25 YEARS of ATM Implementation Reporting in Europe

EUROCONTROL

LSSIP 2018 - SWITZERLAND

Local Single Sky ImPlementation

Level 1 - Implementation Overview

FOREWORD

The Local Single Sky ImPlementation (LSSIP) documents are the yearly expression of commitment of civil and military National Organisations (Regulators and National Supervisory Authorities), Air Navigation Service Providers and Airport Operators, towards the implementation of the European ATM Master Plan (Level 3). They provide an extensive view, for the benefit of the ATM community at large, of how all ECAC States as well as States having a Comprehensive Agreement with EUROCONTROL, and stakeholders concerned, are progressing in planning and deploying the mature elements of the European ATM Master Plan and European aviation policies.

The Master Plan Level 3 and LSSIP Implementation Planning and Reporting are well-established and mature mechanisms, with a long history dating back more than 25 years. They continue to provide a well-recognised stable platform for ATM implementation planning, monitoring and reporting, while continuously adapting to the changing environment.

The reliability and quality of data provided by national stakeholders allowed, for the fourth consecutive year, for the information in the LSSIP documents to constitute the sole source of information for the development of ICAO's Aviation System Block Upgrades (ASBUs) Implementation Monitoring Report in the ICAO EUR Region. The Agency undertakes this work, on behalf of ICAO, for all 55 ICAO/EUR States in accordance with the Global Air Navigation Plan (GANP). This ASBUs Implementation Monitoring Report is a formal companion document and integral part of the ICAO European Air Navigation Plan.

The Agency promotes efficient practices to avoid duplication of work by cooperating with the European Defence Agency (EDA) and collecting information on their behalf through the LSSIP process.

In this light, the Agency is also cooperating with the SESAR Deployment Manager and the European Aviation Safety Agency (EASA).

As always, I would like again to thank all the stakeholders for their substantial effort spent in contributing to the production of this LSSIP document. I see this as a proof of commitment to the principles of transparency and partnership, to the benefit of the entire ATM community!

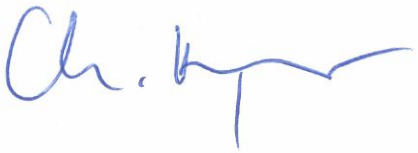
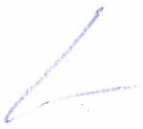
Philippe MERLO
Director
Directorate European Civil-Military Aviation
EUROCONTROL

Document Title	LSSIP Year 2018 for Switzerland
Infocentre Reference	19/02/05/41
Date of Edition	24/05/19
LSSIP Focal Point	Thierry Brégou - thierry.bregou@skyguide.ch
LSSIP Contact Person	Jorge Pinto – jorge.pinto@eurocontrol.int
Status	Released Issue
Intended for	Agency Stakeholders
Available in	http://www.eurocontrol.int/articles/lssip

Reference Documents	
LSSIP Documents	https://www.eurocontrol.int/articles/lssip
LSSIP Guidance Material	https://www.eurocontrol.int/articles/lssip
Master Plan Level 3 – Plan Edition 2018	https://www.eurocontrol.int/articles/european-atm-master-plan-level-3-implementation-plan
Master Plan Level 3 – Report Year 2018	https://www.eurocontrol.int/articles/european-atm-master-plan-level-3-implementation-report
European ATM Portal	https://www.eatmportal.eu and http://www.atmmasterplan.eu/
STATFOR Forecasts	https://www.eurocontrol.int/statfor
Acronyms and abbreviations	https://www.eurocontrol.int/sites/default/files/content/documents/official-documents/guidance/Glossaries.pdf

APPROVAL SHEET

The following authorities have approved all parts of the LSSIP Year 2018 document and their signature confirms the correctness of the reported information.

Stakeholder / Organisation	Name	Position	Signature
FOCA	Christian HEGNER	Director General	
Swiss Air Force	Maj Gen Bernhard MÜLLER	Commander In-Chief	
Skyguide	Alex BRISTOL	Chief Executive Officer	
Flughafen Zürich AG	Stephan WIDRIG	Chief Executive Office	
Genève Aéroport	André SCHNEIDER	Chief Executive Officer	

CONTENTS

Annexes

Executive Summary

National ATM Context

Civil Aviation in Switzerland is the responsibility of the Federal Department for the Environment, Transport, Energy and Communications (DETEC).

The Federal Office of Civil Aviation (FOCA) – Safety Division - Infrastructure is the regulatory body charged by the Swiss Confederation to supervise ATM safety oversight within Swiss airspace. It is also the nominated NSA.

The integrated civil-military ANSP, Skyguide, provides services to both OAT and GAT traffic, in Swiss airspace and in adjacent airspace in neighbouring countries that has been delegated to its control, from Geneva and Zurich ACCs. Skyguide also provides services at the two national airports (Geneva and Zurich airports), as well as at the regional airports and at primarily military or joint civil-military aerodromes.

Technical investigations following accidents and/or incidents are carried out by the Swiss Transportation Safety Investigation Board (STSB) integrated into DETEC.

Regulation and Surveillance of Military Aviation in Switzerland is the responsibility of the Military Aviation Authority (MAA) under the direction of the Commander in chief of the Armed Forces Staff, incorporating elements of the Air Force and the military procurement agency.

Switzerland is member state of the FABEC together with Belgium, France, Germany, Luxembourg and The Netherlands.

Traffic and Capacity

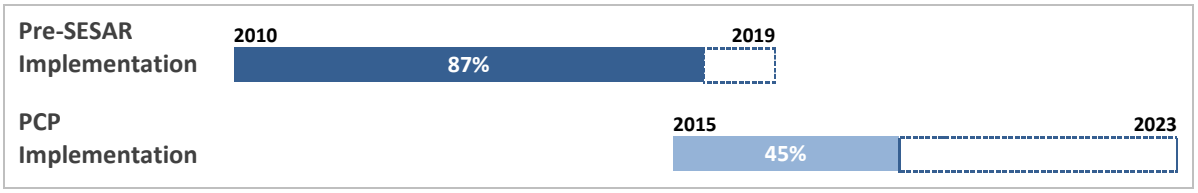
Traffic in Switzerland increased by 5.5% during Summer 2018 (May to October inclusive), when compared to the same period during 2017. The EUROCONTROL Seven-Year Forecast predicts an average annual increase between 0.6% and 3.2% for Switzerland during the 5 year planning cycle (2019-2024), with a baseline growth of 2.0%.

The average en-route delay per flight in Geneva ACC decreased from 0.31 minutes per flight in summer 2017 to 0.28 minutes per flight in summer 2018. .The average en-route delay per flight in Zürich ACC increased from 0.15 minutes per flight in Summer 2017 to 0.54 minutes per flight in Summer 2018. In 2018, Zurich and Geneva ACCs witnessed an unforeseen and high increase in traffic due to regulations set in neighboring ACCs. This traffic, which may not materialize in 2019, is difficult to accommodate due to the level of efforts required to reach cost-efficiency targets.

Progress per SESAR Phase

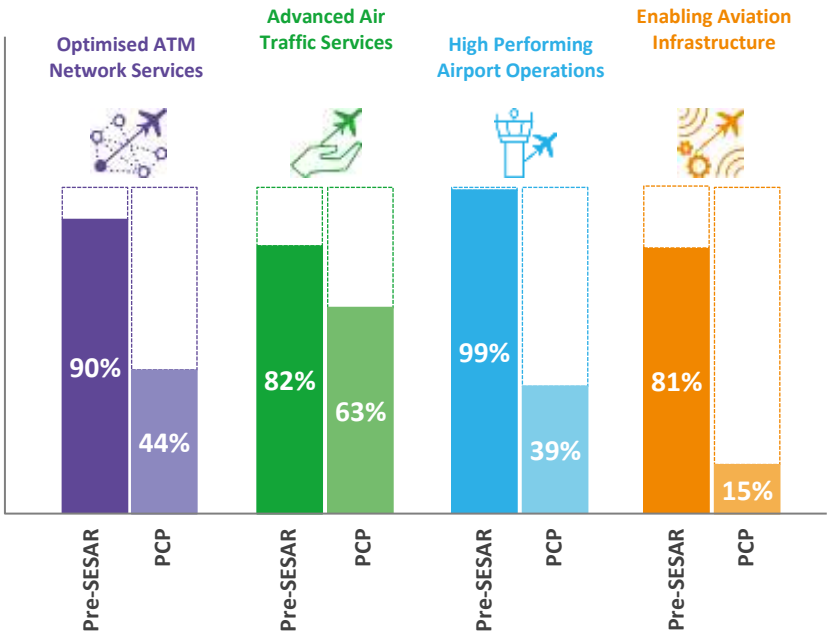
The figure below shows the progress made so far in the implementation of the SESAR baseline and the PCP elements. The percentage is calculated as an average of the relevant objectives as shown in Chapter 6 (PCP objectives are marked as such, the rest are considered SESAR baseline); note that two objectives – AOM19.1 and FCM05 – are considered as both part of the SESAR baseline and PCP so their progress contributes to the percentage of both phases.

The objectives declared 'Achieved' in previous editions (up to, and including, ATM MP L3 Edition 2011-2017) are also taken into account for as long as they were linked to the Level 2 of the ATM Master Plan and implemented by the State.



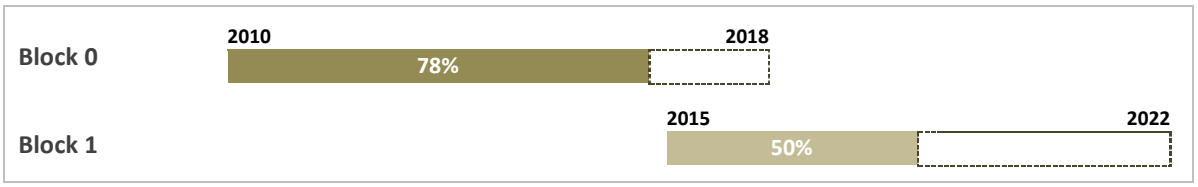
Progress per SESAR Key Feature and Phase

The figure below shows the progress made so far, per SESAR Key Feature, in the implementation of the SESAR baseline and the PCP elements. The percentages are calculated as an average, per Key Feature, of the same objectives as in the previous paragraph.



ICAO ASBUs Progress Implementation

The figure below shows the progress made so far in the implementation of the ICAO ASBUs Blocks 0 and 1. The overall percentage is calculated as an average of the relevant Objectives contributing to each of the relevant ASBUs; this is a summary of the table explained in Chapter 6.



ATM Deployment Outlook

- **State objectives**

Deployed in 2017-2018:	
	- Direct Routing [AOM21.1] 100% progress **- AMAN to en-route** [ATC15.1] 100% progress **- STAM Phase 2** [FCM04.2] 100% progress

By 12/2019	By 12/2020	By 12/2021	2022+
- AMHS [COM10] 95% progress **- 8,33 kHz below FL195** [ITY-AGVCS2] 90% progress	**- NewPENS** [COM12] 17% progress	**- Traffic Complexity** [FCM06] 80% progress **- Ground-Based Safety Nets** [ATC02.8] 70% progress **- eTOD** [INF07] 21% progress **- Free Route Airspace** [AOM21.2] 18% progress	**- Voice over IP** [COM11] 58% progress **- RNP 1 for TMA Operations** [NAV03.2] 50% progress **- AMAN to further en-route** [ATC15.2] 49% progress **- Aeronautical Information** [ITY-ADQ] 22% progress

- **Airport objectives - LSGG - Geneva Airport**

Deployed in 2017-2018: /

By 12/2019	By 12/2020	By 12/2021	2022+
- Collaborative Env. Mgt. [ENV02] 96% progress **- CCOs** [ENV03] 68% progress **- CDOs** [ENV01] 37% progress		**- Initial Airport Operations Plan** [AOP11] 63% progress	**- AMAN** [ATC07.1] 0% progress

- **Airport objectives - LSZH - Zürich Airport**

Deployed in 2017-2018: /

By 12/2019	By 12/2020	By 12/2021	2022+
- Airport Safety Nets [AOP12] 69% progress **- CCOs** [ENV03] 67% progress			**- Surface Movement Planning & Routing** [AOP13] 5% progress

Introduction

The Local Single Sky ImPlementation (LSSIP) documents, as an integral part of the Master Plan (MP) Level 3 (L3)/LSSIP mechanism, constitute a short/medium term implementation plan containing ECAC States' actions to achieve the Implementation Objectives as set out by the MP Level 3 and to improve the performance of their national ATM System. This LSSIP document describes the situation in the State at the end of December 2018, together with plans for the next years.

Chapter 1 provides an overview of the ATM institutional arrangements within the State, the membership of the State in various international organisations, the organisational structure of the main ATM players - civil and military - and their responsibilities under the national legislation. In addition, an overview of the Airspace Organisation and Classification, the ATC Units, the ATM systems operated by the main ANSP are also provided;

Chapter 2 provides a comprehensive picture of the situation of Air Traffic, Capacity and ATFM Delay per each ACC in the State. It shows the evolution of Air Traffic and Delay in the last five years and the forecast for the next five years. It gives also the achieved performance in terms of delay during the summer season period and the planned projects assumed to offer the required capacity which will match the foreseen traffic increase and keep the delay at the agreed performance level;

Chapter 3 provides a set of conclusions extracted from the MP L3 Implementation Report 2018, which are relevant to the State/stakeholders concerned. The State reports how they have handled those conclusions and the actions taken during the year to address the concerns expressed by those conclusions;

Chapter 4 provides the main Implementation Projects (at national, FAB and regional level) which contribute directly to the implementation of the MP Operational Improvements and/or Enablers and Implementation Objectives. Level 1 document covers high level list of the projects showing the applicable links. All other details like description, timescale, progress made and expected contribution to the ATM Key Performance Areas provided by the State per each project are available in Level 2 document;

Chapter 5 deals with other cooperation activities beyond Implementation Projects. It provides an overview of the FAB cooperation and also all other regional initiatives which are out of the FAB scope. The content of this chapter generally is developed and agreed in close cooperation between the States concerned;

Chapter 6 contains aggregated information at State level covering the overall level of implementation, implementation per SESAR Key Feature and implementation of ICAO ASBUs. In addition the high-level information on progress and plans of each Implementation Objective is presented. The information for each Implementation Objective is presented in boxes giving a summary of the progress and plans of implementation for each Stakeholder. The conventions used are presented at the beginning of the section.

Level 1 document is completed with a separate document called LSSIP Level 2. This document consists of a set of tables organised in line with the list of Implementation Objectives. Each table contains all the actions planned by the four national stakeholders to achieve their respective Stakeholder Lines of Action (SLoAs) as established in the European ATM Master Plan L3 Implementation Plan Edition 2018. In addition it covers detailed description of the Implementation Projects for the State as extracted from the LSSIP Data Base.

The information contained in Chapter 6 is deemed sufficient to satisfy State reporting requirements towards ICAO in relation to ASBU (Aviation System Block Upgrades) monitoring.

1. National ATM Environment

1.1. Geographical Scope

International Membership

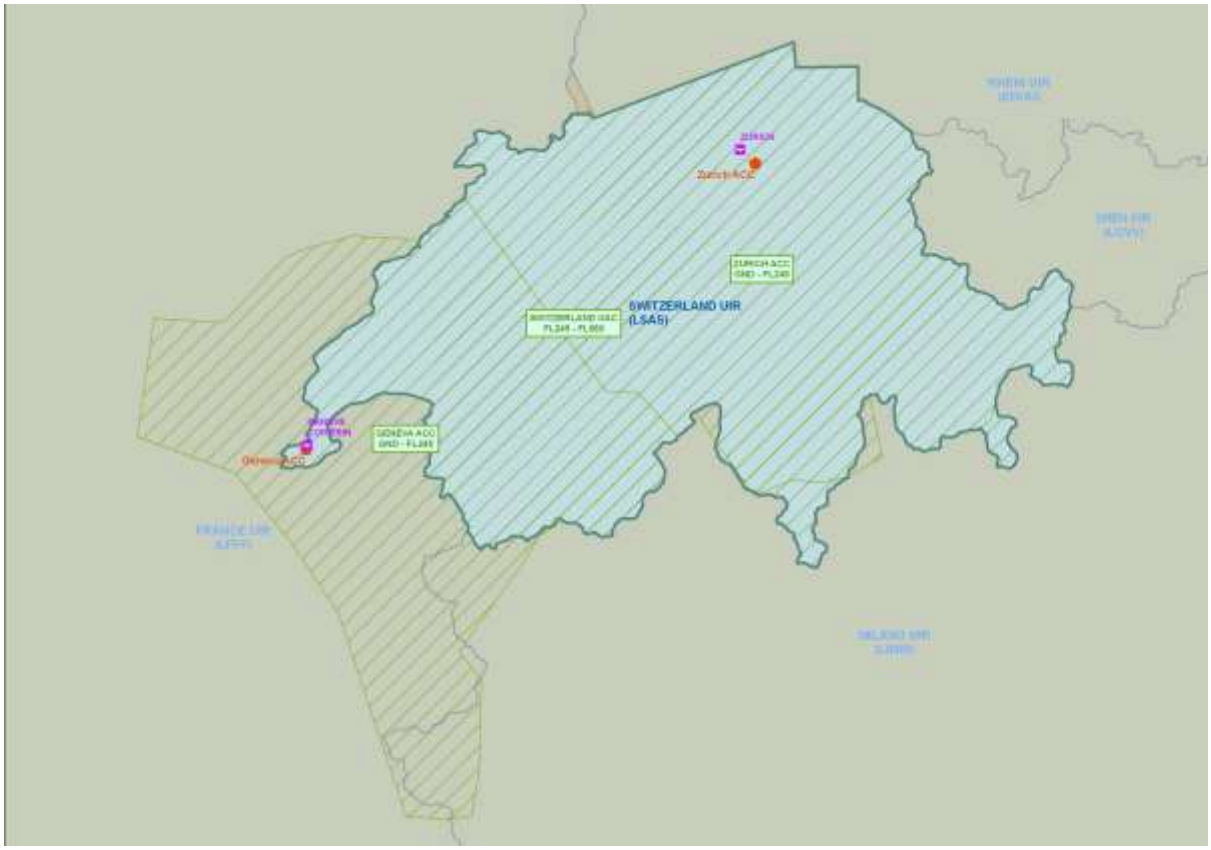
Switzerland is a Member of the following international organisations in the field of ATM:

Organisation		Since
ECAC	✓	1955 (founding Member State)
EUROCONTROL	✓	1st July 1992 (adhesion)
European Union	✓	Switzerland is not a member of the European Union, but has concluded a Bilateral Agreement on Air transport which is in force since 1st June 2002; member without voting right at the Single Sky Committee
EASA	✓	Member without voting right since 1st December 2006
ICAO	✓	1947 (founding Member State)
NATO		Switzerland takes part in NATO's Partnership for Peace Programme
ITU	✓	1865 (founding Member State)
JAA	✓	1970

Geographical description of the FIR(s)

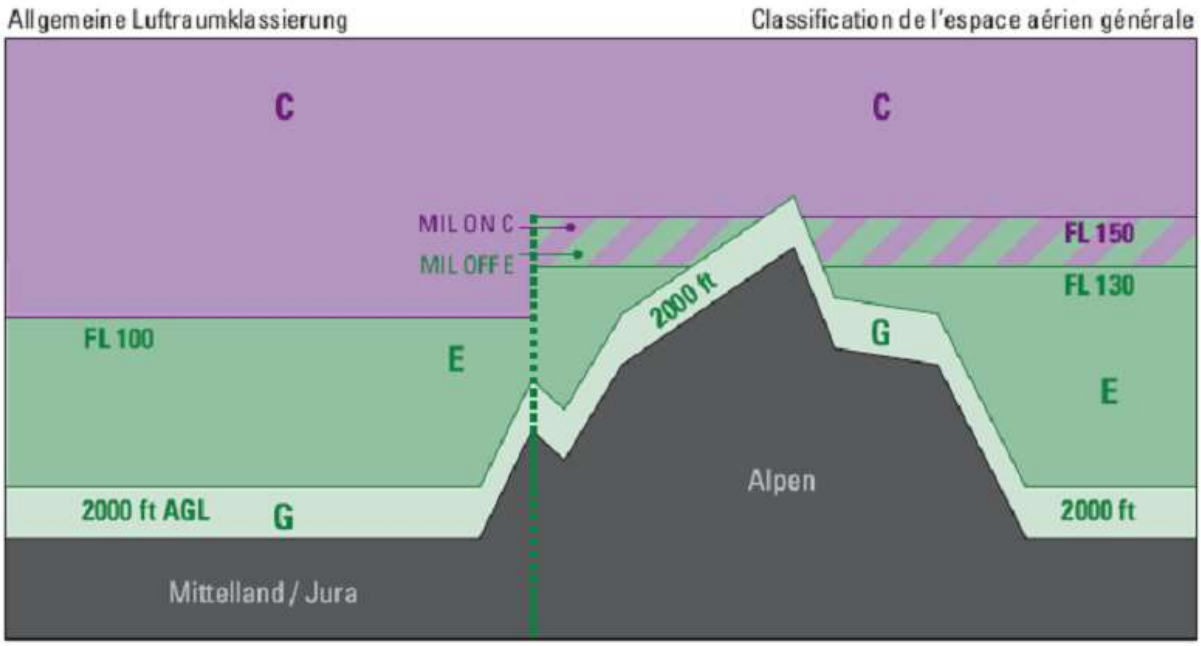
The geographical scope of this document addresses the Swiss FIR ("FIR SWITZERLAND"). Swiss FIR includes the Principality of Liechtenstein and is surrounded by FIRs of 4 States, namely Austria, Italy, France and Germany.

Recently, Germany and Switzerland agreed to align the FIR boundaries to the political borders in the area of Basel. Moreover, a very small part of the German airspace located north of the lake of Constance is still incorporated in the FIR Switzerland (since the Fifties, basically this has been done for historical reasons).



Airspace Classification and Organisation

The airspace classification within the Swiss FIR is described in the figure below.



ATC Units

The ATC units in the Swiss airspace, which are of concern to this LSSIP are the following:

ATC Unit	Number of sectors		Associated FIR(s)	Remarks
	En-route	TMA		
Geneva	9	3	Swiss, French	ER: L6 to L1, INI S, INI N, INIE APP GVA: DEP, APC, FIN
Zurich	10	5	Swiss, German	ER : M6 to M1, W, N, E, S APP ZRH : APW, APE, DEP, FIN, CAP
Regional	n/a	3	Swiss	APP : DELTA GVA (SIO/EPL), Bern (BRN/GRE), ARFA (SGA)

1.2. National Stakeholders

The main National Stakeholders involved in ATM/ANS in Switzerland are the following:

- Federal Department of the Environment, Transport, Energy and Communications (DETEC) including its Federal Office of Civil Aviation (FOCA) and Swiss Transportation Safety Investigation Board (STSB);
- Federal Department of Defence, Civil Protection and Sport (DDPS), including the Swiss Air Force (SAF) and the Military Aviation Authority (MAA);
- Skyguide, the Swiss joint civil-military ANSP, with its training center;
- MeteoSchweiz/MeteoSuisse/MeteoSvizzera (MeteoSwiss), part of the Federal Department of Home Affairs (FDHA).
- Aéroport International de Genève (Genève Aéroport);
- Flughafen Zürich AG (FZAG).

Their activities are detailed in the following subchapters and their relationships are shown in the diagram below.

In addition Engadin Airport AG provides ANS services (AFIS only) at Samedan airport (LSZS). With Skyguide and MeteoSchweiz/MeteoSuisse it forms the group of the three certified Single European Sky providers in Switzerland.

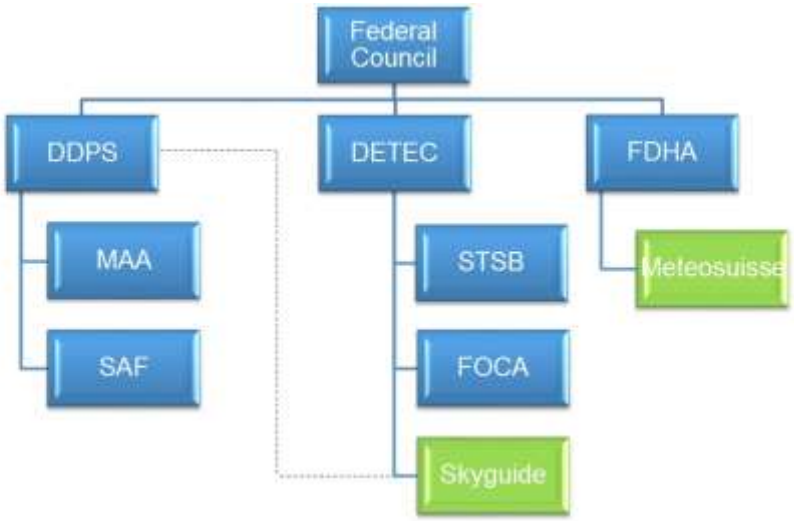


Figure 1: State diagram

Civil Regulator(s)

General Information

The primary regulatory entity in Switzerland is the Federal Department of the Environment, Transport, Energy and Communications. Other national entities having regulatory responsibilities in ATM are summarised in the table below.

EU legislation on aviation is applicable in Switzerland by means of adoption in the framework of the Agreement between the European Community and the Swiss Confederation on Air Transport.

