), and Cross Divisional Services (DCS).

Safety & Risk Management

Safety & Risk Management (SRM) is a management function which is designed to help ensure consistently high safety standards in the key areas of Infrastructure, Flight Operations and Aircraft. The Safety & Risk Management unit manages the system for reporting safety-compromising occurrences in Swiss civil aviation, and is the prime point of contact and coordination for the DETEC's safety investigation unit and safety delegate.

By virtue of its strategic role and function, Safety & Risk Management has direct access to the FOCA Director General (with meetings and exchanges every two weeks). The Head of Safety & Risk Management supports and advises the Director General on the coordination and steering of all the FOCA's safety-relevant activities.

1.3.9. Safety working groups

The Safety Management Meeting (SMM)

The purpose of the FOCA's Safety Management Meeting (SMM) is to discuss overarching questions and issues which may have an extensive influence on aviation safety. The SMM is a FOCA steering body, and consists of the Director General, the heads of the three Safety divisions and the head of Safety & Risk Management. The SMM meets as and when required, but generally four times a year. The SMM takes decisions on overarching safety projects, considers their impact on the SSP and orders any SSP modifications required in the light thereof. The SMM serves to help define strategy, to facilitate decision-making and to set priorities. It may also either conclude business items itself or refer them to a higher authority. As support, the BAZL Safety Action Group (SAG) takes place three times a year or additionally as a topic-specific ad-hoc group. It is primarily composed of the Safety Officers and the Head of SRM. The SAG is intended to report to the SMM and receive strategic instructions from it. The Safety Action Group monitors operational safety (risk reduction), assesses the impact of operational changes on safety, and ensures that safety measures are implemented within the agreed timeframe and across departments.

The Swiss Safety Committee (SSC)

The Swiss Safety Committee (SSC) brings together the safety representatives of the FOCA and the Swiss aviation industry, and provides a platform for information exchange. The SSC is also tasked with conducting situation analyses and proposing actions to further strengthen the safety standards within Swiss aviation. Regular reviews of the SSP and its effectiveness are also envisaged for the SSC, as are

discussions of the findings of STSB reports.

The STSB-FOCA-DETEC Safety Office Meeting

The STSB-FOCA-DETEC Safety Office Meeting provides a platform for exchanges between Switzerland's STSB safety investigation unit (which is an extraparliamentary commission), the DETEC Safety Office (which is the controlling authority at the Federal Department level) and the FOCA. The Meeting discusses the results and findings of STSB investigations, the actions (to be) taken by the FOCA in the light of these to prevent future accidents, incidents and malfunctions and other collaboration issues. The Meeting further studies safety recommendations submitted to the FOCA by the STSB (see 2.3 below).

The Airprox Analysis Board (AAB)

The Airprox Analysis Board (AAB) is an interdisciplinary working group which aims to ensure a regular exchange of experiences among all users of the Swiss aviation system on the issue of risk-of-collision occurrences. This should help identify systemic and overarching risks which might not be revealed through the safety analyses conducted by individual organisations.

The results of the safety analyses conducted by the AAB should present the safety situation in such a way that decision-makers can make data-based decisions on the relevant safety issues. All decisions on possible solutions and the adoption thereof remain the responsibility of the individual decision-makers within their respective organisations.

The Airspace Infringement Working Group (AIWG)

The AIWG functions as an extended analysis arm of SRM – based on current and applicable national and international foundations and strategies – and is intended to eliminate or at least minimise the numbers of airspace infringements in Switzerland. To this end, the AIWG conducts systematic and consistent analyses of cases of airspace infringement to identify their causes and the factors which may have led to the incidents concerned. The specialists serving on the AIWG are drawn from general aviation, the Swiss Air Force, Switzerland's air navigation service provider and the FOCA. The group generally meets twice a year, and uses the results and findings of its deliberations on the causes of such infringements to devise comprehensive decision-making documentation and recommendations which can help the FOCA's operational safety divisions to take appropriate actions in response.

1.4. Qualification of safety personnel

The FOCA attaches great importance to recruiting highly qualified employees, to their introduction to and training for their specific functions and to the systematic and targeted further development of their competencies and skills. Technically qualified, responsible and socially skilled actions are part and parcel of the FOCA strategy and culture.

The tools and the procedures for recruiting, onboarding, training and developing the FOCA's personnel ensure that the internationally applicable requirements (of ICAO and EASA) regarding the qualifications of an organisation's personnel are met:

- Job requirements profiles reflect the levels of personal, social, technical and leadership skills required for the function concerned. These profiles serve as the basis for the corresponding job descriptions and job vacancy advertisements, which further specify the qualifications and experience required.

- Training programmes provided by the Safety divisions impart the expertise required for the function concerned. Modules for communicating knowledge on safety and risk management are an element in the onboarding programme for almost every function. The 'FOCA Safety & Risk Management' basic course introduces new employees to the FOCA's safety and risk management system and the application of the same.

- Further training is conducted periodically to build on elements of the employee's basic training and pass on new knowledge, findings and/or developments in the employee's technical field.

- Each employee's individual training status and further development needs are reviewed every year by their superior as part of the annual goalsetting/appraisal process. Such reviews are also based on skills analyses and development planning that are conducted every three years.
- The FOCA maintains a specific IT application to help plan and document its employees' training and development.
- Safety & Risk Management (SRM) conducts in-house training on special topics such as safety culture, Just Culture and the FOCA Safety Management System as and when required.

1.5. Technical guidelines, worktools and the sharing of safety information

The FOCA has adopted the basic worktool of a management system (MS). The purpose of the FOCA Management System is to provide a shared and standardised working foundation.

The use of the FOCA Management System is standard: every employee is required to work with it. New employees receive extensive system training as part of their onboarding programme. Access to the latest version of the system is guaranteed via internet connection.

In addition to the FOCA's processes, the FOCA Management System contains a number of worktools (policies, procedures and guidelines) and work instructions to support its employees in their performance of a process. Wherever an activity is described via a process in the system, every employee is obliged to perform the activity concerned in accordance with these process specifications, and also to use the associated worktools and work instructions. This is the only means of ensuring high and consistent quality and of minimising error rates.

The FOCA also publicises a large amount of information which is of operational relevance (such as directives, guidelines, newsletters and further informative material) via its website, to enhance safety and raise the shared awareness of safety and safety issues within the Swiss aviation sector and among all its various participants.

Safety & Risk Management issues regular internal reports containing data and statistics from the FOCA's reporting systems. Other safety-relevant information is distributed via the FOCA Intranet or is discussed on internal and external bodies.

1.6. FOCA emergency and crisis management

An emergency is defined as a substantial disruption to the operations of the FOCA which demands immediate action. A crisis is defined as a major occurrence falling within the FOCA's duty remit which has major potential for damage, particularly in terms of personal damage or harm or serious disruption to the civil aviation system.

