EUROCONTROL

LSSIP 2021 - BULGARIA
LOCAL SINGLE SKY IMPLEMENTATION

Implementation Overview

FOREWORD

The exceptional situation we are living in and its effects on aviation, shows the importance of a robust planning and monitoring process for the European ATM implementation in our evolving environment.

EUROCONTROL works with all operational stakeholders to manage a seamless European airspace, linking together the elements of the European ATM system into a single value chain. Focusing on performance of the European network, we partner with the operational stakeholders to enable flights to reach their destination safely, on time, with the least possible impact on environment and in a cost-efficient way.

This year, the EUROCONTROL Network Manager and the SESAR Deployment Manager (SDM) teams joined forces to achieve a unified planning and monitoring, critical to move towards our common goal of implementing a single value chain in aviation.

The famous quote: "What we cannot measure, cannot be improved", shows the importance of ATM implementation reporting. The EUROCONTROL Local Single Sky ImPlementation (LSSIP) process, methodology, tools and documents annually express the commitment of civil and military national organisations (Regulators and National Supervisory Authorities, Air Navigation Service Providers and Airport Operators), and their cooperation towards the implementation of the European ATM Master Plan Level 3, including the EC implementing regulation 2021/116 (Common Project 1).

The LSSIP documents provide an extensive, consolidated and harmonised picture, for the benefit of the ATM community at large, of how ECAC States and States having a Comprehensive Agreement with EUROCONTROL, and stakeholders concerned, are progressing in planning and deploying all mature elements of the European ATM Master Plan.

In addition, EUROCONTROL is promoting practices to avoid unnecessary duplication of reporting from the stakeholders. Our continuous cooperation with the SDM and the SESAR Joint Undertaking (SJU) ensures the optimisation of the reporting mechanisms bringing all the processes into a single value chain, without diverging monitoring results.

The reliability and quality of the data provided by national stakeholders also allows the LSSIP information 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. EUROCONTROL undertakes this work, on behalf of ICAO, for all 55 ICAO/EUR States in accordance with the Global Air Navigation Plan (GANP).

I would like to thank, once again, all our stakeholders for their engagement and substantial effort spent in contributing to the information shared in the LSSIP+ Tool and to the production of this LSSIP document. This is a proof of commitment to the principles of transparency and partnership, for the benefit of the entire Aviation community!

Enjoy the reading!

Iacopo Prissinotti
Director NM - Network Manager
EUROCONTROL

SESAR DEPLOYMENT MANAGER WORDS

The need for operational stakeholders to participate to multiple reporting cycles has been a long-standing issue for several years. Finally, there is a paradigm shift in this monitoring cycle thanks to the intense cooperation between EUROCONTROL and the SESAR Deployment Manager (SDM), as we become more efficient, consistent and save precious time and resources.

I thank all stakeholders for their participation and crucial contribution to the SESAR Deployment Programme (SDP) Monitoring View through the LSSIP+ Tool. This edition is particularly important, as it will show for the very first time the status of implementation of the Common Project 1 Regulation, at a time where stakeholders are still suffering from the difficult economic situation posed by the consecutive waves of Covid-19 pandemic. The results within the SDP Monitoring View will give SDM the opportunity to identify the risks, support stakeholders and accelerate deployment.

Mariagrazia La Piscopia
Chief Strategy and Programme
SESAR Deployment Manager

Document Title	LSSIP Year 2021 for Bulgaria
Info Centre Reference	22/02/02/07
Date of Edition	09/05/2022
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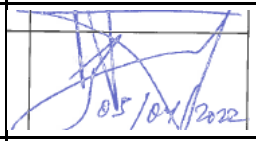
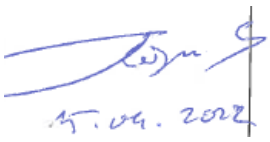
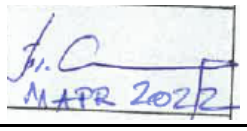
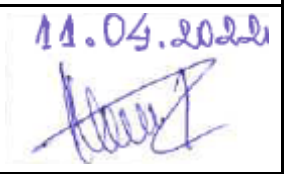
Status	Released
Intended for	EUROCONTROL Stakeholders
Available in	https://www.eurocontrol.int/service/local-single-sky-implementation-monitoring

Reference Documents	
LSSIP Documents	https://www.eurocontrol.int/service/local-single-sky-implementation-monitoring
Master Plan Level 3 – Plan Edition 2021	https://www.eurocontrol.int/publication/european-atm-master-plan-implementation-plan-level-3
Master Plan Level 3 – Report Year 2021	https://www.eurocontrol.int/publication/european-atm-master-plan-implementation-report-level-3
European ATM Portal	https://www.atmmasterplan.eu/
STATFOR Forecasts	https://www.eurocontrol.int/statfor
National AIP	https://www.bulatsa.com/en/aip-redirect/
FAB Performance Plan	N.A.

APPROVAL SHEET

The following authorities have approved all parts of the LSSIP Year 2021 document, and the signatures confirm the correctness of the reported information and reflect the commitment to implement the actions laid down in the European ATM Master Plan Level 3 (Implementation View) – Edition 2021.

Stakeholder / Organisation	Name	Position	Signature and date
DG CAA	Hristo SHTERIONOV	Director General	
BULATSA	Georgi PEEV	Director General	
Military Authorities	General-Major Dimitar PETROV	Commander of The Bulgarian Air Force	
SOF Connect - Sofia APT	Jesus CABALLERO	Chief Executive Officer	
Fraport Twin Star Airport Management AD – Varna APT and Burgas APT	Dr. Frank QUANTE	Chief Executive Officer	
Plovdiv Airport EAD	Plamen SPASOV	Executive Manager	
Civil Airport Gorna Oryahovica 2016 Plc.	Anastasiya YOVEVA	Executive Manager	

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Executive Summary

National ATM Context

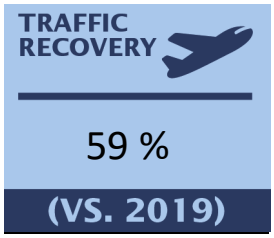
Member State of:

Main national stakeholders:

- Directorate General Civil Aviation Administration (DG CAA);
- Bulgarian Air Traffic Services Authority (BULATSA);
- Military Authorities; and
- Airports Operators.

Main airport covered by LSSIP: Sofia Airport

Traffic and Capacity

Level of traffic compared to 2019	Summer En-Route Delay
	

Bulgaria is part of:

The Danube FAE

Number of national projects: 3

- Building of Contingency and Data Center and Equipment;
- New PSRs and SSRs East part of Sofia FIR; and
- Reconstruction and modernization of the Operations Room of Sofia Air Traffic Control (ATC) Centre and the adjacent infrastructure and facilities.

Number of FAB projects: 5

- FAB enlargement;
- Free Route Airspace;
- Inter-FAB Coordination;
- Technical Rationalisation and Infrastructure;
- Transition to the new SES developments.

Number of multinational projects: 8

- GateOne;
- InterFAB Coordination Platform;
- NewPENS Stakeholders contribution for the procurement and deployment of NewPENS;
- OLDI interface and related functionalities upgrade;
- Radar Data Sharing;
- Regional Communication Network;
- Regional Route Network Developments;
- SWIM Common PKI and policies & procedures for establishing a Trust framework.

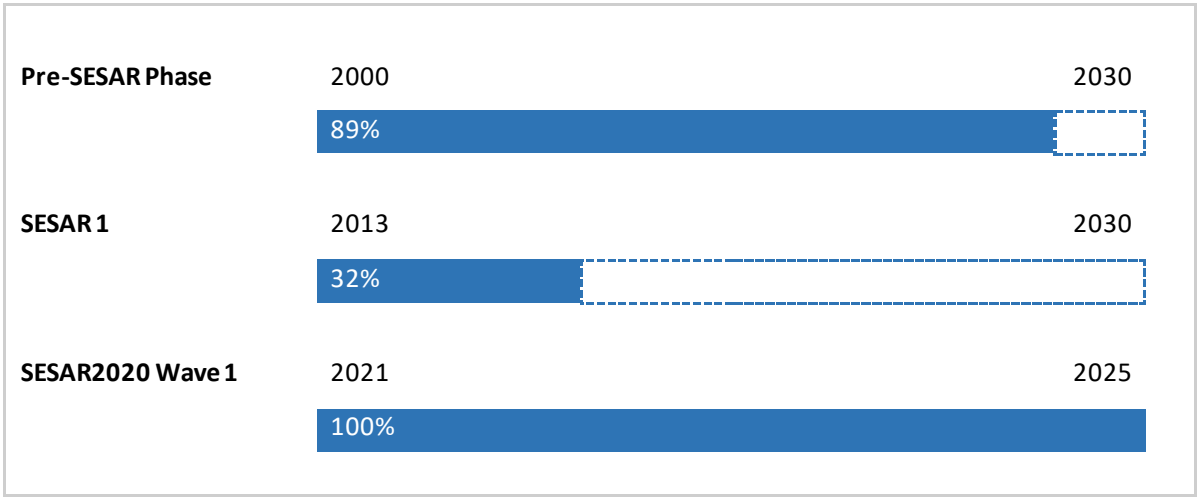
Summary of 2021 developments:

- Enhanced Free Route Airspace Operations (AOM21.3) are fully achieved within the boundaries of the SEE FRA well before the FOC 31.12.2025.
- Extended ATSMHS capabilities (COM10.2) added to the AMHS at the end of 2020, way ahead of the deadline at the end of 2024.
- The NewPENS (COM12) was put into service in September 2019. By the end of 2020 the following services were using its network: tCAT, AMHS and LARA and in 2021 the AIM system was connected to the NM. The AMHS connections are: AMHS-BG to the European Directory Service (EDS); AMHS-BG to Austrocontrol – the European Regional MET Centre; AMHS-BG to ROMATSA, and AMHS-BG to DHMI.
- Objective INF10.3 Aeronautical Information Exchange - Airspace structure service was achieved well before the FOC 31.12.2025.
- The ITY-ACID Aircraft Identification objective was finally completed (with only one year delay, due to the COVID-19).
- The ITY-AGDL Initial ATC Air-Ground Data Link Services objective, delayed due to contractual issues with Rockwell Collins Inc., was finalised successfully.

Progress per SESAR Phase

The figure below shows the progress made so far in the implementation of objectives stemming from different R&D phases (Pre-SESAR, SESAR1 and SESAR 2020).

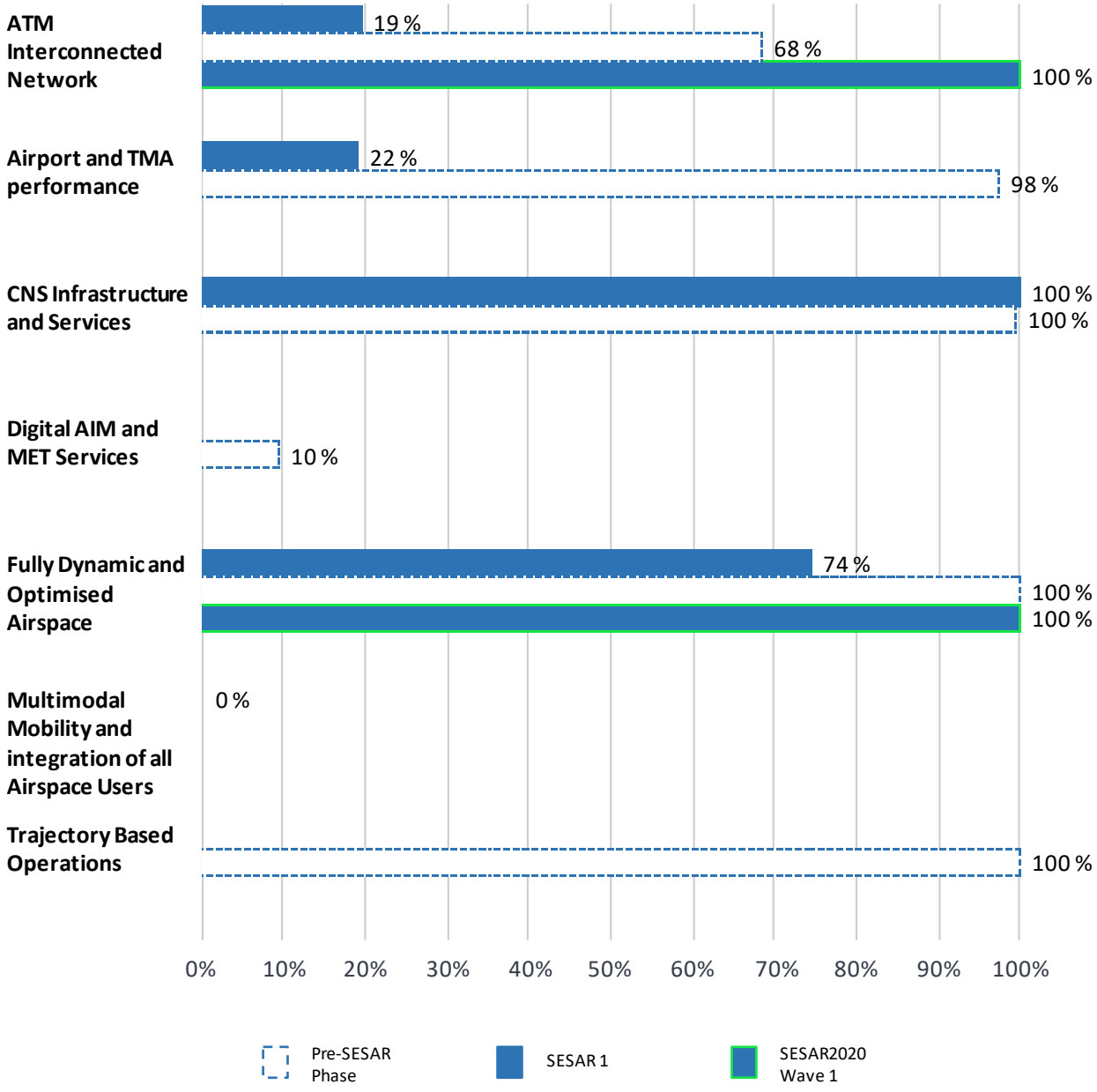
It shows the average implementation progress for all objectives grouped by SESAR Phase, excluding those for which the State is outside the applicability area as defined on a yearly basis in the European ATM Master Plan (Level 3) 2021, i.e. disregarding the declared "NOT APPLICABLE" LSSIP progress status.



Source: LSSIP DB

Progress per SESAR Essential Operational Changes and Phase

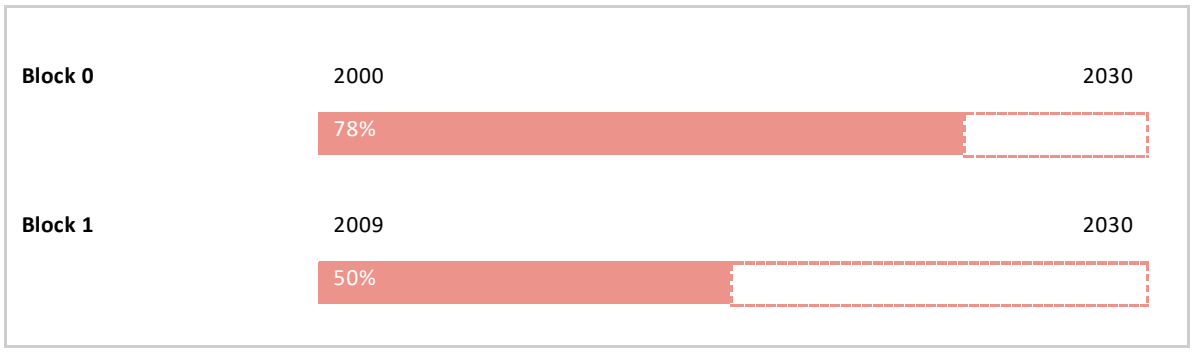
The figure below shows the progress made so far, per SESAR Essential Operational Changes, in the implementation of the SESAR phases. The percentages are calculated as an average, per EOC, of the same objectives as in the previous paragraph.



Source: LSSIP DB

ICAO ASBU Implementation Progress – Blocks 0 and 1

The figure below shows the progress made so far in the implementation of the ICAO ASBU Blocks 0 and 1, according to ICAO Global Air Navigation Plan 6th Edition (2019). The overall percentage is calculated as an average of the relevant Objectives contributing to each of the relevant ASBU Blocks; this is a summary of the table explained in Chapter 5.3 – ICAO ASBU Implementation Progress.