Activity in ATM:	Organisation responsible	National Legal Basis
Rule-making	FOCA	SR Number 748.0 “Luftfahrtgesetz” SR Number 748.132.1 “Verordnung vom 18. Dezember 1995 über den Flugsicherungsdienst”
Safety Oversight	FOCA, Section Air Navigation Services and Safety and Risk Management with the support of other sections	SR Number 748.0 “Luftfahrtgesetz”, Art. 3, Art. 40a SR Number 748.132.1 “Verordnung vom 18. Dezember 1995 über den Flugsicherungsdienst” SR Number 748.222.3 „Verordnung des UVEK über die Ausweise für bestimmte Personalkategorien der Flugsicherungsdienste“
Enforcement actions in case of non-compliance with safety regulatory requirements	FOCA, Section Standardisation and Sanctions	SR Number 748.0 “Luftfahrtgesetz”, Art. 3, Art. 40a, Art. 91, Art. 91bis, Art. 92 SR Number 748.132.1 „Verordnung über den Flugsicherungsdienst“ SR Number 748.132.13 „Verordnung über den zivilen Flugwetterdienst“ SR Number 748.222.3 „Verordnung des UVEK über die Ausweise für bestimmte Personalkategorien der Flugsicherungsdienste“
Airspace	FOCA (Section Airspace) after consultation with the Air force according to law	SR Number 748.0 “Luftfahrtgesetz”, Art. 3, Art. 8a SR Number 748.132.1 “Verordnung vom 18. Dezember 1995 über den Flugsicherungsdienst” SR Number 748.121.11 "Verordnung des UVEK über die Verkehrsregeln für Luftfahrzeuge", Art. 4
Economic	DETEC and FOCA Section Economic Affairs	DETEC is the owner of the ANSP on behalf of the State; FOCA is responsible for regulation and oversight.
Environment	FOCA, Section Environmental Affairs	SR Number 748.132.1 “Verordnung vom 18. Dezember 1995 über den Flugsicherungsdienst”
Security	FOCA, Section Security	SR Number 748.01 „Verordnung über die Luftfahrt vom 14. November 1973“; Art. 122a ff. SR Number 748.122 „Verordnung des UVEK über die Sicherheitsmassnahmen im Luftverkehr vom 20. Juli 2009“ SR Number 748.132.1 “Verordnung vom 18. Dezember 1995 über den Flugsicherungsdienst”

Activity in ATM:	Organisation responsible	National Legal Basis
Accident investigation	Swiss Transportation Safety Investigation Board (STSB)Inspectorate (AI) (2)	SR Number 748.0 “Luftfahrtgesetz” Art. 22 ff. SR Number 742.161 „Verordnung vom 17. Dezember 2014 über die Sicherheitsuntersuchung von Zwischenfällen im Verkehrswesen“
Occurrence Reporting (Collection, Evaluation & Processing of Data)	FOCA, Safety Risk Management Department, (SRM) Section Air Navigation Services	SR Number 748.0 “Luftfahrtgesetz”, Art. 20 SR Number 748.01 „Verordnung über die Luftfahrt vom 14. November 1973“, Art. 77, 77d und 77e Occurrence Reporting Process FOCA
Airprox Analysis	Airprox Analysis Board (AAB)	ICAO DOC 7754; Part V.II (ATS – FASID, paragraph 24 and attachment D)

Federal Office of Civil Aviation (FOCA)

Civil aviation in Switzerland lies in the competence of the Federal Department of the Environment, Transport, Energy and Communications, which i.a. approves the standard tariff that is included in the calculation of charges for over-flying, entering or leaving Swiss FIR.

The Federal Office of Civil Aviation is the Swiss Regulatory Authority and is responsible for the certification of civil aircraft and equipment, aerodromes and ANSP and supervises the safety of aviation in the national airspace. More information about FOCA can be found at: http://www.bazl.admin.ch/index.html?lang=en

With the Agreement between the European Community and the Swiss Confederation on Air Transport, a joint decision body – the Joint Committee – has been established. This Committee decides on the adoption of EU regulations by Switzerland. The Joint Committee meets on a yearly basis, usually in November or December (ordinary procedure); an additional written adoption-procedure can be applied if necessary.

Additionally, FOCA represents Switzerland, inter alia, in the EUROCONTROL Provisional Council and the Permanent Commission, the Single Sky Committee, the Management Board of EASA, in FABEC as well as in ICAO and ECAC groups.

Supervision and oversight of air traffic over the complete territory of Switzerland has been delegated by the Swiss Confederation to FOCA, and thus it has the responsibility of ensuring the compliance of all applicable regulations.

The national air navigation services safety regulatory and oversight function is separated and independent from the service provision function. FOCA is the Swiss National Supervisory Authority (NSA) and national competent authority (CA).

Annual Report published:	N	

National Civil Aviation Master Plan (CAMP):	Y	https://www.bazl.admin.ch/bazl/en/home/policies/aviation-policies/aviation-policy-report.html https://www.uvek.admin.ch/uvek/en/home/detec/strategy.html NOTE 1: National CAMP is referenced in ICAO resolutions below: • A39-23: No Country Left Behind (NCLB) Initiative (Draws the attention of Contracting States requesting technical cooperation and technical assistance to the advantages to be derived from well-defined projects based on civil aviation master plans) • A39-25: Aviation's contribution towards the United Nations 2030 Agenda for Sustainable Development (Urges Member States to enhance their air transport systems by effectively implementing SARPs and policies while at the same time including and elevating the priority of the aviation sector into their national development plans supported by robust air transport sector strategic plans and civil aviation master plans, thereby leading to the attainment of the SDGs) • A39-26: Resource Mobilization (Requests the Secretary General to develop guidance material to assist States in including and elevating the priority of the aviation sector into their national development plans and developing robust air transport sector strategic plans and civil aviation master plans).

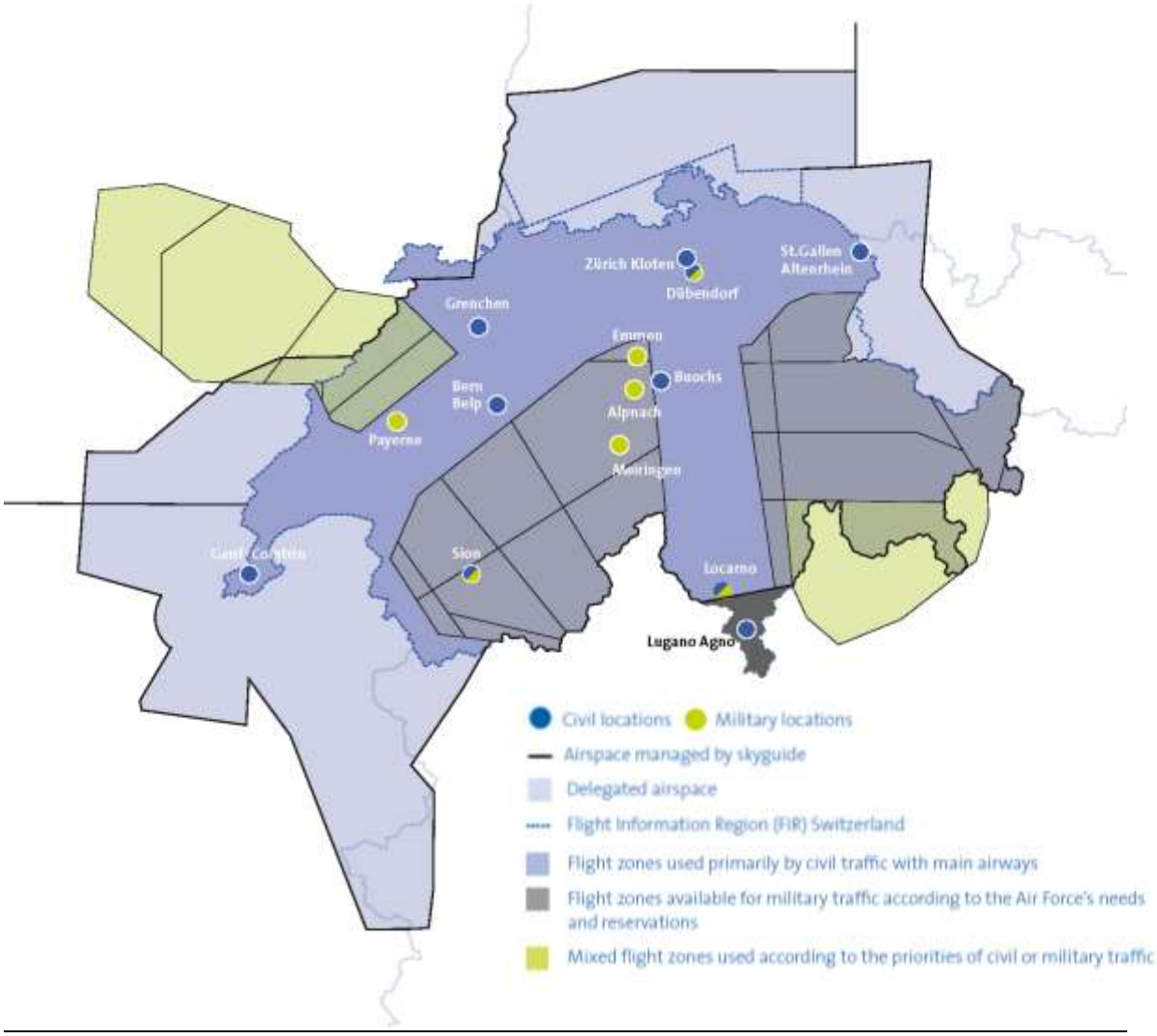
FOCA's organisation chart is depicted in FOCA's organisation chart is depicted in the Annexes section.

Skyguide

Services provided

Governance:	State-owned public company	**Ownership:**	99.91% of Skyguide capital is owned by the State.
Services provided	**Y/N**	**Comment**	
ATC en-route	Y	NIL	
ATC approach	Y	At Switzerland's national airports in Geneva and Zurich, at the regional airports of Bern, Buochs, Grenchen, Les Eplatures, Lugano, St Gallen Altenrhein, Donaueschingen (D) and Friedrichshafen (D) and at the primarily military or joint civil-military aerodromes of Alpnach, Dübendorf, Emmen, Locarno, Meiringen, Payerne and Sion.	
ATC Aerodrome(s)	Y	On the Aerodromes Geneva and Zurich the ATS Services are delivered by the ANSP Skyguide. AMS Services are provided by Genève Aéroport and Flughafen Zürich AG.	
AIS	Y	NIL	
CNS	Y	NIL	
MET	N	Provided by MeteoSchweiz/MeteoSuisse/MeteoSvizzera see below.	
ATCO training	Y	Training is provided for ATCO as well as for other safety related tasks (FIS, AFIS, ATFCM, SPVR, ATSEP)	
Others	N	NIL	
Additional information:			
Provision of services in other State(s):	Y	Skyguide provides air navigation services over Austrian, French, German, Liechtenstein and Italian areas.	
Annual Report published:	Y	lhttps://www.skyguide.ch/en/events-media-board/publications/	

Cf. Skyguide's organizational chart in the Annexes section.


Zürich Kloten
Dübendorf
St.Gallen
Altenrhein
Grenchen
Emmen
Buochs
Bern
Belp
Alpnach
Payerne
Meiringen
Sion
Locarno
Lugano Agno
Civil locations
Military locations
Airspace managed by skyguide
Delegated airspace
Flight Information Region (FIR) Switzerland
Flight zones used primarily by civil traffic with main airways
Flight zones available for military traffic according to the Air Force's needs and reservations
Mixed flight zones used according to the priorities of civil or military traffic

MeteoSchweiz/MeteoSuisse/MeteoSvizzera

The responsibilities of MeteoSchweiz/MeteoSuisse/MeteoSvizzera - the monopoly air navigation service meteo provider in Switzerland - are as follows:

Name of the ANSP:	MeteoSchweiz/MeteoSuisse/MeteoSvizzera		
Governance:	MeteoSchweiz/MeteoSuisse/ MeteoSvizzera is part of the Federal Department of Home Affairs FDHA	**Ownership:**	State
Services provided	**Y/N**	**Comment**	
MET	Y	National provider for weather and climate services in Switzerland.	
METAR/ TAF	Y		
GAFOR Suisse	Y		
AIRMET/ SIGMET	Y		
SWC	Y	Significant Weather Chart	

Engadin Airport

The responsibilities of Engadin Airport - the air navigation service AFIS provider at Samedan airport (LSZS) - are as follows:

Name of the ANSP:	Engadin Airport		
Governance:	Public company	**Ownership:**	Private
Services provided	**Y/N**	**Comment**	
AFIS	Y	AFIS only within the local flight information zone (FIZ)	

ATC systems in use

Main ANSP part of any technology alliance[1]	Y	Participation to the SESAR Joint Undertaking (SJU)

FDPS

Specify the manufacturer of the ATC system currently in use:	Commercial solutions and own development
Upgrade[2] of the ATC system is performed or planned?	Ongoing on a yearly basis
Replacement of the ATC system by the new one is planned?	FDPS Replacement - Replaced in 2022 in the scope of the Virtual Centre Tranche4 deployment
ATC Unit	GVA and ZRH ACCs

[1] Technology alliance is an alliance with another service provider for joint procurement of technology from a particular supplier (e.g. COOPANS alliance)

[2] Upgrade is defined as any modification that changes the operational characteristics of the system (SES Framework Regulation 549/2004, Article 2 (40))

SDPS

Specify the manufacturer of the ATC system currently in use:	Commercial solutions (In particular : RDPS: ARTAS/Comsoft, MSSR: Raytheon)
Upgrade of the ATC system is performed or planned?	None
Replacement of the ATC system by the new one is planned?	2019 (PSR renewal)
ATC Unit	GVA and ZRH ACCs

Airports

General information

In Switzerland, two airports (Zurich and Geneva) have an 'international' status with intercontinental flight connections. Other main aerodromes Berne-Belp, Lugano, Sion and St. Gallen-Altenrhein have a 'regional' status with a continental network.

Since November 1999, the operator of the International Airport of Zürich, Flughafen Zürich AG is a private corporation. Since the 1st of January 1994, the Aéroport International de Genève - international airport of Geneva (Genève Aéroport) - is a government-owned corporation managed by an Independent Public Establishment.

Airport(s) covered by the LSSIP

Referring to the List of Airports in the European ATM Master Plan Level 3 Implementation Plan Edition 2018 – Annex 2, it is up to the individual State to decide which additional airports will be reported through LSSIP for those Objectives

The LSSIP for Switzerland focuses on Zurich and Geneva airport being them the two airports with both an international status and more than 150 000 movements.

Zurich Airport website address: http://www.flughafen-zuerich.ch/
Geneva Airport website address: http://www.gva.ch/

The EUROCONTROL Public Airport Corner also provides information for the following airports:
https://ext.eurocontrol.int/airport_corner_public/LSZH

https://ext.eurocontrol.int/airport_corner_public/LSGG

Military Authorities

Military Authorities

Regulation and Surveillance of Military Aviation in Switzerland is the responsibility of the Military Aviation Authority (MAA). As of the 1st of January 2019, MAA is under the direction of the Commander in chief of the Armed Forces Staff, incorporating elements of the Air Force and the military procurement agency.

In addition, the Military Aviation Authority represents Swiss military aviation interests, inter alia, at the EUROCONTROL (Provisional) Council, the Single Sky Committee, in the FABEC as well as in the NATO EAPC programme on Partnership for Peace.

The organisation chart of the Swiss Air Force is depicted in Annex B. the Military Authorities' roles are detailed below.

Regulatory role

According to Art. 106 of the Federal Aviation Act (SR 748.0) rules defined by the national law on aviation are only binding to military aviation if the Federal Council explicitly declares so.

According to Art. 3 of the Ordinance on the Rules of the Air (SR 748.121.11), the Military Aviation Authority sets up specific rules of the air for military aircraft with the consent of FOCA.

Swiss Air Force and Military Aviation Authority provide, inter alia:

- Air crew training and licensing for air force personnel;
- The national, military operations manual (OM);
- SAR-related tasks (search).

Regulatory framework and rule-making

OAT		GAT	
OAT and provision of service for OAT governed by national legal provisions?	Y	Provision of service for GAT by the Military governed by national legal provisions?	N
Level of such legal provision: Air Force Regulation (Mil AIP (Aeronautical Information Publication), Civ/Mil AIP Belgium & Luxemburg , ATM Instructions)		Level of such legal provision: EC Regulations, Royal Decrees, AIP, LoAs (Letters of Agreement)	
Authority signing such legal provision: Air Component Commander		Authority signing such legal provision: Minister/Secretary of State for Mobility, King of Belgium	
These provisions cover:		These provisions cover:	
Rules of the Air for OAT	Y		
Organisation of military ATS for OAT	Y	Organisation of military ATS for GAT	N
OAT/GAT Co-ordination	Y	OAT/GAT Co-ordination	N
ATCO Training	Y	ATCO Training	N
ATCO Licensing	Y	ATCO Licensing	N
ANSP Certification	Y	ANSP Certification	N
ANSP Supervision	Y	ANSP Supervision	N
Aircrew Training	Y	ESARR applicability	N
Aircrew Licensing	Y		
Additional Information:		Additional Information:	
Means used to inform airspace users (other than military) about these provisions:		Means used to inform airspace users (other than military) about these provisions:	
National AIP	N	National AIP	N
National Military AIP	Y	National Military AIP	N
EUROCONTROL eAIP	N	EUROCONTROL eAIP	N
Other: National VFR Manual	Y	Other: National VFR Manual	N

Oversight

	OAT	GAT
National oversight body	Military Aviation Authority	Military Aviation Authority

Service Provision role

OAT			GAT	
Services Provided:			Services Provided:	
En-Route	Y	Skyguide	En-Route	Skyguide
Approach/TMA	Y	Skyguide	Approach/TMA	Skyguide
Airfield/TWR/GND	Y	Skyguide	Airfield/TWR/GND	Skyguide
AIS	Y	Skyguide	AIS	Skyguide
MET	Y	MeteoSchweiz/MeteoSuisse/MeteoSvizzera and Air Force	MET	MeteoSchweiz/MeteoSuisse/MeteoSvizzera
SAR	Y	Kantonspolizei Zürich (RCC), SAF	SAR	Kantonspolizei Zürich (RCC), SAF
TSA/TRA monitoring	Y	Skyguide	FIS	Skyguide and Engadin Airport
Other:			Other:	
Additional Information:			Additional Information:	

Military ANSP providing GAT services SES certified?	Y	If YES, since:	2001;Last certification :21/12/2012	Duration of the Certificate:	6 years (21.12.2018) Extended to 30.06.2020
Certificate issued by:	FOCA		If NO, is this fact reported to the EC in accordance with SES regulations?		Y
Additional Information: There is one integrated civil and military (for OAT and GAT traffic) ANSP in Switzerland (Skyguide). The oversight of the GAT provision is under the responsibility of FOCA.					

User role

IFR inside controlled airspace, Military aircraft can fly?	OAT only	N	GAT only	N	Both OAT and GAT	Y

If Military fly OAT-IFR inside controlled airspace, specify the available options:			
Free Routing	Y	Within specific corridors only	N
Within the regular (GAT) national route network	Y	Under radar control	Y
Within a special OAT route system	N	Under radar advisory service	N

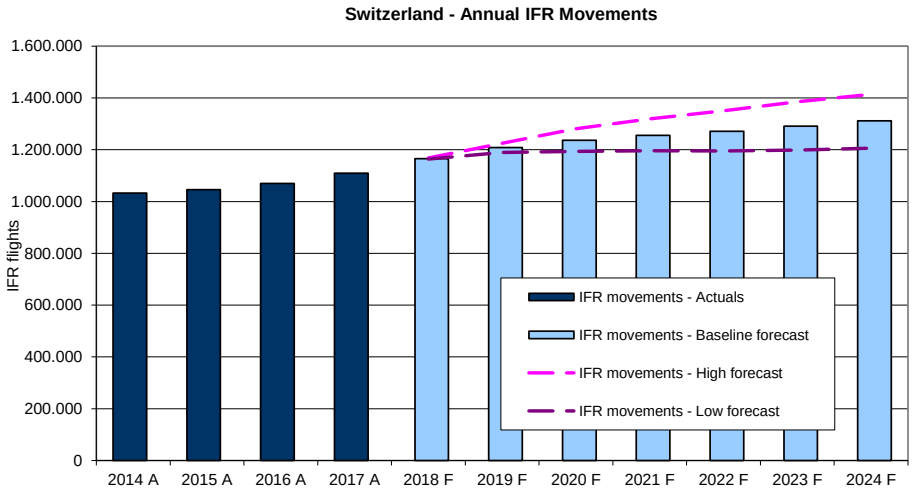
If Military fly GAT-IFR inside controlled airspace, specify existing special arrangements:								
No special arrangements		N			Exemption from Route Charges			Y
Exemption from flow and capacity (ATFCM) measures		N			Provision of ATC in UHF			Y
CNS exemptions:	RVSM	N	8.33	N	Mode S	Y	ACAS	Y
Others:								

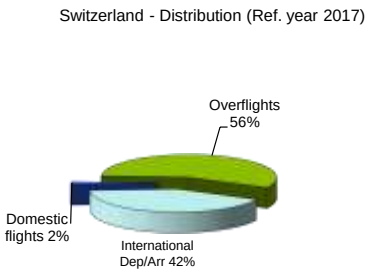
Flexible Use of Airspace (FUA)

Military and Civil in Switzerland applies FUA requirements as specified in the Regulation No 2150/2005: Partly Remark: MIL aviation is excluded from the scope of EC. reg 216/2008 according to art.1(2). The process to improve the FUA conformity is under discussion between Skyguide, FOCA and SAF. The High Level Airspace Policy Body (HLAPB) has therefore been restructured end of 2018.
FUA Level 1 implemented: Yes. Remark: The newly restructured HLAPB will provide a platform for improved L1 and L2 processes.
FUA Level 2 implemented: Yes. Remark : The newly restructured HLAPB will provide a platform for improved L1 and L2 processes.
FUA Level 3 implemented: Yes

2. Traffic and Capacity

2.1. Evolution of traffic in Switzerland





A = Actual
F = Forecast

EUROCONTROL Seven-Year Forecast (September 2018)											
IFR flights yearly growth		**2015 A**	**2016 A**	**2017 A**	**2018 F**	**2019 F**	**2020 F**	**2021 F**	**2022 F**	**2023 F**	**2024 F**
Switzerland	H				5.3%	4.9%	4.6%	2.9%	2.4%	2.6%	2.1%
	B	1.2%	2.3%	3.8%	5.1%	3.7%	2.3%	1.6%	1.3%	1.5%	1.6%
	L				4.9%	2.2%	0.3%	0.2%	0.0%	0.3%	0.6%
ECAC	B	1.6%	2.8%	4.0%	3.7%	3.0%	2.6%	2.1%	1.9%	2.0%	2.1%

2018

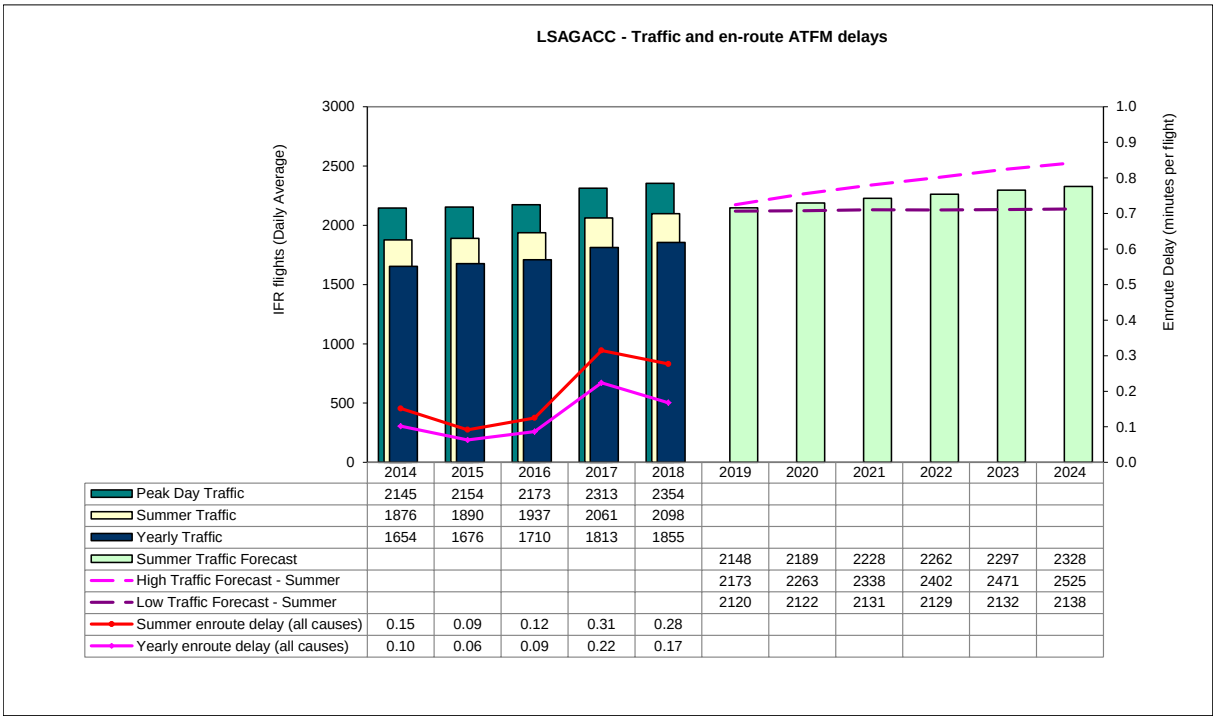
Traffic in Switzerland **increased by 5.5%** during Summer 2018 (May to October inclusive), when compared to the same period during 2017.

2019-2024

The EUROCONTROL Seven-Year Forecast predicts an average annual increase between 0.6% and 3.2% for Switzerland during the planning cycle, with a baseline growth of 2.0%.

2.2. ACC Geneva

Traffic and en-route ATFM delays 2014-2024



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Peak Day Traffic	2145	2154	2173	2313	2354						
Summer Traffic	1876	1890	1937	2061	2098						
Yearly Traffic	1654	1676	1710	1813	1855						
Summer Traffic Forecast						2148	2189	2228	2262	2297	2328
High Traffic Forecast - Summer						2173	2263	2338	2402	2471	2525
Low Traffic Forecast - Summer						2120	2122	2131	2129	2132	2138
Summer enroute delay (all causes)	0.15	0.09	0.12	0.31	0.28						
Yearly enroute delay (all causes)	0.10	0.06	0.09	0.22	0.17						

Performance summer 2018

Traffic Evolution	2018 Capacity Baseline	En-route Delay (min/flight) - Summer		Capacity gap
		Ref value	Actual	
+ 1.8%	159 (+1%)	0.28	0.28	No

The average en-route delay per flight decreased from 0.31 minutes per flight in summer 2017 to 0.28 minutes per flight in summer 2018.
54% of delays were for the reason Weather, 22% for ATC Capacity, 22% for the reason ATC Staffing and 1% for Equipment.