The primary task of the FOCA in the event of an emergency is to maintain operations or restore these as swiftly as possible, while the primary task of the FOCA in the event of a crisis is one of crisis communications (with a secondary task of ordering any immediate actions required).

Overall responsibility for the FOCA's emergency and crisis management rests with the Director General.

The FOCA maintains an alarm organisation covering the issuing of such alarms, the criteria for doing so, the procedures for doing so and the relevant contact details. Emergency and crisis exercises are conducted to give the persons responsible the necessary skills and confidence to handle such emergencies and crises and to help identify any shortcomings within the existing emergency and crisis management.

2. SAFETY AND RISK MANAGEMENT

This chapter describes the top-right quadrant of Figure 1, the 'Do' element in the Plan/Do/Check/Act loop. This is the core purpose of the FOCA's Safety Management System – identifying potential safety risks within the aviation system and analysing and assessing these.
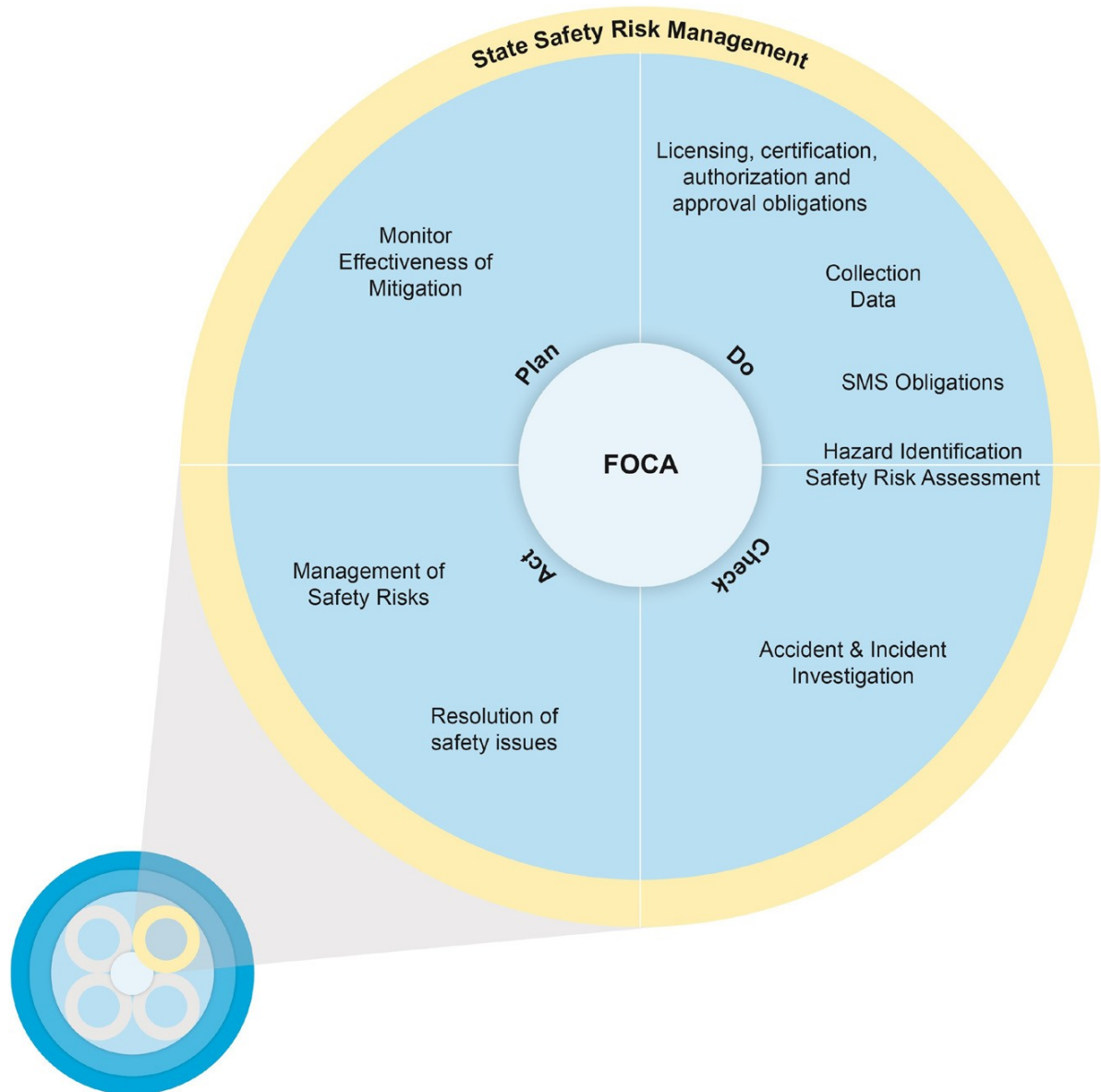

Figure 5: State safety risk management

2.1. Licensing, certification, authorisation and approval obligations

Licensing, certification, authorisation and approval obligations are key components in any strategy to manage safety risks. The prime foundation for any organisation's systematic approach to such safety risk management is a management system. As described in 1.5 above, the FOCA Management System incorporates the processes by which work is performed within the FOCA organisation.
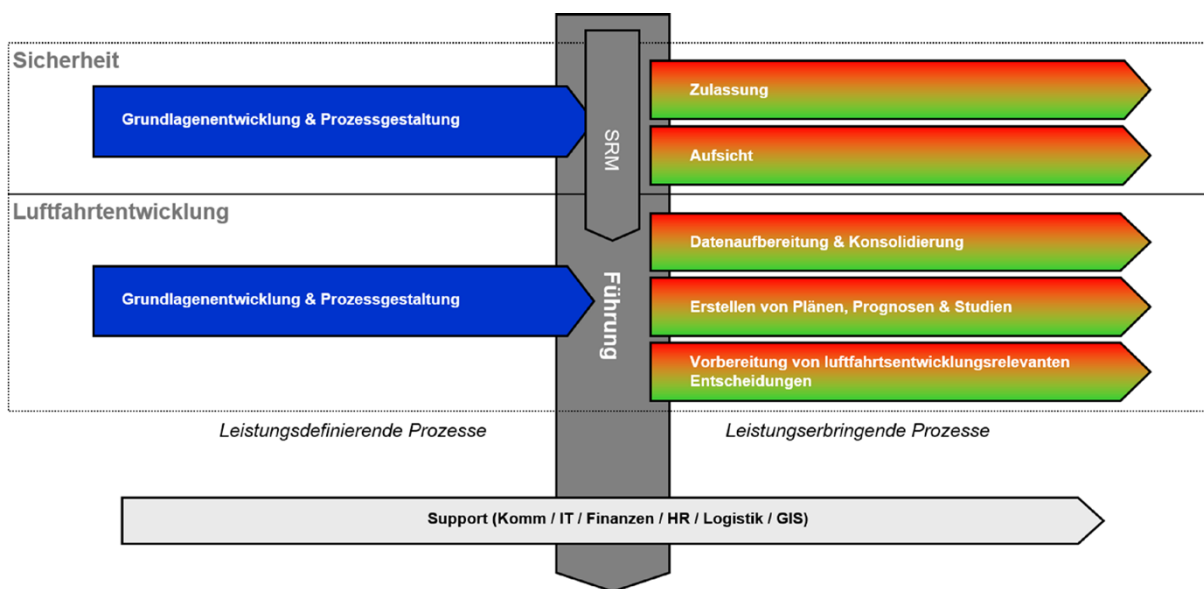

Figure 6: The FOCA process landscape

Performance-defining processes (blue) describe the development of foundations and the design of processes within the FOCA's divisions. These enable the FOCA to offer new and improved services. Services provided for other entities within the federal organisation are also classified as performance-defining processes.