Source: LSSIP DB

ATM Deployment Outlook

State Objectives

✓	**Deployed in 2020 - 2021**	**- Enhanced Free Route Airspace Operations** AOM21.3 - 100 % progress **- Initial ATC Air-Ground Data Link Services** ITY-AGDL - 100 % progress **- Aircraft Identification** ITY-ACID - 100 % progress

By 2022	By 2023	By 2024	By 2025+
- Electronic Terrain and Obstacle Data (eTOD) INF07 - 10 % progress **- Improve Runway Safety by Preventing Runway Excursions** SAF11 - 90 % progress **- Enhanced Short Term ATFCM Measures** FCM04.2 - 00 % progress	**- Implement ACAS II compliant with TCAS II change 7.1** ATC16 - 74 % progress **- Interactive Rolling NOP** FCM10 - 30 % progress	**- RNP Approach Procedures to instrument RWY** NAV10 - 97 % progress	**- Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling** AOM13.1 - 36 % progress **- Flight Information Exchange (Yellow Profile) - Data Publication Service** INF10.21 - 00 % progress **- Stakeholders SWIM PKI and cyber security** INF10.2 - 32 % progress **- Aeronautical Information Exchange - Airspace Availability Service** INF10.4 - 00 % progress **- Aeronautical Information Exchange - Airspace Reservation (ARES)** INF10.5 - 25 % progress **- Aeronautical Information Exchange - Digital NOTAM service** INF10.6 - 00 % progress **- Aeronautical Information Exchange - Aerodrome mapping service** INF10.7 - 00 % progress **- Aeronautical Information Exchange - Aeronautical Information Features service** INF10.8 - 00 % progress **- Meteorological Information Exchange - Volcanic Ash Mass Concentration information service** INF10.9 - 00 % progress **- Meteorological Information Exchange -**

			Aerodrome Meteorological information Service INF10.10 - 23 % progress **- Meteorological Information Exchange - En-Route and Approach Meteorological information service** INF10.11 - 21 % progress **- Meteorological Information Exchange - Network Meteorological Information** INF10.12 - 03 % progress **- Cooperative Network Information Exchange - ATFCM Tactical Updates Service (Airport Capacity and En-Route)** INF10.13 - 00 % progress **- Cooperative Network Information Exchange - Flight Management Service (Slots and NOP/AOP integration)** INF10.14 - 00 % progress **- Cooperative Network Information Exchange - Measures Service (Traffic Regulation)** INF10.15 - 00 % progress **- Cooperative Network Information Exchange - Short Term ATFCM Measures services (MCDM, eHelpdesk, STAM measures)** INF10.16 - 00 % progress **- Cooperative Network Information Exchange - Counts service (ATFCM Congestion Points)** INF10.17 - 00 % progress **- Flight Information Exchange (Yellow Profile) - Flight Data Request Service** INF10.19 - 00 % progress **- Flight Information Exchange (Yellow Profile) - Notification Service** INF10.20 - 00 % progress **- Management of Predefined Airspace Configurations** AOM19.4 - 04 % progress **- ASM and A-FUA** AOM19.5 - 90 % progress

Overall situation of Implementation Objectives

Main Objectives	Topic	Progress at the end of 2021	Status	2021	2022	2023	2024	2025	2026	>2026
AOM13.1	Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling	36%	Ongoing							
AOM19.4	Management of Predefined Airspace Configurations	4%	Ongoing		*					
AOM19.5	ASM and A-FUA	90%	Ongoing		*					
AOM21.2	Initial Free Route Airspace	100%	Completed		*					
AOM21.3	Enhanced Free Route Airspace Operations	100%	Completed					*		
AOP04.1(LBSF)	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)	100%	Completed							
AOP04.2(LBSF)	Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA) (former Level 2)	0%	Not Applicable					*		
AOP05(LBSF)	Airport Collaborative Decision Making (A-CDM)	0%	Not Applicable							
AOP10(LBSF)	Time-Based Separation	0%	Not Applicable				*			
AOP11.1(LBSF)	Initial Airport Operations Plan	0%	Not Applicable			*				
AOP11.2(LBSF)	Extended Airport Operations Plan	0%	Not Applicable							2027
AOP12.1(LBSF)	Airport Safety Nets	0%	Not Applicable					*		
AOP13(LBSF)	Automated Assistance to Controller for Surface Movement Planning and Routing	0%	Not Applicable					*		
AOP14	Remote Tower Services	0%	Not Applicable							2030
AOP16(LBSF)	Guidance assistance through airfield ground lighting	0%	Not Applicable							2030

Main Objectives	Topic	Progress at the end of 2021	Status	2021		2022		2023		2024		2025		2026		>2026
AOP17(LBSF)	Provision/integration of departure planning information to NMOC	0%	Not Applicable													2030
AOP18(LBSF)	Runway Status Lights (RWSL)	0%	Not Applicable													2030
AOP19(LBSF)	Departure Management Synchronised with Pre-departure sequencing	0%	Not Applicable				*									
ATC02.8	Ground-Based Safety Nets	100%	Completed		*											
ATC07.1(LBSF)	AMAN Tools and Procedures	0%	Not Applicable													
ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring	100%	Completed		*											
ATC15.1	Information Exchange with En-route in Support of AMAN	0%	Not Applicable													
ATC15.2(LBSF)	Arrival Management Extended to En-route Airspace	0%	Not Applicable								*					
ATC15.2bis	Arrival Management Extended to En-route Airspace (non CP1)	0%	Not Applicable								*					
ATC18	Multi-Sector Planning En-route - 1P2T	0%	Not Applicable													2030
ATC19(LBSF)	AMAN/DMAN Integration	0%	Not Applicable													2027
ATC20	Enhanced STCA with down-linked parameters via Mode S EHS	0%	Not Applicable													2030
COM10.1	Migrate from AFTN to AMHS (Basic service)	100%	Completed													
COM10.2	Extended AMHS	100%	Completed								*					
COM11.1	Voice over Internet Protocol (VoIP) in En-Route	100%	Completed		*											
COM11.2	Voice over Internet Protocol (VoIP) in Airport/Terminal	100%	Completed						*							
COM12	New Pan-European Network Service (NewPENS)	100%	Completed								*					
ENV01(LBBG)	Continuous Descent Operations (CDO)	0%	Not Applicable						*							

Main Objectives	Topic	Progress at the end of 2021	Status	2021	2022	2023	2024	2025	2026	>2026
ENV01(LBSF)	Continuous Descent Operations (CDO)	0%	Not Applicable			*				
ENV01(LBWN)	Continuous Descent Operations (CDO)	0%	Not Applicable			*				
ENV02(LBSF)	Airport Collaborative Environmental Management	100%	Completed							2030
ENV03(LBBG)	Continuous Climb Operations (CCO)	0%	Not Applicable							2030
ENV03(LBGO)	Continuous Climb Operations (CCO)	0%	Not Applicable							2030
ENV03(LBPD)	Continuous Climb Operations (CCO)	0%	Not Applicable							2030
ENV03(LBSF)	Continuous Climb Operations (CCO)	0%	Not Applicable							2030
ENV03(LBWN)	Continuous Climb Operations (CCO)	0%	Not Applicable							2030
FCM03	Collaborative Flight Planning	100%	Completed		*					
FCM04.2	Enhanced Short Term ATFCM Measures	0%	Planned		*					
FCM06.1	Automated Support for Traffic Complexity Assessment and Flight Planning interfaces	100%	Completed		*					
FCM10	Interactive Rolling NOP	30%	Ongoing			*				
FCM11.1(LBSF)	Initial AOP/NOP Information Sharing	0%	Not Applicable			*				
FCM11.2(LBSF)	AOP/NOP integration	0%	Not Applicable							2027
INF07	Electronic Terrain and Obstacle Data (eTOD)	10%	Ongoing							
INF10.10	Meteorological Information Exchange - Aerodrome Meteorological information Service	23%	Ongoing					*		
INF10.11	Meteorological Information Exchange - En-Route and Approach Meteorological information service	21%	Ongoing					*		
INF10.12	Meteorological Information Exchange - Network Meteorological Information	3%	Ongoing					*		

Main Objectives	Topic	Progress at the end of 2021	Status	2021	2022	2023	2024	2025	2026	>2026
INF10.13	Cooperative Network Information Exchange - ATFCM Tactical Updates Service (Airport Capacity and Enroute)	0%	Planned					*		
INF10.14	Cooperative Network Information Exchange – Flight Management Service (Slots and NOP/AOP integration)	0%	Planned					*		
INF10.15	Cooperative Network Information Exchange – Measures Service (Traffic Regulation)	0%	Planned					*		
INF10.16	Cooperative Network Information Exchange - Short Term ATFCM Measures services (MCDM, eHelpdesk, STAM measures)	0%	Planned					*		
INF10.17	Cooperative Network Information Exchange – Counts service (ATFCM Congestion Points)	0%	Planned					*		
INF10.19	Flight Information Exchange (Yellow Profile) - Flight Data Request Service	0%	Planned					*		
INF10.2	Stakeholders' SWIM PKI and cyber security	32%	Ongoing					*		
INF10.20	Flight Information Exchange (Yellow Profile) - Notification Service	0%	Planned					*		
INF10.21	Flight Information Exchange (Yellow Profile) - Data Publication Service	0%	Planned					*		
INF10.23	Flight Information Exchange (Yellow Profile) - Extended AMAN SWIM Service	0%	Not Applicable					*		
INF10.3	Aeronautical Information Exchange - Airspace structure service	100%	Completed					*		
INF10.4	Aeronautical Information Exchange - Airspace Availability Service	0%	Planned					*		
INF10.5	Aeronautical Information Exchange - Airspace Reservation (ARES)	25%	Ongoing					*		
INF10.6	Aeronautical Information Exchange – Digital NOTAM service	0%	Planned					*		
INF10.7	Aeronautical Information Exchange - Aerodrome mapping service	0%	Planned					*		

Main Objectives	Topic	Progress at the end of 2021	Status	2021		2022		2023		2024		2025		2026		>2026
INF10.8	Aeronautical Information Exchange - Aeronautical Information Features service	0%	Planned										*			
INF10.9	Meteorological Information Exchange - Volcanic Ash Mass Concentration information service	0%	Planned										*			
ITY-ACID	Aircraft Identification	100%	Completed													
ITY-AGDL	Initial ATC Air-Ground Data Link Services	100%	Completed													
ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195	100%	Completed													
ITY-FMTP	Common Flight Message Transfer Protocol (FMTP)	100%	Completed													
NAV03.1	RNAV 1 in TMA Operations	100%	Completed													2030
NAV03.2	RNP 1 in TMA Operations	13%	Not yet planned													2030
NAV10	RNP Approach Procedures to instrument RWY	97%	Ongoing							*						
NAV12	ATS IFR Routes for Rotorcraft Operations	0%	Not yet planned													2030
SAF11	Improve Runway Safety by Preventing Runway Excursions	90%	Ongoing													

LEGEND:

*	Full Operational Capability (FOC) date
	The Planned Implementation Date as reported in the LSSIP DB for each objective

Source: LSSIP DB

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 2021, 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, it gives an overview of the Airspace Organisation and Classification, the ATC Units and the ATM systems operated by the main ANSP.

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 also presents 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, taking into account the current aviation situation caused by the COVID19 crisis.

Chapter 3 provides the main Implementation Projects (at national, FAB and multinational level) which contribute directly to the implementation of the MP Operational Improvements and/or Enablers and Implementation Objectives. The LSSIP document covers a 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 the LSSP DB (extraction can be asked to LSSIP FP or LSSIP CP).

Chapter 4 deals with other cooperation activities beyond Implementation Projects. It provides an overview of the FAB cooperation, as well as all other multinational 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 5 contains aggregated information at State level covering the overall level of implementation, implementation per SESAR Essential Operational Change and implementation of ICAO ASBUs. In addition, it provides the high-level information on progress and plans of each Implementation Objective. 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.

The information contained in Chapter 5 – Implementation Objectives Progress 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

Bulgaria is a member of the following international organisations in the field of ATM:

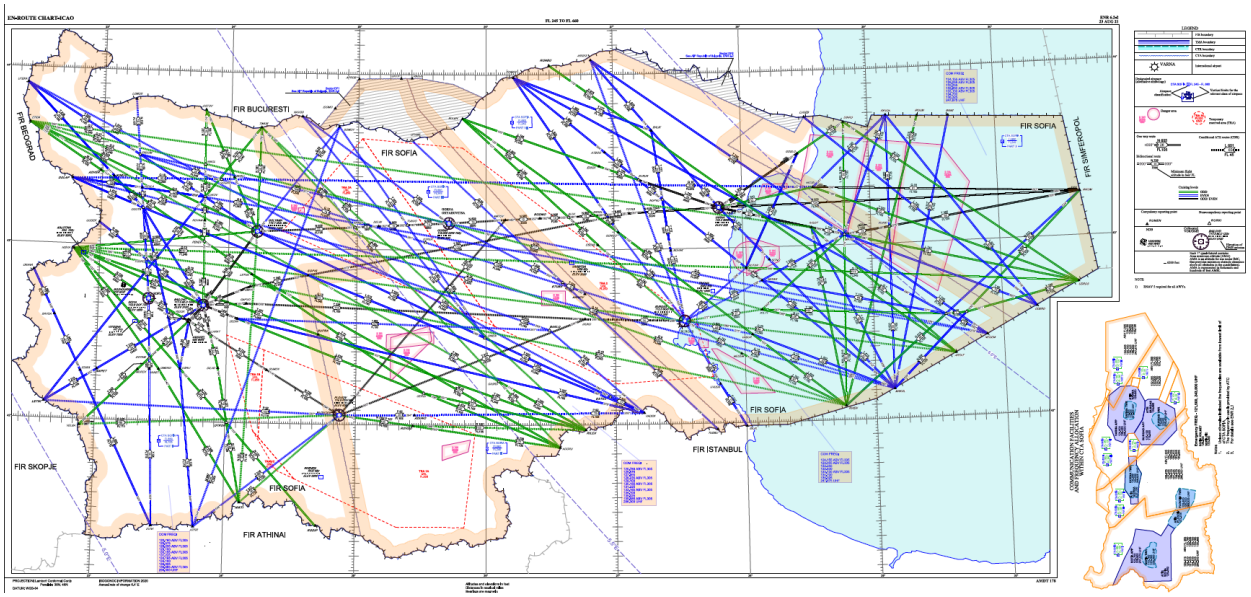
Organisation		Since
ECAC	✓	1991
EUROCONTROL	✓	1997
European Union	✓	2007
EASA	✓	1967
ICAO	✓	1967
NATO	✓	2004
ITU	✓	1880
EDA	✓	2007

Geographical description of the FIR

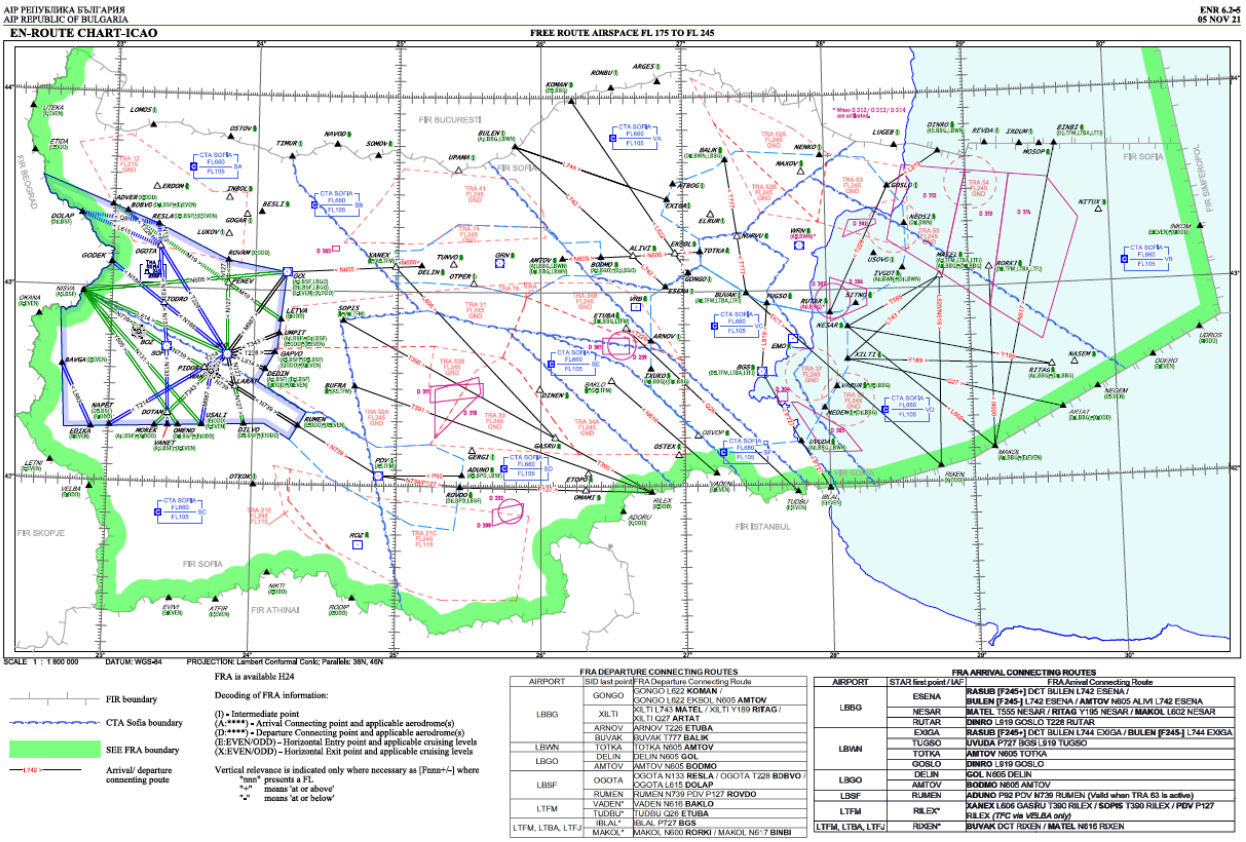
The geographical scope in this section addresses Sofia FIR, which encompasses the whole Bulgarian airspace, and provides a brief description of Sofia ACC sector groups.