Capacity Plan +1%	Achieved	Comments
FABEC ATFCM/ASM Step 2 : CDM procedures for Airspace Request Levels 2 and 3	Yes	Ongoing
Improved ATFCM Procedures and STAM	Yes	Continuous effort
Crystal – Traffic and complexity prediction tool	Yes	Continuous effort
Cross qualification of ATCOs (Upper/Lower)	Yes	16 in 2018
Recruitment as necessary to maintain the required staffing levels	Yes	7 ATCOs in training
Virtual centre	Yes	- CRYSTAL on SOI (Service Oriented Infrastructure) - Cross-site multicast of radar data - Optimised dynamic map management - Emergency Radio Voice Communication System - New Swiss-wide radar simulator - New Route Handling - "FlexSecto CH" (Flexible Sectorisation)
Reassessment of sector capacities following CAPAN study	Yes	
Maximum configuration: 9 sectors (6 + 3)	Yes	9 (6 upper sectors + 3 lower sectors)

Summer 2018 performance assessment
The capacity baseline was measured using ACCESS/Reverse CASA at 159, which represents the capacity delivered during the Summer season in the ACC. During the measured period, the peak 1 hour demand was 156, and the peak 3 hour demand was 146.

Planning Period 2019-2024

The planning focuses on the Summer season to reflect the most demanding period of the year from a capacity perspective. This approach ensures consistency with the previous planning cycles.

Following the inputs provided by the European Commission at the ad-hoc NMB on 25 October 2018, en-route delay reference values and capacity requirement profiles have been calculated for RP3 (2020-2024) based on the proposal made by the PRB to the European Commission.

NETWORK	En-route ATFM delay breakdown RP2 Reference Values	En-route ATFM delay breakdown PRB proposal RP3 Reference Values				
	2019	2020	2021	2022	2023	2024
Annual	0.5	0.8	0.7	0.6	0.5	0.5

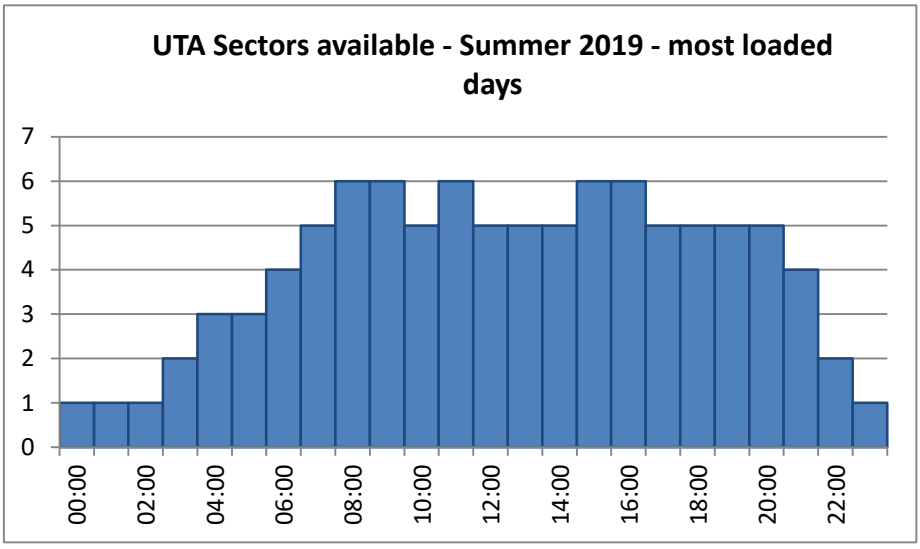
Final en-route delay reference values and capacity requirement profiles will be provided after the final decision on RP3 targets.

			RP2 Capacity Profiles		RP3 Indicative Capacity Profiles							
ACC	2018 baseline		Profiles (hourly movements and % increase over previous year)									
			2019		2020		2021		2022		2023		2024	
LSAG	159	H	173	9%	179	3%	187	4%	190	2%	195	3%	200	3%
		Ref.	170	7%	173	2%	177	2%	181	2%	182	1%	186	2%
		L	169	6%	169	0%	170	1%	170	0%	170	0%	170	0%
		Open	170	7%	173	2%	179	3%	181	1%	184	2%	188	2%
		C/R	161	1%	164	2%	167	2%	170	2%	173	2%	175	1%

Summer Capacity Plan						
	2019	2020	2021	2022	2023	2024
Free Route Airspace				FRA CH		
Airspace Management Advanced FUA	ATFCM/ASM Step 2 : CDM procedures for Airspace Request Levels 2 and 3					
Airport capacity	Crystal TWR/APP – Traffic and complexity prediction tool		LSGG PAGE-2 (AMAN)			
	LSGG PAGE-1 (electronic strip)		LSGG iLVP			
Airport & TMA Network Integration						
Cooperative Traffic Management	Improved ATFCM Procedures and STAM					
	Crystal – Traffic and complexity prediction tool					
Airspace	New sectorisation					Dynamic sectorisation
Procedures						
Staffing	Cross qualification of ATCOs (Upper/Lower)					
	Recruitment as necessary to maintain the required staffing levels					

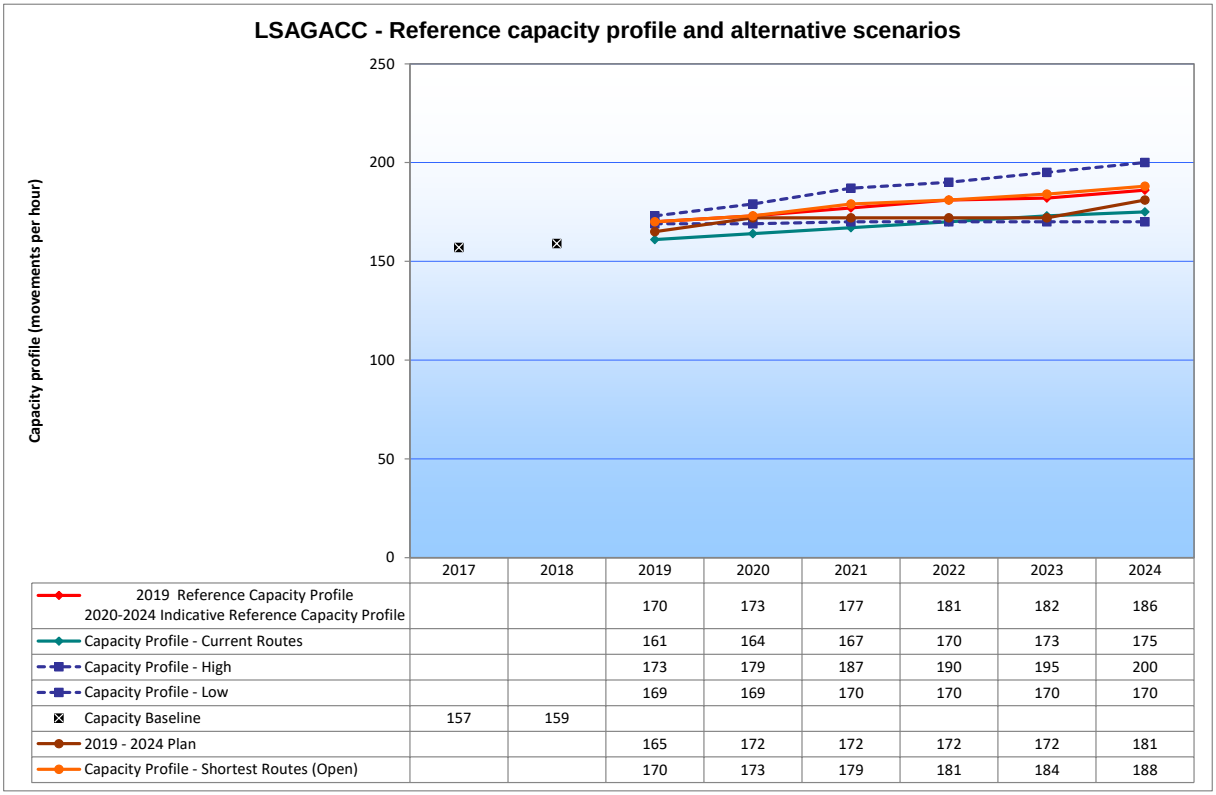
Technical						
	Virtual centre					
Capacity						
Significant Events						
Max sectors	9	9	9	9	9	9
Planned Annual Capacity Increase	4%	4%	0%	0%	0%	5%
Reference profile Annual % Increase	7%	2%	2%	2%	1%	2%
Current Routes Profile % Increase	1%	2%	2%	2%	2%	1%
Difference Capacity Plan v. Reference Profile	-2.9%	-0.6%	-2.8%	-5.0%	-5.5%	-2.7%
Difference Capacity Plan v. Current Routes Profile	2.5%	4.9%	3.0%	1.2%	-0.6%	3.4%
Annual Reference Value (min)	0.19	0.26	0.19	0.18	0.17	0.17
Summer reference value (min)	0.28	0.42	0.28	0.28	0.26	0.25
Additional information	Max sectors: Until the end of cross-qualification in 2019, these are still separate licences and are therefore a constraint on rostering. The capacity gained by the above measures might be cancelled out by the decrease in capacity linked to the cost reduction measures (which affect ATCOs, as much as technical and operational support staff). Trainee classes commenced in 2017, new fully qualified ATCOs are expected by 2020. 7 ATCO trainees in 2018, 10 trainees per year planned from 2019 onwards + 6 foreign recruits in 2019. Nevertheless, the staffing situation is expected to remain tense throughout the entire period. Traffic forecasts from graphs above are relevant to the ACC but the traffic evolution in 2018 shows a very contrasted picture in the lower and upper sectors: decrease in the lower sectors all year, and high increase in the upper sectors except in May to July. LSGG capacity enhancing measures: • Project PAGE is expected to increase capacity from 40 movements per hour, to 42. • Pre-analysis estimates of project iLVP show a capacity increase of 7 to 14% during LVP, to be confirmed during the simulation phase.					

2020-2024: Indicative RP3 Reference Values



The above graph shows an outline of available sector configurations for the most loaded traffic days of summer 2019 in the upper airspace. This graph should be considered as an indication only, given that sector configurations at Geneva ACC are planned for each day of the year, based on the traffic forecast for each specific day provided by NM through DDR2. Therefore, the planned sector configurations are fully flexible from one day to another, but are fully dependent on the DDR2 forecast quality, which is itself based on the information delivered by aircraft operators, hence having a direct impact on operational performance.

The profiles shown in the graph below correspond to the capacity increases shown in the above "Capacity Plan" table, and only reflect ATFM en-route delays that are under Skyguide managerial control (i.e. excluding weather, industrial action, etc.) contrarily to the EU-wide target that includes all regulation causes.



	2017	2018	2019	2020	2021	2022	2023	2024
2019 Reference Capacity Profile 2020-2024 Indicative Reference Capacity Profile			170	173	177	181	182	186
Capacity Profile - Current Routes			161	164	167	170	173	175
Capacity Profile - High			173	179	187	190	195	200
Capacity Profile - Low			169	169	170	170	170	170
Capacity Baseline	157	159						
2019 - 2024 Plan			165	172	172	172	172	181
Capacity Profile - Shortest Routes (Open)			170	173	179	181	184	188

2019-2024 Planning Period Outlook

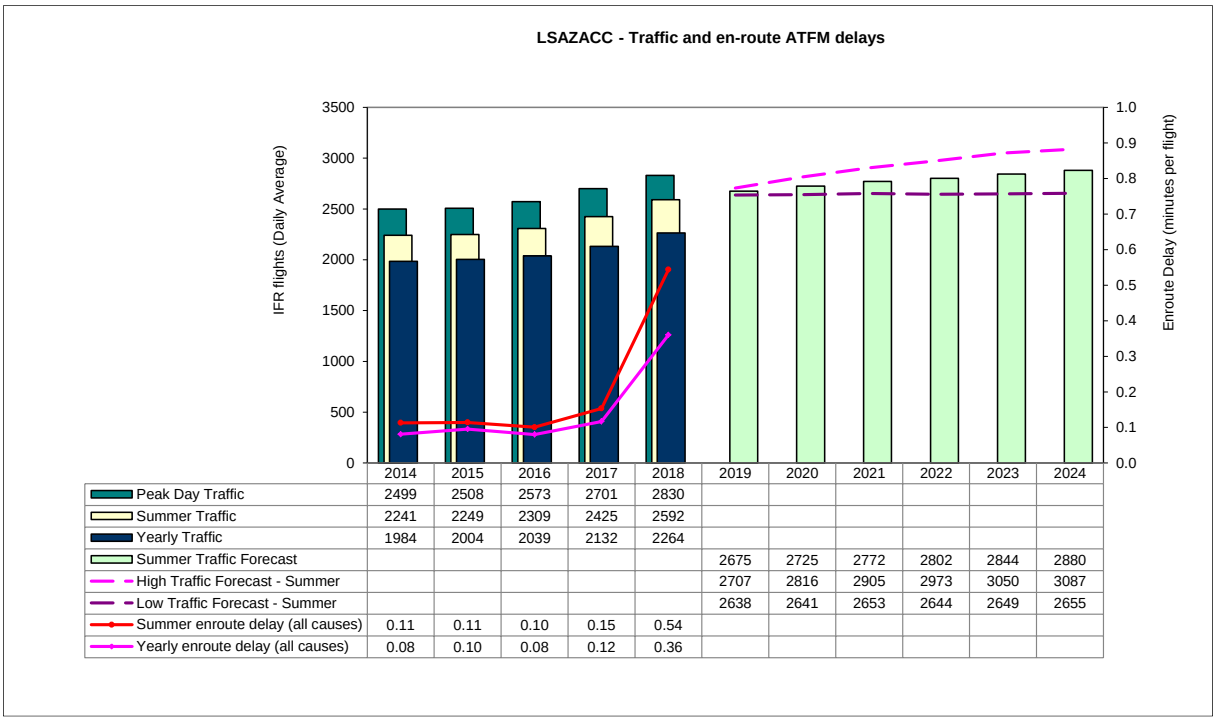
If the shortest routes are systematically flown, the above profile shows a capacity gap within the period, which would not be the case if the AOs fly current routes.

LSAGACC: In summer 2018, only 20% of the delays in Geneva ACC were capacity-related, and the ACC is therefore not close to having a capacity gap, given that the delay target includes all reasons of delay.

In 2017 and 2018, Geneva ACCs witnessed an unforeseen and steady to high increase in traffic because of the regulations due to lack of staff in Karlsruhe, Reims and MUAC. It is hard to foresee what the traffic will look like once these ACCs have re-staffed and the eNM/S19 measures are no longer in place. There might be a real downturn in traffic in Geneva ACC, and in the light of this uncertainty, it does not seem reasonable to heavily invest in order to accommodate a traffic growth that might or might not materialize, especially if Skyguide is to reach the cost-efficiency targets.

2.3. ACC Zurich

Traffic and en-route ATFM delays 2014-2024



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Peak Day Traffic	2499	2508	2573	2701	2830						
Summer Traffic	2241	2249	2309	2425	2592						
Yearly Traffic	1984	2004	2039	2132	2264						
Summer Traffic Forecast						2675	2725	2772	2802	2844	2880
High Traffic Forecast - Summer						2707	2816	2905	2973	3050	3087
Low Traffic Forecast - Summer						2638	2641	2653	2644	2649	2655
Summer enroute delay (all causes)	0.11	0.11	0.10	0.15	0.54						
Yearly enroute delay (all causes)	0.08	0.10	0.08	0.12	0.36						

Performance summer 2018

Traffic Evolution	2018 Capacity Baseline	En-route Delay (min/flight) - Summer		Capacity gap
		Ref value	Actual	
+6.9%	187 (+1%)	0.29	0.54	No

The average en-route delay per flight increased from 0.15 minutes per flight in Summer 2017 to 0.54 minutes per flight in Summer 2018. 54% of delays were for the reason ATC Capacity, 37% for Weather, 5% for ATC Staffing, and 3% for Equipment.

Capacity Plan +2%	Achieved	Comments
ATFCM/ASM Step 2 : CDM procedures for Airspace Request Levels 2 and 3	Yes	Ongoing
LSZH ADW	Yes	
Improved ATFCM Procedures and STAM	Yes	Continuous effort
Crystal – Traffic and complexity prediction tool	Yes	Continuous effort
Recruitment as necessary to maintain the staffing levels	Yes	8 ATCOs in training
Virtual centre	Yes	- CRYSTAL on SOI (Service Oriented Infrastructure) - Cross-site multicast of radar data - Optimised dynamic map management - Emergency Radio Voice Communication System - New Swiss-wide radar simulator - New Route Handling - TACO Bern on SOI

		- “FlexSecto CH" (Flexible Sectorisation)
Reassessment of sector capacities following CAPAN study	Yes	
Maximum configuration: 10 sectors	Yes	10 sectors opened (4 lower + 6 upper)
Summer 2018 performance assessment		
The capacity baseline was measured using ACCESS at 187. During the period June/July, the peak 1 hour demand was 189, and the peak 3 hour demand was 179.		

Planning Period 2019-2024

The planning focuses on the Summer season to reflect the most demanding period of the year from a capacity perspective. This approach ensures consistency with the previous planning cycles.

Following the inputs provided by the European Commission at the ad-hoc NMB on 25 October 2018, en-route delay reference values and capacity requirement profiles have been calculated for RP3 (2020-2024) based on the proposal made by the PRB to the European Commission.

NETWORK	En-route ATFM delay breakdown RP2 Reference Values	En-route ATFM delay breakdown PRB proposal RP3 Reference Values				
	2019	2020	2021	2022	2023	2024
Annual	0.5	0.8	0.7	0.6	0.5	0.5

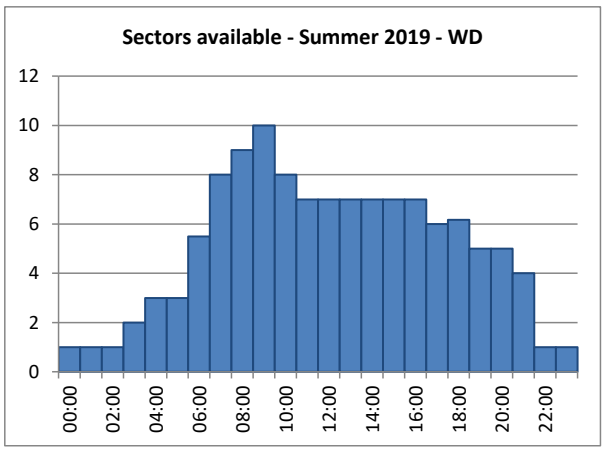
Final en-route delay reference values and capacity requirement profiles will be provided after the final decision on RP3 targets.

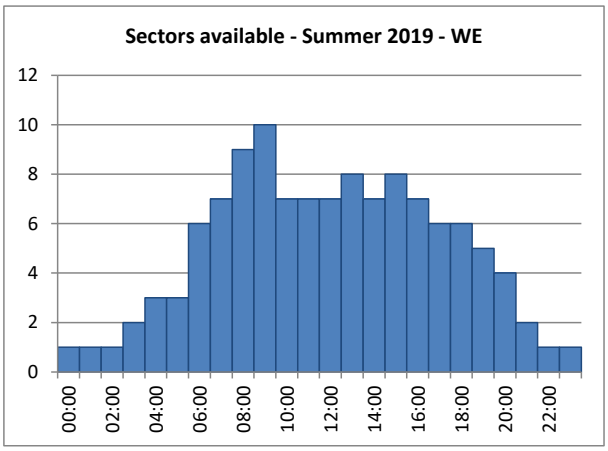
			RP2 Capacity Profiles		RP3 Indicative Capacity Profiles							
ACC	2018 baseline		Profiles (hourly movements and % increase over previous year)									
			2019		2020		2021		2022		2023		2024	
LSAZ	187	H	199	6%	208	5%	219	5%	223	2%	229	3%	234	2%
		Ref.	196	5%	200	2%	204	2%	208	2%	213	2%	214	0.5%
		L	193	3%	193	0%	193	0%	193	0%	193	0%	193	0%
		Open	193	3%	197	2%	203	3%	206	1%	210	2%	212	1%
		C/R	194	4%	200	3%	206	3%	210	2%	214	2%	215	0.5%

Summer Capacity Plan						
	2019	2020	2021	2022	2023	2024
Free Route Airspace				FRA CH		
Airspace Management Advanced FUA	FABEC ATFCM/ASM Step 2 : CDM procedures for Airspace Request Levels 2 and 3					
Airport capacity	LSZH ARSI		LSZH BR2014 / RECAT			
Airport & TMA Network Integration						
Cooperative Traffic Management	Improved ATFCM Procedures and STAM					
	Crystal – Traffic and complexity prediction tool					
Airspace		New sectorisation				Dynamic sectorisation
Procedures						
Staffing	Recruitment as necessary to maintain the required staffing levels					

Technical	Virtual centre					
Capacity	CAPAN 2017 follow-up, adaptation of EC/h capacities					
Significant Events						
Max sectors	10	10	10	10	10	10
Planned Annual Capacity Increase	0%	5%	0%	0%	0%	5%
Reference profile Annual % Increase	5%	2%	2%	2%	2%	0%
Current Routes Profile % Increase	4%	3%	3%	2%	2%	0%
Difference Capacity Plan v. Reference Profile	-4.6%	-2.0%	-3.9%	-5.8%	-8.0%	-3.7%
Difference Capacity Plan v. Current Routes Profile	-3.6%	-2.0%	-4.9%	-6.7%	-8.4%	-4.2%
Annual Reference Value (min)	0.18	0.25	0.20	0.18	0.17	0.17
Summer reference value (min)	0.29	0.38	0.29	0.27	0.26	0.25
Additional information	The capacity gained by the above measures might be cancelled out by the decrease in capacity linked to the cost reduction measures (which affect ATCOs, as much as technical and operational support staff). Trainee classes commenced in 2017, new fully qualified ATCOs are expected by 2020. 8 ATCO trainees in 2018, 10 trainees per year planned from 2019 onwards. Nevertheless, the staffing situation is expected to remain tense throughout the entire period. Traffic forecasts from graphs above are relevant to the ACC but the traffic evolution in 2018 shows a very contrasted picture in the lower and upper sectors. The increase was moderate to high in the lower sectors all year except in March (up to +5.9% in July), but was very high increase in the upper sectors all year, with up to +12.2% in August. LSZH capacity enhancing measures: - RECAT: optimisation of wake turbulence categorisation. The RECAT studies done for LSZH indicate +1 movement at LDG RWY 14 being achieved at hours of high demand. - ARSI (Advanced Runway Safety Improvement): + 15 departures per hour in configuration South (arrivals rwy 34, departures rwy 28/32) - BR2014 (Betriebsreglement 2014): rapid rwy exits, separation minima, SID/STAR modifications, +5 arrivals per hour in configurations East (arrivals rwy 28, departures rwy 32), +5 departures per hour in configuration South and South					

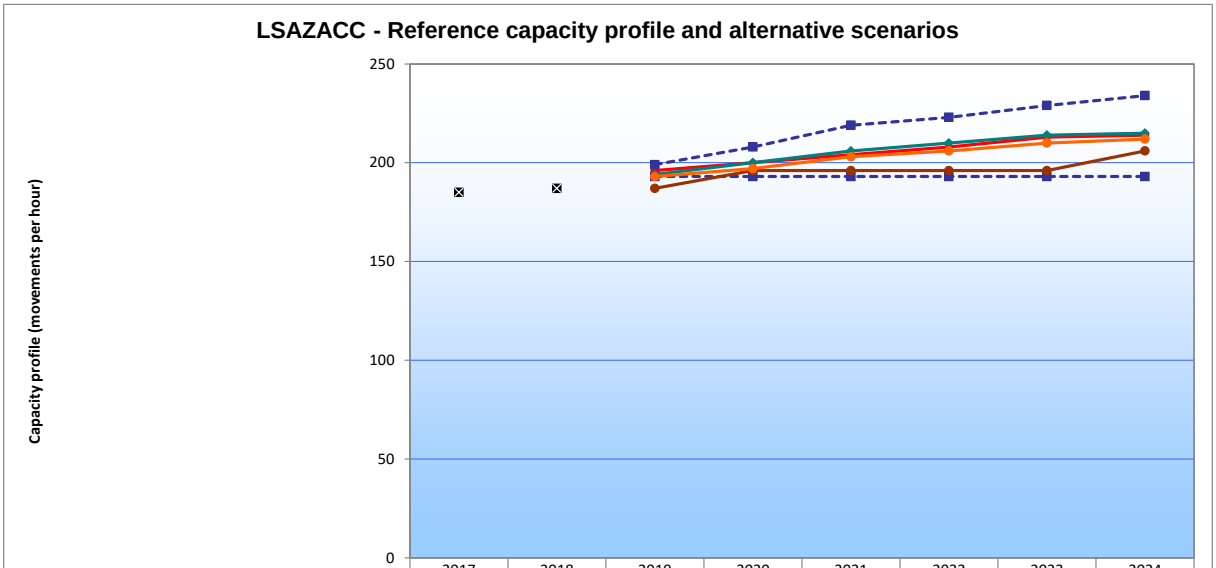
2020-2024: Indicative RP3 Reference Values





The above graphs show an outline of available sector configurations for a typical weekday and a weekend day for summer 2019. These graphs should be considered as an indication only, given that sector configurations at Zurich ACC are planned for each day of the year, based on the traffic forecast for each specific day provided by NM through DDR2. Therefore, the planned sector configurations are fully flexible from one day to another, but are fully dependent on the DDR2 forecast quality, which is itself based on the information delivered by aircraft operators, hence having a direct impact on operational performance.

The profiles shown in the graph below correspond to the capacity increases shown in the above "Capacity Plan" table, and only reflect ATFM en-route delays that are under Skyguide managerial control (i.e. excluding weather, industrial action, etc.) contrarily to the EU-wide target that includes all regulation causes.



	2017	2018	2019	2020	2021	2022	2023	2024
2019 Reference Capacity Profile 2020-2024 Indicative Reference Capacity Profile			196	200	204	208	213	214
Capacity Profile - Current Routes			194	200	206	210	214	215
Capacity Profile - High			199	208	219	223	229	234
Capacity Profile - Low			193	193	193	193	193	193
Capacity Baseline	185	187						
2019 - 2024 Plan			187	196	196	196	196	206
Capacity Profile - Shortest Routes (Open)			193	197	203	206	210	212

2019-2024 Planning Period Outlook

In summer 2018, RAD constraints and scenarios were put in place in order to offload Karlsruhe, Reims and MUAC, and which were not supposed to on-load Zurich, but did, and resulted in an increase of traffic and delays in Zurich ACC. Network Delay Sharing is implemented, and will remove 40'000 minutes of delay from the LSAZ figures for 2018.