Performance-delivering processes (red-green) describe the services that the FOCA provides for third parties. These are subdivided under the FOCA business model into approval and oversight processes ('Safety') and data preparation & consolidation, devising plans, projections & studies and preparing for decisions relevant to the further development of Swiss civil aviation ('Aviation Development').

The approval processes within the safety field ensure that individuals and organisations wishing to perform an aviation activity meet the requirements specified before they can exercise the privileges bestowed on them by a corresponding licence, certificate or authorisation.

The generic approval process is modified by each of the FOCA's three Safety divisions to meet the specific nature and needs of the entities it supervises. The divisions have also developed their own guidelines to ensure the consistent application of the processes concerned.

The oversight processes are described in 3.1 below.

2.2. Requirements of a safety management system (SMS) for aviation service providers

Annex 19 to the Convention on International Civil Aviation specifies that the authorities shall require certain organisations which are under their supervision to introduce and maintain a safety management system (SMS). Through its corresponding approval and oversight processes, the FOCA ensures that such an SMS is demanded of:

a) training organisations as defined in Convention on International Civil Aviation Annex 1

b) commercial air services providers

c) aircraft maintenance operations

d) aircraft manufacturing operations

e) air navigation service providers and

f) airport and aerodrome operators.

The requirements of such safety management systems and the corresponding SMS guidelines are based primarily on the ICAO Safety Management Manual (Doc 9859). This document also contains requirements for the identification of hazards and the handling of safety risks.

The FOCA regularly reviews such safety management systems and their associated safety performance indicators and targets as part of its auditing activities.

The framework for establishing and adopting an SMS is described in an appendix to Convention on International Civil Aviation Annex 19. The FOCA uses these provisions as its reference and foundation when certifying the organisations under its supervision and overseeing their SMS. Annex 19 further contains the requirement that an organisation's SMS must be designed with due and full regard to the size of the organisation and the complexity of the activities it performs.

The FOCA ensures that the organisations under its oversight meet these SMS requirements as part of its supervisory activities.

2.3. Accident and serious incident investigation

The Swiss Transportation Safety Investigation Board (STSB) is the authority of the Swiss Confederation which investigates accidents and serious incidents in civil aviation, on railways and with inland and seagoing vessels. The STSB is independent of all other administrative entities, and serves as an extraparliamentary commission. The aim of its activities is to determine not only the direct causes of such occurrences but also the deeper reasons behind them and other associated risks. The sole objective of this form of investigation is to acquire insights by means of which future accidents and hazardous situations can be prevented and which result in improved safety. The results of such safety investigations are not intended to clarify questions of blame or liability.

In the aviation field, the activities of the STSB are based in particular on the following legal foundations:

- the Convention on International Civil Aviation, especially Annex 13 'Aircraft Accident and Incident Investigation' in the currently applicable version

- Regulation (EU) No. 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC. This regulation is binding for and directly applicable to Switzerland under the terms of the bilateral Agreement between the European Community and the Swiss Confederation on Air Transport of 21 June 1999. The regulation was incorporated into Swiss law on 1 February 2012.

- Articles 25 and 26a of the Swiss Federal Aviation Act (LFG) of 21 December 1948

- the Ordinance on the Safety Investigation of Transport Incidents (OSITI) of 17 December 2014 (SR 742.161).

The STSB came into existence on 1 November 2011. It was created out of the Aircraft Accident Investigation Bureau (AAIB), which had been founded in 1960, and the Investigation Bureau for Railway, Funicular and Boat Accidents (IRFBA), which had been based on the AAIB model and had commenced operations in 2000. The amalgamation of these two services, both of which were well familiar with safety investigations, was designed to bundle expertise and ensure that a single doctrine was followed in the investigation of accidents and serious incidents. The reorganisation was intended to improve both safety investigations and their preventive effects, and to align such activities to the latest international findings in the field.

The STSB is a multimodal investigation authority in the form of an extraparliamentary commission. In administrative terms it is subordinated to the DETEC General Secretariat; and organisationally it consists of the Board (commission) and the Investigation Service (technical secretariat), which is itself divided into the Aviation Division (STSB-AV) and the Rail/Navigation Division (STSB-RN). The Investigation Service also has a Central Services unit which performs administrative and organisational tasks on the entire organisation's behalf.

The Board is the paramount authority within the STSB, and is responsible for its overall strategic leadership. The Board comprises three to five independent specialists from the transport sector, and is appointed by the Swiss Federal Council for a four-year term. The Board sets the goals and the emphases of the STSB's activities, determines its organisation and appoints the Investigation Service's personnel. The Board further ensures the provision of an effective quality assurance system, supervises the Investigation Service, approves final investigation reports and produces an annual report.

The head of the Investigation Service is responsible for the management, planning and coordination of all the STSB's business, for its personnel management, for its financial controlling and for the organisation of its quality assurance. The head of the Investigation Service also works with the Board and the heads of the Aviation and Rail/Navigation divisions to compile the STSB's budget and oversee its financial processes.

The Aviation and Rail/Navigation divisions are each led by a head of division who ensures that their investigations are conducted in accordance with legal requirements and international guidelines and that they meet the quality standards required. The Aviation Division is headquartered at Payerne Air Force Base, and maintains a further office at Zurich airport. The Rail/Navigation Division maintains one office in Bern and one in Schlieren.

The individual safety investigations are headed by full-time lead investigators – experienced specialists from the transport field concerned who have been trained in accordance with ICAO norms. Most investigations are conducted by a team, in view of their complexity. To this end, the STSB has at its disposal over 100 mandated specialists from all areas of transport whom it can enlist as investigating officers as and when required. A safety investigation will take the form of an independent clarification of the technical, operational, human, organisational and systemic causes and conditions which led the event to occur. The final report on such an investigation will be aimed at transport specialists and interested members of the public. Such final reports have no ordering authority and may not be challenged or contested. With a view to highlighting any more overarching systemic safety shortcomings and making corresponding safety recommendations, the STSB also conducts studies of safety-critical issues. It may further issue and distribute documentation and resources to help prevent accidents and improve safety.