The Division Flight Level (DFL) between upper and lower airspace is FL245.

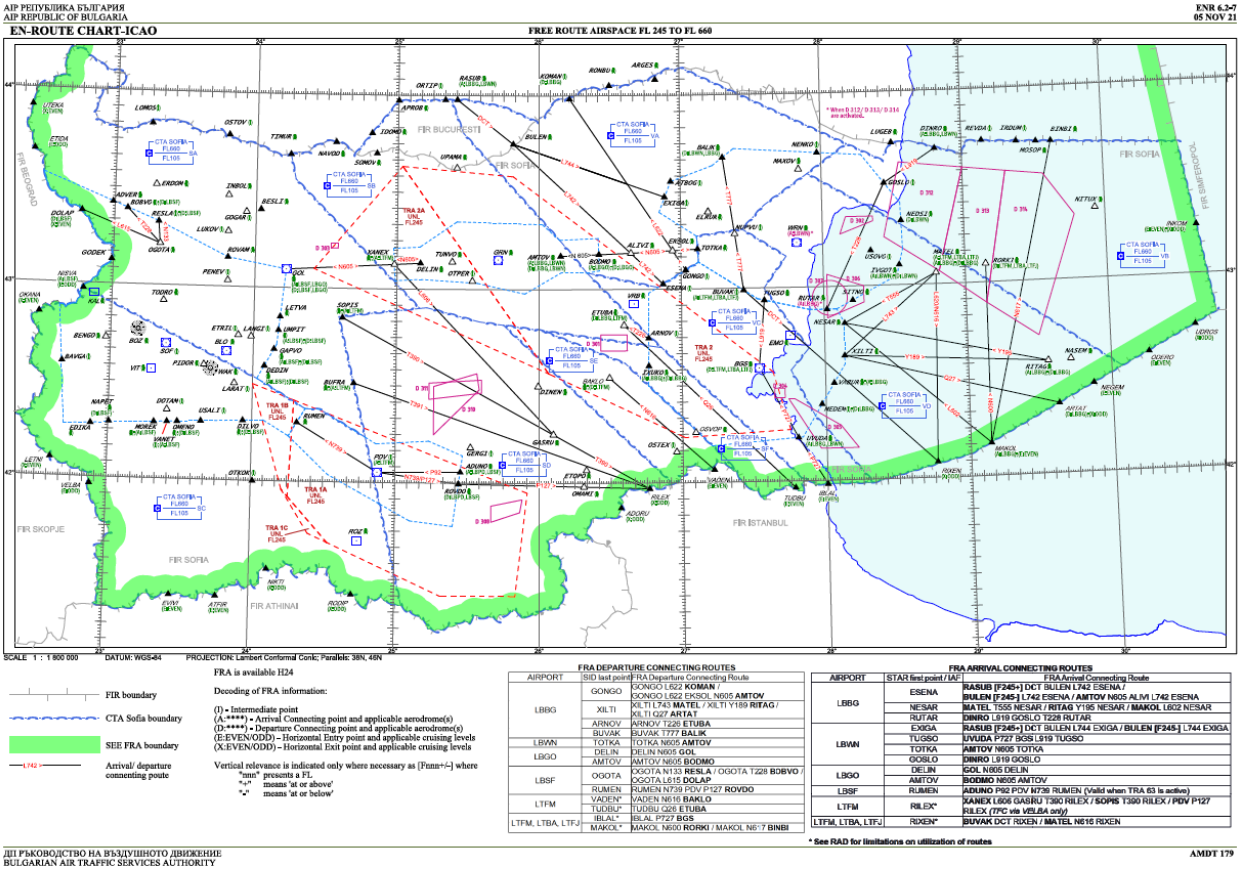
The following chart provides an overview of the Bulgarian airspace route structure above FL245 (Upper Airspace) (ENR 6.2-2, 23 AUG 21).



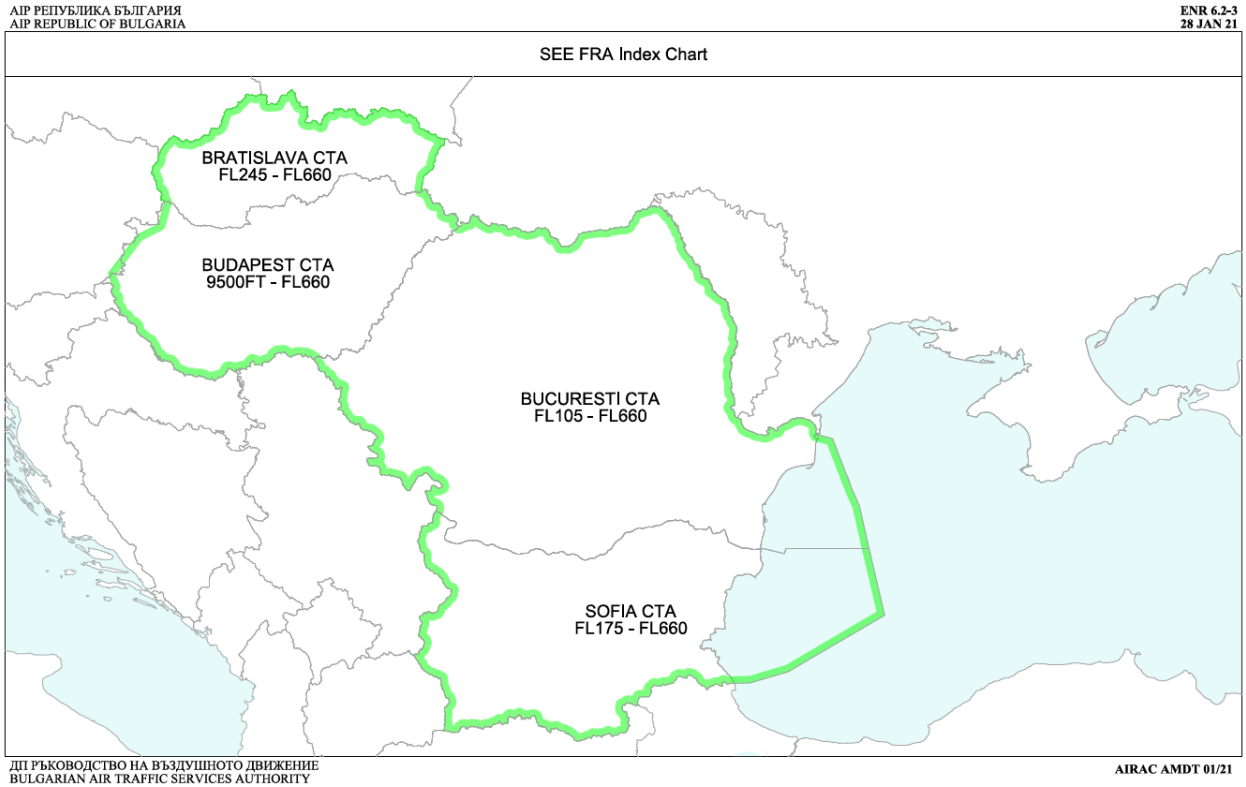
The following charts provide an overview of the Bulgarian free route airspace above FL175:
En-route chart – Free Route Airspace from FL175 to FL245 (ENR 6.2-5, 05 NOV 21)



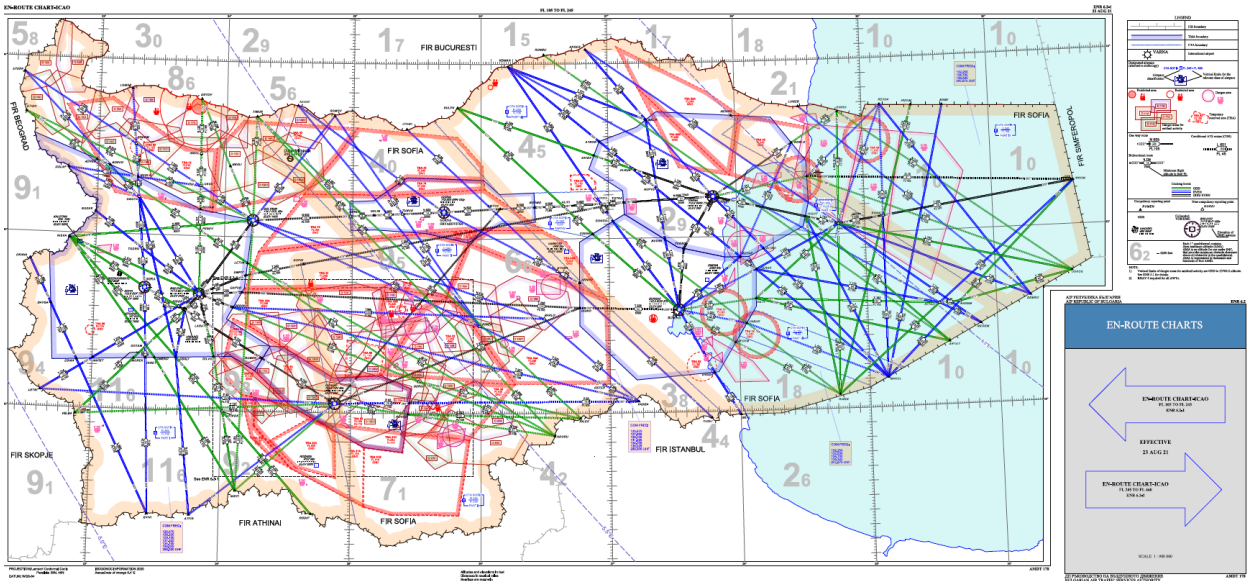
En-route chart – Free Route Airspace from FL245 to FL660 (ENR 6.2-7, 05 NOV 21)



and SEE FRA Index Chart (ENR 6.2-3) - Slovakia (Bratislava FIR) has joined the SEE FRA (effective as of 28 Jan 2021).

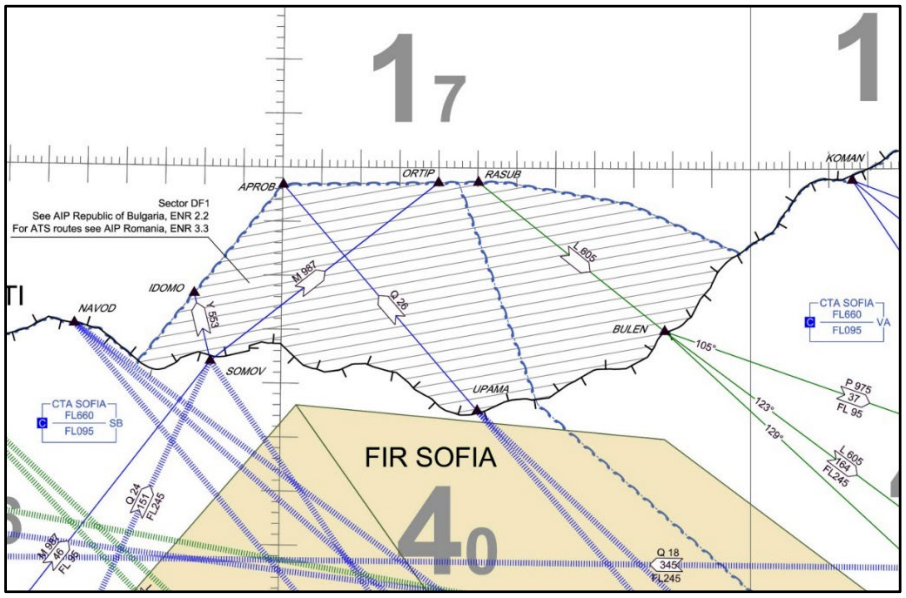


The following chart provides an overview of the Bulgarian airspace between FL105 and FL245 (ENR 6.2-1, 23 AUG 21).



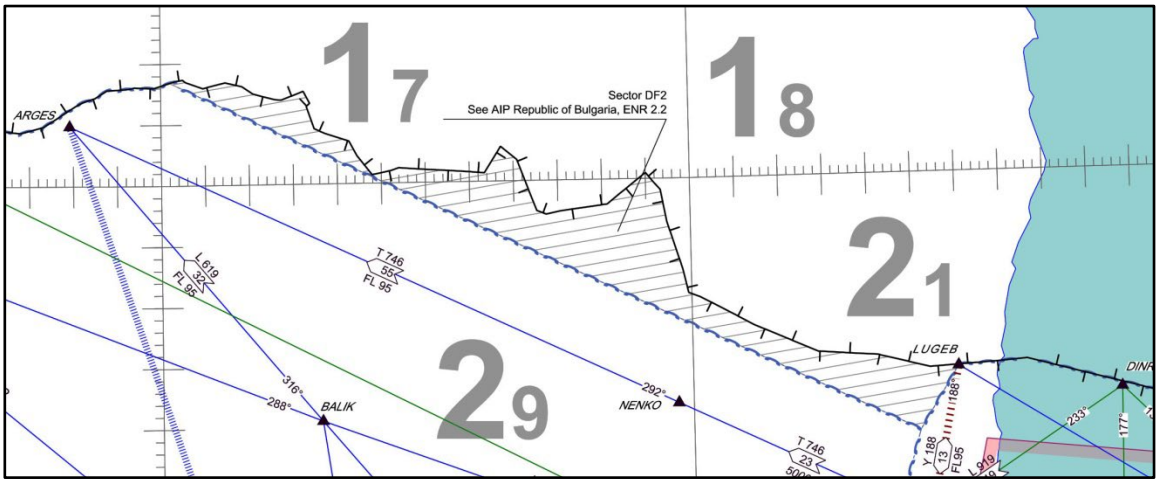
In effect since 11 December 2014, two cross border sectors (CBS) have been established on a permanent basis within the DANUBE FAB. A description of the CBS' airspace is depicted below:

Sector DF1:



Horizontal limits	Vertical limits	Airspace classification (ICAO)
43 52 13N 025 58 33E – 43 56 47N 025 44 32E – 43 58 46N 025 28 18E – 43 58 24N 025 00 09E – 43 41 53N 024 41 48E – National border with Romania – 43 52 13N 025 58 33E	Upper limit - FL660	C
	Lower limit - FL245	

Sector DF2:



Horizontal limits	Vertical limits	Airspace classification (ICAO)
43 44 08N 028 30 04E – 43 38 55N 028 25 35E – 44 08 26N 027 01 01E – National border with Romania – 43 44 08N 028 30 04E	Upper limit - FL660 Lower limit - FL245	C

The Sofia ACC sector configuration is organised in two family groups: Sofia family sector group and Varna family sector group. Following the SATCAS DL upgrade, the CNATCC sector configuration consists of 10 elementary sectors (6 are distributed to Sofia family sectors and 4 to Varna family sectors). These 10 elementary sectors can be further split in up to 40 en-route sectors depending on the operational requirements.