Routes were radically different from those observed in 2017, and the increase was not reflected, neither in the STATFOR High forecast, nor in the DDR2 forecast, based on 2017 routes.

Shortest routes were flown more frequently in 2018, leading to a traffic increase in LSAZ.

LSAZACC: In summer 2018, only 50% of the delays in Zurich ACC were capacity-related, and the ACC therefore does indeed not have a capacity gap, given that the delay target includes all reasons of delay.

In 2017 and 2018, Zurich ACC witnessed an unforeseen and high increase in traffic because of the regulations due to lack of staff in Karlsruhe, Reims and MUAC. It is hard to foresee what the traffic will look like once these ACCs have re-staffed and the eNM/S19 measures are no longer in place. There might be a real downturn in traffic in Zurich ACCs, and in the light of this uncertainty, it does not seem reasonable to heavily invest in order to accommodate a traffic growth that might or might not materialize, especially if Skyguide is to reach the cost-efficiency targets.

3. Master Plan Level 3 Implementation Report conclusions

Conclusions issued from the European ATM Master Plan Level 3 Implementation Report 2018 applicable to Switzerland for all items that require corrective actions and improvements.

Conclusion	Applicable to
AS THE ASM TOOLS AIMING FOR A FULL ROLLING ASM/ATFCM PROCESS ARE ON THE CRITICAL PATH FOR THE TRANSITION TOWARDS TRAJECTORY-BASED OPERATIONS, ALL CONCERNED STAKEHOLDERS SHOULD ACTIVATE AND/OR INVIGORATE THEIR IMPLEMENTATION PLANS SO AS TO ENSURE THAT THE DEADLINES FOR IMPLEMENTATION WILL BE MET AS APPROPRIATE. (page 14 of the Report)	All States with delays in implementation of AOM19.1, AOM19.2 and AOM19.3
State's action planned for this conclusion: A study is on-going to identify system changes. This study should lead to the launch of an implementation project **Description of the planned action:** The suitability of LARA tool is evaluated in the Swiss CIV and MIL environment. A pilot project has been launched in June 2017 and should finish in Autumn 2019. Based on the final pilot project report, a new CIV/MIL project should be started to cover the whole ASM process (more than it was covered in the pilot project).	

Conclusion	Applicable to
IMPLEMENTATION OF FRA IS VERY MUCH ENCOURAGED BELOW FL310 AND IN CROSS-BORDER AIRSPACE. (page 19 of the Report)	ECAC States
State's action planned for this conclusion: The on-going FRA Switzerland project aims to implement FRA in the Swiss Area of Responsibility by 02.12.2021 **Description of the planned action:** FABEC FRA delivered a good basis to develop the FRA concept for Switzerland. Also, the SESAR FRA validation will be used to test some specific performance of the foreseen FRA Switzerland design.	

4. Implementation Projects

The table below presents the high-level information about the main projects currently ongoing in Switzerland. The details of each project are available in Chapter 2 of the Level 2 - Detailed Implementation Status document.

4.1. National projects

Name of project:	Organisation(s):	Schedule:	Status:	Links:
ADQ Implementation	FOCA (CH), Skyguide (CH)	From 2011 until 2023.	Based on an ADQ implementation CONOPS a first project (downstream part only) has been completed ensuring to update all necessary processes (incl. staff training) within Skyguide AIM to become ADQ compliant. An appropriate Safety Report was provided to NSA for review. The new processes have been implemented with effect of 07.01.19. Further projects for a data driven AIP production, workflow management tool, data collection interface and charting enhancements will follow until 2020. FOCA is expected to launch a national tender for the establishment of the data collection services in 2019. The relevant legal changes for the ADQ- and TOD implementation are finalised and should be enforced in 2021. Skyguide: EAD migration for Minimum Static Data completed based on signed EAD Agreement, full Static Data migration is foreseen. EAD migration for PAMS completed based on signed EAD Agreement.	-
AMAN.CH	Skyguide (CH)	Clearance for Realisation 11/2018 Clearance for Operations LSZH : 10/2019 Clearance for Operations LSGG : 06/2020	-	L3: ATC07.1, ATC15.1, ATC15.2

Name of project:	Organisation(s):	Schedule:	Status:	Links:
CHIPS-PBN	FOCA (CH), FZAG - Zurich Airport (CH), GA - Geneva Airport (CH), Skyguide (CH)	From October 2008 until December 2015.	• PBN capability is achieved in Swiss airspace • All possible applications of PBN are implemented with at least one flight procedure • 21 PBN flight procedures are implemented at various airports in CH • Status prototype, no standard yet in CH, CNS strategy for CH being reviewed	L3: ENV01, NAV03.1, NAV10
CHIPS2.0	FOCA (CH), FZAG - Zurich Airport (CH), GA - Geneva Airport (CH), Skyguide (CH)	From January 2016 and still ongoing.	8 innovation topics are identified : RPAS, Remote TWR, IFR in airspace G without ATC, airspace strategy, detection of flying objects and conflict resolution, greener wave, CNS strategy CH, Automated RWY Status Indication. Coordination Activities: • 2 meetings per year at executive level – being discussed • 2 meeting per year at management level	-
Datacom Rollout SGN	Skyguide (CH)	From March 2013 until January 2015.	• The concepts have been defined and chosen • The requirements have been collected and agreed among concerned stakeholders • A Network Architectural Design has been achieved • A Request for Proposal has been sent to Equipment Manufacturers and Telecom Operators • Decision for realization has been approved in December 2013 • Rollout has started in August 2014 and was finished in January February 2015, including migration of all services and decommissioning of old 2Mbps leased lines. This technology, proven reliable and successful, will be reused for further deployment, such as CNS sites and other remote locations … potentially for international interconnections facing 2Mbps leased lines phase-out from telecom operators.	-
Integrated Briefing Services (IBS)	Skyguide (CH)	From 2013 until 2017.	Integrated Briefing Services are introduced as desktop and mobile Web application.	-

Name of project:	Organisation(s):	Schedule:	Status:	Links:
Skynet rollout CNS core and CNS sites	Skyguide (CH)	From January 2017 until December 2022.	• The concepts have been defined and chosen • The requirements have been collected and agreed among concerned stakeholders • A Network Architecture and a High-level Design have been finalized at network level • A rollout project, funded by network investments (5yFP), will start in 1Q2018, including migration of all services and decommissioning of old 2Mbps leased lines This technology, proven reliable and successful, rely on the experience gained with the Datacom project (see point above).	-
VC Programme	Skyguide (CH)	From January 2011 until December 2022 or later	• VCT1 delivered four steps, including Mode-S and CPDLC; today GVA and ZRH (Upper and Lower Area Control) are operating stripless. VCT1 started in 2010 and will finish in Q12017 • VCT2 develops the core architecture for the future of Skyguide. VCT2 started in Q3 2016 and will end in 2020 • In Tranche 3 various studies are performed, and in Tranche 4 two trials will be run, linked to SESAR initiatives.	L3: ATC12.1, ATC17, ITY-AGDL RP2 PP: Virtual Center 1

4.2. FAB projects

There are two main FABEC projects ongoing:

- XMAN (Extended Arrival Manager)
- FRA (Free Route Airspace)

The tables below detail for each ongoing main FABEC project:

- which FABEC ANSPs and military partners are participating
- a description, the scope and objectives
- the schedule and implementation planning
- the status end 2018
- the link to the ATM Master Plan Level 3 (formerly ESSIP), if any
- the expected performance contribution to the SES Key Performance Areas Capacity, Safety, Environment and Cost-Efficiency

Name of project:	Organisation(s):	Schedule:	Status:	Links:
Extended Arrival Management (XMAN)	DFS (DE), DSNA (FR), LVNL - Luchtverkeersleiding Nederland (NL), MUAC ANSP (MAS), SKEYES (BE), Skyguide (CH)	The XMAN project envisaged three development and implementation steps: Basic – Advanced – Optimised. In December 2018 the project team decided to skip the Optimised Step and to incorporate the envisaged features of the Optimised Step into the Advanced Step. The planning is now as follows: 1. Basic Step - From 2012 to 2024 The Basic Step uses the currently available systems and technologies in order to establish cross-centre arrival management in the airspace controlled by Skeyes, DFS, DSNA, LVNL, MUAC and Skyguide. 2. Advanced Step - From 2013 to 2024 The Advanced Step takes into account validated SESAR results in order to improve the en-route part of cross-centre arrival management in the overall FABEC airspace. This step requires enhanced data exchange between ACC/UAC in order to support a delay sharing strategy. Additional planning information related to departures and airborne flights will be provided by Airport-CDM and Network Management. This step has an impact on all FABEC ACCs. This Step will also take into account further validated SESAR results and will optimise the cooperation between arrival management and Airport-CDM, Aircraft Operators and Network Management in order to widely share Arrival Management (AM) information between all partners and to process and to apply Arrival Management information where needed.	The FABEC XMAN Basic Step has already been implemented at several ACCs for several airports. The implementation phase of the Basic Step will continue until 2024. The Milestone 4 of the Advanced Step of the XMAN project was planned for June 2018 but was moved to Q2/2019 as the deployment of the XMAN Portal will continue until mid-2019. The project team agreed to skip the Optimised Step and to integrate optimised features into the Advanced Step.	L3: ATC07.1, ATC15.1 Deployment Programme: - AF1: Extended AMAN and PBN in high density TMA - Family 1.1.1: Basic AMAN - Family 1.1.2: AMAN upgrade to include Extended Horizon function

Name of project:	Organisation(s):	Schedule:	Status:	Links:
Free Route Airspace (FRA)	DFS (DE), DSNA (FR), LVNL - Luchtverkeersleiding Nederland (NL), MIL (DE), MUAC ANSP (MAS), Mil. Authority (BE), Mil. Authority (FR), Militaire Luchtvaart Autoriteit (NL), SKEYES (BE), Skyguide (CH), Swiss Air Force (CH)	The FABEC FRA project was launched in 2011 with the objective of setting up a FABEC Free Route Airspace with Advanced Flexible Use of Airspace (A-FUA) at FL 365 (and lower when and where possible) in a stepped approach by the end of RP2. In 2015, the project has been aligned with the requirements of the Pilot Common Project requirements. This induced an implementation of FABEC Free Route Airspace at FL310+ by 2022. In 2016, the project was organised into two work streams 1. National and cross-border Direct Routes (DCT) including Long Range Direct Routings; 2. Free Routing. All Free Route initiatives conducted locally, bilaterally or within a FABEC framework are under the FABEC FRA umbrella. Implementation activities are managed at ACC or national level using local management processes and are monitored at FABEC level. In December 2017 the Project Management Plan version 4.0 has been approved. The project is now further supporting and monitoring the direct routing implementations and full FRA implementations.	The project work on Direct Routings and Free Route is in a rolling MS4 status with a yearly update of the implementation report and implementation plan. DSNA and Skyguide have already implemented several direct routes and will continue to implement further direct routes in the coming years in preparation of Full FRA. On the 1st of March 2018, DFS has implemented Full FRA H24 in EDDU North airspace above FL 285 and EDDU East Airspace above FL 315 and Full FRA Night above FL245 in all the DFS airspace. MUAC has successfully extended Full FRA to weekends from the 8th-9th of December 2018 (Full FRA week-end and night).	L3: AOM21.2 L2: AOM-0506

Name of project:	Organisation(s):	Schedule:	Status:	Links:
FABEC AIM Task Force (AIM)	DFS (DE), DSNA (FR), LVNL - Luchtverkeersleiding Nederland (NL), MUAC ANSP (MAS), Mil. Authority (BE), SKEYES (BE), Skyguide (CH)	The FABEC AIM Task Force received revised priorities. The work plan 2017/2018 was changed accordingly.	The following tasks are ongoing: • Resolving of the remaining inconsistencies within FABEC AIM data in order to reach a harmonised FABEC ATM data set. • Airspace Naming Conventions in order to ensure that the names and coded identifiers of all airspace types commonly used in FABEC are harmonised in both the national AIPs and the EAD database. • Supporting the MUAC FRA Project in advising on the corresponding required publication issues. The nature and complexity of the assigned deliverables imply a continuation of those tasks into the next period i.e. 2019 – 2020.	L3: ITY-ADQ

4.3. Regional projects

Name of project:	Organisation(s):	Schedule:	Status:	Links:
COFLIGHT/eFDP (Flight Data Processing)	Skyguide (CH)	Coflight V2R1FAT has been delivered and validated in March 2015 as planned. This is considered as the first complete and usable deliverable out of the Coflight project. The next major release following this version, the V3+, has been delivered in 2016. Under a new framework, the owners of Coflight (DSNA & ENAV) plan a yearly new release, on which eFDP, hence Coflight Cloud Services (CCS) will be based. The deployment of CCS should be made on dedicated platforms independently of the operational deployment of Coflight in France or Italy. However, it shall go along the deployment in a French centre for which currently, a V3R3 version is foreseen (for December 2018) to serve a basis for the operational usage inside the 4Flight programme. Initial CCS capability, with the so-called "technical integration service", allowing customers to adapt their own technical ATM environment, is expected to be available by Q4 2019.	Skyguide's participation to the Coflight Program has changed in 2014 according to the new strategy based on the Virtual Center concept which enables the sourcing of services. Hence, the study 'Coflight as a service' was launched in December 2014, in the framework of a cooperation agreement between DSNA, ENAV, Skyguide and MATS, the first two being potential future eFDP providers and the latter potential eFDP customers. The study ended successfully at the end of 2016, with a large range of technical, operational, safety, security, interoperability and legal deliverables. On top of that, trials based on the SESAR B04.04 results and going beyond them in terms of functionalities were successfully realised. On this basis, the CCS deployment phase was launched, with its initiation phase in 2017, followed by development and deployment over the next 2 years : -Technical Integration service by end 2019 -Validation & Training services by end 2020, Whilst full operation capability and service continuity services are planned by end 2021.	-
International MPLS communication network interconnections	Skyguide (CH)	Initiation : 3Q 2017 Implementation: from 4Q 2017 until 2Q 2018.	• International telecom carrier-Ethernet services, as well as network elements have been ordered by both parties Design has been finalised and the deployment will start in January 2018.	-

Name of project:	Organisation(s):	Schedule:	Status:	Links:
SETInet IP International IP communications interconnections FABIEN (FABEC Interconnection of Existing IP Networks)	Skyguide (CH)	Initiation : 1Q 2009 Implementation: from 1Q 2010 until 1Q 2015.	• FABEC is interconnected by means of IP routing over SETINET & MONIQUE (TDM networks). This interconnection network is named FABIEN (FABEC IP Interconnection Network). • Italy and Austria are interconnected by means of IP routing over SETINET. This service is named SETINET IP. Others European centralized (or meshed) services, such as NMOC (formerly CFMU, since 2012), EAD (since 2Q2013) and AMHS (since 2Q2014) are connected by means of PENS. XMAN uses the PENS ANSP BB VPN from mid-2017.	-
SETInet International TDM communications interconnections	Skyguide (CH)	TDM Initiation : 1Q 2008 TDM Implementation: from 4Q 2011 until 4Q 2015 IP/MPLS Initiation/Trials: 1Q 2016 IP/MPLS Implementation: from 1Q 2017 until 4Q 2020	Achieved with DFS, ENAV, DSNA and AUSTROCONTROL (via DFS). SETINET is connected to MONIQUE (DFS & Benelux) since 2005. Interconnections between DSNA (Bordeaux) and ENAIRE (Madrid-Barcelona) deployed and operational since December 2015. Decommissioning of international 2 Mbps leased lines by telecom operators will probably need a migration over IP/MPLS and/or Ethernet. The latter might be as well driven by the phase-out of TDM products by equipment manufacturers. Therefore the approach will be a technological transition on a bilateral or multilateral and case-by-case basis, as the IP/MPLS pilot (between DSNA, and Skyguide) is has been proven reliable and safe.	-

5. Cooperation activities

5.1. FAB Co-ordination

FAB Europe Central (FABEC) consists of the following states: Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland.

The FABEC Feasibility Phase (2006-2008) led to the conclusion that FABEC is feasible. The Implementation Phase (2008-2013) demonstrated that the FABEC structure was compliant with SES regulations.

After the ratification of the FABEC Treaty by all FABEC States, FABEC formally entered into force on the 1st of June 2013. This means that FABEC is now operational.

FABEC intends to provide capacity, solve bottlenecks, reduce costs and emissions, make flying more efficient and ensure military mission effectiveness, while maintaining the high safety standards that exist over Europe.

The table below details the FABEC AIM Task Force, which is the AIS/AIM arrangement within the FABEC.

FABEC AIM Task Force (AIM)		
Organisation(s):	DFS (DE), DSNA (FR), LVNL - Luchtverkeersleiding Nederland (NL), MUAC ANSP (MAS), Mil. Authority (BE), SKEYES (BE), Skyguide (CH)	**Type of project:** FAB
Schedule:	The FABEC AIM Task Force received revised priorities. The work plan 2017/2018 was changed accordingly.	
Status:	The following tasks are ongoing: • Resolving of the remaining inconsistencies within FABEC AIM data in order to reach a harmonised FABEC ATM data set. • Airspace Naming Conventions in order to ensure that the names and coded identifiers of all airspace types commonly used in FABEC are harmonised in both the national AIPs and the EAD database. • Supporting the MUAC FRA Project in advising on the corresponding required publication issues. The nature and complexity of the assigned deliverables imply a continuation of those tasks into the next period i.e. 2019 – 2020.	
Description:	The FABEC AIM Task Force has three areas of activities: • Harmonisation of aeronautical information inside the FABEC area • Creation of a consistent FABEC ATM Data Set • Provisions for an efficient management of the FABEC ATM Data Set	

Link and references			
ATM MP links:	L3: ITY-ADQ		
Other links:	MP Level 3: - ITY-ADQ: Ensure quality of aeronautical data and aeronautical information. PCP: - AF5: Initial System Wide Information Management. Deployment Programme DP 2015: - FT 5.3.3: Interface to Network Management System (NMS) > Aeronautical Information Exchange		
Project included in RP2 Performance Plan:	-	**Name/Code in RP2 Performance Plan:**	-
Project included in DP:	-	**Name/Code in DP:**	-
Performance contribution			
Safety:		Harmonised aeronautical information, avoiding duplications or ambiguities, significantly contributes to ATM safety.	
Environment:		FABEC wide harmonised data sets available from a single source will allow for improved flight planning.	
Capacity:		N/A	
Cost-efficiency:		Expected: A positive impact on the cost efficiency of e.g. Airspace Design Projects as cross-border data becomes readily and seamlessly available. Harmonisation of data contributes to the efficiency in flight planning for airline operators due to congruent available AIP data.	
Operational efficiency:		-	
Cooperation Activities:	-		

5.2. Regional cooperation

Regional cooperation initiatives

Name	Partners	Planning	Status
Cooperation Skyguide AIM (CH) - DSNA/SIA (F)	Skyguide AIM services DSNA/SIA	Operational and strategic work packages are considered as appropriate for strengthening the collaboration of the two partners. The first agreement was signed in 2010. In line with FABEC goals, aeronautical data and process harmonisation issues are continuously being addressed and resolved within a new signed formal agreement (including elements such as Mandatory Information Area (MIA) and EAD upload cross-border responsibilities).	The cooperation is based on a signed data publication process agreement between Skyguide AIM services and DSNA/SIA. The AIM cooperation is managed by a joint steering group (Comité de Pilotage) agreeing the common work packages and setting the priorities. A formal harmonised workflow for cross-border publications is successfully being applied in support of ATM. The experience gained is shared with the appropriate FABEC AIM expert teams. A revised set of annexes to the updated AIM agreement, including FABEC concepts as Mandatory Information Area (MIA), was approved in July 2017.
Cooperation Skyguide AIM (CH) - Austro Control (A)	Skyguide AIM services ACG AIM	A formal AIM agreement is planned and will include elements such as the operational geographical borderline, early coordination of IFR navigation data and EAD upload cross-border responsibilities.	The establishment of a formal AIM agreement between ACG and Skyguide AIM services is in progress. Agreement on an enhanced operational geographical borderline for EAD is reached (formal agreement is in elaboration).
Cooperation Skyguide AIM (CH) – DFS (D)	Skyguide AIM services DFS	Utilise the RAIM service based on the formal agreement signed with DFS in March 2011 (publication of RAIM NOTAM to support RNAV (GNSS) approaches in Switzerland). In line with FABEC goals, aeronautical data and process harmonisation issues are continuously being addressed and resolved within a new signed formal agreement (including elements such as Mandatory Information Area (MIA) and EAD upload cross-border responsibilities). An agreement on an enhanced operational geographical borderline for EAD is planned for 2019.	Currently, Skyguide gets RAIM predictions on the existing DFS RAIM prediction tool for the following aerodromes: LSZH, LSZR LSGC, LSZB, LSZG, LSME, LSMD, LSMP, LSGG and LSGS. A formal AIM agreement was signed in December 2017 and includes elements such as the Mandatory Information Area (MIA) and EAD upload cross-border responsibilities.
Cooperation Skyguide AIM (CH) – ENAV (I)	Skyguide AIM services ENAV AIM	A formal AIM agreement is planned and will include elements such as early coordination of IFR navigation data and EAD upload cross-border responsibilities.	The establishment of a formal AIM agreement between ENAV and Skyguide AIM services is in progress and planned for 2019.
Auditing Cooperation (Framework for FABEC)	Skyguide DFS DSNA New: Skeyes	Common audit program 2018 was established; audits are planned and will be performed within all the organizations.	Audits have been conducted between Skyguide, DFS and DSNA in 2018

	ANA Luxembourg MUAC		
FCS Flight Calibration Services	Skyguide (through Skynav) DFS Austrocontrol	Continuation of collaboration	Collaboration actively pursued. Proof of compliance of calibration of our installations with ICAO regulations & EUROCONTROL recommendations
ESSP European Satellite Services Provider	Skyguide DFS DSNA ENAIRE NATS ENAV NAV Portugal	The ESSP, has declared the start of the EGNOS Safety-of-Life Service (SoL Service) as of 2 March 2011 following EC authorization to provide the service.	Contract signed with the European Commission entitling the ESSP-SAS to become the EGNOS system operator and EGNOS Safety of Life (SoL) service provider. The service contract (ESP) was attributed to the ESSP following a Call for Tender in 2013. It entered into force the 01.01.2014 for a duration of 8 years. ESSP certificated as a navigation service provider by EASA was renewed in 2016 for two more years Due to changes in EU regulation, the competent NSA is the EASA (for this pan-european service). A first landing approach using EGNOS was performed end of 2016
SESAR JU	European Union (European Commission), Eurocontrol, Airbus, AT-One consortium, B4-consortium, COOPANS, Dassault Aviation, DFS, DSNA, ENAIRE, ENAV, Leonardo, Frequentis, Honeywell, INDRA, NATMIG; NATS, SEAC, Skyguide, Thales LAS France SAS, Thales Avionics SAS	Final Grant Agreement reached in Q4/2016 Projects will be conducted in two waves. Wave 1 started end of 2016 and will continue until end of 2019. Wave 2 will start beginning of 2019 and continue until 2021.	Skyguide is member of the SESAR Joint Undertaking and involved in following SESAR2020 Projects (PJs): • PJ02: Increased Runway and Airport Throughput • PJ06: Trajectory Based Free Routing • PJ09: Advanced Demand & Capacity Balancing • PJ10: Separation Management En-Route and TMA • PJ15: Common Services • PJ16: Controller Working Position / Human Machine Interface • PJ18 : 4D Trajectory Management • PJ19 : Content Integration • PJ20 : Master Plan Maintenance • PJ25 : Cross Border SESAR Trial for Enhanced Arrival Management

A6 Alliance

The "A6 Alliance" was set up informally in 2007 between the ANSPs interested in accession to SJU membership, i.e.:

- ENAIRE, the Spanish ANSP;
- DFS, the German ANSP;
- DSNA, the French ANSP;
- ENAV, the Italian ANSP;
- NATS, the British ANSP;
- NORACON, (the NORth European and Austrian CONsortium).

After the successful cooperation for accession to SJU membership, it was decided to formalize the A6 Alliance through a Memorandum of Cooperation which was concluded in June 2011.

The aim of the cooperation and coordination between the 6 parties was to provide customer value through improving the ATM performance at a European Network Level and increasing the pace of delivering the Single European Sky. The main areas of cooperation relate to general fields of mutual interest (e.g. best practice, harmonized strategy etc.), the SESAR R&D phase and SESAR deployment phase.

The governance of the A6 Alliance is ensured by a Steering Board composed of CEOs which meets on a quarterly basis and is supported by a Strategy Board composed of senior managers. An R&D Working Group and a Deployment Working Group organize co-operation at expert level.

The A6 Alliance quickly became an important player and a key stakeholder of the Single European Sky and has made significant and remarkable contributions to the SESAR JU, for example on the occasion of the ATM Master Plan Updates (editions 2012 and 2015).

PANSA became then a full member of the A6 Alliance, which also developed a close partnership with the COOPANS[3] ANSPs, and a strong relationship with the A4 (Airlines) and the SDAG (airports) which has resulted in the setup of an industry led consortium (SESAR Deployment Alliance (SDA)). On December, 5th 2014, the European Commission tasked the SDA with the setup of the SESAR Deployment Manager, thus strengthening its legitimacy in actively contributing to SESAR deployment.

This partnership between ANSPs led to the formal integration of COOPANS into the A6 Alliance for SESAR Deployment Manager activities in 2015 and, strengthened by its wide membership, the A6 Alliance members has been able since then to provide significant support either in logistics or in human resources to the SESAR Deployment Manager.

The A6 Alliance leads European-wide technical activities validated and co-funded by the EC for their consistency with the SES framework. Through the EC Connecting Europe Facility (CEF) financial program, successive proposals and actions driven by the SESAR Deployment Manager allowed significant contributions to ATM industry implementation projects within SESAR Common Projects deployment priority (currently only Pilot Common Project – PCP).

Moreover, in the context of SESAR2020, the B4[4] Consortium joined the A6 Alliance in 2015 and, after having been associated through an agreement established with A6 Alliance in order to authorize exchanges between their experts in the domain of R&D, Skyguide became by the end 2017 a full member of A6 through an ad-hoc consortium agreement with DSNA.

Finally the A6, associated for the purpose to ROMATSA (Romanian ANSP) and HungaroControl (Hungarian ANSP) and in cooperation with its A4 and SDAG partners, prepared in 2017 the establishment of SDA consortium into an AISBL[5] that became effective on 01/01/2018, for the benefit of the whole ATM industry and their end customers.