Safety recommendations and advices

In view of the separation of powers in respect of the authorities, a safety investigation authority may not itself order actions to improve safety, but may only propose these. The safety investigation authority (in Switzerland the STSB) will do so by presenting any safety shortcoming to the supervisory authority responsible in an interim or final report and making corresponding safety recommendations. It is then up to the supervisory authority responsible to decide, together with the transport authorities and providers involved, whether and (if so) how such safety recommendations should be adopted.

According to Regulation (EU) No. 996/2010, a safety recommendation is "a proposal of a safety investigation authority, based on information derived from a safety investigation or other sources such as safety studies, made with the intention of preventing accidents and incidents".

Once a safety investigation report (including safety recommendations) has been submitted by the Swiss or a non-Swiss safety investigation authority, the FOCA is required, in accordance with Regulation (EU) No. 996/2010, to "acknowledge receipt of the transmittal letter and inform the safety investigation authority which issued the recommendation within 90 days of the receipt of that letter of the actions taken or under consideration and, where appropriate, of the time necessary for their completion and, where no action is taken, the reasons therefor".

Occasionally, an investigation also reveals safety deficits that cannot be eliminated by adapting rules or regulations and direct supervisory activity, but by changing or improving risk awareness. In such cases, the STSB issues a safety advice addressed to particular stakeholders or groups of interests in the transportation sector. The aim is to help the concerned companies, persons and organisations to recognise a risk and the associated need for action. The legal basis does not foresee any feedback on the implementation of measures based on the safety advice issued.

Regulations on safety recommendations are contained in the following legal documents: at the international level, Annex 13 to the Convention on International Civil Aviation; at the European level, Regulation (EU) No. 996/2010; at the Swiss national level, the Ordinance on the Safety Investigation of Transport Incidents (OSITI, SR 742.161).

Military safety investigation authorities

Responsibility for safety investigations following accidents and serious incidents of the Swiss Air Force – both in and outside Switzerland and in areas of crisis or conflict – rests with the Defence Aviation Safety Investigation Board (DASIB). The DASIB is subordinated to the MAA in administrative terms, but performs its work independently and exempt from mandate or directive. The DASIB conducts its investigations in accordance with Annex 13 to the Convention on International Civil Aviation and the standards of international military investigation authorities. Its investigative activities are also coordinated with the STSB as and when required.

2.4. Collection and management of safety-relevant data

2.4.1. Reporting and Just Culture

By collecting reports of occurrences, the FOCA helps identify possible precursors to accidents and serious incidents in good time and to take appropriate actions in response where possible. The more such data are available, the more precise the overall picture will be of safety levels in Switzerland. The legal foundations for collecting such data are provided by both national and European legislation.

Regulation (EU) No. 376/2014 obliges the FOCA, as the supervisory authority responsible, to use the information with which it is provided for safety improvement purposes, and not to initiate legal or administrative proceedings against any persons for reporting such occurrences. This commitment to a 'Just Culture' is intended to encourage all the parties involved in aviation to report openly on safety-related occurrences.

A positive reporting culture and a Just Culture environment are essential to the development of a strong safety culture within an organisation, and are a prerequisite for an efficient safety management system.

Occurrence reporting system for civil aviation
Statement by FOCA Director General

Under the terms of the Swiss-EU bilateral agreement on air traffic, Switzerland has transposed Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation[1] into its own national legislation. This regulation requires the FOCA, as the competent supervisory authority, to use the information made available to it to improve safety and not to take action against persons for the incidents referred to in the reports.

The FOCA's Just Culture policy has remained in place since the Just Culture reporting system was first introduced in Switzerland in 2007. The Just Culture is intended to enable all aviation operators to openly report safety-related incidents. Therefore, the FOCA does not take any criminal or administrative action against persons who report incidents to the FOCA through the reporting system (EU portal). This principle applies as long as flight safety has not been seriously compromised through wilful misconduct or serious lack of professional diligence.[2]

The FOCA is confident that the Just Culture policy is the right approach to improving aviation safety - it is the only way to learn from systemic weaknesses. The FOCA helps the aviation industry to implement Just Culture principles and expects all stakeholders to act accordingly. In particular, no disciplinary action should be taken against employees who report incidents to their employer.

Christian Hegner

Bern, 1 July 2021

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[1]Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation, amending Regulation (EU) No 996/2010 of the European Parliament and of the Council and repealing Directive 2003/42/EC of the European Parliament and of the Council and Commission Regulations (EC) No 1321/2007 and (EC) No 1330/2007

[2]Whereas paragraph 37 of Regulation (EU) No 376/2014

Figure 7: Declaration of the FOCA's commitment to a Just Culture by the Director General

The EU reporting regulation requires each member state to appoint an independent body to which may be reported any possible violations of the Just Culture principle. In Switzerland this function is performed by the Reporting Office for Just Culture in Civil Aviation (ROJCA). The ROJCA is affiliated to the DETEC, and is dedicated to Just Culture and in particular to protecting the source of information on a reported occurrence in Swiss civil aviation. Any persons who observe a suspected violation of such protection of information sources by their authorities, company or organisation may communicate this to the independent body. When reports are made to ROJCA, this body has neither decision-making competence nor a mediation function; ROJCA is also not an appeal authority. After considering the case, the independent body may then issue recommendations to the corresponding national authority.

2.4.2. Mandatory reporting

In accordance with the corresponding legal provisions, the FOCA must be notified, under the relevant mandatory reporting requirements, of any of the occurrences specified in Commission Implementing Regulation (EU) 2015/1018. Generally speaking, all persons who are active in civil aviation are obliged to report any occurrence which might pose a risk to flight safety. This principle also applies to light aviation.

Occurrences which must be reported by parties involved in civil aviation under such legal provisions include 'airprox' collisions or near-collisions of aircraft, bird strikes and the non-observance of dangerous goods transport regulations.

To provide a reliable picture of safety levels in Switzerland and at the European level, however, any occurrence which has or could have endangered safety should be reported. Under this principle, occurrences not subject to mandatory reporting and safety-relevant remarks may also be voluntarily reported. Such voluntarily reported occurrences include:

- details of occurrences not subject to a mandatory reporting requirement under Commission Implementing Regulation (EU) 2015/1018;
- further safety-related remarks on issues which are considered by the reporting party to pose a risk to flight safety;
- reports of occurrences and safety-related remarks by persons not subject to the mandatory reporting requirement under Commission Implementing Regulation (EU) 2015/1018.