The Sofia family sector group encompasses 4 elementary sector groups (Sofia-Alpha top/upper/middle/lower, Sofia-Bravo top/upper/middle/lower, Sofia-Charlie top/upper/middle/lower, Sofia-Delta top/upper/middle/ lower, Sofia-Echo top/upper/middle/lower, and Sofia-Foxtrot top/upper/middle/lower). In 2016, these elementary sectors formed a core group of 8 en-route sectors. During the 2021 summer season, the Sofia family sectors group most frequently accommodated the following sector configurations:

Alpha+Charlie Upper	Bravo+Delta+Echo+Foxtrot Upper
DFL355/365	
Alpha+Charlie Lower	Bravo+Delta+Echo+Foxtrot Lower

The Varna family sectors group encompasses 4 core elementary sectors (Varna Alpha upper/middle/lower, Varna Bravo upper/middle/lower, Varna Charlie upper/middle/lower and Varna Delta upper/middle/lower). During the 2019 summer season, the Varna family sectors group most frequently accommodated the following sector configurations:

	Bravo+Charlie+Delta Upper
Alpha	DFL365/375
	Bravo+Charlie+Delta Lower

Since November 2015, the sector entry rates were replaced by occupancy counts for both Sofia and Varna family sectors.

Airspace Classification and Organisation

With effect from 27 November 2003, the airspace classification has been changed. Airspace ICAO class A from FL245 till FL660 was replaced by ICAO Class C. No modifications have been stipulated for airspace classification below FL125.

With effect from 20 December 2007 the airspace classification ICAO class E from minimum FL defined for each sector up to FL125 has been changed.

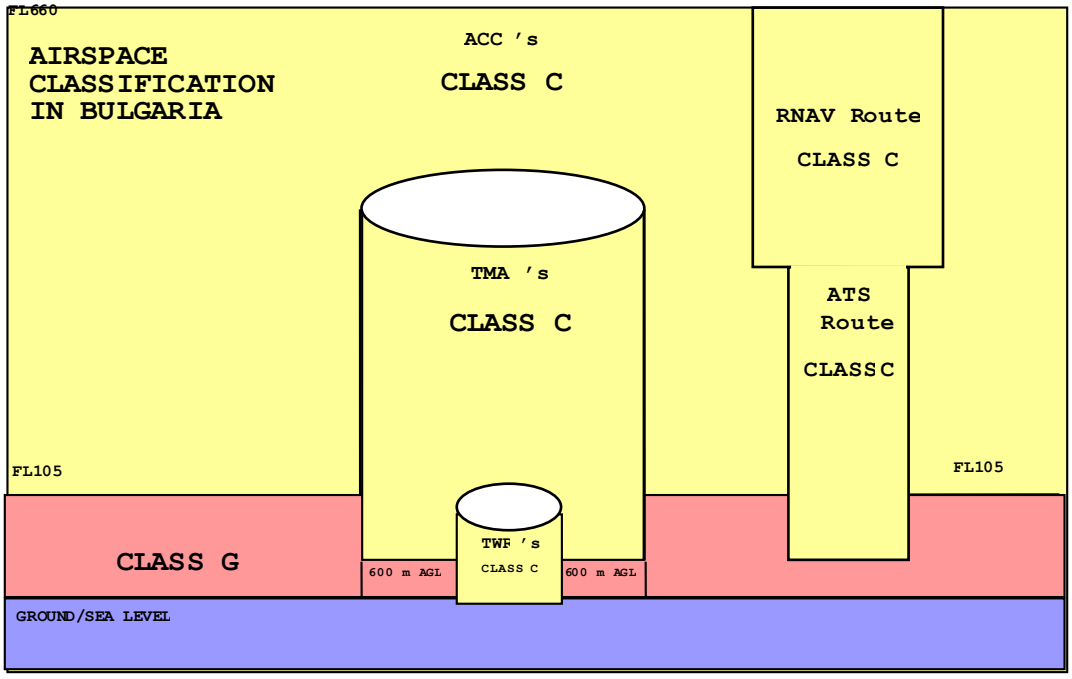
1. Airspace class C is applied:

   - Within the lateral and vertical limits of all CTRs;
   - Within the lateral limits of Bulgarian TMAs, from 600m height up to the upper limits of the terminal control areas;
   - To ATS routes within Sofia FIR (from minimum FL defined for each ATS route up to FL660);
   - Within Sofia FIR airspace outside CTRs, TMAs and ATS routes, from FL105 to FL660.

2. Airspace class E was replaced by ICAO Class C and Class G.

3. Airspace class G is applied:

   - Within the lateral limits of Sofia FIR with the exemption of CTRs/TMAs/ATS routes and CTAs from GND/sea level up to FL105;
   - Within TMAs lateral limits, except CTRs from ground/sea level up to 600 m height.



When the military zones/areas (CTRs/TMAs of military bases and TSAs) are activated, the airspace within those zones and areas is not classified.

In accordance with Regulation No.5 of the Bulgarian Ministry of Transport, Information Technology and Communications, both metric and imperial systems are implemented within the Bulgarian airspace with effect as of 27 November 2003.

ATC Units

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

ATC Unit	Number of sectors		Associated FIR(s)	Remarks
	En-route	TMA		
Sofia ACC/APP	12	1	Sofia FIR	SATCAS V2 was implemented in February 2008, which facilitated the transfer of Varna en-route sectors to the CNATCC. The number of sectors shown here is the real number of sectors that can be operational, but they can be manned for a short time only due to staff limitations.
Varna APP	-	1	Sofia FIR	
Burgas APP	-	1	Sofia FIR	

The provision of aerodrome services within the Bulgarian CTRs is performed by the following TWR units:

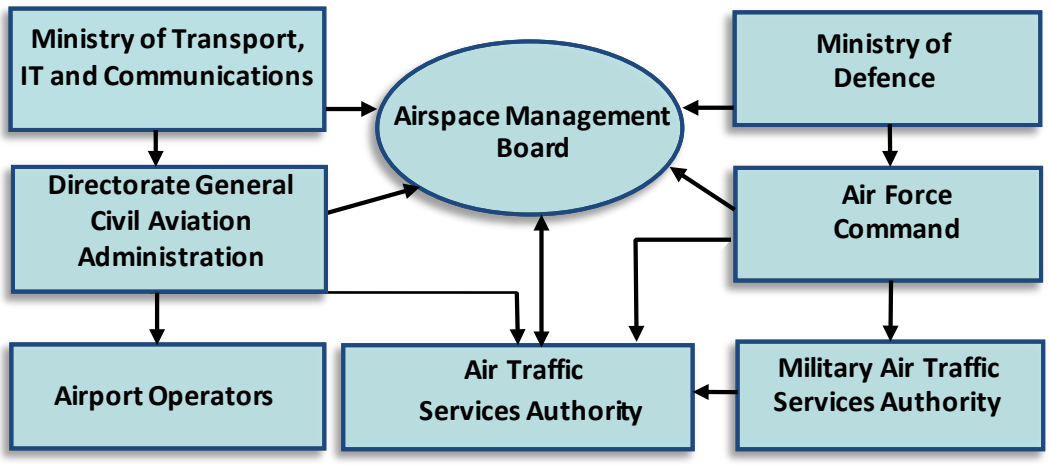
- Sofia TWR;
- Varna TWR;
- Burgas TWR;
- Plovdiv TWR;
- Gorna Oryahovitsa TWR.

1.2. National Stakeholders

The main National Stakeholders involved in ATM in the Republic of Bulgaria are the following:

- Directorate General Civil Aviation Administration (DG CAA);
- Bulgarian Air Traffic Services Authority (BULATSA);
- Military Authorities;
- Airport Operators.

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



The Airspace Management Board is not a stakeholder itself but a strategic level body of the unified system for civil and military airspace management in the Republic of Bulgaria. It includes stakeholders' representatives from the Ministry of Transport, IT and Communications, Ministry of Defense, Directorate General of the Civil Aviation Administration, Staff of the Bulgarian Army, Air Force HQ, Bulgarian Air Traffic Services Authority (BULATSA) and the Military ATM Section. It acts as an executive interagency body of the Ministry of Transport and the Ministry of Defense. The main tasks of the Air Space Management Board are:

- Unification of civil and military operations related to the airspace management;
- State policy management on the strategic planning and distribution of the airspace;
- Co-ordination between the civil and military authorities.

Civil Regulator(s)

General Information

The Minister of Transport, IT and Communications is responsible for the management and supervision of civil aviation, civil aircraft and aeronautical facilities within the Republic of Bulgaria. The Minister exercises his/her functions through the Directorate General Civil Aviation Administration (DG CAA).

Activity in ATM:	Organisation responsible	Legal Basis
Rulemaking	Directorate General Civil Aviation Administration (DG CAA)	The legal basis and power to undertake ATM safety regulation in Bulgaria are defined in the Civil Aviation Act. The rules and regulations, as a second level of the safety regulatory framework, are in place and effectively applied by the DG CAA. The Minister of Transport is entrusted with the promulgation of ATM safety regulations/ordinances proposed by the DG CAA. The third level of regulation is DG CAA instructions and decrees as dynamic/temporary measures.
Safety Oversight	DG CAA	Civil Aviation Act and DG CAA Structural regulation
Enforcement actions in case of non-compliance with safety regulatory requirements	DG CAA	Civil Aviation Act, DG CAA Structural regulation
Airspace	Ministry of Transport, Information Technology and Communications and Ministry of Defence	Civil Aviation Act Airspace management - National Regulation № 19, National Instruction № 24 and National Instruction № 25
Economic	Ministry of Transport, Information Technology and Communications / DG CAA	Charges Regulation applicable for the usage of public airports and for the provision of air navigation services in the Republic of Bulgaria
Environment	DG CAA	National Regulation № 16, National Regulation № 30
Security	DG CAA	Civil Aviation Act
Accident investigation	Aircraft Accident Investigation Unit (AAIU)	Civil Aviation Act (Article 16 and Article 142), National Regulation № 13

DG CAA

The Directorate General Civil Aviation Administration (DG CAA) is the Bulgarian Regulatory Authority, a legal entity within the Ministry of Transport, Information Technology and Communications (MTITC) responsible for the supervision of the safety of aviation in the national airspace, certification of civil aircraft and equipment, certification and licensing of aircraft operators, the relevant staff involved in civil aviation and the licensing of aviation training centres. The DG CAA carries out the assigned functions in accordance with the European regulations in the field of Air Transport, the Civil Aviation Act, the related regulations and Ministerial decrees. The DG CAA Structural Regulation (Official Gazette 37/1999, last amended 63/2018) sets out the state administration responsibilities and functions.

The DG CAA is managed and represented by a Director General, who is authorized to promulgate the administrative acts and mandatory directives in accordance with the applicable legislation.

Art.16 (c) of the Civil Aviation Act states that the Directorate General Civil Aviation Administration is a National Supervisory Authority (NSA) regarding the safe and effective operation of air navigation services providers. In performing its functions, the national authority is independent functionally, organisationally and institutionally from the air navigation services providers.

Annual Report published:	N	The Annual Report covering 2021 activities is still under preparation. Annual reports for previous years can be found on http://www.caa.bg.

National Civil Aviation Master Plan (CAMP):	N	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).

Website: Directorate General Civil Aviation Administration - http://www.caa.bg/.

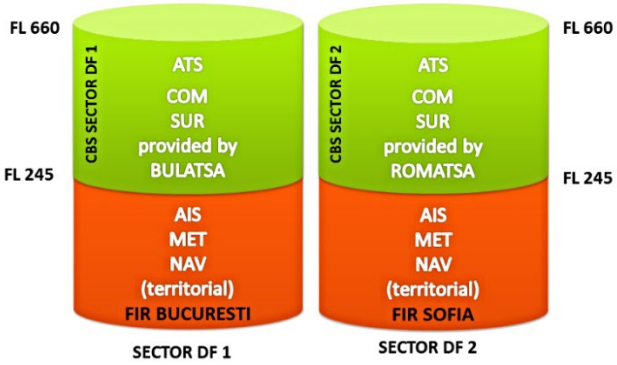
The DG CAA organisation chart is given in Annex B.

Air Navigation Service Provider(s)

BULATSA (**BUL**garian **A**ir **T**raffic **S**ervices **A**uthority)

Services provided

Governance:		State Enterprise	**Ownership:**	100% state-owned
Services provided		**Y/N**	**Comment**	
ATS	ATC en-route	Y	The Common National Air Traffic Control Centre in Sofia was operationally deployed in February 2008.	
	ATC approach	Y	Sofia, Varna, Burgas.	
	ATC Aerodrome(s)	Y	Sofia, Varna, Burgas, Plovdiv, Gorna Oryahovitsa.	
	FIS	Y	Flight Information Center	
ATFM		Y	As per Regulation (EU) 2017/373	
ASM		Y	As per Regulation (EU) 2017/373	
AIS		Y	5 airports plus en-route services.	
CNS		Y	All CNS infrastructure is BULATSA property.	
MET		Y	5 airports plus en-route services.	
ATCO training		Y	BULATSA training centre.	
Others		N/A		
Additional information:				

Provision of services in other State(s):	Y	BULATSA provides air traffic services (ATS), communication service (COM) and surveillance service (SUR) within the cross-border sector (Sector DF 1) as an integral part of the adjacent sectors within SOFIA FIR, having the lateral and vertical limits as described in the Geographical description of the FIR(s) section.  The navigation service (NAV), meteorological service (MET) and aeronautical information service (AIS) below FL245 is provided within the same volume of airspace (Sector DF 1), by the ANSP of the host State, using the available resources.
Annual Report published:	Y	Here you can find the annual financial reports of the ANSP - https://www.bulatsa.com/en/activities/finance-and-accounting/.

Website: http://www.bulatsa.com/

The BULATSA organisation chart is given in Annex B.

ATC Systems in use

Main ANSP part of any technology alliance[1]	N	-

FDPS

Specify the manufacturer of the ATC system currently in use:	Leonardo (former FINMECCANICA/SELEX ES)
Upgrade[2] of the ATC system is performed or planned?	SATCAS V3 DL 2016 New FRA functionalities 2022 (SATCAS V3 FR)
Replacement of the ATC system by the new one is planned?	2026
ATC Unit	Sofia ACC/APP, Burgas APP, Varna APP

SDPS

Specify the manufacturer of the ATC system currently in use:	ARTAS (EUROCONTROL) primary. Fall-back tracker (RFB) is provided by Leonardo.
Upgrade of the ATC system is performed or planned?	A major upgrade for ARTAS was made in February 2019. The fall-back tracker was upgraded in December 2019. ARTAS Version 9 planed with the SATCAS V3 FR upgrade.
Replacement of the ATC system by the new one is planned?	2026
ATC Unit	Sofia ACC/APP, Burgas APP, Varna APP

[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))

Airports

General information

There are 5 international state-owned airports in the Republic of Bulgaria.

- Sofia

  http://www.sofia-airport.eu

- Plovdiv

http://www.plovdivairport.com/en/home• Gorna Oryahovitsa

http://www.gornaoryahovitsa-airport.bg/index-en.htm • Varna

https://varna-airport.bg/en• Burgas

http://www.burgas-airport.bg

Plovdiv airport is state owned and operated. Sofia airport is operated by the international consortium SOF Connect (https://sofconnect.bg/en/) set up by Meridiam (99%), Strabag (1%) and Munich Airport (as an airport operator). Varna and Burgas airports are operated by the German-Bulgarian consortium "Fraport Twin Star Airport Management" (http://www.fraport-bulgaria.com) since 2006. Gorna Oryahovitsa airport is operated by the "Civil Airport Gorna Oryahovica 2016" Plc. consortium.

Airport(s) covered by the LSSIP

Referring to the List of Airports in the European ATM Master Plan Level 3 Implementation Plan Edition 2020 – Annex 2, it is up to the individual State to decide which additional airports will be reported through LSSIP for those Objectives.

Therefore, the airport fully covered in this LSSIP is Sofia International Airport.

Varna, Burgas, Plovdiv and Gorna Oryahovitsa airports are also covered by the LSSIP, but only within the scope of the APO part of the following objectives:

- ITY-ADQ;
- ITY-AGVCS2;
- SAF11.