[3] ACG, Croatia Control, IAA, LFV and Naviair together form the COOPANS Alliance Innovative Network

[4] PANSA, ANS CR, LPS SR and Oro Navigacija together form the B4 Consortium

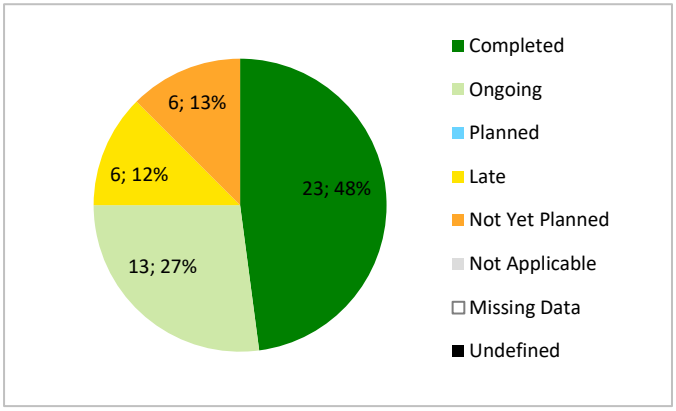
[5] "Association Internationale Sans But Lucratif », under Belgian law

6. Implementation Objectives Progress

6.1. State View

Overall Objective Implementation

Progress distribution for applicable Implementation Objectives



The implementation of the ATM Master Plan Level 3 (ATM MP L3) objectives is progressing on schedule in Switzerland. Most of the objectives are completed, ongoing or planned.

Out of the 48 ATM MP L3 active objectives applicable to Switzerland, 23 are completed, 13 are ongoing, 6 are late (AOP13 Automated Assistance to Controller for Surface Movement Planning and Routing (LSZH), ATC02.8 Ground-Based Safety Nets, COM10 Migrate from AFTN to AMHS, COM11 Voice over Internet Protocol (VoIP) and ITY-ADQ Ensure Quality of Aeronautical Data and Aeronautical Information) and 6 are not planned yet (AOM19.2 ASM Management of Real-Time Airspace Data, AOM19.3 Full Rolling ASM/ATFCM Process and ASM Information Sharing on Airspace Management, AOM19.4 Management of Pre-defined Airspace Configurations, AOP10 (LSZH) Time-Based Separation, FCM08 Information Exchanges using the SWIM Yellow TI Profile and INF08.1 Information Exchanges using the SWIM Yellow TI Profile).

Objective Progress per SESAR Key Feature

Note: The detailed table of links between Implementation Objectives and SESAR Key Features is available in Annexes.

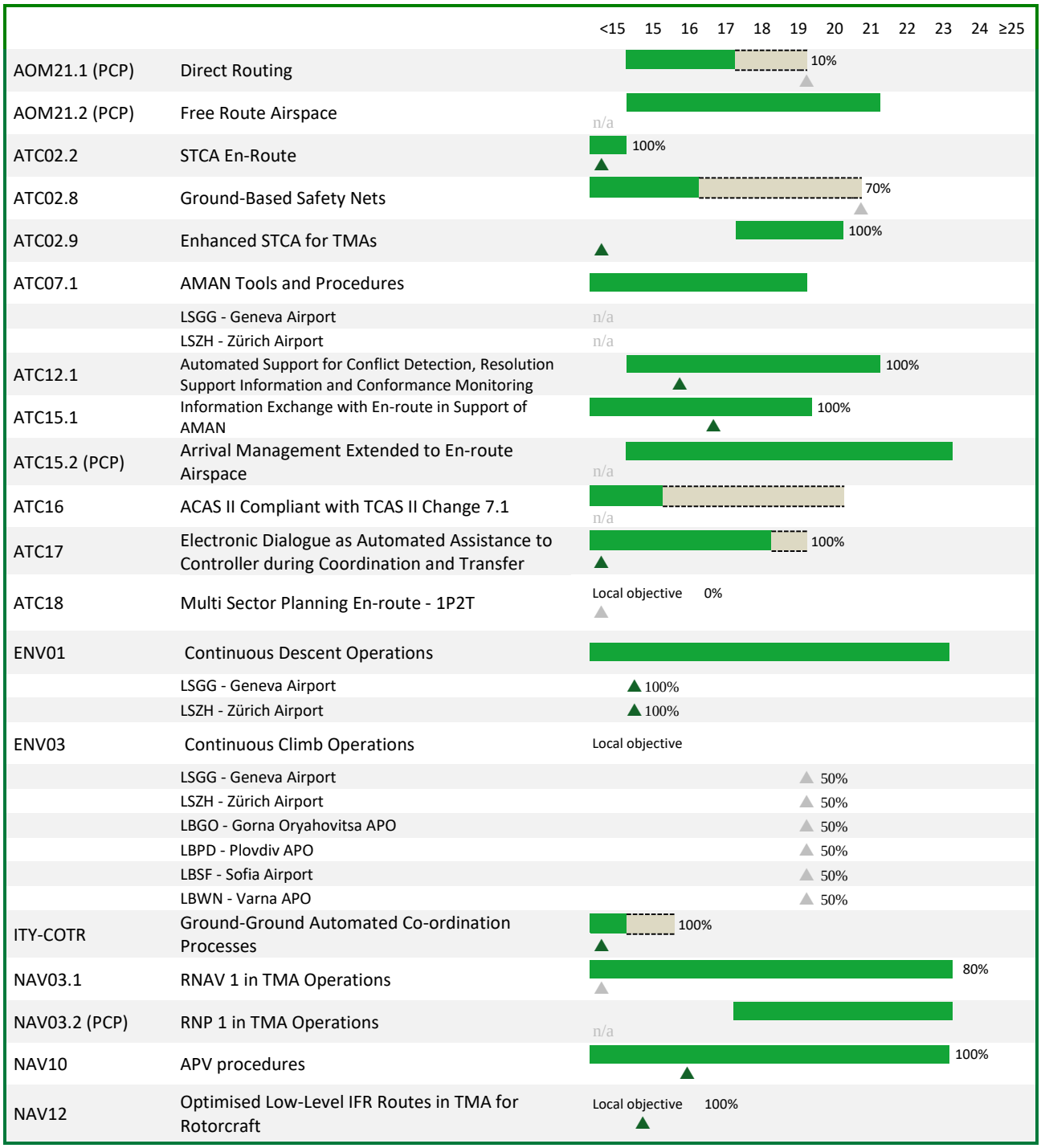
Legend:

- ## % = Expected completion / % Progress
- 100% = Objective completed
- = Implementation Objective timeline (different colour per KF)
- = Completion beyond Implementation Objective timeline

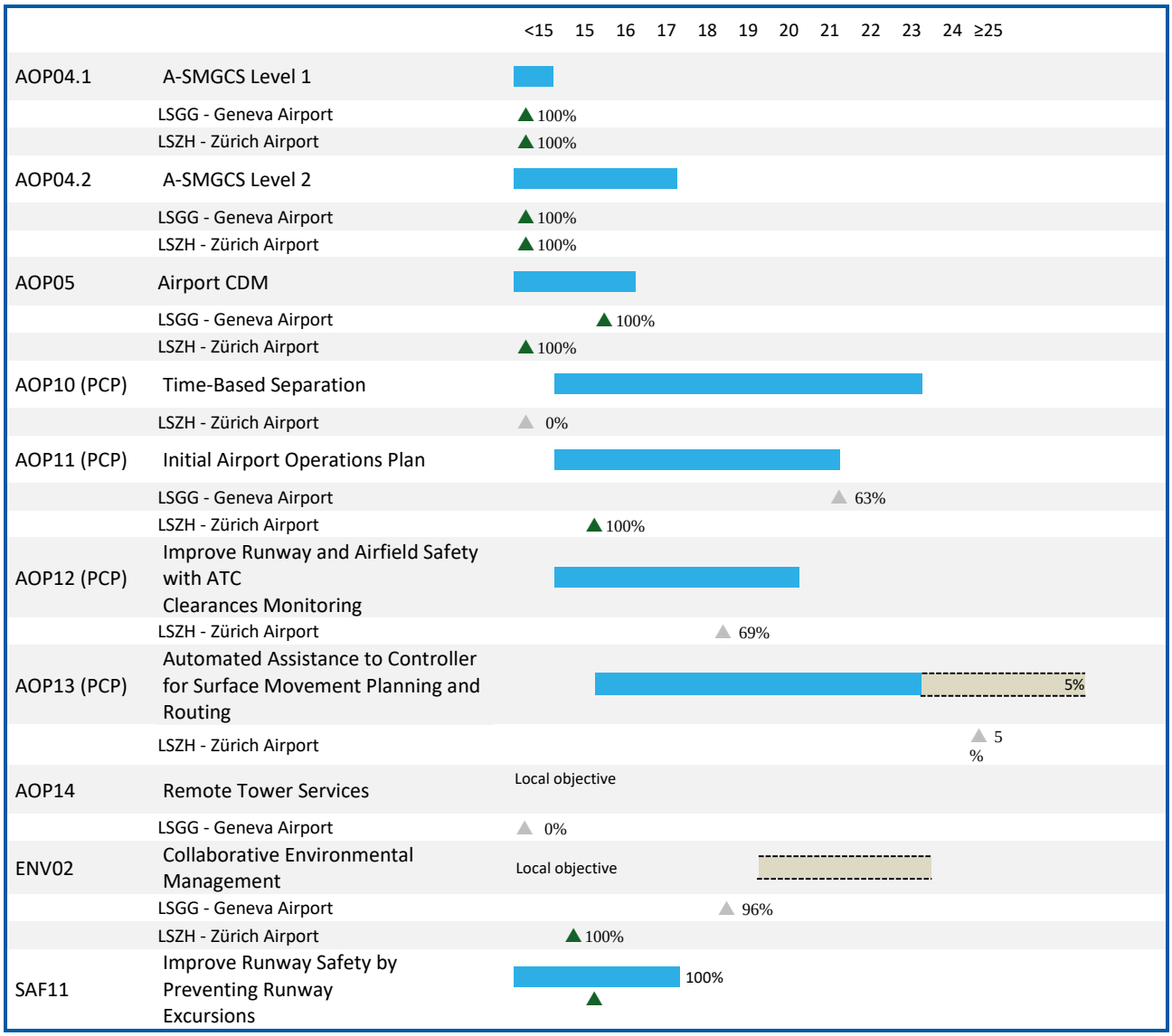
Optimised ATM Network Services

		<15 15 16 17 18 19 20 21 22 23 24 ≥25
AOM13.1	Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) handling	100%
AOM19.1 (PCP)	ASM Support Tools to Support AFUA	0%
AOM19.2 (PCP)	ASM Management of Real-Time Airspace Data	0%
AOM19.3 (PCP)	Full rolling ASM/ATFCM Process and ASM Information Sharing	0%
AOM19.4 (PCP)	Management of Pre-defined Airspace Configurations	n/a
FCM01	Enhanced Tactical Flow Management Services	87%
FCM03	Collaborative Flight Planning	100%
FCM04.1	STAM Phase 1	78%
FCM04.2 (PCP)	STAM Phase 2	n/a
FCM05 (PCP)	Interactive Rolling NOP	0%
FCM06 (PCP)	Traffic Complexity Assessment	0%

Advanced Air Traffic Services



High Performing Airport Operations



Enabling Aviation Infrastructure

		<15 15 16 17 18 19 20 21 22 23 24 ≥25
COM10	Migrate from AFTN to AMHS	95%
COM11	Voice over Internet Protocol (VoIP)	58%
COM12 (PCP)	NewPENS	0%
FCM08 (PCP)	Extended Flight Plan	0%
INF07	Electronic Terrain and Obstacle Data (eTOD)	21%
INF08.1 (PCP)	Information Exchanges using the SWIM Yellow TI Profile	n/a
ITY-ACID	Aircraft Identification	100%
ITY-ADQ	Ensure Quality of Aeronautical Data and Aeronautical Information	22%
ITY-AGDL	Initial ATC Air-Ground Data Link Services	100%
ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195	90%
ITY-FMTP	Common Flight Message Transfer Protocol	100%
ITY-SPI	Surveillance Performance and Interoperability	100%

ICAO ASBU Implementation

The following table shows, for each of the ASBU Block 0 and 1 modules, the overall status, the final date foreseen for completion and the percentage of progress achieved in the current cycle.

These results were determined using the LSSIP Year 2018 declared statuses and progress of the relevant Implementation objectives in accordance with the mapping approved by ICAO EUR EANPG/60 (European Air Navigation Planning Group).

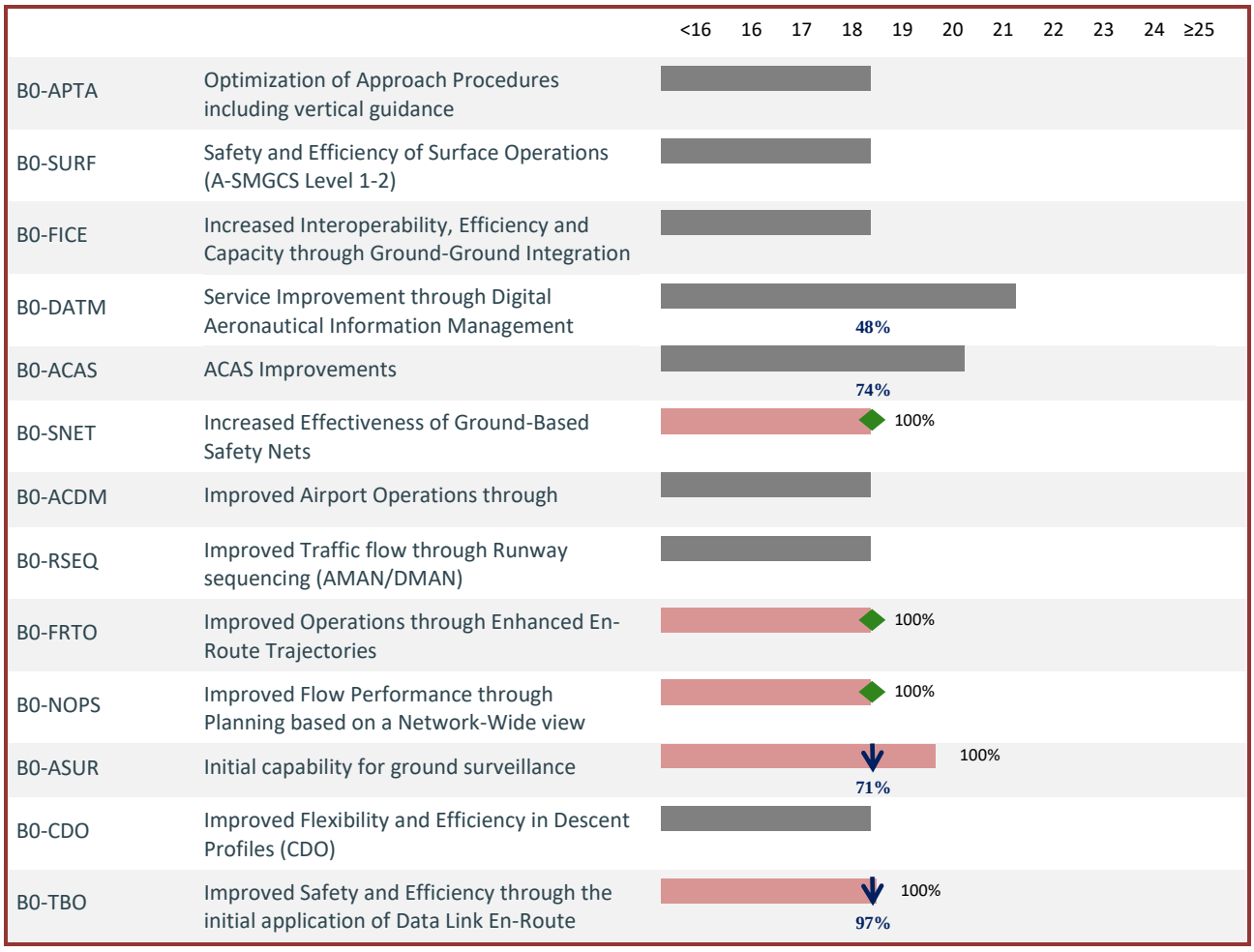
Legend:

= Completed (during 2018 or before)

= Progress achieved in 2018

= Missing planning date

= Not applicable



6.2. Detailed Objectives Implementation progress

Objective/Stakeholder Progress Code:			
Completed		Not yet planned	
Ongoing		Not Applicable	
Planned		Missing Data	
Late			

Main Objectives

AOM13.1	**Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling** ***Timescales:*** Initial operational capability: 01/01/2012 Full operational capability: 31/12/2018		**100%**	**Completed**
-				
Harmonization of Operational Air Traffic (OAT) and General Air Traffic (GAT) handling is completed				**01/04/2012**
REG (By:12/2018)				
REMIL	Approved OAT procedures are in place within the national ATM Manual as well as in the operation manual of the air force.	-	100%	Completed 31/12/2011
FOCA	Approved OAT procedures are in place within the national ATM Manual as well as in the operation manual of the air force	-	100%	Completed 31/12/2011
ASP (By:12/2018)				
Swiss Air Force	-	-	100%	Completed -
Skyguide	OAT interface exists with France, Germany and Austria.	-	100%	Completed 01/04/2012
MIL (By:12/2018)				
Swiss Air Force	-	-	100%	Completed -
FOCA	ASP actions by integrated civil-military provider Skyguide - see corresponding ASP SLoA	-	100%	Completed -
REMIL	-	-	100%	Completed -

AOM19.1	**ASM Support Tools to Support Advanced FUA (AFUA)** ***Timescales:*** Initial operational capability: 01/01/2011 Full operational capability: 31/12/2018		**100%**	**Completed**
-				
LARA tool is in place and the B2B SW Release 3.0 is implemented				**31/12/2016**
ASP (By:12/2018)				
Skyguide	-	-	100%	Completed 31/12/2016

AOM19.2	**ASM Management of Real-Time Airspace Data** ***Timescales:*** Initial operational capability: 01/01/2017 Full operational capability: 31/12/2021		**0%**	**Not yet planned**
	-			
A study is on-going to identify system changes. This study should lead to the launch of an implementation project				-
ASP (By:12/2021)				
Skyguide	The suitability of LARA tool is evaluated in the Swiss CIV and MIL environment. A pilot project has been launched in June 2017 and should finish in Autumn 2019. Based on the final pilot project report, a new CIV/MIL project should be started to cover the whole ASM process (more than it was covered in the pilot project).	-	0%	Not yet planned -

AOM19.3	**Full Rolling ASM/ATFCM Process and ASM Information Sharing** ***Timescales:*** Initial operational capability: 01/01/2014 Full operational capability: 31/12/2021		**0%**	**Not yet planned**
	-			
A study is on-going to identify system changes. Full Rolling ASM/ATFCM Process and ASM Information Sharing may be late				-
ASP (By:12/2021)				
Skyguide	The current pilot project CIV/MIL common database does not (yet) include a full rolling ASM/ATFCM process.	-	0%	Not yet planned -

AOM19.4	**Management of Pre-defined Airspace Configurations** ***Timescales:*** Initial operational capability: 01/01/2018 Full operational capability: 31/12/2021		**0%**	**Not yet planned**
	-			
Management of Pre-defined Airspace Configurations is not yet planned and may be late				-
ASP (By:12/2021)				
Skyguide	-	-	0%	Not yet planned -

AOM21.2	**Free Route Airspace** ***Timescales:*** Initial operational capability: 01/01/2015 Full operational capability: 31/12/2021		**18%**	**Ongoing**
	-			
The on-going FRA Switzerland project aims to implement FRA in the Swiss Area of Responsibility by 02.12.2021				**02/12/2021**
ASP (By:12/2021)				
Skyguide	FABEC FRA delivered a good basis to develop the FRA concept for Switzerland. Also, the SESAR FRA validation will be used to test some specific performance of the foreseen FRA Switzerland design.	Free Route Airspace	18%	Ongoing 02/12/2021

AOP04.1	**Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)** ***Timescales:*** Initial operational capability: 01/01/2007 Full operational capability: 31/12/2011		**100%**	**Completed**
LSGG - Geneva Airport				
A-SMGCS Level 1 is operational at Geneva Airport.				**30/06/2004**
REG (By:12/2010)				
FOCA	Eurocontrol A-SMGCS Level 1 Requirements directly applicable according to Article 3 of the Federal Ordinance on Air Navigation Services (letter - no objection to implementation - of A-SMGCS Level 1 in 2004).	-	100%	Completed -
ASP (By:12/2011)				
Skyguide	All Skyguide actions are completed	-	100%	Completed -
APO (By:12/2010)				
GA - Geneva Airport	A-SMGCS Level 1 is operational at Geneva airport.	-	100%	Completed 30/06/2004

AOP04.1	**Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)** ***Timescales:*** Initial operational capability: 01/01/2007 Full operational capability: 31/12/2011		**100%**	**Completed**
LSZH - Zürich Airport				
A-SMGCS Level 1 is operational at Zurich Airport.				**01/05/2010**
REG (By:12/2010)				
FOCA	Eurocontrol A-SMGCS Level 1 Requirements directly applicable according to Article 3 of the Federal Ordinance on Air Navigation Services (letter - no objection to implementation - of A-SMGCS Level 1 in 2004).	-	100%	Completed -
ASP (By:12/2011)				
Skyguide	All actions by Skyguide are completed	-	100%	Completed 01/05/2010
APO (By:12/2010)				
FZAG - Zurich Airport	A-SMGCS Level 1 is operational at Zurich Airport.	-	100%	Completed 31/12/2009

AOP04.2	**Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA) (former Level 2)** ***Timescales:*** Initial operational capability: 01/01/2007 Full operational capability: 31/12/2017		**100%**	**Completed**
LSGG - Geneva Airport				
A-SMGCS Level 2 is operational at Geneva airport				**31/12/2009**
ASP (By:12/2017)				
Skyguide	All actions by Skyguide are completed	-	100%	Completed 31/12/2009
APO (By:12/2017)				
GA - Geneva Airport	A-SMGCS Level 2 is operational at Geneva airport	-	100%	Completed 31/12/2009

AOP04.2	**Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA) (former Level 2)** ***Timescales:*** Initial operational capability: 01/01/2007 Full operational capability: 31/12/2017		**100%**	**Completed**
LSZH - Zürich Airport				
A-SMGCS Level 2 is operational at Zurich airport				**31/05/2010**
ASP (By:12/2017)				
Skyguide	All actions by Skyguide are completed	-	100%	Completed 31/05/2010
APO (By:12/2017)				
FZAG - Zurich Airport	A-SMGCS Level 2 is operational at Zurich airport	-	100%	Completed 31/05/2010

AOP05	**Airport Collaborative Decision Making (A-CDM)** ***Timescales:*** Initial operational capability: 01/01/2004 Full operational capability: 31/12/2016		**100%**	**Completed**
LSGG - Geneva Airport				
-				**31/03/2016**
ASP (By:12/2016)				
Skyguide	The GA-Skyguide project 'A-CDM' is on-going and is planned to be completed by 31/03/2016. Skyguide actions are completed.	-	100%	Completed -
APO (By:12/2016)				
GA - Geneva Airport	-	-	100%	Completed 31/03/2016

AOP05	**Airport Collaborative Decision Making (A-CDM)** ***Timescales:*** Initial operational capability: 01/01/2004 Full operational capability: 31/12/2016		**100%**	**Completed**
LSZH - Zürich Airport				
Zurich Airport: Airport CDM Applications Level 1 to 3 implemented and audited by EUROCONTROL CDM-Team.				**30/09/2013**
ASP (By:12/2016)				
Skyguide	The A-CDM project in Zurich is completed	-	100%	Completed 31/05/2013
APO (By:12/2016)				
FZAG - Zurich Airport	Zurich Airport: Airport CDM Applications Level 1,2 and 3 implemented.	-	100%	Completed 30/09/2013

AOP10	**Time-Based Separation** ***Timescales:*** Initial operational capability: 01/01/2015 Full operational capability: 31/12/2023		**0%**	**Not yet planned**
LSZH - Zürich Airport				
The PCP is being reviewed and Skyguide requested that Zürich is removed from the applicability area. **However, an implementation project might be launched (LORD) for 2024**				-
REG (By:12/2023)				
FOCA	TBS operations procedures will be published when defined.	-	0%	Not yet planned -
ASP (By:12/2023)				
Skyguide	A project should be launched (LORD) for completion in 2024	-	0%	Not yet planned -

AOP11	**Initial Airport Operations Plan** ***Timescales:*** Initial Operational Capability: 01/01/2015 Full Operational Capability: 31/12/2021		**63%**	**Ongoing**
LSGG - Geneva Airport				
Capacity information are made available by Skyguide for future processing by Geneva Airport				**31/12/2021**
ASP (By:12/2021)				
Skyguide	Occupancy tool CRYTSAL sends all information about traffic volume, sector capacities, restrictions or decrease of capacity via B2B services to ECTL NMOC in real time. The Crystal TWR / APP tool project is on-going and will provide traffic and complexity predictions to the FMP and ACC supervisor by the end of 2019	-	100%	Completed -
APO (By:12/2021)				
GA - Geneva Airport	A task force is created to come with a creation and implementation plan in order to be fully operational latest 2021. Through CDM, CEM, and other projects, stakeholders in Geneva already cooperate.	-	25%	Planned 31/12/2021

AOP11	**Initial Airport Operations Plan** ***Timescales:*** Initial Operational Capability: 01/01/2015 Full Operational Capability: 31/12/2021		**100%**	**Completed**
LSZH - Zürich Airport				
Capacity information are made available and A-CDM processes partly answer the requirements The Crystal TWR / APP tool project is on-going and will provide traffic and complexity predictions to the FMP and ACC supervisor by the end of 2019				**31/12/2015**
ASP (By:12/2021)				
Skyguide	Occupancy tool CRYTSAL sends all information about traffic volume, sector capacities, restrictions or decrease of capacity via B2B services to ECTL NMOC in real time.	-	100%	Completed 31/12/2015
APO (By:12/2021)				
FZAG - Zurich Airport	-	-	100%	Completed 31/12/2015