2.4.3. Collection of safety-relevant data

In line with European requirements and provisions, all data on occurrences are registered by Safety & Risk Management in the ECCAIRS (European Coordination Centre for Accident and Incident Reporting System) database. All such data must also be compatible with ICAO's Accident/Incident Data Reporting (ADREP) system. In a second step, the FOCA's Safety divisions will make these duly processed data available via a user-friendly interface. As a general principle, each individual organisation is responsible, under its safety management system, for analysing such occurrences and taking any corrective actions required. If an occurrence is classified as serious by the organisation concerned, the findings from its analysis and any associated corrective actions must also be automatically communicated to the FOCA in the form of an interim and/or a final report. In the case of such reports, the FOCA's Safety divisions and Authorisation & Oversight unit will primarily concern themselves with verifying the observance of the relevant reporting deadlines and the appreciability of the reports submitted.

Any FOCA Safety division and/or Authorisation & Oversight may initiate a more in-depth investigation of an occurrence and demand the provision of more detailed information by the organisation involved at any time, should it consider the results of the initial investigation and any corrective actions taken by the organisation to be less than adequate. The FOCA and its units will also respond should they detect or suspect any systemic causes, and will further verify the due and full observance of reporting requirements as part of the FOCA's routine supervisory activities.

Individuals who are not part of an organisation are not subject to any investigation requirement. In the case of all such occurrences, investigative responsibility shall rest with the FOCA.

2.4.4. Data exchange

The results from the analyses of occurrence reports are made available to both internal and external addressees via a range of media:

Internally, reports are regularly issued on occurrences in the industry and their assessment, on the oversight activities of the Safety divisions, on developments and trends and on recommendations by Safety & Risk Management for supervisory activities.

Externally, the FOCA publishes an Annual Safety Report (ASR) which contains a summary of all the occurrences reported, current safety levels and other safety-related activities. The FOCA also provides Eurocontrol with an annual report on the reports it has received relating to air navigation services. The findings from the reporting process are further channelled into the FOCA's various safety promotion activities, and are additionally shared with the industry via various bodies (such as SASOC and Flight Safety Alliance Switzerland).

In accordance with Regulation (EU) No. 376/2014, information on occurrences should be exchanged within the European Union to improve the identification of actual or potential risks. At the European level, such data exchanges are effected via the ECCAIRS European Central Repository.

The FOCA sends safety-related data (such as statistics on accidents and incidents) to ICAO. As part of the Universal Safety Oversight Audit Programme (USOAP), these data are channelled into ICAO's creation of its risk profiles for each member state. ICAO uses such profiles when planning its audit activities.

2.5. Handling safety risks

2.5.1. Identifying hazards and assessing safety risks

One core duty and task of the FOCA's Safety & Risk Management is to use all available safety data to identify and monitor hazards within the Swiss aviation system and their associated risks. The procedure for identifying such hazards and assessing their risks is described in detail in the FOCA's risk management process and in the corresponding manual. This procedure will be triggered when:

- a potential risk or a negative trend is identified in the occurrence data available (from mandatory and voluntary reporting and from the data on accidents and serious incidents provided by the STSB);
- a potential risk or a negative trend is identified in analyses by European or international organisations (EASA, ICAO) or internal working groups;
- a finding is seen to recur in audits and inspections that represents a potential hazard;
- a safety shortcoming has been identified as part of an accident investigation or in a recommendation from the STSB;
- a change is made to the aviation system (such as new or modified regulations or a new technology).

The FOCA utilises a monitoring structure developed in 2016 on the basis of bow-tie models which permits accidents and incidents to be consistently classified under the ADREP taxonomy. This allows the occurrence data to be linked to the hazard(s) via the bow-tie model, and this in turn reveals whether the factors triggering the hazard concerned derive from multiple aviation areas. The use of this monitoring structure permits precursors to a hazard to be identified before an accident or incident occurs.

2.5.2. Risk reduction measures

The FOCA pursues various strategies to reduce risks using the ALARP principle. Such reduction is achieved by reducing the severity of the consequences, the likelihood of occurrence or the risk exposure. These risk reduction strategies thus focus on:

- eliminating the risk
- reducing the risk
- transferring the risk or
- tolerating the risk.

When considering which risk reduction strategy or strategies to pursue, the FOCA may combine the above approaches with the following further elements identified in the ICAO Safety Management Manual (Doc 9859):

- effectiveness
- cost/benefit
- practicality
- acceptability
- enforceability
- durability
- residual safety risks
- unintended consequences
- time
- impact on other aviation areas (such as security).

The effectiveness of the strategy to eliminate, reduce or control the risk(s) is determined via audits, inspections, safety indicators and similar. On the strength of the results thereof, either the hazard will continue to be monitored (via data from occurrence reports or findings) or, if no acceptable safety level can be achieved, a new risk assessment will be conducted.

3. SAFETY ASSURANCE

This chapter describes the bottom-right quadrant of Figure 1, the 'Check' element in the Plan/Do/Check/Act loop. It describes how the FOCA verifies, via audits and inspections, whether the current safety levels at an organisation under its oversight meet the standards required. In addition to norm-based oversight, risk- and performance-based methods are also utilised to these ends.
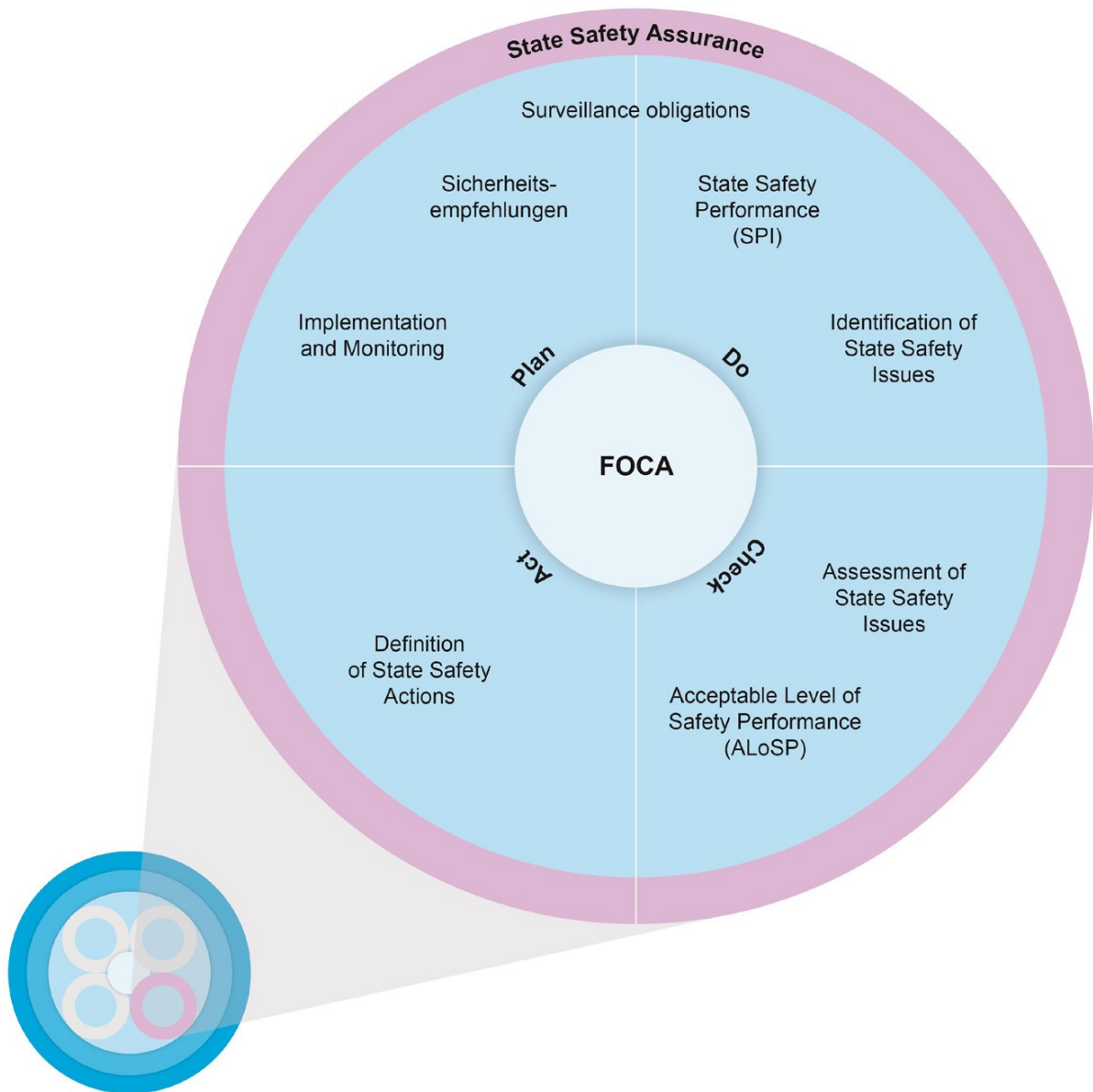