The EUROCONTROL Public Airport Corner also provides information for the following airport(s):
https://ext.eurocontrol.int/airport_corner_public/LBSF

Military Authorities

The Military Authorities involved in ATM in the Republic of Bulgaria are composed of:

- Ministry of Defence (MoD);
  - Staff of Defence (SoD);
  - Air Force Headquarters (AFHQ);
  - Military ATM Section;
  - Air Operations Centre (AOC);
  - Air Bases.

The SoD, AFHQ, Military ATM Section, AOC and the Air Bases report to the Ministry of Defence.

The military authorities in the Republic of Bulgaria have no responsibility for the provision of ATS to GAT traffic.

Their regulatory, service provision and user roles in ATM are detailed below.

Regulatory role

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: Ministerial Decrees and Instructions		Level of such legal provision:	N/A
Authority signing such legal provision: Minister of Defence and Commander of the BGR Air Force		Authority signing such legal provision:	N/A
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	Y
ATCO Training	Y	ATCO Training	Y
ATCO Licensing	N	ATCO Licensing	N/A
ANSP Certification	N	ANSP Certification	N/A
ANSP Supervision	Y	ANSP Supervision	N/A
Aircrew Training	Y	ESARR applicability	N/A
Aircrew Licensing	N		
Additional Information: ANSP for the military aircraft is the Air Force. The Chief of Air Force licenses the MATCO/aircrew personnel.		Additional Information:	N/A
Additional Information: The administrative supervision is exercised by the AFHQ. Specifically, the operational one is done by the MATM section within AFHQ.		Additional Information:	N/A
Means used to inform airspace users (other than military) about these provisions:		Means used to inform airspace users (other than military) about these provisions:	N/A

National AIP	N/A	National AIP	N/A
National Military AIP	Y	National Military AIP	N/A
EUROCONTROL eAIP	N/A	EUROCONTROL eAIP	N/A
Other:	N/A	Other:	N/A

Oversight

OAT	GAT
National oversight body for OAT: AFHQ	NSA (as per SES reg. 550/2004) for GAT services provided by the military: N/A
Additional information: N/A	Additional information: N/A

Service Provision role

OAT			GAT	
Services Provided:			Services Provided:	
En-Route		Air Operation Centre/AOC Sofia Mil Control	En-Route	N/A
Approach/TMA		Air Bases	Approach/TMA	N/A
Airfield/TWR/GND		Air Bases	Airfield/TWR/GND	N/A
AIS		Command, Control and Surveillance Base	AIS	N/A
MET		Separate unit within AOC	MET	N/A
SAR		A transport aircraft and/or a helicopter are assigned 24/7 for SAR duty for the entire territory. Additionally, SAR Teams are assigned by the Air Base Commanders for a designated area of responsibility.	SAR	N/A
TSA/TRA monitoring		Airspace Use and Coordination Centre within the AOC	FIS	N/A
Other:		CNS services	Other:	N/A
Additional Information:			Additional Information:	

Military ANSP providing GAT services SES certified?	N/A	If YES, since:	N/A	Duration of the Certificate:	N/A
Certificate issued by:	N/A		If NO, is this fact reported to the EC in accordance with SES regulations?		-
Additional Information: -					

User role

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

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

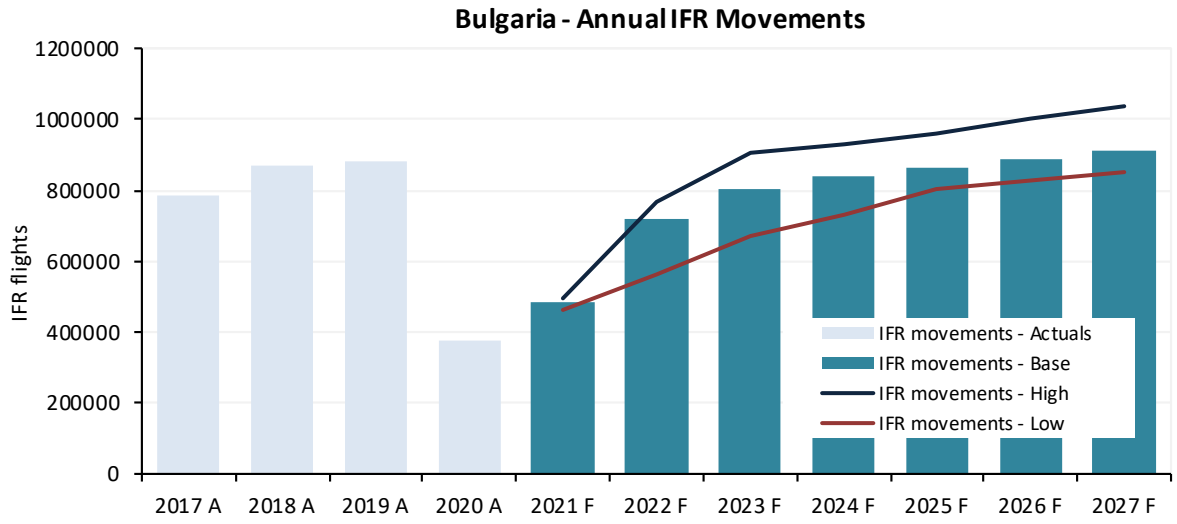
If Military fly GAT-IFR inside controlled airspace, specify existing special arrangements:								
No special arrangements				N/A	Exemption from Route Charges			Y
Exemption from flow and capacity (ATFCM) measures				Y	Provision of ATC in UHF			Y
CNS exemptions:	RVSM	Y	8.33	Y	Mode S	N/A	ACAS	Y
Others: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

Flexible Use of Airspace (FUA)

Military in the Republic of Bulgaria applies FUA requirements as specified in Regulation No 2150/2005: Y
FUA Level 1 implemented: Y
FUA Level 2 implemented: Y
FUA Level 3 implemented: Y

2. Traffic and Capacity

2.1. Evolution of traffic in Republic of Bulgaria



EUROCONTROL Forecast Update 2021-2027 - October 2021											
IFR flights yearly growth		2018 A	2019 A	2020 A	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F
Bulgaria	High				32%	55%	18%	3%	4%	4%	3%
	Base	11%	1%	-57%	28%	49%	12%	4%	3%	3%	3%
	Low				23%	21%	20%	9%	10%	3%	3%
ECAC	High				28%	62%	12%	4%	2%	3%	2%
	Base	4%	1%	-55%	25%	57%	8%	5%	2%	2%	2%
	Low				21%	36%	13%	7%	7%	2%	2%

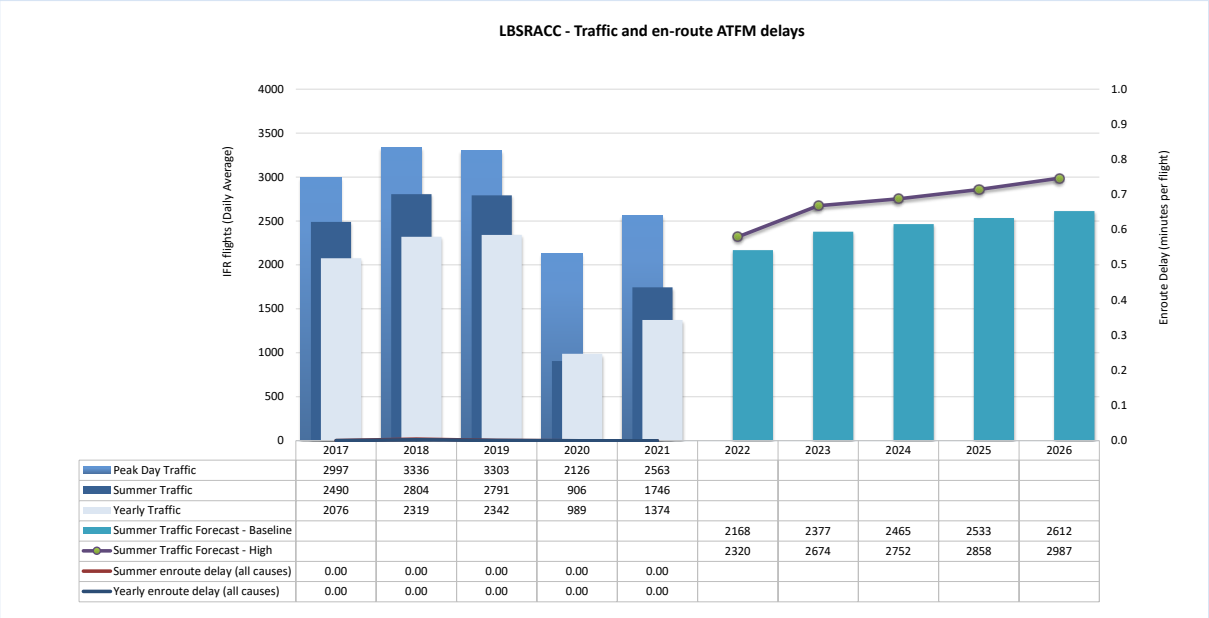
2021

Traffic in Bulgaria was at 59% of 2019[3].

[3] 2019: reference year for traffic recovery, prior to COVID19

2.2. **ACC Sofia**

Traffic and en-route ATFM delays 2017-2026



	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Peak Day Traffic	2997	3336	3303	2126	2563					
Summer Traffic	2490	2804	2791	906	1746					
Yearly Traffic	2076	2319	2342	989	1374					
Summer Traffic Forecast - Baseline						2168	2377	2465	2533	2612
Summer Traffic Forecast - High						2320	2674	2752	2858	2987
Summer enroute delay (all causes)	0.00	0.00	0.00	0.00	0.00					
Yearly enroute delay (all causes)	0.00	0.00	0.00	0.00	0.00					

2021 performance

Sofia ACC	Traffic (% of 2019)	En-route Delay (min. per flight)		Capacity	
		All reasons	ACC Reference Value	Capacity Gap?	Baseline
Year	59%	0.00	0.04	No	
Summer	63%	0.00			160

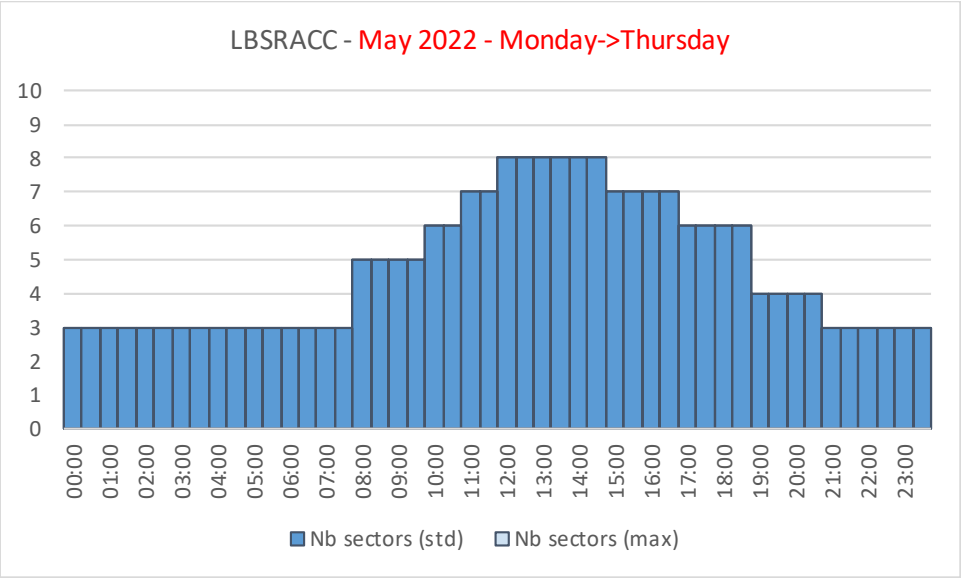
Summer 2021 performance assessment		
The average delay per flight was zero in Summer 2021.		
Operational actions	**Achieved**	**Comments**
Gradual implementation of AFUA functionalities	Yes	
Improved ATFCM	Yes	
Additional ATCOs to maintain global number	Yes	
WAM in west part of FIR	Yes	
Traffic Complexity Tool	Yes	

Planning Period – Summer 2022-2026

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.

The measures for each year are the measures that will be implemented before the summer season.

Summer Capacity Plan					
	2022	2023	2024	2025	2026
Free Route Airspace					
Airspace Management Advanced FUA	Gradual implementation of AFUA functionalities				
Airport & TMA Network Integration					
Cooperative Traffic Management	Improved ATFCM and STAM				
Airspace	Airspace improvements in accordance with ERNIP				
Procedures					
Staffing	Training in accordance with traffic demand in line with short term fluctuations, taking into account medium- and long-term trends.				
	Additional ATCOs to maintain global number				
Technical	ATM System modernisation				
	Technical room modernisation, SUR system modernisation			Operational room modernisation (Oct 2024 - April 2025)	
Capacity					
Significant Events	Expansion of Istanbul airport				
Max sectors	Up to 18*	Up to 18*	Up to 18*	Up to 18*	Up to 18*
Planned Annual Capacity Increase	6%	16%	3%	3%	3%
Capacity Profile - Base Annual % Increase	0%	9%	3%		
Capacity Plan v. Profile - Base	6%	13%	12%		
Capacity Profile - High Annual % Increase	6%	16%	3%		
Capacity Plan v. Profile - High	0%	0%	0%		
Annual Reference Value (min)	0.08	0.07	0.08		
Additional information	* According to the traffic demand and ATCO availability				


LBSRACC - May 2022 - Monday->Thursday
10
9
8
7
6
5
4
3
2
1
0
00:00
01:00
02:00
03:00
04:00
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07:00
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09:00
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14:00
15:00
16:00
17:00
18:00
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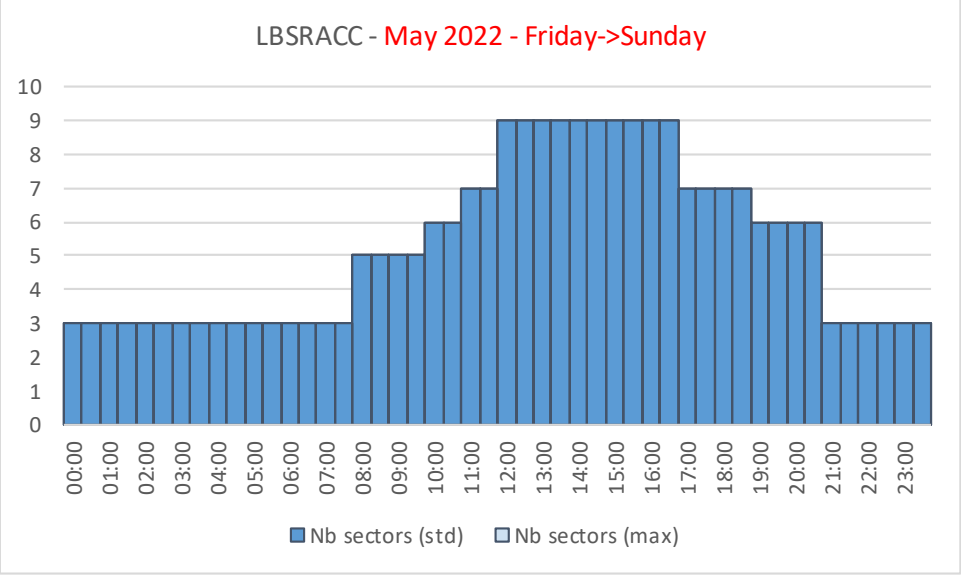
20:00
21:00
22:00
23:00
Nb sectors (std)
Nb sectors (max)