AOP12	**Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC)** ***Timescales:*** Initial operational capability: 01/01/2015 Full operational capability: 31/12/2020	**69%**	**Ongoing**
LSZH - Zürich Airport			
Currently, ZRH TWR ATCO clearances and instructions are not systematically traced in the e-strip and A-SMGCS equipment. Furthermore clearances and instructions which are already entered into the different equipment are recorded afterwards. **The Advanced Runway Safety Improvement (ARSI) project aims at changing the working methods and procedures to systemically trace controller actions to record the clearances and instructions to get knowledge of the controllers intentions. Moreover this requires a more and deeper coupled e-strip and A-SMGCS systems as it is the case today in order to improve the situational awareness within the TWR and APRON rooms as well as to provide alerts/warnings in case of safety critical / contradictory ATC clearances. A special focus has to be paid to the crossing runways in terms of take-offs and landings in their different configurations.** **This new capability to alert of potentially critical situations is to be realized through the integration between the existing Skyguide TWR A-SMGCS (SAMAX), TWR/APP e-strip and coordination tool (TRACE), FZAG airport e-strip and DMAN (DARTS) and SMAN (to come).** **This should contribute to a first step towards the complete integration of the automation support tools provided by the ANSP for TWR control and those managing the airport situation.** **In addition, this new capability will be put in the latter into relation with the up-to-come new FZAG AGL (Air Ground Lighting) system to interact in a more advanced way with it using the new capabilities developed in ARSI to pave the foundations for initiatives like PIVIS or follow-the-green.**			**28/02/2019**
ASP (By:12/2020)			
Skyguide	On-going for the runway part (TWR) with ARSI project deployment To be completed for the airfield part (APRON) with SMAN deployment	-	92%	Ongoing 28/02/2019
FZAG - Zurich Airport	-	-	92%	Ongoing 28/02/2019
APO (By:12/2020)			
FZAG - Zurich Airport	-	-	0%	Ongoing -

AOP13	**Automated Assistance to Controller for Surface Movement Planning and Routing** ***Timescales:*** Initial operational capability: 01/01/2016 Full operational capability: 31/12/2023		**5%**	**Late**
LSZH - Zürich Airport				
An SMAN implementation project is started. Gathering of system requirements is ongoing. The implementation is foreseen after the replacement of the current DMAN.				**31/12/2027**
REG (By:12/2023)				
FOCA	-	-	10%	Ongoing -
ASP (By:12/2023)				
FZAG - Zurich Airport	The kick-off took place on 13.11.2015. Gathering of requirements is ongoing	-	4%	Ongoing 31/12/2027
Skyguide	A programme under the lead of ADP has been launched to implement SMAN at BRU, FRA, NCE, ARN, CDG, ORY, MAN, DUB, AMS, FCO, MUC and ZRH. The SMAN project in ZRH will formally start in Q4/2022 and the target date for implementation is 2027	-	3%	Late 31/12/2027

ATC02.8	**Ground-Based Safety Nets** ***Timescales:*** Initial operational capability: 01/01/2009 Full operational capability: 31/12/2016		**70%**	**Late**
-				
Objective partly completed. The APW functionality will be deployed in 2021.				**28/06/2021**
ASP (By:12/2016)				
Skyguide	Ground based safety nets - Area Proximity Warning - level 2 implementation project is now planned to start in Q3/2020 and finish in Q2/2021.	-	70%	Late 28/06/2021

ATC02.9	**Enhanced Short Term Conflict Alert (STCA) for TMAs** ***Timescales:*** Initial operational capability: 01/01/2018 Full operational capability: 31/12/2020		**100%**	**Completed**
-				
STCA is in use in Zürich and Geneva TMAs since 1999.				**31/12/1999**
ASP (By:12/2020)				
Skyguide	-	-	100%	Completed 31/12/1999

ATC07.1	**AMAN Tools and Procedures** ***Timescales:*** Initial operational capability: 01/01/2007 Full operational capability: 31/12/2019		**0%**	**Late**
LSGG - Geneva Airport				
An AMAN implementation project is planned to start in 2019 and finish in 2022				**30/06/2022**
ASP (By:12/2019)				
Skyguide	An AMAN implementation project is planned to start in 2019 and finish in 2022	AMAN.CH / Extended Arrival Management	0%	Late 30/06/2022

ATC07.1	**AMAN Tools and Procedures** ***Timescales:*** Initial operational capability: 01/01/2007 Full operational capability: 31/12/2019		**100%**	**Completed**
LSZH - Zürich Airport				
Completed in ZRH (CALM system)				**-**
ASP (By:12/2019)				
Skyguide	An Arrival management tool is implemented in ZRH (CALM)	AMAN.CH / Extended Arrival Management	100%	Completed -

ATC12.1	**Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring** ***Timescales:*** Initial operational capability: 01/01/2015 Full operational capability: 31/12/2021		**100%**	**Completed**
-				
Implementation of Support tools for conflict detection, resolution support information and conformance monitoring was completed in 2016 through the deployment of the stripless (VC) project.				**30/06/2016**
ASP (By:12/2021)				
Skyguide	Skyguide has implemented an automated support for conflict detection, in both ZRH and GVA ACCs as part of its stripless (VC tranche 1) project.	VC Programme	100%	Completed 30/06/2016

ATC15.1	**Information Exchange with En-route in Support of AMAN** ***Timescales:*** Initial operational capability: 01/01/2012 Full operational capability: 31/12/2019		**100%**	**Completed**
		-		
1/ AMAN tools and, exchange mechanisms and corresponding procedures have been established in Switzerland for years. Time To Lose (TTL) information is provided in LSZH operational environment (APP and corresponding upper sectors) **2/ An XMAN implementation project (including an OPS trial) is on-going which will allow an extension of the ER operational coordination with adjacent centers** **3/ The deployment of an AMAN in LSGG operational environment is scheduled (AMAN CH Project 2018-2020)** **4/ The current AMAN in LSZH (CALM) will be replaced (AMAN CH Project 2018-2020)** **Changes to the existing framework will be treated according to standard oversight procedures (EC REG 1034/2011).** **With the new AMAN, the XMAN Horizon will be increased to the required 200 NM.** **5/ The integration of GVA and Milano is planned to be completed by 2021**				**07/06/2017**
ASP (By:12/2019)				
Skyguide	The introduction of electronic coordination via the Stripless system implemented in Zurich ACC and in Geneva ACC allows exchange of basic AMAN data with Swiss airports (Zurich and Geneva (if AMAN equipped) and with airports equipped with AMAN in the vicinity of Skyguide area of responsibility.	AMAN.CH / Extended Arrival Management	100%	Completed 07/06/2017

ATC15.2	**Arrival Management Extended to En-route Airspace** ***Timescales:*** Initial operational capability: 01/01/2015 Full operational capability: 31/12/2023		**49%**	**Ongoing**
		-		
An AMAN is implemented in Zurich. In the frame of the FABEC activities an XMAN project was launched in 2015. Initial step is to receive XMAN information (Munich) from DFS and integrate them in Zurich ACC for operational use by ACC ATCOs. Also with this step, XMAN information is sent to Munich, Langen & Reims for operational use by ACC ATCOs of these adjacent centers.				**31/12/2023**
ASP (By:12/2023)				
Skyguide	An XMAN implementation project (incl. an OPS trial) was conducted which will allows an extension of the ER operational coordination with adjacent centers	AMAN.CH	49%	Ongoing 31/12/2023

ATC17	**Electronic Dialogue as Automated Assistance to Controller during Coordination and Transfer** ***Timescales:*** Initial operational capability: 01/01/2013 Full operational capability: 31/12/2018		**100%**	**Completed**
	-			
Skyguide ATC system was upgraded to support the Basic procedure. The electronic dialogue in co-ordination prior to the transfer of flights from one ATC unit to the next as well as well as the transfer of communication from one ATC unit to the next ATC unit of such flights using OLDI (SYSCO) messages is not planned. Since it is up to the individual ANSP to decide which messages, if any, to implement, the status is set to 'completed' even if there is currently no plan to implement ASP03, ASP04 and ASP05.				-
ASP (By:12/2018)				
Skyguide	Inter-sector coordination is already implemented in Geneva ACC and inter-centre coordination process has been tested in live trials between Geneva and Zurich (SYSCO live trials). The deployment of the latter, initially envisaged in the frame of the Virtual Center Programme was de-scoped in 2015 and is currently not planned.	VC Programme	100%	Completed -

COM10	**Migrate from AFTN to AMHS** ***Timescales:*** Initial operational capability: 01/12/2011 Full operational capability: 31/12/2018		**95%**	**Late**
	-			
Migration from AFTN (Aeronautical Fixed Telecommunication Network) to AMHS (ATS Message Handling System) is mostly achieved. Skyguide is now 'full AMHS' for international connections but is still in test phase with the Swiss MET provider, MeteoSwiss.				**31/12/2019**
ASP (By:12/2018)				
Skyguide	The Skyguide project "MESANGE" to renew the AFTN/CIDIN/AMHS system as well as the upgrade of existing COM Center CH to provide AMHS capability were completed in 2010. The system is connected to the network and links to other centers are progressively cleared for operation. The Skyguide project "AMS-CH HW/SW Renewal", for updating the AFTN/CIDIN/AMHS system, including the acquisition of the latest elements for supporting fully the Extended ATSMHS was completed in 2017. Skyguide is now 'full AMHS' for international connections but is still in test phase with the Swiss MET provider, MeteoSwiss.	-	95%	Late 31/12/2019

COM11	**Voice over Internet Protocol (VoIP)** ***Timescales:*** Initial operational capability: 01/01/2013 Full operational capability: 31/12/2020		**58%**	**Late**
		-		
Voice over Internet Protocol (VoIP) implementation is ongoing.				**31/12/2022**
ASP (By:12/2020)				
Skyguide	A project "FlexSecto CH VISTA/EMTEL" has been launched to migrate current phone VCS having access to the ATS network on ATM VoIP. A project "SmartRadio" has been launched to install ATM VoIP compatible radios in around 40 radio stations throughout Switzerland. At the network level, migration project towards MPLS is ongoing. This national (international as well, in case newPENS not ready) network aims at transporting VoIP with QOS.	-	58%	Late 31/12/2022

COM12	**New Pan-European Network Service (NewPENS)** ***Timescales:*** Initial operational capability: 01/01/2018 Full operational capability (33 ANSPs): 31/12/2020		**17%**	**Ongoing**
		-		
transition from PENS to newPENS is ready to start in Switzerland				**31/12/2020**
ASP (By:12/2024)				
Skyguide	Even if Skyguide is ready to start a transition project to newPENS, the overall transition highly depends on Eurocontrol and all the other ANSPs.	-	25%	Ongoing 31/12/2020
APO (By:12/2024)				
FZAG - Zurich Airport	-	-	0%	Not yet planned -

ENV01	**Continuous Descent Operations (CDO)** ***Timescales:*** Initial operational capability: 01/07/2007 Full operational capability: 31/12/2023		**37%**	**Ongoing**
LSGG - Geneva Airport				
Planned within the CHIPS program. This program is coordinating PBN activities between stakeholders (Skyguide, ZRH and GVA APOs, Based Airlines, MIL and FOCA). Today, basic CDA is applied (BCDA). **The Optimised Descent Profile SESAR project was terminated end of 2016 and new definitions for CDO and Vertical Flight Efficiency were worked out in 2016 by ECTL** **In 2017, the average CDO performance computed by the PRU for LSGG was 15%.**				**31/12/2019**
ASP (By:12/2023)				
Airspace Users	-	-	%	Missing Data -
Skyguide	Skyguide is active with ECTL CCO/CDO TF to define what is a CDO that can be implemented in the CH environment. Remarks : - From ATC perspective, CDO is seen as a piloting technique which can be perfectly sufficiently supported by existing ATC procedures. This view is further supported with the fact that ICAO had recently reviewed and thoroughly reworked ATC procedures related to ATC instructions to arriving aircraft (in general) and specifically to aircraft operating on SID and STAR (ICAO State Letter 54/2016 on Amendment 7 to PANS-ATM). In this effort, ICAO had recognized the elements that may be deterrent for the application of CDO (e.g. historically, there had been a requirement for ATC to enable aircraft, when being vectored, to intercept the glide path from level flight). In order to enable CDO operation without the portion of level flight before intercepting the final approach path, ICAO has amended this requirement accordingly; - For the support to CDO operation, ATCO's need to be trained in this new piloting techniques; there may be certain airspace or route restrictions that prevent the CDO today. However, from the perspective of ATC procedures, CDO is perfectly possible already today, and thus no special development is planned in this regard.	CHIPS-PBN	50%	Ongoing -
APO (By:12/2023)				
GA - Geneva Airport	Planned within the CHIPS program. This program is coordinating PBN activities between stakeholders (Skyguide, ZRH and GVA APOs, Based Airlines, MIL and FOCA). Today, basic CDA is applied. Genève Aéroport supports the CDO initiatives driven by Skyguide. Geneva Airport, will take a more proactive role to promote CDO (CDA).	CHIPS-PBN	10%	Ongoing 31/12/2019

ENV01	**Continuous Descent Operations (CDO)** ***Timescales:*** Initial operational capability: 01/07/2007 Full operational capability: 31/12/2023		**67%**	**Ongoing**
LSZH - Zürich Airport				
Today, basic CDA is applied (BCDA). The CDO on P-RNAV Transitions' is suspended until the implementation of the lateral P-RNAV Transitions. The Optimised Descent Profile SESAR project was terminated end of 2016 and new definitions for CDO and Vertical Flight Efficiency were worked out in 2016 by ECTL. In 2017, the average CDO performance computed by the PRU for LSZH was 16%.				**31/12/2013**
ASP (By:12/2023)				
Airspace Users	-	-	%	Missing Data -
Skyguide	BCDAs are in operation. Remarks : - From ATC perspective, CDO is seen as a piloting technique which can be perfectly sufficiently supported by existing ATC procedures. This view is further supported with the fact that ICAO had recently reviewed and thoroughly reworked ATC procedures related to ATC instructions to arriving aircraft (in general) and specifically to aircraft operating on SID and STAR (ICAO State Letter 54/2016 on Amendment 7 to PANS-ATM). In this effort, ICAO had recognized the elements that may be deterrent for the application of CDO (e.g. historically, there had been a requirement for ATC to enable aircraft, when being vectored, to intercept the glide path from level flight). In order to enable CDO operation without the portion of level flight before intercepting the final approach path, ICAO has amended this requirement accordingly; - For the support to CDO operation, ATCO's need to be trained in this new piloting techniques; there may be certain airspace or route restrictions that prevent the CDO today. However, from the perspective of ATC procedures, CDO is perfectly possible already today, and thus no special development is planned in this regard.	CHIPS-PBN	50%	Ongoing -
APO (By:12/2023)				
FZAG - Zurich Airport	-	CHIPS-PBN	100%	Completed 31/12/2013

FCM03	**Collaborative Flight Planning** ***Timescales:*** Initial operational capability: 01/01/2000 Full operational capability: 31/12/2017		**100%**	**Completed**
-				
Enhanced tactical flow management services are implemented.				**-**
ASP (By:12/2017)				
Skyguide	Both ACCs provide flight plan messaging in ADEXP-format and process APL and ACH messages.	-	100%	Completed -

FCM04.1	**Short Term ATFCM Measures (STAM) - Phase 1** ***Timescales:*** Initial operational capability: 01/09/2013 Full operational capability: 31/10/2017		**78%**	**Ongoing**
		-		
A local tool, Crystal has been developed (in house) and is used to perform STAM Phase 1 En-Route. Integration to the CHMI is awaited from the NM (local traffic monitoring rules cannot be interpreted by the NM)				-
ASP (By:10/2017)				
Skyguide	A local tool, Crystal has been developed (in house) and is used to perform STAM Phase 1 En-Route. Integration to the CHMI is awaited from the NM.	-	78%	Ongoing -

FCM04.2	**Short Term ATFCM Measures (STAM) - Phase 2** ***Timescales:*** Initial operational capability: 01/11/2017 Full operational capability: 31/12/2021		**100%**	**Completed**
		-		
STAM - phase 2 are being implemented between Geneva and Zürich ACCs				**30/06/2017**
ASP (By:12/2021)				
Skyguide	What-if scenarios between the two ACCs were implemented in Q2 2017 using Crystal tool as exchange platform.	-	100%	Completed 30/06/2017

FCM05	**Interactive Rolling NOP** ***Timescales:*** Initial operational capability: 01/09/2013 Full operational capability: 31/12/2021		**75%**	**Completed**
		-		
LARA B2B V3 tool is in use (implemented 10/2016)				**31/12/2012**
ASP (By:12/2021)				
Skyguide	-	-	100%	Completed -
APO (By:12/2021)				
FZAG - Zurich Airport	-	-	50%	Completed 31/12/2012
GA - Geneva Airport	Airport slots are exchanged with Slot Coordination Switzerland, which provides the information to NM via the EUACA database (MoC with Eurocontrol).	-	100%	Completed 31/12/2012

FCM06	**Traffic Complexity Assessment** ***Timescales:*** Initial operational capability: 01/01/2015 Full operational capability: 31/12/2021		**80%**	**Ongoing**
		-		
Skyguide is using CRYSTAL, a traffic complexity and prediction tool which allows supervisors to continuously monitor sector demand and evaluate traffic complexity (by applying predefined complexity metrics) according to a predetermined qualitative scale.				**31/12/2021**
ASP (By:12/2021)				
Skyguide	-	-	80%	Ongoing 31/12/2021

<table>
<tr><td>FCM08</td><td colspan="2">Extended Flight Plan
<u>Timescales:</u>
Initial operational capability: 01/01/2016
Full operational capability: 31/12/2021</td><td>0%</td><td>Not yet planned</td></tr>
<tr><td colspan="5">-</td></tr>
<tr><td colspan="4">Trials with NM B2B V20.5 using Eurocontrol Proprietary XML format based flight plans were performed in 2016, showing deficiencies at portal level for an operational use but promising. The NM has since commenced alignment of the B2B Flight services in preparation for the Flight and Flow for an Information Collaborative (FF-ICE) utilizing FIXM V4.0 as of NM B2B V22.0 (March 2018). Investigation for a follow-up trial with NM B2B V23.0 is being investigated for 2020 as V23.0 will be FF-ICE/1 capable. Skyguide will therefore continue to operate with ICAO-ATS/ADEXP messages and utilize the services via the AFTN but is prepared to move to NM B2B based FIXM as soon as the NM provides a mature and reliable service.</td><td>-</td></tr>
<tr><td colspan="5">ASP (By:12/2021)</td></tr>
<tr><td rowspan="2">Skyguide</td><td rowspan="2" colspan="2">Trials with NM B2B V20.5 using Eurocontrol Proprietary XML format based flight plans were performed in 2016, showing deficiencies at portal level for an operational use but promising. Skyguide will therefore continue to operate with ICAO-ATS/ADEXP messages and utilize the services via the AFTN but is prepared to move to NM B2B based FIXM as soon as the NM provides a mature and reliable service.</td><td rowspan="2">-</td><td rowspan="2">0%</td><td>Not yet planned</td></tr>
<tr><td>-</td></tr>
</table>

INF07	**Electronic Terrain and Obstacle Data (eTOD)** ***Timescales:*** Initial operational capability: 01/11/2014 Full operational capability: 31/05/2018		**21%**	**Ongoing**
	-			
Electronic Terrain and Obstacle Data (TOD) actions are in progress.				**31/12/2021**
REG (By:05/2018)				
FOCA	The Obstacle Concept Switzerland is available and includes the Policy for national Obstacles as well as for eTOD. However, its implementation is currently undergoing a review leading to a revised project structure and roadmap. State enforcement (revision of national law) is currently ongoing within Federal Office of Civil Aviation FOCA. The Obstacle Data Collection Services are not yet defined. Therefore, a call for tender will be initiated by the FOCA in 2018. Obstacle data base provision is operated within the Federal Office of Civil Aviation. Re-assignment of the obstacle data management/provision is dependent on the call for tender (mentioned above). Terrain data base provision: Federal Office of Topography (swisstopo).	-	40%	Ongoing 31/12/2020
ASP (By:05/2018)				
Skyguide	After the establishment of a national Obstacle Concept, FOCA is expected to launch a national tender for the establishment of the data collection services in 2019. Skyguide may launch a project for the establishment of an interface between data collection services and the authoritative aeronautical data base in Switzerland, hosted at Skyguide. The relevant legal changes for the ADQ- and TOD implementation are finalised and should be enforced in 2021.	-	5%	Late 31/12/2021
APO (By:05/2018)				
FZAG - Zurich Airport	Zurich Airport will comply with FOCA requirements on this subject. TOD will be stepwise implemented together with ADQ implementation.	-	0%	Late 31/05/2018
GA - Geneva Airport	Geneva Airport will comply with FOCA requirements on this subject. TOD will be stepwise implemented together with ADQ implementation.	-	0%	Late 31/05/2018

INF08.1	**Information Exchanges using the SWIM Yellow TI Profile** ***Timescales:*** Initial operational capability: 01/01/2018 Full operational capability: 31/12/2024		**0%**	**Not yet planned**
		-		
The development of SWIM services is closely followed. Their availability is not yet granted as standards are still maturing.				-
ASP (By:12/2024)				
Skyguide	The development of SWIM services is closely followed. Their availability is not yet granted as standards are still maturing.	-	0%	Not yet planned -
MIL (By:12/2024)				
Swiss Air Force	-	-	0%	Not yet planned -
APO (By:12/2024)				
GA - Geneva Airport	-	-	0%	Not yet planned -
FZAG - Zurich Airport	-	-	0%	Not yet planned -

ITY-ACID	**Aircraft Identification** ***Timescales:*** Entry into force of the Regulation: 13/12/2011 System capability: 02/01/2020		**100%**	**Completed**
		-		
All objectives are met since November 2011				**30/11/2011**
ASP (By:01/2020)				
Skyguide	All objectives are met since November 2011. However, full capability (flight plans / radar tracks correlation based on ACID for 100% of the a/c) is not reached. - Not the whole CH FIR is declared Mode-S to the NMOC. The Mode-S radar coverage over South of the Alps was an issue until the 28th of October 2014 and the integration of the Italian Mode-S data into Skyguide MRTS. Declaration of full CH FIR coverage will be done until the 5th of January 2015 - The code 1000 can't be allocated in case of SSR code change	-	100%	Completed 30/11/2011

ITY-ADQ	**Ensure Quality of Aeronautical Data and Aeronautical Information** ***Timescales:*** Entry into force of the regulation: 16/02/2010 Article 5(4)(a), Article 5(4)(b) and Article 6 to 13 to be implemented by: 30/06/2013 Article 4, Article5(1) and Article 5(2), Article 5(3) and Article 5(4)(c) to be implemented by: 30/06/2014 All data requirements implemented by: 30/06/2017		**22%**	**Late**
	-			
An overall Implementation concept has been finalized. A detailed national Implementation Concept is available. Implementation of ADQ has been launched.				**31/12/2023**
REG (By:06/2017)				
FOCA	After the establishment of a national ADQ Analyses, a national Obstacle Concept as well as a national implementation Guideline for ADQ, a feasibility Study for the implementation of a national Data collection interface was launched, leading to a FOCA Data Collection Services (DCS) project. The relevant legal changes for the eTOD implementation are ongoing and should be enforced earliest in 2019. The DCS project is currently undergoing a review leading to a revised implementation structure and roadmap.	-	10%	Late 31/12/2023
ASP (By:06/2017)				
Skyguide	Within the national implementation plan (responsibility of State) appropriate ASP implementation activities have been initiated. Applicability to OAT is limited according to national implementation policy.	FABEC AIM Task Force	41%	Late 31/12/2023
APO (By:06/2017)				
GA - Geneva Airport	Geneva Airport will comply with the implementation plan being finalised by the state	-	0%	Late 31/12/2023
FZAG - Zurich Airport	Zurich Airport will comply with the implementation plan being finalised by the state	-	4%	Planned 31/12/2019

ITY-AGDL	**Initial ATC Air-Ground Data Link Services** ***Timescales:*** Entry into force: 06/02/2009 ATS unit operational capability: 05/02/2018 Aircraft capability: 05/02/2020		**100%**	**Completed**
	-			
The AGDL CPDLC is in operation in both Geneva and Zurich ACC (above FL245) since end 2012 (Geneva) and beginning 2013 (Zurich).				**30/06/2013**
REG (By:02/2018)				
FOCA	The EC Reg 29/2009 has been accepted by the joint committee CH-EU and is therefore applicable to Skyguide.	-	100%	Completed 28/02/2013
ASP (By:02/2018)				
Skyguide	The AGDL CPDLC is in operation in both Geneva and Zurich ACC (above FL245) since end 2012 (Geneva) and beginning 2013 (Zurich).	VC Programme	100%	Completed 30/06/2013
MIL (By:01/2019)				
Swiss Air Force	Adaptation on existing fleet (five a/c) is, where applicable (one a/c), completed	-	100%	Completed -

ITY-AGVCS2	**8,33 kHz Air-Ground Voice Channel Spacing below FL195** ***Timescales:*** Entry into force: 07/12/2012 New and upgraded radio equipment: 17/11/2013 New or upgraded radios on State aircraft: 01/01/2014 Interim target for freq. conversions: 31/12/2014 All radio equipment: 31/12/2017 All frequencies converted: 31/12/2018 State aircraft equipped, except those notified to EC: 31/12/2018 State aircraft equipped, except those exempted [Art 9(11)]: 31/12/2020		**90%**	**Ongoing**
	-			
All Skyguide and OPC frequency assignments (excluded exemptions and CLIMAX) are converted to 8,33 kHz (8th of November 2018). All Swiss frequency assignments Aerodromes will be converted to 8,33 kHz 28th of March 2019 (EC and Eurocontrol informed). All exemptions are issued via FOCA and OFCOM to EC and Eurocontrol. (31/12/2017) Swiss Air Force (LW) is not be 8.33 kHz compliant as requested by (EC) No 1079/2012 on PC-7 and Cougar fleet (LW sent letter to EC). Transition on these two aircraft type planned in 2022.				**28/03/2019**
REG (By:12/2018)				
FOCA	All Swiss frequency assignments will be converted to 8.33 kHz. Exceptions were published to EC accordingly within the corresponding time. All Swiss frequency assignments for Aerodromes will be converted to 8,33 kHz 28th of March 2019 (EC and Eurocontrol informed).	-	43%	Ongoing 28/03/2019
ASP (By:12/2018)				
Skyguide	Skyguide has started the Project 8.33 kHz below FL195 in Q2 2017. This project assures a smooth change from the 25 kHz bandwidth to the 8.33 kHz bandwidth at the Skyguide controlled locations. Skyguide frequencies are all changed to 8.33 kHz bandwidth on 8th of November 2018. Project is running until June 2019. Many other neighbor frequencies will be changed during Q1/Q2 2019 these changes trigger changes in Skyguide equipment.	-	100%	Completed 31/12/2018
MIL (By:12/2020)				
Swiss Air Force	Implementation for State a/c is ongoing	-	100%	Completed 31/12/2018
APO (By:12/2018)				
GA - Geneva Airport	Impacts on APOs are reduced	-	100%	Completed 31/05/2018
FZAG - Zurich Airport	-	-	100%	Completed 28/02/2014