Figure 8: State safety assurance

3.1. Duty of oversight

Switzerland performs an integrated oversight of its aviation which extends to all areas thereof, i.e. airports and aerodromes, air navigation services, air transport operators, development, manufacturing and maintenance companies, training organisations and all aviation personnel.

As part of its supervisory activities over Swiss companies and organisations, the FOCA conducts audits and inspections to determine whether the holders of licences, certificates and authorisations abide by the relevant safety processes and procedures in accordance with the applicable national and international laws and regulations.

For non-Swiss airlines, which are subject to the oversight of the supervisory authorities in their country of origin, the FOCA conducts random checks of the aircraft and their crews.

Generally speaking, the FOCA's audits and inspections are planned using a performance- and risk-based approach. In addition to routine audits and inspections of all the companies and organisations under its oversight, the FOCA puts a particular supervisory focus on operations or areas in which indications of weak points are already evident. All the corresponding planning is described in the applicable processes for the Safety divisions within the FOCA Management System.

The planning of the FOCA's supervisory activities is generally based on the following criteria:

- the fulfilment of its legal mandate;
- prioritising the Safety divisions using the Safety Risk Portfolio;
- the results of previous approval and supervisory activities and the effectiveness of its safety and compliance management (a performance-based approach);
- paying due regard to system risks and the complexity of the activities which the company or organisation performs (a risk-based approach);
- the need for action according to STSB safety recommendations;
- safety topics specified within the division(s) and/or section(s) concerned;
- the recommendations of Safety & Risk Management;
- feedback from the SAFA (random checks of foreign aircraft) and SASA (random checks of Swiss aircraft) programmes;
- international collaborations such as EASA or ICAO workgroups on various safety issues.

3.2. Monitoring and measuring safety performance

Safety performance indicators (SPIs) provide a tool for analysing safety information from various sources. By monitoring safety performance via such SPIs and analysing the results, the safety efforts of both the supervisory authorities and the companies and organisations supervised can be verified and associated actions steered. SPIs can also be used to assess the effectiveness of actions already taken and to support the FOCA's risk management process in the identification of hazards and associated risks.
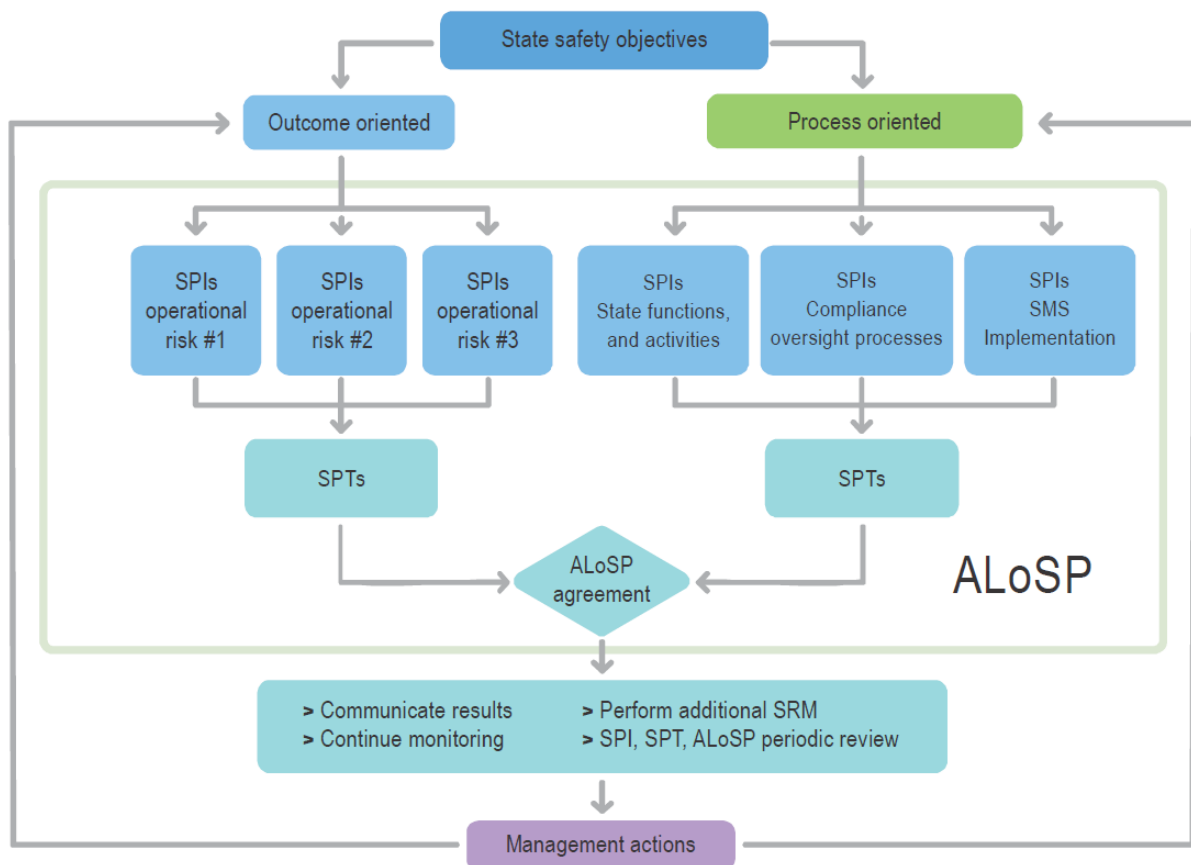
Figure 9: Acceptable levels of safety performance (ICAO Safety Management Manual / Doc 9859, 4th edition)

The above diagram illustrates the various sources of SPIs and acceptable levels of safety performance (ALoSP). The left-hand side relates to operational risks, i.e. the SPIs here are derived from reporting data.