LBSRACC - May 2022 - Friday->Sunday
10
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8
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6
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4
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00:00
01:00
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03:00
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19:00
20:00
21:00
22:00
23:00
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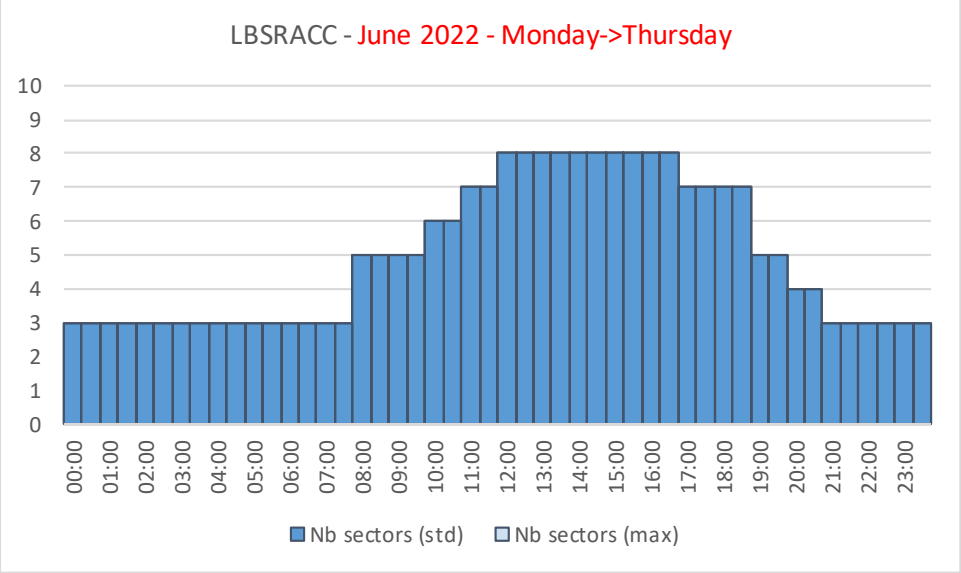
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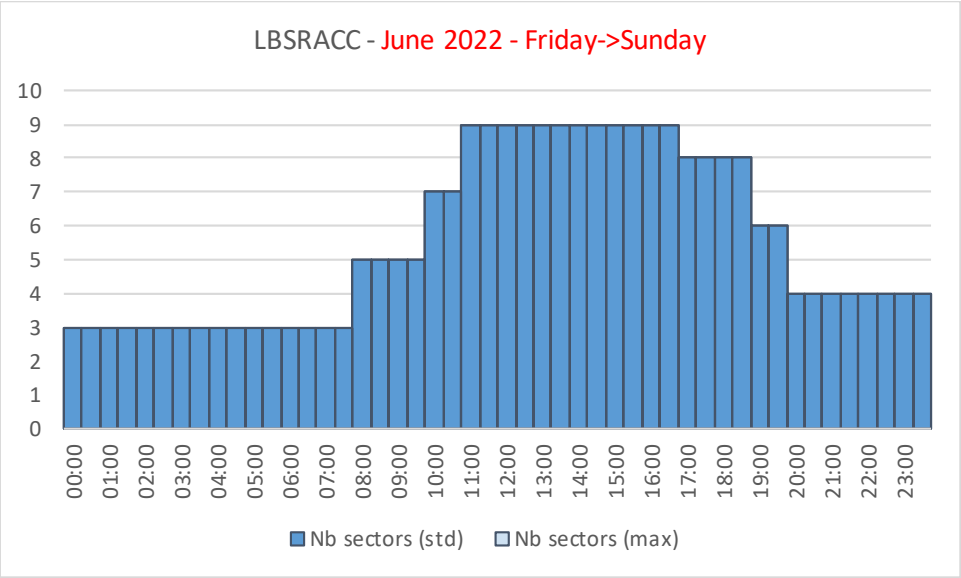
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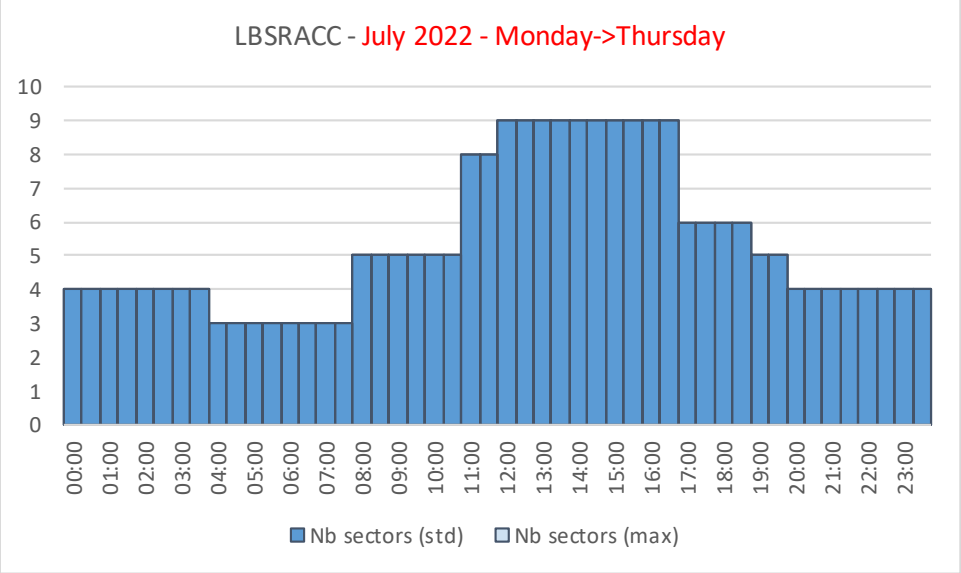
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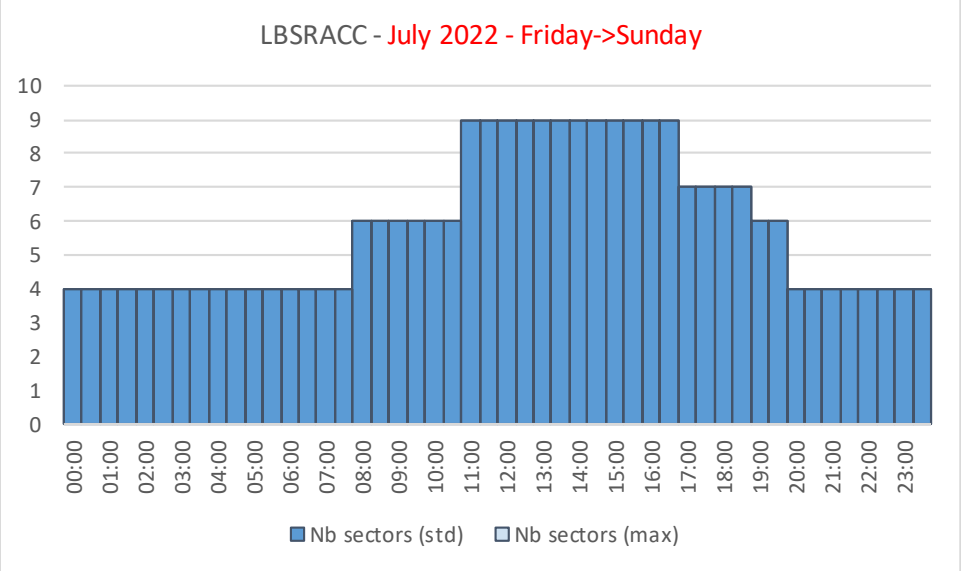
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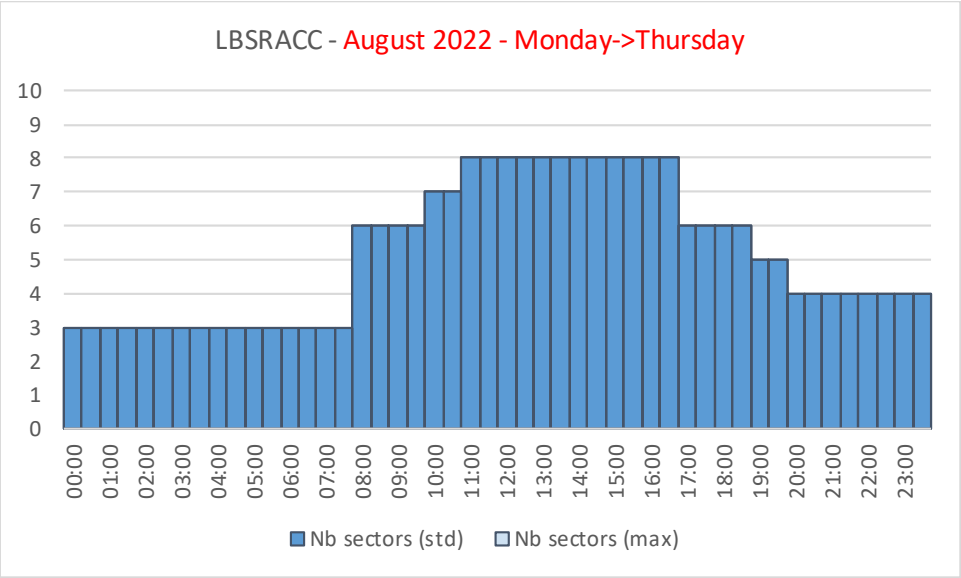
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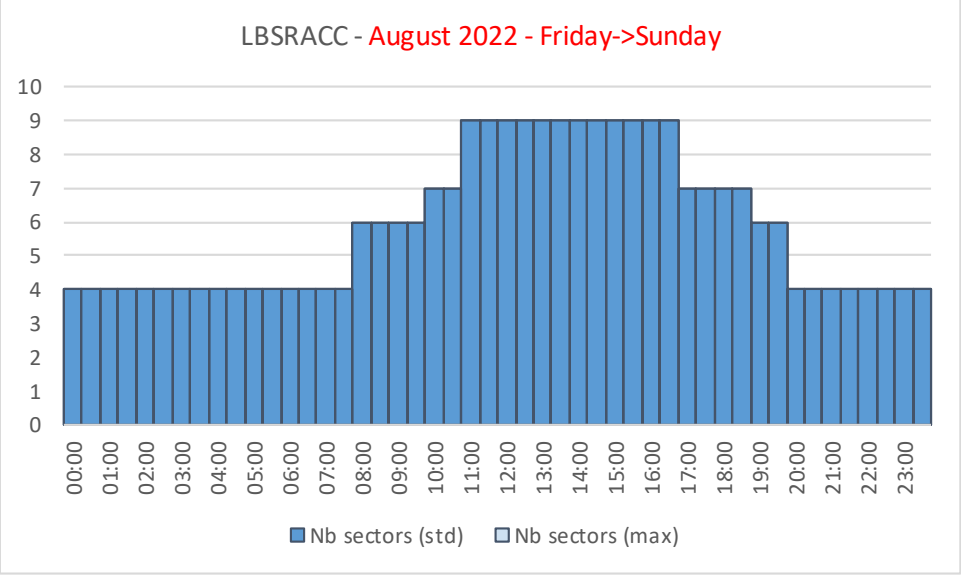
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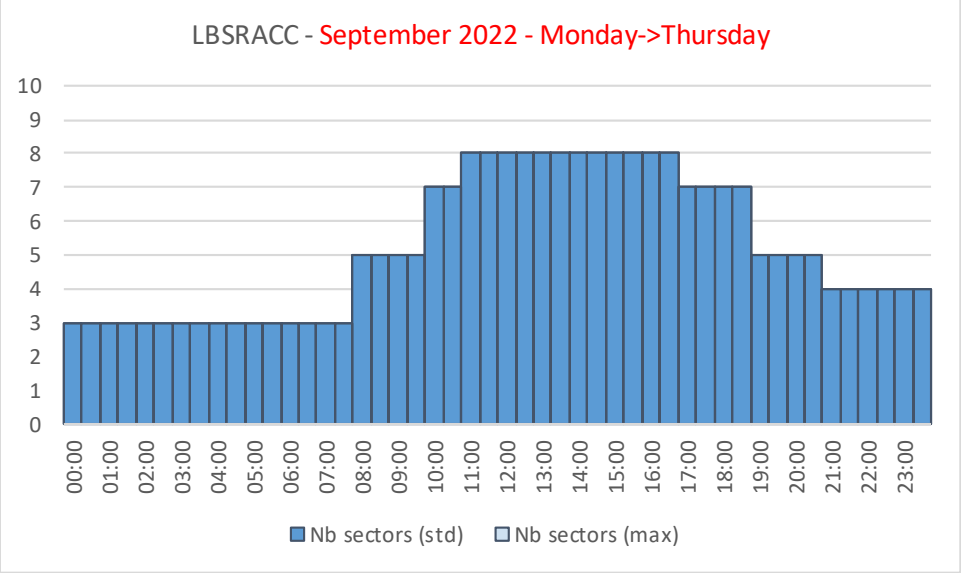
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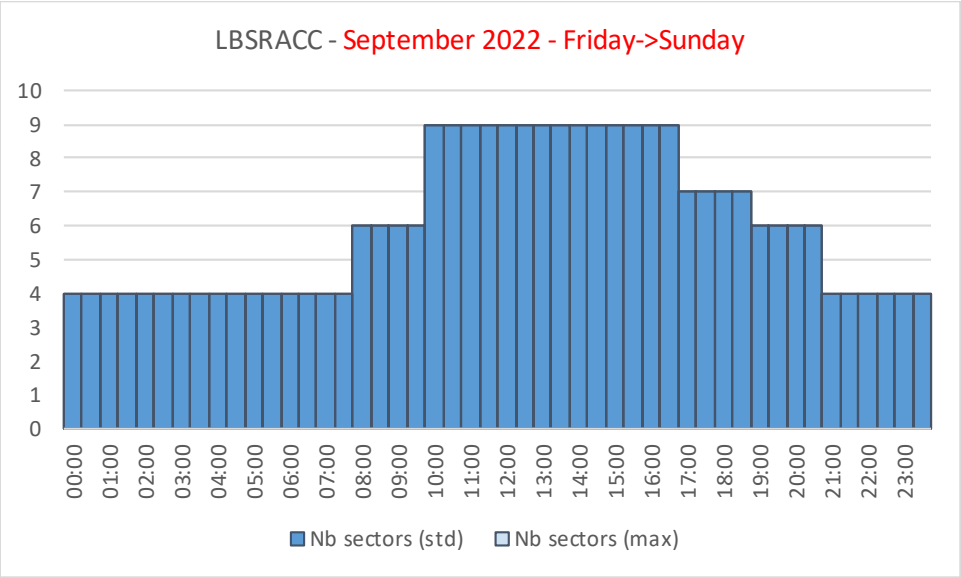
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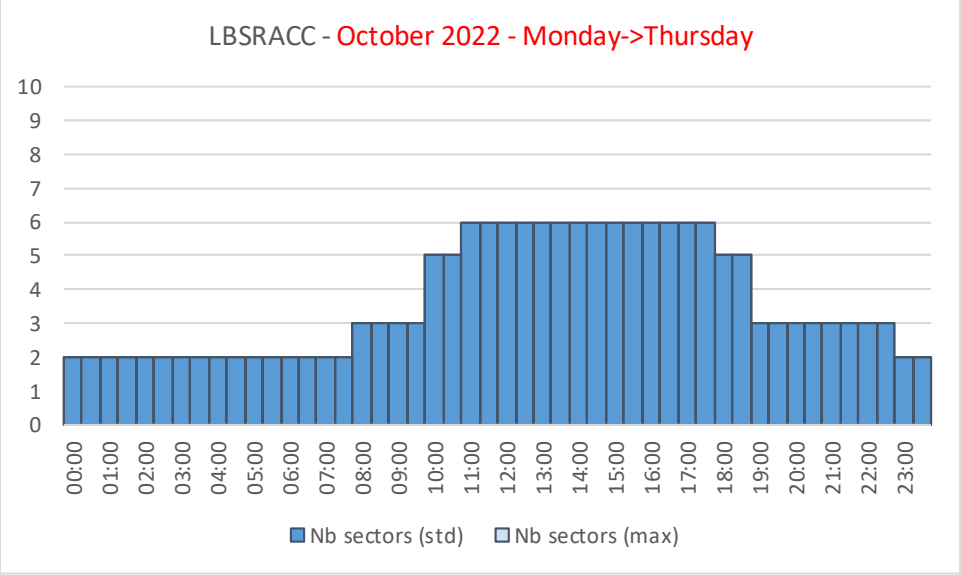
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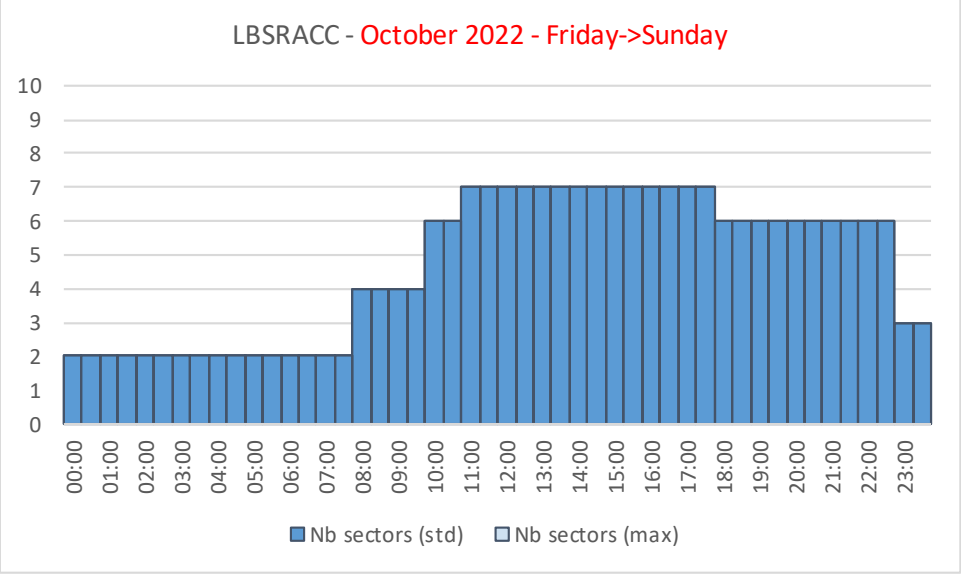
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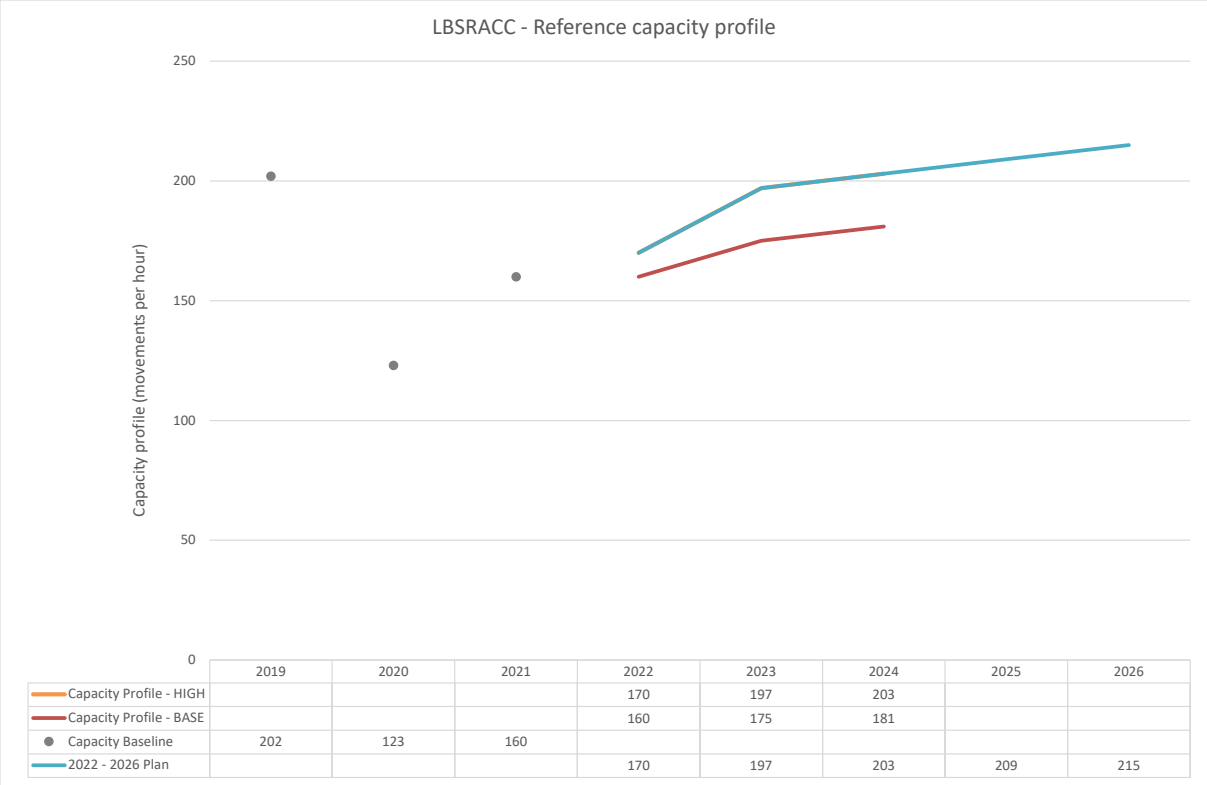