ITY-FMTP	**Common Flight Message Transfer Protocol (FMTP)** ***Timescales:*** Entry into force of regulation: 28/06/2007 All EATMN systems put into service after 01/01/09: 01/01/2009 All EATMN systems in operation by 20/04/11: 20/04/2011 Transitional arrangements: 31/12/2012 Transitional arrangements when bilaterally agreed between ANSPs: 31/12/2014		**100%**	**Completed**
	-			
Deployment of the FMTP is completed				**27/01/2015**
ASP (By:12/2014)				
Skyguide	First regional trans-border IP network is being deployed for FMTP in the frame of the FABEC and BLUE MED. The first network with the DFS was CfO 2011, a second with the DSNA has followed in 2014. Last implementation with DSNA was successfully tested in 2014 and was performed in January 2015. The interconnection with ENAV has been performed in June 2012 and in Sept. 2012 between DFS and ENAV. Existing TDM infrastructure will be used for IP network transport.	-	100%	Completed 27/01/2015
MIL (By:12/2014)				
Swiss Air Force	ASP action by integrated civil-military provider Skyguide. TCP/IP is implemented between CIV and MIL ATC units.	-	100%	Completed 31/12/2014

ITY-SPI	**Surveillance Performance and Interoperability** ***Timescales:*** Entry into force of regulation: 13/12/2011 ATS unit operational capability: 12/12/2013 EHS and ADS-B Out in transport-type State aircraft : 07/06/2020 ELS in transport-type State aircraft : 07/06/2020 Ensure training of MIL personnel: 07/06/2020 Retrofit aircraft capability: 07/06/2020		**100%**	**Completed**
	-			
Surveillance performance and interoperability requirements are implemented.				**31/12/2015**
REG (By:02/2015)				
FOCA	EC 1207/2011 entered into force in Switzerland in February 2013. An audit for compliance verification has taken place.	-	100%	Completed 30/09/2013
ASP (By:02/2015)				
Skyguide	Surveillance performance and interoperability requirements are implemented	-	100%	Completed 31/12/2015
MIL (By:06/2020)				
Swiss Air Force	Carriage and operation of Mode S Elementary or enhanced Surveillance avionics is completed	-	100%	Completed 31/12/2013

NAV03.1	**RNAV 1 in TMA Operations** ***Timescales:*** Initial operational capability: 01/01/2001 Full operational capability: 31/12/2023		**80%**	**Ongoing**
		-		
P-RNAV procedures are implemented according to local needs.				**31/12/2010**
ASP (By:12/2023)				
Skyguide	Implementation of P-RNAV procedures is enabled in Switzerland and can be developed in accordance with local requirements (users capabilities, airspace, OPS concept, etc.). P-RNAV procedures in St Gallen was implemented in 2010. RNAV 1 (P-RNAV) procedures will be published on MIL sites where applicable	CHIPS-PBN	80%	Ongoing 31/12/2010

NAV03.2	**RNP 1 in TMA Operations** ***Timescales:*** Initial operational capability: 01/01/2018 Full operational capability: 31/12/2023		**50%**	**Ongoing**
		-		
RNP1 deployment in TMA is part of PBN implementation strategy				**31/12/2023**
ASP (By:12/2023)				
Skyguide	Implementation covered through targeted initiatives	-	50%	Ongoing 31/12/2023

NAV10	**RNP Approach Procedures with Vertical Guidance** ***Timescales:*** Initial operational capability: 01/06/2011 Full operational capability: 31/12/2023		**100%**	**Completed**
		-		
Approach Procedures with Vertical Guidance have been implemented in LSZH and LSGG.				**15/09/2016**
REG (By:12/2023)				
FOCA	In the framework of the Swiss-wide implementation of SESAR-related objectives (CHIPS) performance-based navigation (PBN) is addressed. The CHIPS-Program includes a number of APVs.	CHIPS-PBN	100%	Completed 30/04/2011
ASP (By:12/2023)				
Skyguide	The implementation started in 2011 with 1 APV Baro-VNAV LSZH RWY 14, and 1 APV SBAS LSGC RWY24 and LSZR RWY10. In addition, Skyguide published SBAS RWY06 LSGC and SBAS and APV Baro for LSGG	CHIPS-PBN	100%	Completed 15/09/2016

SAF11	**Improve Runway Safety by Preventing Runway Excursions** ***Timescales:*** Initial operational capability: 01/09/2013 Full operational capability: 31/01/2018		**100%**	**Completed**
-				
All the actions are implemented.				**31/12/2015**
REG (By:01/2018)				
FOCA	The necessary actions have been taken.	-	100%	Completed 31/03/2013
ASP (By:12/2014)				
Skyguide	All the actions are implemented.	-	100%	Completed 31/12/2015
APO (By:12/2014)				
GA - Geneva Airport	-	-	100%	Completed 31/12/2014
FZAG - Zurich Airport	ZRH: The necessary actions have been taken.	-	100%	Completed 31/12/2014

Additional Objectives for ICAO ASBU Monitoring

AOM21.1	**Direct Routing** ***Timescales:*** Initial Operational Capability: 01/01/2015 Full Operational Capability: 31/12/2017		**100%**	**Completed**
	-			
Skyguide implemented its first Direct Routes (DCTs) in December 2015, adding up to 50 DCTs in March 2017, and another DCT package in November 2017. With these DCTs implemented, Skyguide considers to be compliant with the DCT aspect of the PCP IR.				**09/12/2017**
ASP (By:12/2017)				
Skyguide	Skyguide implemented its first Direct Routes (DCTs) in December 2015, adding up to 50 DCTs in March 2017, and another DCT package in November 2017.	-	100%	Completed 09/12/2017

ATC02.2	**Implement ground based safety nets - Short Term Conflict Alert (STCA) - level 2 for en-route operations** ***Timescales:*** Initial operational capability: 01/01/2008 Full operational capability: 31/01/2013		**100%**	**Completed**
	-			
Ground based safety nets - Short Term Conflict Alert (STCA) - level 2 are implemented in its ER and major TMAs.				-
ASP (By:01/2013)				
Skyguide	Skyguide has implemented STCA in its ER and applicable TMAs (ZRH, GVA, BRN)	-	100%	Completed -

ATC16	**Implement ACAS II compliant with TCAS II change 7.1** ***Timescales:*** Initial operational capability: 01/03/2012 Full operational capability: 31/12/2015		**%**	**Not Applicable**
	-			
The requirement for ACAS performance monitoring cannot be linked to any obligation in the provision of ATS. Moreover, it is explicitly required from ATC to apply the identical procedures to ACAS equipped and non-equipped aircraft. Finally, it should be noted that the ACAS RA now constitutes a safety related occurrence that is mandatory to be reported, as per EU Regulations 376/2014 and 2015/1018.				-
REG (By:12/2015)				
FOCA	Regulatory provisions are implemented.	-	100%	Completed 31/12/2015
ASP (By:03/2012)				
Skyguide		-	%	Not Applicable

	Objective ATC16-ASP02 cannot be complied with because: 1. The regulatory framework addresses a phase-in implementation of TCAS II v.7.1, starting with forward fitting as of 01 March 2012, and ending with retrofitting 01 December 2015. Hence, at least by the end of 2015, there will be mixed aircraft population operating in Europe, in terms of TCAS II version equipage. On the other hand, ANSP has no way of knowing which version of TCAS II an aircraft is equipped with, since these data are not provided through a FPL, and hence no appropriate mechanism for monitoring performance of TCAS II v.7.1 can be established. 2. Finish date of the ATC16-ASP02 objective coincides with the start date of the objective ATC16-REG02 (Provide airworthiness certification). Hence, ANSPs are expected to establish a monitoring mechanism for a piece of equipment that still hasn't been certified, i.e. before any such piece of equipment can be found airborne. On the other hand, for a requirement of such kind, as a minimum testing, operational evaluation and transition periods have to be defined. In addition to the above, it should be noted that: - the ICAO provision the ATC16-ASP02 is based upon is a recommendation, published in a PANS document, for which the ICAO Member States do not have to declare differences with. In addition, when developed, this provision was intended for fundamentally different purpose which does not include monitoring of difference in behaviour of the two different TCAS models. That need is already responded to through the established reporting mechanism - see below. - for the ECAC region, the ACAS monitoring function is part of the European Safety Programme (ESP) Field 2 (incident reporting and data collection), which is, in turn, developed in response to the Safety Data Reporting and Data Flow Task Force (SAFREP)-s Recommendation No. 7 -to bring rationalisation in European ATM safety data collation and analysis-..-.			-
MIL (By:12/2015)				
Swiss Air Force	-	-	100%	Completed 31/01/2015

FCM01	**Implement enhanced tactical flow management services** ***Timescales:*** Initial operational capability: 01/08/2001 Full operational capability: 31/12/2006		**87%**	**Late**
	-			
Enhanced tactical flow management services are mostly implemented or planned				**31/12/2012**
ASP (By:07/2014)				
Skyguide	Objective partially completed: - CPRs are sent to the NM. Skyguide is using ASTERIX CAT 242. There is no translation to CAT 62 foreseen. - FSAs are sent to the NM. There is no plan to send FSAs to the NM for holding flights.	-	87%	Late 31/12/2012

ITY-COTR	**Implementation of ground-ground automated co-ordination processes** ***Timescales:*** Entry into force of Regulation: 27/07/2006 For putting into service of EATMN systems in respect of notification and initial coordination processes: 27/07/2006 For putting into service of EATMN systems in respect of Revision of Coordination, Abrogation of Coordination, Basic Flight Data and Change to Basic Flight Data: 01/01/2009 To all EATMN systems in operation by 12/2012: 31/12/2012		**100%**	**Completed**
	-			
Ground-ground automated co-ordination processes are implemented.				**28/02/2013**
ASP (By:12/2012)				
Skyguide	Ground-ground automated co-ordination processes are implemented.	-	100%	Completed 28/02/2013
MIL (By:12/2012)				
Skyguide	Ground-ground automated co-ordination processes are implemented. Logon Forwarding (LOF) and Next Authority Notified (NAN), supporting data link service are linked to ITY-AGDL	-	100%	Completed 31/12/2012

Local Objectives

Note: Local Objectives are addressing solutions that are considered beneficial for specific operating environments, therefore for which a clear widespread commitment has not been expressed yet. They are characterised with no deadline and voluntary applicability area.

AOP14	**Remote Tower Services** ***Applicability and timescale: Local***	**%**	**Not yet planned**
LSGG - Geneva Airport			
A study has been launched in 2018 to evaluate the needs for Zürich and Geneva environments. This study will be continued in 2019. Depending on the result, a project may be launched between 2021 and 2024 for deployment of remote and/or digitalized tower in Switzerland			**-**

ATC18	**Multi-Sector Planning En-route - 1P2T** ***Applicability and timescale: Local***	**%**	**Not yet planned**
-			
An internal study on Dynamic ATCO Allocation has been initiated. It includes investigations on the creation of a multi-sector-planner role for ACC sectors. In parallel, Skyguide participates to the SESAR2020 PJ10-01 activities (High Productivity Controller Team Organisation) which will help to plan future activities if needed.			**-**

ENV02	**Airport Collaborative Environmental Management** ***Applicability and timescale: Local***	**96%**	**Ongoing**
LSGG - Geneva Airport			
Collaborative Environmental Management is almost completed. Mitigation on stands is completed. The mitigation of the pollution due to deicing activities is being finalised for the area near the runway holding point. Full implementation is expected in march 2019			**30/03/2019**

ENV02	**Airport Collaborative Environmental Management** ***Applicability and timescale: Local***	**100%**	**Completed**
LSZH - Zürich Airport			
Collaborative Environmental Management is completed.			**30/06/2015**

ENV03	**Continuous Climb Operations (CCO)** ***Applicability and timescale: Local***	**68%**	**Ongoing**
LSGG - Geneva Airport			
The objective is partly completed. PBN flight procedures are implemented and allow CCO performance. In addition, vectoring within TMA allow efficient separation and climb. Performance is 68% (PRU data, Jan-Dec. 2017)			**31/12/2019**

ENV03	**Continuous Climb Operations (CCO)** ***Applicability and timescale: Local***	**67%**	**Ongoing**
LSZH - Zürich Airport			
The objective is partly completed. PBN flight procedures are implemented and allow CCO performance. In addition, a departure manager tool is available to enable flight efficiency. Performance is 67% (PRU data, Jan-Dec. 2017)			**31/12/2019**

NAV12	**Optimised Low-Level IFR Routes in TMA for Rotorcraft** ***Applicability and timescale: Local***	**100%**	**Completed**
-			
Low Flight Network (LFN) implemented.			**24/06/2015**

ANNEXES

Specialists involved in the ATM implementation reporting for Switzerland

LSSIP Co-ordination

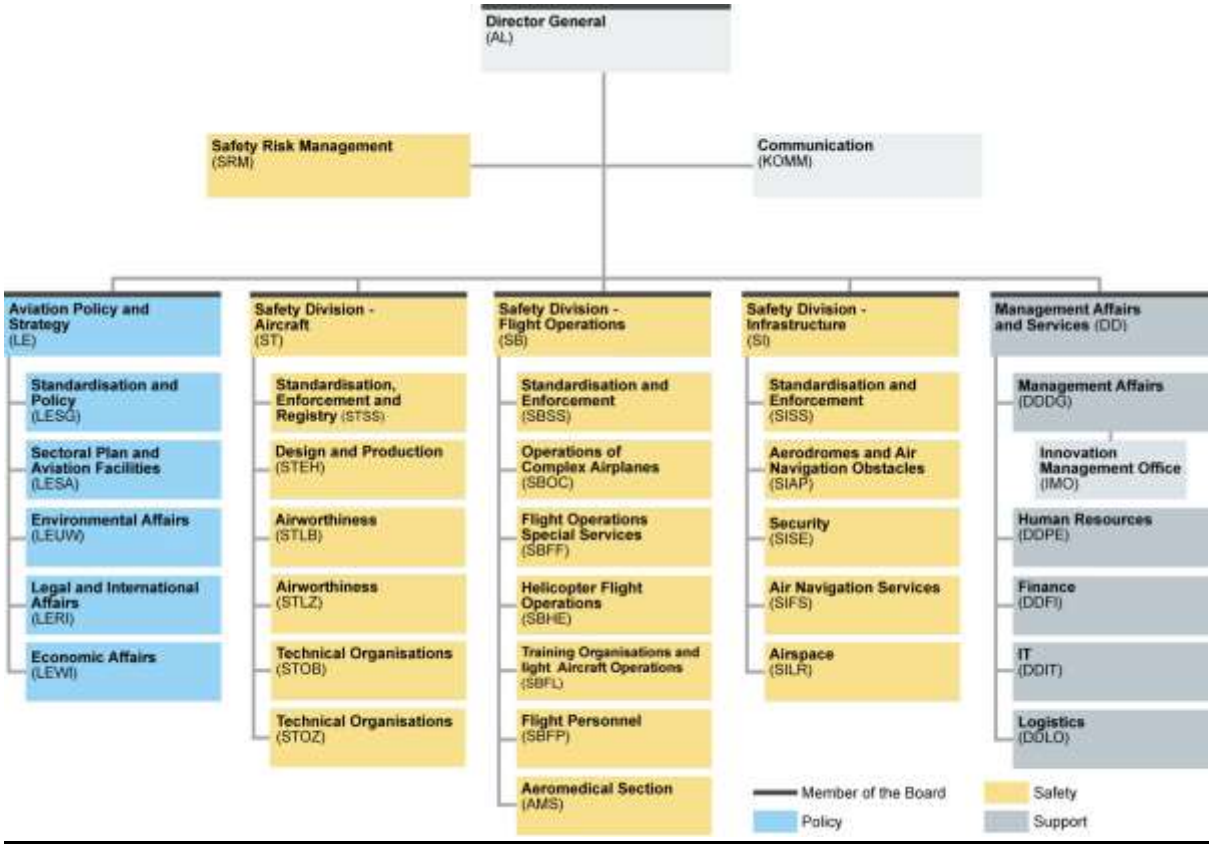
LSSIP Focal Points	Organisation	Name
LSSIP Focal Point for Switzerland	Skyguide	Thierry BREGOU
LSSIP Focal Point for REG	FOCA	Janik SCHÖNENBERGER
LSSIP Focal Point for MIL	MAA / SAF	Tamara HABICH
LSSIP Focal Point for ASP	Skyguide	Thierry BREGOU
LSSIP Focal Point for APO ZRH	FZAG	Mattes KETTNER
LSSIP Focal Point for APO GVA	Genève Aéroport	François DURET

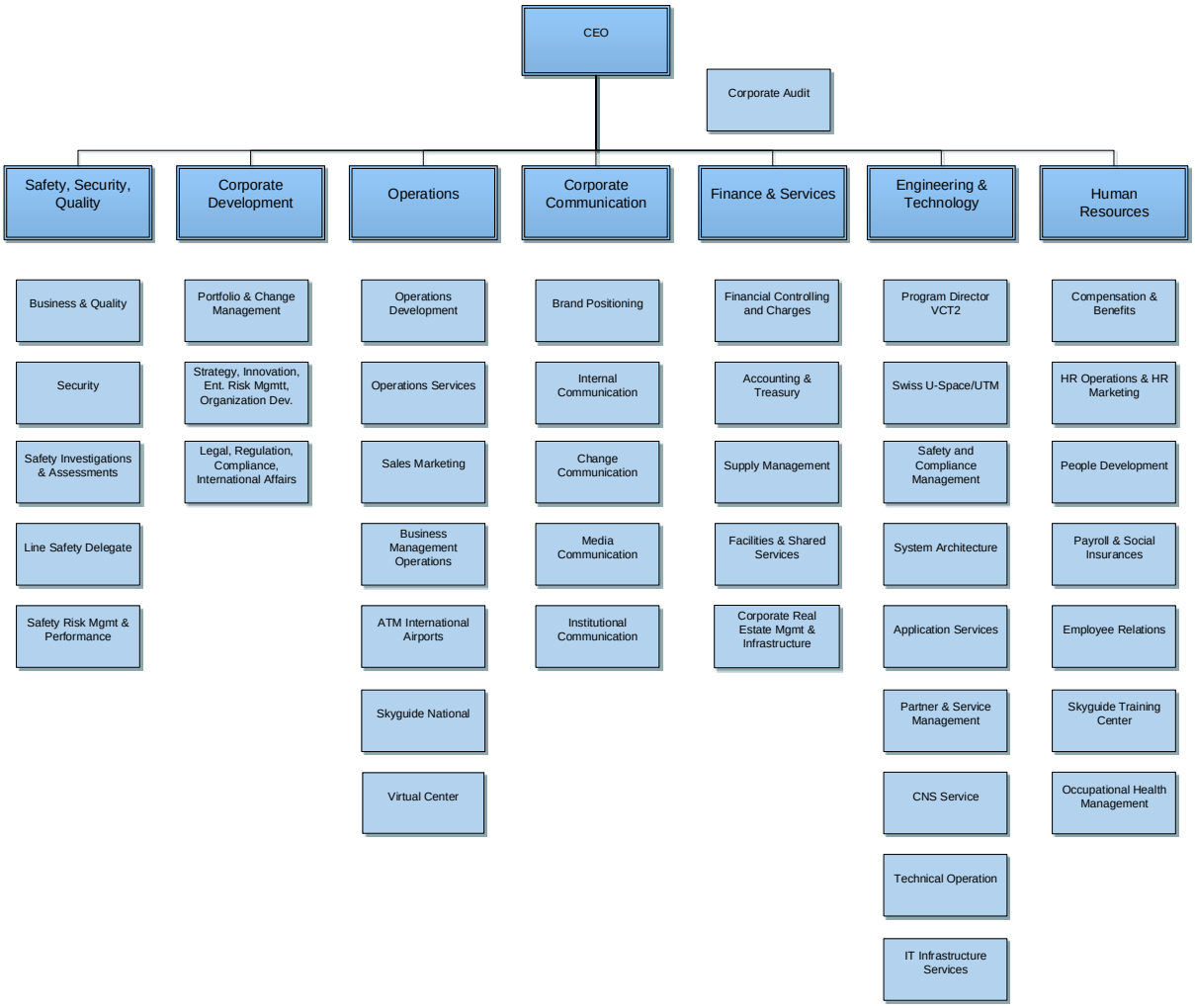
EUROCONTROL LSSIP Support

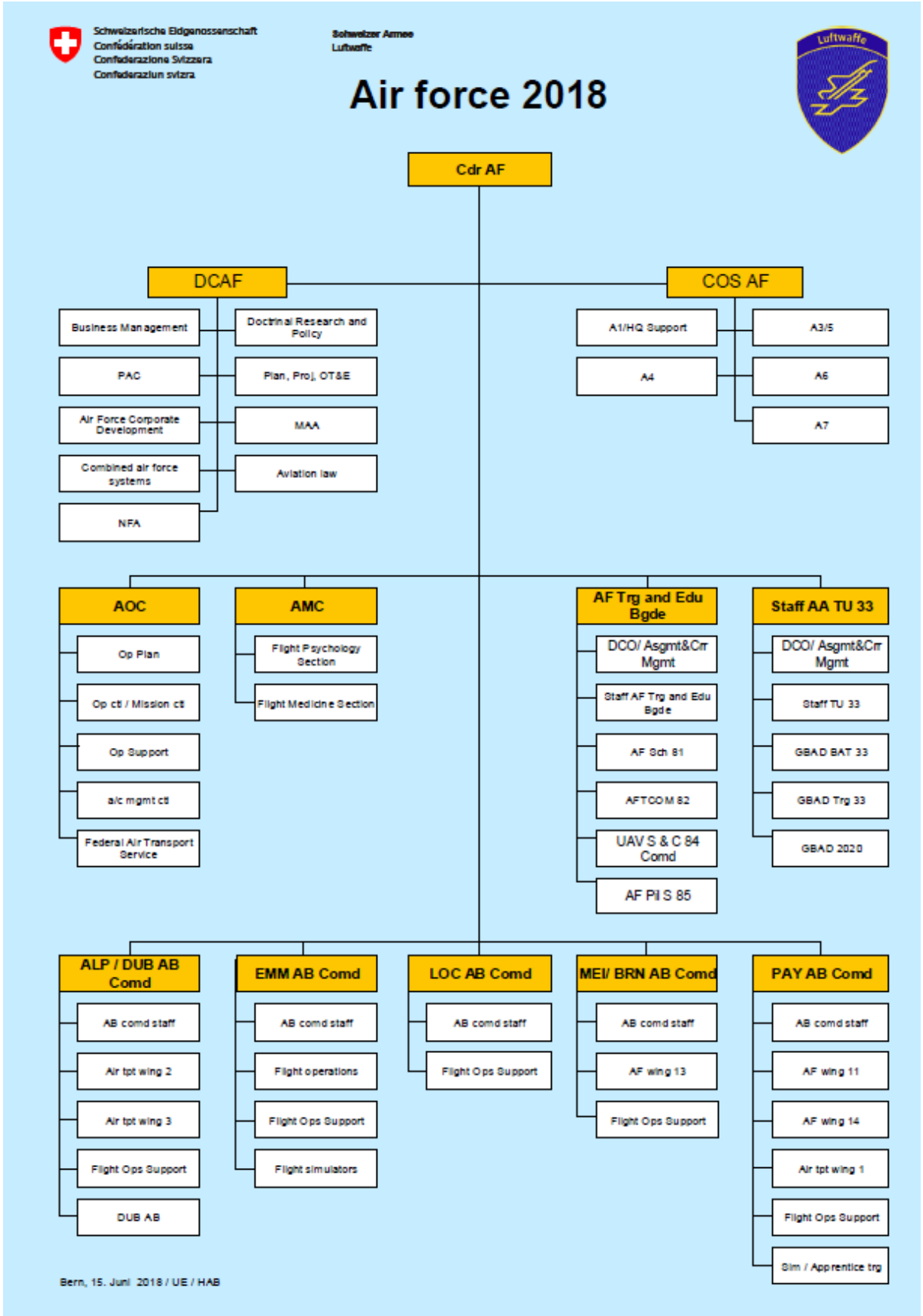
Function	Directorate	Name
LSSIP Contact Person	DECMA/ACS/PRM	Jorge PINTO

National stakeholders organisation charts

The Federal Office of Civil Aviation (31.12.2018)