The FOCA revised its operational SPIs in 2022 and, in addition to evaluating accidents and serious incidents in accordance with Annex 13 of the Convention on International Civil Aviation, further monitors so-called 'safety risk areas' by analogy with EASA:

- airborne collision
- aircraft upset
- runway excursion
- fire, smoke and pressurisation
- ground damage
- obstacle collision in flight
- other injuries / damages
- collision on runway
- terrain collision
- security

Detailed analyses of the data are performed by Safety & Risk Management via a series of 'cockpits' which separate these data into the areas of aerodrome operations, flight operations, helicopter operations, air traffic management and technical.

On the right-hand side of the diagram the SPIs are derived from the FOCA's performance and

effectiveness objectives such as compliance with regulations or oversight of the implementation of safety management systems within the aviation industry. The indicators that arise from the targets set by the FOCA are addressed at the level of process-related safety issues.

In accordance with the 'Neues Führungsmodell Bund' (NFB, see 1.3.4 above), the FOCA is set the following objective, which is enshrined in a services agreement between the FOCA Director General and the Head of the DETEC:

Strategic emphasis and objective: that Switzerland reports a high standard of safety in a European comparison.

Measurement criteria:

- accidents with fatalities in commercial aeroplane transport (number)
- accidents with fatalities in commercial helicopter transport (number)
- maintenance of minimum level of effectiveness of safety management in air navigation services in accordance with EU regulations (EC 390/2013) (yes/no)
- average performance and risk profile of EASA-regulated aerodromes (scale of 1 to 10)
- serious findings with regard to compliance and safety management and fulfilment of international EASA and ICAO requirements (number).

Together with the re-evaluation of the SPIs, work is also proceeding to define ALoSP. The criteria and parameters being used for these purposes are as presented in the above diagram, which is taken from the fourth edition of the ICAO Safety Management Manual (Doc 9859).

3.3. Management of change

Changes can affect the effectiveness of existing safety barriers. Changes can also unintentionally present new hazards to an operation and pose associated safety risks.

The regulations and provisions of the EU and EASA require member states to have a system established which helps the authorities to successfully implement changes which may have an impact on their core responsibilities and tasks.

The FOCA is required to ensure that any changes effected do not adversely affect the safety levels in Swiss aviation. This requirement also extends to in-house changes at the FOCA (such as new IT software or new processes).

The FOCA's management of (regulatory and non-regulatory) changes ensures, through its processes and its associated tools, that changing environmental and framework conditions can be successfully and sustainably accommodated. The processes here involve assessing such changes – both prompted by new regulations and non-regulation-related – for their possible impact and ramifications in safety terms. The findings of such studies are recorded in the appropriate documents, and form an integral part of the FOCA Management System.

3.4.　Continuous SMS improvement

The FOCA aims to continuously further improve the safety levels of the Swiss aviation system and its internal processes and procedures by constantly reassessing the current status thereof.

Continuous improvement is a permanent endeavour to improve products, services and/or processes. To this end, service levels, processes, procedures, internal and external hazards and the associated risks are constantly evaluated and improved in terms of efficiency, effectiveness and flexibility. In all such endeavours, due care must be taken to include all the activities which may influence the safety management system (SMS) – organisational changes, technical improvements, training and more – in the analyses concerned.

The FOCA has its own processes for maintaining such continuous improvement. FOCA employees are urged to be receptive to suggestions or criticisms from representatives of further system stakeholders, to consider these and to initiate the improvement process if appropriate. In all matters of implementing proposed changes, the FOCA Board is the ultimate decision-making authority. The Board is also the prime body for presenting, discussing and resolving improvements which are of relevance to the entire FOCA organisation.

The FOCA conducts regular and systematic inspections of the air transport operators under its authority to verify their continuous improvement of their safety management systems. Such inspections study the safety performance indicators (SPIs) and the safety performance targets (SPTs) of the operators concerned, and corrective measures may be ordered on the strength thereof as and where required. The FOCA further ensures that its own employees and those throughout the industry are in possession of the knowledge, training and experience which their tasks and duties require, and that they maintain such competencies.

4. SAFETY PROMOTION

The diagram below covers the bottom-right quadrant of Figure 1, the 'Act' element in the Plan/Do/Check/Act loop. This chapter is devoted to internal and external communications.
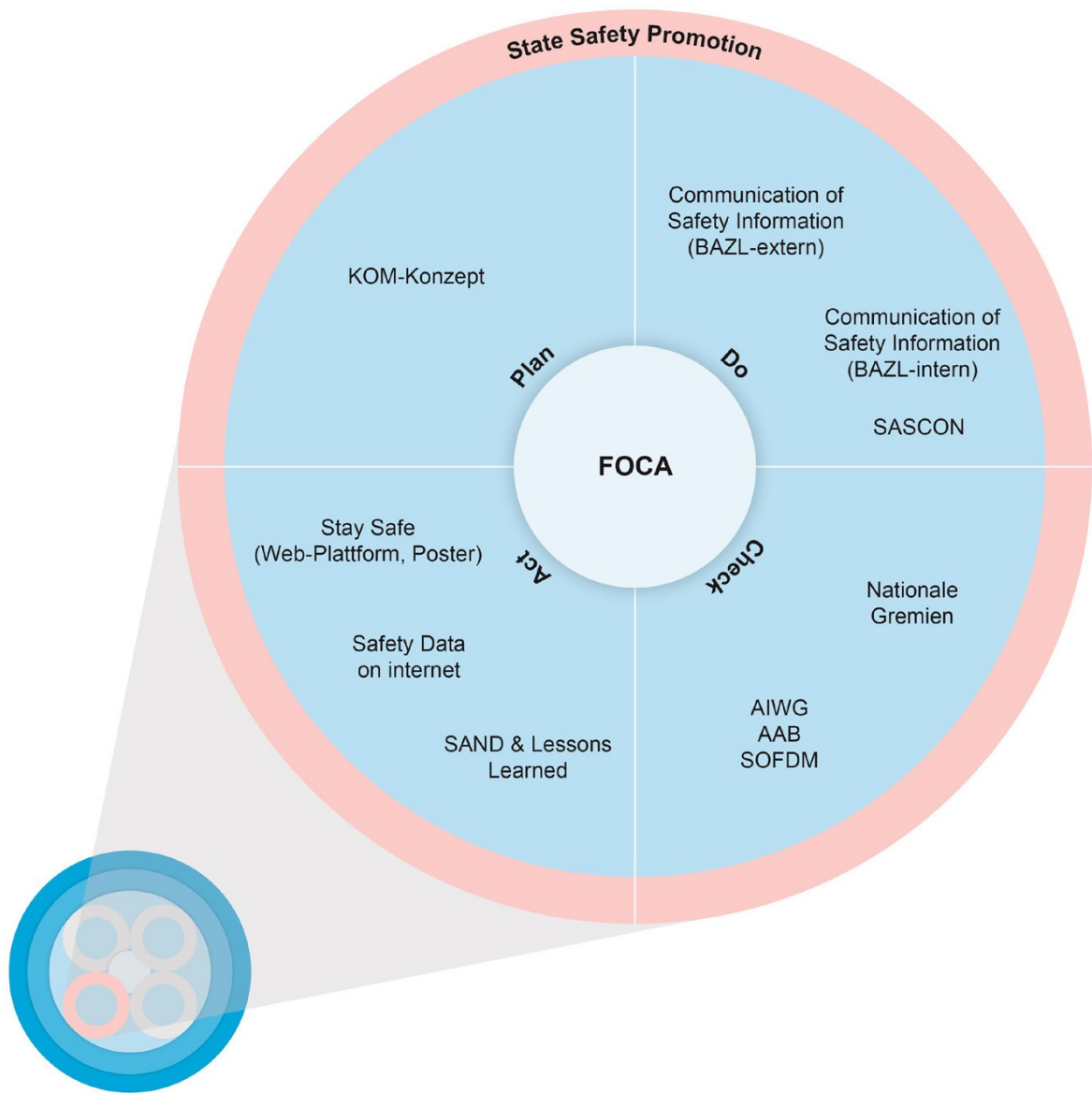