	2019	2020	2021	2022	2023	2024	2025	2026
Capacity Profile - HIGH				170	197	203		
Capacity Profile - BASE				160	175	181		
Capacity Baseline	202	123	160					
2022 - 2026 Plan				170	197	203	209	215

2022-2026 Outlook
No capacity issues are foreseen for Sofia ACC for the period 2022-2026.

3. Implementation Projects

The tables below present the high-level information about the main projects currently ongoing in Bulgaria. The details of each project are available in the LSSIP DB (an extract can be provided by the LSSIP FP or the LSSIP CP upon request).

3.1. National projects

Name of project:	Organisation(s):	Schedule:	Progress Description:	Links:
Building of Contingency and Data Center and Equipment	BULATSA (BG)	30.09.2024 for the building and 30.06.2026 for the equipment	Ongoing	RP3 PP: Building of Contingency and Data Center and Equipment
New PSRs and SSRs East part of Sofia FIR	BULATSA (BG)	30.09.2023	Ongoing	RP2 PP: Capex 2
Reconstruction and modernization of the Operations Room of Sofia Air Traffic Control (ATC) Centre and the adjacent infrastructure and facilities	BULATSA (BG)	30.06.2025	Ongoing	RP3 PP: Reconstruction and modernization of the Operations Room of Sofia Air Traffic Control (ATC) Centre and the adjacent infrastructure and facilities

3.2.FAB projects

Name of project:	Organisation(s):	Schedule:	Progress Description:	Links:
FAB enlargement (DFAP2020/A08)	BULATSA (BG), ROMATSA (RO)	Ongoing process	DANUBE FAB is in an ideal position to expand the influence of SES and is open for accession of neighbouring countries. It is a long-term strategy of DANUBE FAB to extend its geographical scope. Representatives of the Republic of Moldova and of the Republic of North Macedonia regularly attend the DANUBE FAB Governing Council meetings as Observers. DANUBE FAB is committed to expanding the influence of SES and advancing the status of these nations within DANUBE FAB. During the last meetings of the DANUBE FAB Governing Council, the Republic of Moldova and the Republic of North Macedonia were invited to investigate at their national level and present more information on the way forward with regard to their participations in DANUBE FAB activities starting in 2022 onward.	-

Name of project:	Organisation(s):	Schedule:	Progress Description:	Links:
Free Route Airspace (DFAP2020/F04)	BULATSA (BG), ROMATSA (RO)	2021	Free Route Airspace (FRA) implementation involving DANUBE FAB and its neighbouring States has continued to develop in 2021, with Slovakia joining SEE FRA (South-Eastern Europe FRA) in January 2021. Further proposals for the expansion and development of SEE FRA have been analysed and considered, and the following were agreed: • FRA Moldova to join SEE FRA – planned for implementation on 24.02.2022; • H24 cross-border FRA operations between SEE FRA (incl. FRA Moldova) and BALTIC FRA – planned for implementation on 24.02.2022; • SEE FRA enlargement with FRACZECH – it will also include cross-border FRA operations between BALTIC FRA and FRACZECH.	L3: ITY-AGDL, AOM21.2 RP2 PP: FRA - DANUBE FAB
Inter-FAB Coordination (DFAP2020/A10)	BULATSA (BG), ROMATSA (RO)	Ongoing process	DANUBE FAB is a key participant in the InterFAB Coordination Platform and is committed to remaining an attentive and proactive member. To date, DANUBE FAB has participated in interFAB workshops on communications and performance and in the IFCP, mainly cooperating on common positions or sharing and aligning positions for different hot topics. DANUBE FAB has played an active role for the whole period, being one of the core FABs involved in the IFCP. Maintaining an active role within the InterFAB platform throughout 2022 and beyond remains a priority for DANUBE FAB, clearly demonstrated by the InterFAB Research Workshop on the topic of Resilience, which is to be held in Sofia in September 2022.	-

Name of project:	Organisation(s):	Schedule:	Progress Description:	Links:
Technical Rationalisation and Infrastructure (DFAP2020/E01-E08)	BULATSA (BG), ROMATSA (RO)	Ongoing process	In 2021, several projects were ongoing, the top priority being the implementation of an extended set of OLDI messages. Due to the impact of the Covid-19 pandemic, the priority activity envisaged, to conduct a comprehensive review and refresh of the DANUBE FAB technical rationalisation and infrastructure studies/documentation, with the objective of identifying feasible new common projects, was postponed for 2022. The ongoing project to implement an extended set of OLDI messages between BULATSA and ROMATSA is expected to progress in 2022, with its scope being broaden with the investigation of possibilities to exchange additional messages. DANUBE FAB agreed to redefine this High Priority Project to an Ongoing Task in the Strategic Programme 2022-2026.	L3: COM11.2, ITY-AGDL

Name of project:	Organisation(s):	Schedule:	Progress Description:	Links:
Transition to the new SES developments (DFAP2020/A18)	BULATSA (BG), ROMATSA (RO)	2021	The European Union's vision for a Single European Sky continued to evolve in 2021 with the release of the updated SES2+ regulatory package proposal. With the current version of the SES2+ proposals no longer making FABs mandatory for European States, the ultimate impact on the FAB is not yet known. Rather than wait for clarity on the new SES2+ initiatives, DANUBE FAB took the initiative in anticipation of those next phases of ATM regulatory developments to commission a Strategic Impact Study. Another step on this is the joint participation in the SESAR 3 Joint Undertaking initiative. Calls for funding are to be released in early 2022, so in late 2021 the FAB investigated which topics are of common interest to see whether joint projects can be put forward for funding. DANUBE FAB agreed to redefine this High Priority Project to an Ongoing Task in the Strategic Programme 2022-2026.	-

3.3. Multinational projects

Name of project:	Organisation(s):	Schedule:	Progress Description:	Links:
GateOne	ASP ANS CR (CZ), Austrocontrol (AT), BHANSA (BA), BULATSA (BG), CCL Service Provider (HR), HungaroControl (HU), Letove prevadzkove sluzby Slovenskej republiky, statny podnik (SK), M-NAV (MK), ORO NAVIGACIJA (LT), PANSA (PL), ROMATSA (RO), SMATSA (RS), Slovenia Control (SI)	Ongoing	The DANUBE FAB ANSPs are signing parties of the Gate One cooperation agreement on the creation of the regional ANSP platform of Central and Eastern Europe which was established by the designated 13 ANSPs covering 3 existing FABs (Baltic FAB, DANUBE FAB and FAB CE) and 2 non-EU FIRs (Belgrade and Skopje). Through enhanced cooperation, the Gate One service providers are ensuring more powerful and coordinated positions, voice and role of the countries of the region in the European decision-making processes. During 2021, Gate One members have continued to coordinate their views and efforts in response to the most important issues impacting ATM in the region: - A meeting with NM Director was organized to discuss the impact of SES2+, cooperative decision-making, the New Partnership on SESAR Deployment Management and the conclusions from the Deloitte report on future of EUROCONTROL. - A position paper on Future of EUROCONTROL/Deloitte report has been elaborated by HungaroControl and endorsed by Gate One members. Following coordination with CANSO it was agreed to use it as a methodology to monitor EUROCONTROL and NM.	-

Name of project:	Organisation(s):	Schedule:	Progress Description:	Links:
InterFAB Coordination Platform	BULATSA (BG), ROMATSA (RO)	Ongoing	In October 2015 Terms of Reference between all nine FABs in Europe were established, forming a unique platform that brings together political, regulatory and service provision representatives. This platform provides an opportunity for cooperation and coordination across all FABs, enabling the alignment of common goals, experiences to be shared and a strong and cohesive voice maintained. Meetings in 2021: - 2 InterFAB Communications meetings; - An intensive series of meetings continued to take place at the level of InterFAB Coordination Platform (IFCP) Points of Contact, focused on coordinating common positions or sharing and aligning proposals for different relevant topics such as, the amended proposal for a Regulation of the European Parliament and of the Council on the implementation of the Single European Sky (recast); - A series of InterFAB "Expert Talks on ATM performance data – can we do better?" aimed to provide a platform where experiences can be shared, and views exchanged on the key issues which relate to data and performance in ATM; - 4th InterFAB Research workshop on Climate change and the role of air traffic control, 22-23 September 2021.	-
NewPENS Stakeholders contribution for the procurement and deployment of NewPENS	ASP ANS CR (CZ), BULATSA (BG), CCL Service Provider (HR), EUROCONTROL (MAS), ROMATSA (RO)	Ongoing	Ongoing reporting to SDM until the completion of „SESAR Deployment Programme Implementation 2015 – Cluster 3 / 2015-EU-TM-0197-M" (end of 2020) and final payment (due in 2022). The project is led by EUROCONTROL. All tasks and associated milestones and deliverables completed.	L3: COM12 DP: NewPENS Stakeholders contribution for the procurement and deployment of NewPENS

Name of project:	Organisation(s):	Schedule:	Progress Description:	Links:
OLDI interface and related functionalities upgrade	BULATSA (BG), DHMI (TR), HANSP (GR), M-NAV (MK), ROMATSA (RO), SMATSA (RS), Ukrainian State Air Traffic Services Enterprise (UA)	The enhancement of the OLDI functionalities is an ongoing process	Implementation of ground-ground automated co-ordination process is completed: the current ATM systems at Sofia ACC is capable of sending and receiving a complete set of basic OLDI messages (ABI, ACT, REV, MAC, PAC, LAM) and message exchange is implemented with neighbouring ACCs. LOF and NAN messages have been tested, validated and activated with BUCHAREST ACC in December 2021. Functions to support electronic dialogue procedure in transfer of communication process are documented, implemented, and in operational use.	L3: ITY-FMTP
Radar Data Sharing	BULATSA (BG), DHMI (TR), HANSP (GR), M-NAV (MK), ROMATSA (RO), SMATSA (RS), Ukrainian State Air Traffic Services Enterprise (UA)	The radar data sharing is an ongoing process.	Bilateral agreements for sharing of radar data were signed with North Macedonia and Romania. BULATSA sends to Skopje ACC data from the Vitosha MSSR and receives data from Banjski Rid MSSR. BULATSA sends to Bucharest ACC data from Vitosha and Varbica MSSRs and receives data from Bucuresti and Constanca MSSRs. Radar data sharing with Greece was implemented in 2009. BULATSA sends to the HANSP data from Vitosha and Varbica MSSRs and receives data from Thesalloniki and Pillion MSSRs. In 2011, BULATSA signed a bilateral agreement with the Serbia and Montenegro Air Traffic Services Agency (SMATSA). According to that agreement, BULATSA receives radar data from Murtenica and Koviona radars and sends radar data to ATC Belgrade from Vitosha and Sofia radars.	-
Regional Communication Network	Austrocontrol (AT), BULATSA (BG), HANSP (GR), M-NAV (MK), ROMATSA (RO), SMATSA (RS), Ukrainian State Air Traffic Services Enterprise (UA)	Ongoing	So far, AMHS connections activated with Bucharest, Belgrade, Skopje, Athens, Wien, EUROCONTROL IFPS/ETFMS, and EUROCONTROL European Directory Service (EDS) - Brussels. A connection to Ankara was activated in Dec 2021.	L3: COM11.1