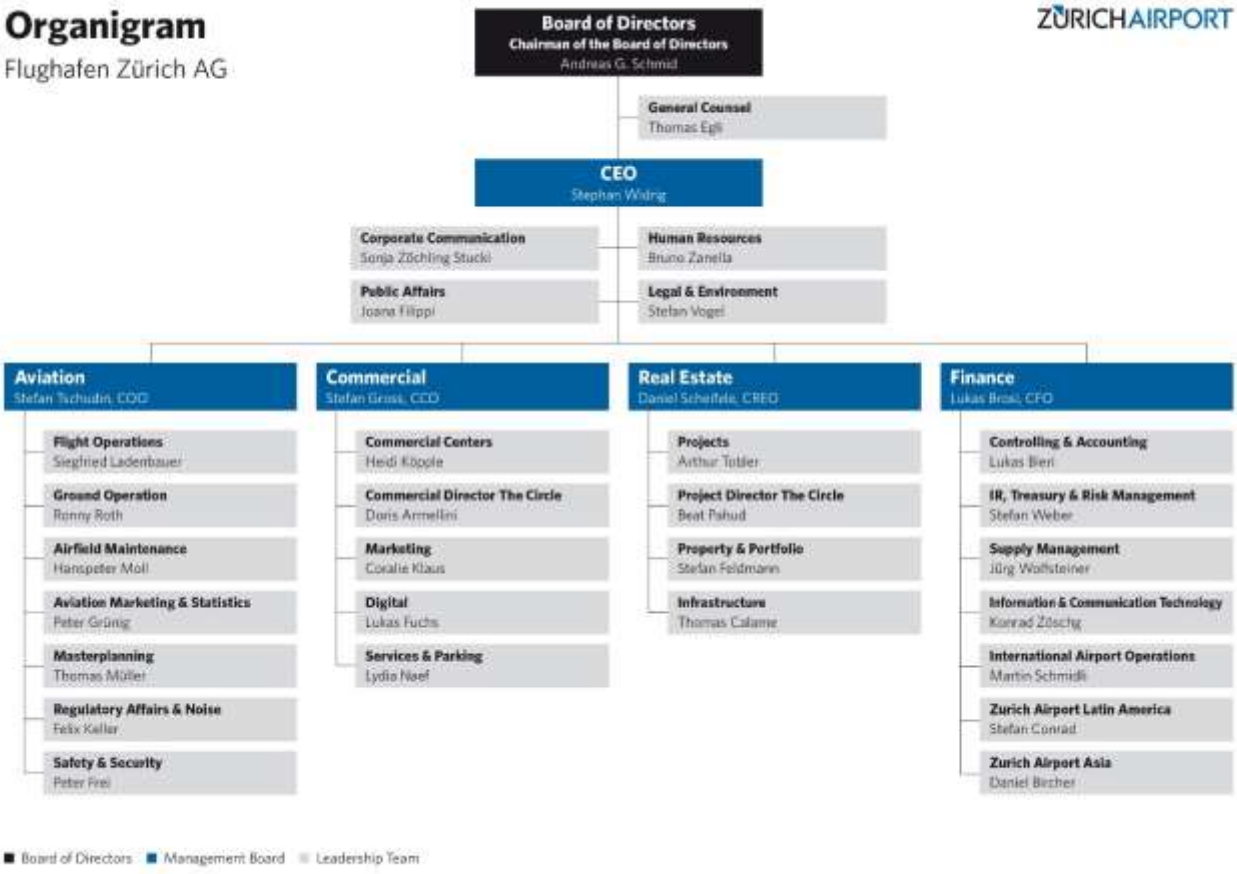



CEO
Corporate Audit
Safety, Security, Quality
Corporate Development
Operations
Corporate Communication
Finance & Services
Engineering & Technology
Human Resources
Business & Quality
Security
Safety Investigations & Assessments
Line Safety Delegate
Safety Risk Mgmt & Performance
Portfolio & Change Management
Strategy, Innovation, Ent. Risk Mgmtt, Organization Dev.
Legal, Regulation, Compliance, International Affairs
Operations Development
Operations Services
Sales Marketing
Business Management Operations
ATM International Airports
Skyguide National
Virtual Center
Brand Positioning
Internal Communication
Change Communication
Media Communication
Institutional Communication
Financial Controlling and Charges
Accounting & Treasury
Supply Management
Facilities & Shared Services
Corporate Real Estate Mgmt & Infrastructure
Program Director VCT2
Swiss U-Space/UTM
Safety and Compliance Management
System Architecture
Application Services
Partner & Service Management
CNS Service
Technical Operation
IT Infrastructure Services
Compensation & Benefits
HR Operations & HR Marketing
People Development
Payroll & Social Insurances
Employee Relations
Skyguide Training Center
Occupational Health Management


Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Schweizer Armee
Luftwaffe
Air force 2018
Cdr AF
DCAF
Business Management
Doctrinal Research and Policy
PAC
Plan, Proj, OT&E
Air Force Corporate Development
MAA
Combined air force systems
Aviation law
NFA
COS AF
A1/HQ Support
A3/5
A4
A6
A7
AOC
Op Plan
Op ctl / Mission ctl
Op Support
a/c mgmt ctl
Federal Air Transport Service
AMC
Flight Psychology Section
Flight Medicine Section
AF Trg and Edu Bgde
DCO/ Asgmt&Crr Mgmt
Staff AF Trg and Edu Bgde
AF Sch 81
AFTCOM 82
UAV S & C 84 Comd
AF PI S 85
Staff AA TU 33
DCO/ Asgmt&Crr Mgmt
Staff TU 33
GBAD BAT 33
GBAD Trg 33
GBAD 2020
ALP / DUB AB Comd
AB comd staff
Air tpt wing 2
Air tpt wing 3
Flight Ops Support
DUB AB
EMM AB Comd
AB comd staff
Flight operations
Flight Ops Support
Flight simulators
LOC AB Comd
AB comd staff
Flight Ops Support
MEI/ BRN AB Comd
AB comd staff
AF wing 13
Flight Ops Support
PAY AB Comd
AB comd staff
AF wing 11
AF wing 14
Air tpt wing 1
Flight Ops Support
Sim / Apprentice trg
Bern, 15. Juni 2018 / UE / HAB

Organigram

Flughafen Zürich AG



GENÈVE
AÉROPORT

Implementation Objectives' links with SESAR, ICAO and DP

Objective	SESAR Key Feature	ICAO ASBU B0 and B1	DP Family
AOM13.1		-	-
AOM19.1		B1-FRTO B1-NOPS	3.1.1 ASM Tool to support AFUA
AOM19.2		B1-FRTO B1-NOPS	3.1.2 ASM management of real time airspace data
AOM19.3		B1-FRTO B1-NOPS	3.1.3 Full rolling ASM/ATFCM process and ASM information sharing
AOM19.4		B1-FRTO B1-NOPS	3.1.4 Management of dynamic airspace configurations
AOM21.1		B0-FRTO	-
AOM21.2		B1-FRTO	3.2.1 Upgrade of ATM systems to support Direct Routing and Free Routing 3.2.4 Implement Free Route Airspace
AOP04.1		B0-SURF	2.2.1 A-SMGCS level 1 and 2
AOP04.2		B0-SURF	2.2.1 A-SMGCS level 1 and 2
AOP05		B0-ACDM B0-RSEQ	2.1.1 Initial DMAN 2.1.3 Basic A-CDM
AOP10		B1-RSEQ	2.3.1 Time Based Separation (TBS)
AOP11		B1-ACDM	2.1.4 Initial Airport Operations Plan (AOP)
AOP12		-	2.1.2 Electronic Flight Strips (EFS) 2.5.1 Airport Safety Nets associated with A-SMGCS level 2 2.5.2
AOP13		B1-ACDM B1-RSEQ	2.4.1 A-SMGCS Routing and Planning Functions
AOP14		B1-RATS	-
ATC02.2		B0-SNET	-
ATC02.8		B0-SNET B1-SNET	3.2.1 Upgrade of ATM systems to support Direct Routing and Free Routing
ATC02.9		B0-SNET B1-SNET	-
ATC07.1		B0-RSEQ	1.1.1 Basic AMAN
ATC12.1		B1-FRTO	3.2.1 Upgrade of ATM systems to support Direct Routing and Free Routing
ATC15.1		B1-RSEQ	1.1.2 AMAN upgrade to include Extended Horizon function
ATC15.2		B1-RSEQ	1.1.2 AMAN upgrade to include Extended Horizon function
ATC16		B0-ACAS	-
ATC17		-	3.2.1 Upgrade of ATM systems to support Direct Routing and Free Routing

ATC18		-	No direct link, although implementation is recommended in Family 3.2.1
COM10		-	-
COM11		-	3.1.4 Management of Dynamic Airspace Configurations 3.2.1 Upgrade of systems (NM, ANSPs, AUs) to support Direct Routings (DCTs) and Free Routing Airspace (FRA)
COM12		B1-SWIM	5.1.2 NewPENS: New Pan-European Network Service 5.2.1 Stakeholders Internet Protocol Compliance
ENV01		B0-CDO B1-CDO	-
ENV02		-	-
ENV03		B0-CCO	-
FCM01		B0-NOPS	-
FCM03		B0-NOPS	4.2.3 Interface ATM systems to NM systems
FCM04.1		-	4.1.1 STAM phase 1
FCM04.2		B0-NOPS	4.1.2 STAM phase 2
FCM05		B1-ACDM B1-NOPS	4.2.2 Interactive Rolling NOP 4.2.4 AOP/NOP Information Sharing
FCM06		B1-NOPS	4.4.2 Traffic Complexity tools
FCM07		B1-NOPS	4.3.1 - Target Time for ATFCM purposes 4.3.2 - Reconciled target times for ATFCM and arrival sequencing
FCM08		B1-FICE	4.2.3 Interface ATM systems to NM systems
FCM09		B1-NOPS	-
INF04		B0-DATM	-
INF07		-	1.2.2 Geographical database for procedure design
INF08.1		B1-DATM B1-SWIM	5.1.3, 5.1.4, 5.2.1, 5.2.2, 5.2.3, 5.3.1, 5.4.1, 5.5.1, 5.6.1
INF08.2		B1-DATM B1-SWIM	5.1.3, 5.1.4, 5.2.1, 5.2.2, 5.2.3, 5.6.2
ITY-ACID		-	-
ITY-ADQ		B0-DATM	1.2.2 Geographical database for procedure design
ITY-AGDL		B0-TBO	6.1.1 ATN B1 based services in ATSP domain 6.1.3 A/G and G/G Multi Frequency DL Network in defined European Service Areas 6.1.4 ATN B1 capability in Multi Frequency environment in Aircraft Domain
ITY-AGVCS2		-	-
ITY-COTR		B0-FICE	-
ITY-FMTP		B0-FICE B1-FICE	-
ITY-SPI		B0-ASUR	-

NAV03.1		B0-CDO B0-CCO B1-RSEQ	-
NAV03.2		B1-RSEQ	1.2.3 RNP 1 Operations in high density TMAs (ground capabilities) 1.2.4 RNP 1 Operations (aircraft capabilities)
NAV10		B0-APTA	1.2.1 RNP APCH with vertical guidance 1.2.2 Geographic Database for procedure design
NAV12		B1-APTA	-
SAF11		-	-

Legend:

Objective's link to SESAR Key Feature:			
	Optimised ATM Network Services		High Performing Airport Operations
	Advanced Air Traffic Services		Enabling Aviation Infrastructure

Glossary of abbreviations

This Annex mostly shows only the Abbreviations that are specific to the LSSIP Switzerland.

Other general abbreviations are in the Acronyms and Abbreviations document in:

https://www.eurocontrol.int/sites/default/files/content/documents/official-documents/guidance/Glossaries.pdf

Term	Description
ACC	Area Control Centre
AF	ATM Functionality
AGY	EUROCONTROL Agency
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
ANSP	Air Navigation Services Provider
AOM	Airspace Organisation Management
ARINC	Aeronautical Radio Incorporated
ASM	Airspace Management
ATC	Air Traffic Control
ATCO	Air Traffic Control Officer
ATFCM	Air Traffic Flow and Capacity Management
ATFM	Air Traffic Flow Management
ATIS	Automatic Terminal Information Service
ATM	Air Traffic Management
ATN	Aeronautical Telecommunications Network
ATS	Air Traffic Services
CAA	Civil Aviation Authority
CDM	Collaborative Decision Making
CFMU	Central Flow Management Unit
CIDIN	Common ICAO Data Interchange Network
CPDLC	Controller Pilot Data Link Communications
CTA	Control Area
EAD	European Aeronautical Database
EC	European Commission/Community
ECAC	European Civil Aviation Conference
EEC	EUROCONTROL Experimental Centre (Bretigny)
EGNOS	European Geostationary Navigation Overlay Service
ESA	European Space Agency
EU	European Union
EUROCAE	European Organisation for Civil Aviation Equipment

Term	Description
FCM	Flow and Capacity Management
FDPS	Flight Data Processing System
FIR	Flight Information Region (ICAO)
FIS	Flight Information Services
FMP	Flow Management Position
FMS	Flow Management System
FOCA	Federal Office of Civil Aviation (Switzerland)
FT	Fast Tracks
FUA	Flexible Use of Airspace
FZAG	Flughafen Zürich AG
GAT	General Air Traffic
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
IANS	EUROCONTROL Institute for Air Navigation Services
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IFATCA	International Federation of Air Traffic Controllers Association
MET	Meteorology
MIL	Military
NAV	Navigation
NOTAM	Notice to Airmen
OAT	Operational Air Traffic
OLDI	On Line Data Interchange
PCP	Pilot Common Project
DP	Deployment Programme
RDPS	Radar Data Processing System
R&D	Research & Development
RWY	Runway
SAF	Safety Management
S-AF	Sub ATM Functionality
SAR	Search and Rescue
SARPS	Standard and Recommended Practices (ICAO)
SLoA	Stakeholder Line of Action
STATFOR	Statistics and Forecast
TMA	Terminal Control Area
UAC	Upper Area Control (Centre)
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions

Mature SESAR Solutions not associated to an Implementation Objective

SESAR Solution Code	SESAR Solution Title	Solution Description	Has the SESAR Solution been implemented in your State? (Y-N) - if "Yes" please report where	Are there implementation plans in your State for the SESAR Solution? (Y-N-N/A) - If "Yes" please report when and where implementation is planned - If "N/A" please provide justification
		High Performing Airport Operations		
#01	Runway status lights	RWSL (RunWay Status Lights), a fully automatic system based on A-SMGCS surveillance that can be used on airports to increase safety by preventing runway incursions and associated operational procedures. The system directly provides the information on runway usage to the vehicle drivers and flight crews through new airfield lights.	No	No
#04	Enhanced traffic situational awareness and airport safety nets for vehicle drivers	Operational requirements and technical specifications to detect a risk of collision between a vehicle with aircraft and the infringement of restricted or closed areas. The Vehicle Driver is provided with the appropriate alert, either generated by the on-board system or uplinked from the controller airport safety net.	No	No
#23	D-TAXI service for controller-pilot datalink communications (CPDLC) application	Use of data link communications between the Tower Controllers and the flight crew during surface movement. It is based on the D-TAXI service from the CPDLC application, as standardised by RTCA SC214/EUROCAE WG78 (DO-350 & DO-351). It also includes the access to this service for end users, through the Tower CWP for the ATCO and through the aircraft DCDU for the flight crew.	No	No

#47	Guidance assistance through airfield ground lighting	Enhanced Guidance Assistance to mobiles based on the automated switching of Taxiway lights and Stop bars according to the Airfield Ground Lighting (AGL) operational service Provision of flight crew and vehicle drivers with supplementary means of guidance based on coupling the taxi route management with the airfield ground lighting. Taxiway centreline lights are automatically and progressively switched on in segments as the mobile progresses along its assigned route. Stop bars are automatically activated to mark clearance limit. The ATCO can issue simpler and shorter taxi clearances through a "FOLLOW THE GREENS"-type instruction	No	No
#48	Virtual block control in low visibility procedures (LVPs)	In low visibility conditions, the tower controller working positions are provided with Virtual Stop Bars (VSB) to improve low visibility operations and enhance controllers¿ situational awareness. Virtual Stop Bars can be used by the controller to reduce block-sizes once procedural control applies. Additional controller safety nets will be available to indicate violations of Stop Bars (including Virtual Stop Bars) and to monitor aircraft for any kind of unauthorized movement (Watch Dog).	No	No ZRH: already "real" block control with stop bars. No GVA
#54	Flow based integration of arrival and departure management	Integrated Arrival and Departure management aims at increasing throughput and predictability at an airport by improved co-ordination between En Route/Approach and Tower controllers. Arrival and Departure flows to the same runway (or for dependent runways) are integrated by setting up fixed arrival departure pattern for defined periods. The successive pattern might be chosen by the operators or provided by an optimization algorithm considering arrival and departure demand. Departure flow to the runway is managed by pre-departure sequencing (integrating route planning) while arrival flow to the runway is managed by arrival metering	No	Yes : ZRH, Implementation starting in 2023 No GVA

#55	Precision approaches using GBAS Category II/III	This SESAR Solution aims at improving Low Visibility Operation using GBAS Cat II/III based on GPS L1 The main benefit is the increased runway capacity in poor weather conditions as the glide path and azimuth signals will face hardly any interference from previous landing aircraft or other obstacles. More sustained accuracy in aircraft guidance on final approach. The GBAS is a precision approach system relying on GNSS signals and composed of ground and airborne segments. GBAS supports enhanced level of service for all phases of approach, landing and departure. GBAS CATII/III GPS L1 is the outcome of the extensive work in SESAR WP9 and 15 in addition to project 6.8.5 involving main European ground systems manufacturers and airborne industry. The solution is based on the existing single frequency GPS L1 signals and is considered as an initial GBAS CAT II/III solution as the final solution should make use of multi-constellation multi-frequency signals. The GBAS CATII/III L1 system should enable - Automatic Approach and Landing down to Cat IIIb minima for Mainline Aircraft - Automatic roll-out, DH < 50 ft down to no DH & RVR between 50m and 200m - Automatic Approach and Landing down to Cat II or Cat IIIa minima for Business and Regional Aircraft - 50 ft < DH < 200 ft & 200 m < RVR < 550m - CAT IIIb considerations for Business Aircraft for possible future use - Guided take-off is integrated in the reflexion	No	No
#61	A low-cost and simple departure data entry panel for the airport controller working position	The use of a simple Airport Departure Data Entry Panel (ADDEP) improves the integration of small regional airports by providing a low-cost solution to compute and share aircraft electronic pre-departure data to the ATM network, between the tower and approach controllers, as well as the tower and the Network Manager.	Yes (Integrated AMAN/DMAN) in ZRH	n/a

#70	Enhanced ground controller situational awareness in all weather conditions	Enhanced Ground Controller Situation Awareness in all Weather Conditions further develops ADS-B applications in order to improve ground surveillance systems. The solution provides the controller with the position and automatic identity of all relevant aircraft and all relevant vehicles in the movement area (i.e. manoeuvring area plus apron).	No	No
#116	De-icing management tool	The solution increases the accuracy of information related to when the procedure is going to take place, how long it will take and when the aircraft will be ready to taxi for departure, which is currently calculated by predetermined estimates. The solution means that air traffic controllers no longer need to work without situational awareness of de-icing activities and needing to make their own estimates of when aircraft are ready for departure. The solution envisages that de-icing operations are no longer characterised by the A-CDM concept as 'adverse conditions', i.e. a state that is in need of collaborative recovery procedures, but rather a part of normal operations in the winter period. The DIMT allows for the scheduling and monitoring of de-icing operations. It is an internet browser-based tool that addresses three distinct procedures for de-icing: - Remote de-icing, which occurs at a specific location on the airport away from the parking stand; - On-stand de-icing, which occurs just before the aircraft leaves its stand; and - After-push de-icing, which occurs after the aircraft has pushed back from the stand and is positioned to start taxiing after de-icing.	No	Yes: ZRH, already implemented since Winter 2012/2013 No
		Advanced Air Traffic Services		
#06	Controlled time of arrival (CTA) in medium-density/medium-complexity environments	The CTA (Controlled Time of Arrival) is an ATM imposed time constraint on a defined point associated with an arrival runway, using airborne capabilities to improve arrival management. When a time constraint is needed for a flight, the ground system may calculate a CTA as part of the arrival management process, and then it may be	Yes, ZRH (function of DMAN)	De-icing tool not included in the GVA A-CDM tool Each Handling Companie has its own system or procedure. This subject could be discussed within the

		proposed to the flight for achievement by avionics within required accuracy. Airborne information may be used by the ground system in determining the CTA (e.g. ETA min/max) and in monitoring the implementation of the CTA.		Airport Operations Center service.
#08	Arrival management into multiple airports	The system provides support to coordination of traffic flows into multiple airports to enable a smooth delivery to the runways. The 'Center Manager' (CMAN) which accompanies the AMANs of the airports generates a combined planning for several arrival streams into different airports by calculating the sequence of aircraft flying towards an area where their routes intersect. By imposing an adequate spacing of the aircraft in that area, a Time To Lose (TTL) for the appropriate upstream E-TMA sector is calculated to meet this constraint. Both AMAN-TTL for the runway and TTL for the E-TMA sector are superimposed and presented to the upstream en-route sector controllers.	Yes, ZRH Partially for GVA cf. Column F	The time constraint (TTL = Time To Loose) is already implemented (HECT tool within Skyguide TWR/APP/INI) Intention forimplementing the full SESAR solution in 2030.
#10	Optimised route network using advanced RNP	Based on Advanced-RNP navigation specification, design of optimised routes e.g spaced parallel routes, Fixed Radius Transition (FRT) and Tactical Parallel Offset (TPO) further enhanced by onboard performance monitoring and alerting and the execution of more predictable aircraft behaviour	No	No
#11	Continuous descent operations (CDO) using point merge	Progressive implementation of procedures for Continuous Descent Operations (CDO) and Continuous Climb Operations (CCO) in higher density traffic or to higher levels, optimised for each airport arrival/departure procedure	No	No
#69	Enhanced STCA with down-linked parameters	STCA (Short Term Conflict Alert) is a ground-based system designed and deployed to act as a safety net against collisions. The system, which can be used in both en-route and TMAs, generates an alert to warn air traffic controllers for when separation minima between aircraft have been infringed upon. The system makes use of down-linked aircraft parameters (DAP) available through Mode S EnHanced Surveillance (EHS) (i.e. Selected Flight Level, Roll angle/Track angle rate) are to increase the reliability and accuracy of the alerts.	No	No.GVA Feasibility studied had been made a few year ago with the conclusion that the surrounding mountains in GVA area make it impossible (or at least with no added value)

#105	Enhanced airborne collision avoidance system (ACAS) operations using the autoflight system	New altitude capture laws aim to reduce unnecessary ACAS alarms and reduce the risk of mid-air or near mid-air collisions between aircraft as a last-resort safety net, by automatically reducing the vertical rate at the approach of the selected flight level (only when a Traffic Advisories-TA occurs), leading to less traffic perturbation, while not increasing flight crew workload.	No	Intention to implement in 2030
#107	Point merge in complex terminal airspace	This new procedure design builds upon precision navigation technology (P-RNAV concept) for merging traffic into a single entry point, which allows efficient integration and sequencing of inbound traffic together with Continuous Descent Approaches (CDA).	Yes	n/a
#108	Arrival Management (AMAN) and Point Merge	Point Merge in high density environment and complex Extended TMA (E-TMA) sectors replaces radar vectoring with a more efficient and simplified traffic synchronisation mechanism that reduces communication workload and increases collective traffic predictability.	No	No NB : feasibility study conducted in 2011 for GVA. The flowing constraints / limitations had been highlighted : - Procedures difficult to be implemented due to the surrounding mountains around the airport. - Proximity of the INI sectors above the TMA airspace
		Optimised ATM Network Services		
#57	User-driven prioritisation process (UDPP) departure	Airspace Users are allowed to change among themselves (via the pre-departure management process in CDM airports) the priority order of flights in the pre-departure sequence. The departure time will be automatically communicated/coordinated with the Network Management Function (NMF) via the DPI message as described in the A-CDM concept.	No	No
		Enabling Aviation Infrastructure		

#34	Digital Integrated Briefing	The current pre-flight briefing for the pilot includes pages of information, called notice to airmen (NOTAM), recent weather reports and forecasts (MET), which have to be integrated into a consolidated operational picture. The documents can be difficult for pilots to use, and no longer satisfy today's air traffic needs for timely and accurate aeronautical and meteorological information updates. By introducing digital NOTAM and MET data, the briefing could be radically improved.	No	No
#67	AOC data increasing trajectory prediction accuracy	Europe's vision to achieve high-performing aviation by 2035 builds on the idea of trajectory-based operations – meaning that aircraft can fly their preferred trajectory while minimising constraints due to airspace and service configurations. SESAR has introduced an early version which makes use of flight planning data sourced from airline operational control (AOC) to help controllers optimise aircraft flight paths. This solution represents an initial step towards the extended flight plan solution and flight and flow information for a collaborative environment (FF-ICE).	No	Intention to implement in 2025
#100	ACAS Ground Monitoring and Presentation System	The ACAS provides resolution advisories (RAs) to pilots in order to avoid collisions. Controllers rely on pilots to report RAs by radio as they occur in accordance with ICAO regulations. However these reports can come late, incomplete or are absent in some instances. This solution consists of a set of monitoring stations and a server system, which enable the continuous monitoring and analysis of ACAS RAs and coordination messages between airborne units from the ground.	No	Intention to implement in 2030
#101	Extended hybrid surveillance	This solution consists of an enhanced TCAS capability, adding passive surveillance methods and reducing the need for active Mode-S interrogations. By making fewer active interrogations, this solution allows the aircraft to significantly reduce the usage of the 1090 MHz frequency.	No	No

#102	Aeronautical mobile airport communication system (AeroMACS)	The aeronautical mobile airport communication system (AeroMACS) offers a solution to offload the saturated VHF datalink communications in the airport environment and support new services. The technical solution AeroMACS is based on commercial 4G technology and uses the IEEE 802.16 (WiMAX) standard. Designed to operate in reserved (aeronautical) frequency bands, AeroMACS can be used for ANSPs, airspace users and airport authority communications, in compliance with SESAR's future communication infrastructure (FCI) concept. AeroMACS is an international standard and supports globally harmonised and available capabilities according to ICAO Global Air Navigation Plan (GANP).	No	No
#109	Air traffic services (ATS) datalink using Iris Precursor	The Iris Precursor offers a viable option for ATS datalink using existing satellite technology systems to support initial four-dimensional (i4D) datalink capability. The technology can be used to provide end-to-end air–ground communications for i4D operations, connecting aircraft and air traffic management ground systems.	No	No
#110	ADS-B surveillance of aircraft in flight and on the surface	The SESAR solution consists of the ADS-B ground station and the surveillance data processing and distribution (SDPD) functionality. The solution also offers mitigation techniques against deliberate spoofing of the ground system by outside agents. These techniques can also be used to cope with malfunctioning of avionics equipment. SESAR has contributed to the relevant standards, such as EUROCAE technical specifications, incorporating new functionalities developed for the ADS-B ground station, ASTERIX interface specifications as well as to the SDPD specifications.	No	No
#114	Composite Surveillance ADS-B / WAM	By allowing the use of ADS-B data that has been validated against data derived in parallel by a WAM system, the system can help to reduce the number of interrogations and number of replies and therefore reduce the 1030/1090 MHz RF load and improve spectrum efficiency. It achieves this through the integration of validated data items into the WAM channel, thereby	No	Yes (06/2021 for the deployment of a technical platform)

		preventing a need to re-interrogate the data item. Since the two surveillance layers share hardware components, the system offers improved cost efficiency. Furthermore, the use of the system contributes to an improved security by successfully mitigating associated ADS-B threats. SESAR has contributed to the relevant standards, such as EUROCAE technical specifications for WAM and ADS-B that are implementing this “composite” concept.		