Figure 10: State safety promotion

4.1. Internal communications and dissemination of safety information

Every year the FOCA compiles an Annual Safety Report (ASR) covering the previous calendar year. The ASR contains information about safety in the categories of aerodrome operations, flight operations, air traffic management, helicopter operations and technical. The report further provides statistical data on accidents and incidents in the previous year, and offers an assessment of the current status and recent development of Swiss aviation's safety levels and safety risk portfolio. The Annual Safety Report is published online, and is thus publicly available (see also 0 below).

To supplement the Annual Safety Report, Safety & Risk Management (SRM) also provides FOCA employees with further safety-relevant information via the FOCA Intranet (Power BI Cockpits). In the event of major changes or developments, a newsletter will be produced.

To ensure effective information flows, Safety & Risk Management also organises the 'Safety Action Group', a meeting between SRM and the Safety Officers as well as the 'Safety Managmenet Meeting' (see 1.3.9 above), which is attended by the Director General and the division heads. Regular reports are also compiled and submitted to the FOCA Board – by those FOCA personnel, for instance, who are involved in European and other international industry bodies and committees. An annual report is also produced to provide an overview of Switzerland's representation on the bodies concerned.

The Safety Officers of the Safety divisions and a number of further authorised FOCA employees also have direct access to the ECCAIRS database, in which all reported occurrences are recorded. This ensures that information of this kind can be accessed directly by the Safety division(s) responsible for the oversight involved.

The employees of the FOCA are informed of any modifications to the SSP via a FOCA Bulletin. New FOCA employees receive a copy of the SSP as part of their onboarding programme.

4.2. External communications and dissemination of safety information

BAZL uses several channels for communication with stakeholders. In addition to personal contact, safety information is distributed through various electronic channels: FOCA website, LinkedIn, Instagram, X, and Facebook. On the website, under the "Personnel" section, various documents from EASA and the annual safety report are published. In the event of changes to legislation or safety regulations, BAZL proactively communicates and informs stakeholders in a timely manner. Through specialized conferences, such as airport manager meetings or safety conferences, direct exchanges on safety topics take place between experts.

Staysafe.aero: Safety Promotion for General Aviation

Since 2013, FOCA has been running the "Stay Safe" awareness and information campaign. The target audience: general aviation. A small internal editorial team at FOCA, consisting of pilots, aviation experts, inspectors, and photographers, compiles important insights from accidents and incidents, as well as from FOCA's oversight activities. They publish engaging posts weekly through the digital channels www.staysafe.aero, Facebook, and Instagram. The advantage of digital communication channels: they are agile and fast; current topics reach the audience quickly. Examples include: aviation participants are alerted to temporary airspace closures via NOTAM (Notice(s) to Airmen) and the DABS (Daily Airspace Bulletin Switzerland); in the event of technical incidents or new safety guidelines from the STSB, the community is informed quickly. The media often pick up on topics like airspace violations or incidents involving drones. This also increases risk awareness.

Staysafe.aero extends beyond Switzerland's borders. The platform has around 10,000 active followers on Facebook, Instagram, and LinkedIn. With a reach of over 20,000 people – and growing – it is one of the largest safety promotion campaigns for general aviation in Europe. Content is published in four languages (German, French, Italian, and English). New posts are teased on the social media channels. The goal: to direct users to the staysafe.aero website, where, in addition to current posts, they can find further useful information and functions related to safety: safety material, videos, dates, training offers,

newsletter functions, etc. Contributions and experiences from the community are encouraged and also published on the platform.

Since 2022, the Stay Safe team has regularly participated in general aviation events such as Aero in Friedrichshafen (Germany). This promotes personal exchanges among pilots. Overall, staysafe.aero offers a diverse mix of information and interaction for the players in light aviation.

Strategic Partnerships

The Stay Safe editorial team maintains its network. It regularly exchanges ideas with the Safety Promotion Network (SPN) of EASA and the Flight Safety Alliance Switzerland (FSA). The FSA includes the Swiss Aeroclub (AeCS), AOPA, FOCA (staysafe.aero), the Foundation for Aviation Competence (FFAC), and Skyguide. The goal: to create a broad network to pool resources and promote safety topics together. Since (year), the "Flight Safety Dialogue" has been held in spring. This season opener takes place in a hybrid format – both in person and via livestream.

Other means of external communication include:

- the Annual Safety Report (ASR), which includes statistics and analyses of reported safety-related incidents in Switzerland;
- the Swiss Aviation Safety and Opersations Conference (SASOC), which the FOCA organises and hosts every two years;
- the annual Swiss Aviation Day, at which all stakeholders are represented, including the Swiss Air Force and Skyguide, Switzerland's air navigation service provider;
- Meetings of the Swiss Safety Committee (SSC) (see 1.3.9 above);
- an annual meeting for all Swiss aerodrome directors and other key persons (the DETEC Safety Office, the STSB, the Swiss Air Force, Skyguide etc.);