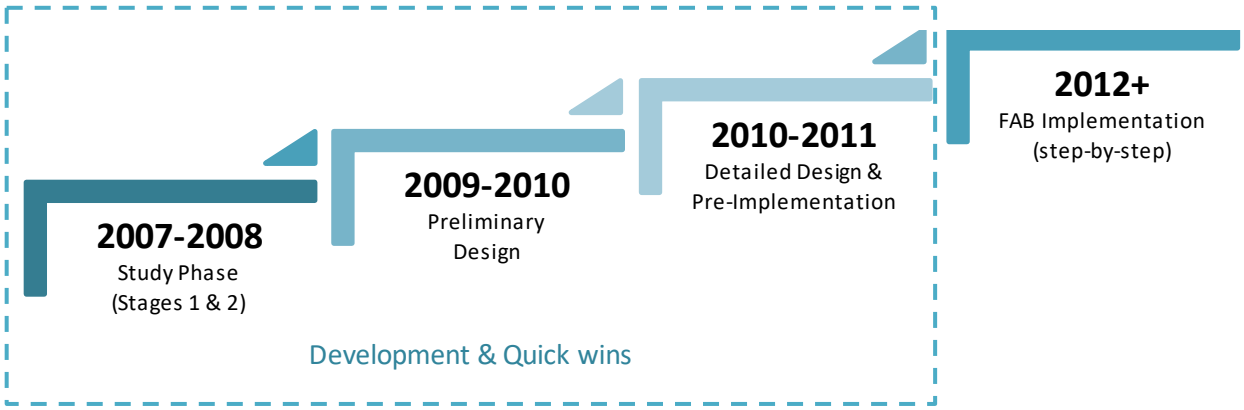
Name of project:	Organisation(s):	Schedule:	Progress Description:	Links:
Regional Route Network Developments	BULATSA (BG), DHMI (TR), HANSP (GR), M-NAV (MK), ROMATSA (RO), SMATSA (RS), Ukrainian State Air Traffic Services Enterprise (UA)	Permanent	The process is to be discussed and reassessed in order to identify its opportunity. In 2021, due to the COVID-19 pandemic situation, most of the activities have been analysed and postponed or removed. The FRA project implementation in Europe continued in 2021. BULATSA is a part of the SEE FRA project, together with ROMATSA, HUNGAROCONTROL and Slovakia. As of 07th Nov 2019, H24 FRA operations are implemented in SOFIA FIR, and as of January 28th 2021, the SEE FRA space has been expanded to include Slovakia. These implementations have been discussed and agreed between the above mentioned partners within the Route Network Development sub-group (RNDSG) – EUROCONTROL and the Route Development Group in SE Region – ICAO.	-

Name of project:	Organisation(s):	Schedule:	Progress Description:	Links:
SWIM Common PKI and policies & procedures for establishing a Trust framework	Austrocontrol (AT), BHANSA (BA), BULATSA (BG), DFS (DE), DSNA (FR), ENAV (IT), Fintraffic ANS (FI), Groupe ADP (FR), HungaroControl (HU), LFV (SE), LVNL - Luchtverkeersleiding Nederland (NL), Mil. Authority (FR), NATS (UK), NAV (PT), Naviair (DK), ORO NAVIGACIJA (LT), PANSA (PL), ROMATSA (RO), SMATSA (BA), Slovenia Control (SI)	From: November 2018 To: June 2022	The project has been kicked off on November 12th, 2018. Ongoing reporting to SDM until the completion of „SESAR Deployment Programme Implementation – 2017 / 2017-EU-TM-0076-M" (end of 2022) and final payment (due in 2023). The project is led by EUROCONTROL. All tasks have progressed and produced their deliverables: - Task 1: trust framework in particular with views on the business model, the membership criteria, and interoperability criteria. The test campaign for interoperability with the US FAA was completed (test plan, development of both test platforms, tests). - Task 2 was completed early 2021 with the definition of the high-level architecture and initial technical requirements. - Task 3 delivered its initial definition of interfaces. The initial version was so mature that the final version will not be subject to significant changes. - Task 4 was completed. As the SWIM governance has not been defined, the liaison between the future EACP and SWIM governance will be defined later. - Task 5 delivered an initial Call For Tenders with the technical requirements for the future solution to be deployed. - Task 6 was initiated and delivered its guidance for SWIM service providers and consumers. - Task 7: project management activities were conducted as planned and in particular close cooperation and active engagement in ICAO Trust Framework Study Group (TFSG) was ensured.	DP: SWIM Common PKI and policies & procedures for establishing a Trust framework

4. Cooperation activities

4.1. FAB Co-ordination

The DANUBE FAB is currently under phase 4 – FAB Implementation phase. The State Agreement on the establishment of the DANUBE FAB between the Republic of Bulgaria and Romania was signed in December 2011 and was ratified by both governments in 2012. The Agreement entered into force on 16 November 2012, thus ensuring the legal basis for the FAB ahead of the SES deadline.



DANUBE FAB Project Phases

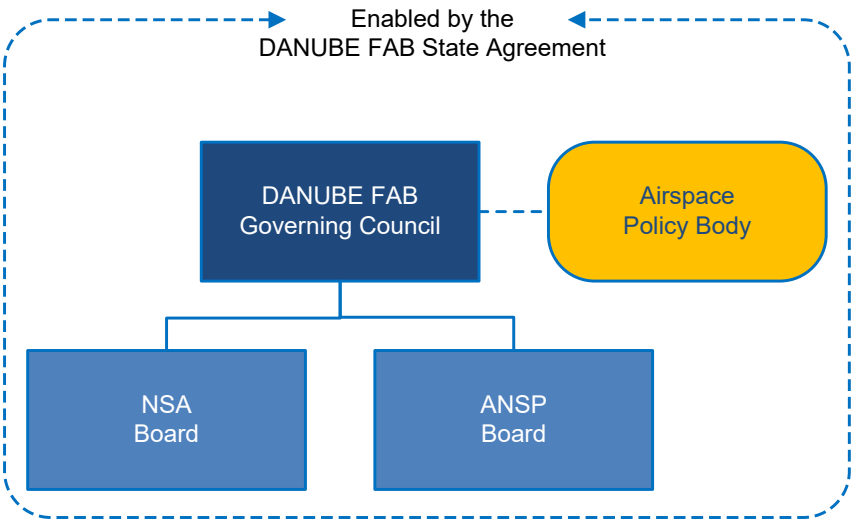
The DANUBE FAB State Agreement provides the overarching legal framework for the governance of the FAB. The core bodies are:

Governing Council: provides oversight and approval of key FAB documentation (annual plans, safety policy, airspace policy, performance plans, etc.).

NSA Board: provides a formal coordination and an interface between the NSAs involved in the supervisory tasks at DANUBE FAB level.

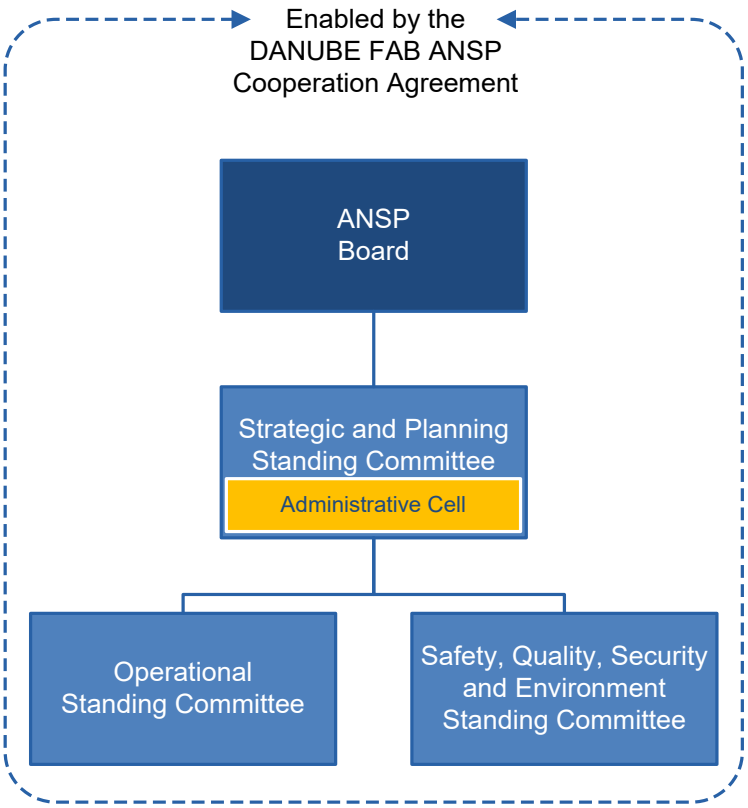
ANSP Board: oversees implementation of the FAB at the ANSP level via the ANSP agreement.

Airspace Policy Body: responsible for enhancing the joint civil-military coordination process and for the flexible use of airspace application within the cross-border airspace.



The ANSP Board is supported in the implementation of the FAB through its working arrangements, including specialised Standing Committees or other supporting bodies established in accordance with their respective Rules of Procedures.

The ANSP Board is supported by the Strategy and Planning Standing Committee (SAPSC), which is composed of ANSP experts for all DANUBE FAB cooperation domains. In turn, SAPSC is supported by the Operations Standing Committee (OSC), which carries out work in the areas of operations, by the Technical working group and the Training Board, as well as by the Safety, Quality, Security and Environment Standing Committee (SQSESC).



DANUBE FAB ANSP Work Structure

The Administrative Cell supports the SAPSC and is guided in its work by a set of overarching documents including the Project Management Plan (including the Communications Plan and Quality Management Plan) as well as the DANUBE FAB State Agreement and the ANSP Cooperation Agreement.

Work structure

The DANUBE FAB governance structure represents the roles and responsibilities of the involved parties. However, in order to ensure effective project management, it is essential that this governance structure is complimented by a clear work structure.

Defined below is the project work structure. Five central pillars are listed, which are an evolution of those defined at the beginning of the DANUBE FAB implementation. Each of the five pillars represents a different thread of activity to ensure that the FAB can establish a clear direction, a means to progress along that direction and activities to monitor and correct progress.

The five pillars, along with the intent of each are provided in the figure below:

DANUBE FAB Work Structure

Strategy & Planning

In order to meet its objective, DANUBE FAB has developed the Strategic Program, which provides a high-level overview of how and when the strategic objectives are to be achieved. It contains activities that contribute to EU-wide performance targets and specifically the Key Performance Areas of the RP3 Performance Plans of each FAB state.

Achievements for 2021

In 2021, COVID-19 has continued to create significant challenges for the entire aviation industry. While initial traffic forecasts anticipated a relatively slow recovery from the reduction in traffic, the summer of 2021 saw many more flights than planned, while the end of the year saw another drop in traffic as COVID infections increased again.

Despite this volatility, DANUBE FAB has still worked hard to progress key strategic projects, retaining a core focus on airspace projects and cooperation initiatives with other FABs and State partners. An overview of some high priority initiatives is given below.

Free Route Airspace

DANUBE FAB has committed to implementing Free Route Airspace operations FAB-wide and beyond. Free Route Airspace (FRA) implementation involving DANUBE FAB and its neighbouring States has continued to develop in 2021, with Slovakia joining SEE FRA (South-Eastern Europe FRA) in January 2021.

Technical Rationalisation and Infrastructure

DANUBE FAB endeavours to jointly plan CNS infrastructure development and where possible conduct common procurement. The objective of this project is to develop the cooperation in the technical domain by identifying opportunities to coordinate, rationalise and/or share technical infrastructure, thereby generating cost savings. In 2021, several projects were ongoing, the top priority being the implementation of extended set of OLDI messages.

InterFAB Coordination

Cooperation and communication between the nine FABs form the core of the InterFAB Cooperation platform (IFCP). This platform provides an opportunity for cooperation and coordination across all FABs, enabling the alignment of common goals, experiences to be shared and a strong and cohesive voice maintained.

DANUBE FAB is a key participant in the IFCP and is committed to remaining an attentive and proactive member. To date, DANUBE FAB has participated in interFAB workshops on communications and performance and in the IFCP, mainly cooperating on common positions or sharing and aligning positions for different hot topics. DANUBE FAB has played an active role for the whole period, being one of the core FABs involved in the IFCP.

FAB Enlargement

DANUBE FAB is in an ideal position to expand the influence of SES and is open for accession of neighboring countries. It is a long-term strategy of DANUBE FAB to extend its geographical scope. Representatives of the Republic of Moldova and of the Republic of North Macedonia regularly attend the DANUBE FAB Governing Council meetings as Observers.

Transition to the new SES developments

The European Union's vision for a Single European Sky continued to evolve in 2021 with the release of the updated SES2+ regulatory package proposal. With the current version of the SES2+ proposals no longer making FABs mandatory for European States, the ultimate impact on DANUBE FAB is not yet known. Rather than wait for clarity on the new SES2+ initiatives, DANUBE FAB took the initiative in anticipation of those next phases of ATM regulatory developments to commission a Strategic Impact Study. Another step on this is the joint participation in the SESAR 3 Joint Undertaking initiative. Calls for funding are to be released in early 2022, so in late 2021 the FAB investigated which topics are of common interest to see whether joint projects can be put forward for funding.

Future plans

According to the DANUBE FAB Annual Plan, the High Priority Projects represent major tasks or activities to be undertaken or implemented within the DANUBE FAB. These Priority Projects aim to ensure the focus is on significant projects within DANUBE FAB, and therefore represent the areas where persistent work is necessary in order to ensure the FAB meets EU requirements or to ensure the evolution of the FAB.

These projects are:

Free Route Airspace

Since Slovakia joined SEE FRA (South-Eastern Europe FRA), further proposals for the expansion and development of SEE FRA have been analysed and considered. These proposals are:

- FRA Moldova to join SEE FRA – planned for implementation on 24.02.2022
- H24 cross-border FRA operations between SEE FRA (incl. FRA Moldova) and BALTIC FRA – planned for implementation on 24.02.2022;
- SEE FRA enlargement with FRA CZECH – it will also include cross-border FRA operations between BALTIC FRA and FRA CZECH;
- Western Ukraine to join SEE FRA – Analysis ongoing following EUROCONTROL proposals in 2021;
- SECSI FRA and SEE FRA merging – This is a long term project undergoing significant analysis due to the size of both FRA areas, as well as to the legal implications (EU/non-EU states participation) versus operational benefits. This is still under analysis, proposed implementation timeframe being 2029/2030 (as per ERNIP).

Technical Rationalisation and Infrastructure

Due to the impact of the Covid-19 pandemic, the priority activity envisaged, to conduct a comprehensive review and refresh of the DANUBE FAB technical rationalisation and infrastructure studies/documentation, with the objective of identifying feasible new common projects, was postponed for 2022.

The ongoing project to implement an extended set of OLDI messages between BULATSA and ROMATSA is expected to progress in 2022, with its scope being broaden with the investigation of exchange of additional messages.

DANUBE FAB agreed to redefine this High Priority Project to an Ongoing Task in the Strategic Programme 2022-2026.

InterFAB Coordination

Maintaining an active role within the InterFAB platform throughout 2022 and beyond remains a priority for DANUBE FAB, clearly demonstrated by the InterFAB Research Workshop on the topic of Resilience, which is to be held in Sofia in September 2022.

FAB Enlargement

The Republic of Moldova and the Republic of North Macedonia, together with the DANUBE FAB partners, will further investigate the way forward with regard to their participation in DANUBE FAB activities in 2022 onwards.

Transition to the new SES developments

From 2022 onwards, DANUBE FAB will further build on the findings and recommendations of the Strategic Impact Study and will further investigate the potential common interests for joint projects under SESAR 3 Joint Undertaking initiative. DANUBE FAB agreed to redefine this High Priority Project to an Ongoing Task in the Strategic Programme 2022-2026. For more details, please visit the DANUBE FAB website: http://www.danubefab.eu/.

4.2. Multinational cooperation initiatives

InterFAB Coordination Platform

In October 2015, Terms of Reference between all nine FABs in Europe were established, forming a unique platform that brings together political, regulatory and service provision representatives. This platform provides an opportunity for cooperation and coordination across all the FABs, enabling the alignment of common goals, experiences to be shared and a strong and cohesive voice maintained.

DANUBE FAB is a key participant in the InterFAB Coordination Platform and is committed to remaining an attentive and proactive member. To date DANUBE FAB, together with its partners from BALTIC FAB, BLUE MED FAB, DK-SW FAB, FAB CE, FABEC, NEFAB, SW FAB and UK-IRELAND FAB, acknowledge the potential benefits of InterFAB coordination, to:

- Optimise the interfaces between FABs within the Single European Sky (SES),
- Enhance their aggregated performance in support of the Single European Sky and the European aviation, and
- Allow FABs to actively shape their role in the SES framework.

To this end they have agreed to participate and contribute to the InterFAB coordination. A coordination group of 9 Points of Contact of the FABs has originally been set up as a platform to manage the InterFAB coordination and the exchange of information.

Over time, the InterFAB Coordination meetings among the FABs' Points of Contact have spawned 3 additional work streams dedicated to specific areas:

- Operations,
- Communication, and
- Performance.

The purpose of InterFAB coordination is to provide for a structure to facilitate coordination and cooperation between the FABs, in order to contribute to a reduced fragmentation of the European airspace and support the optimisation of the European ATM Network (EATMN) and provide a working structure for coordination and cooperation on activities amongst them.

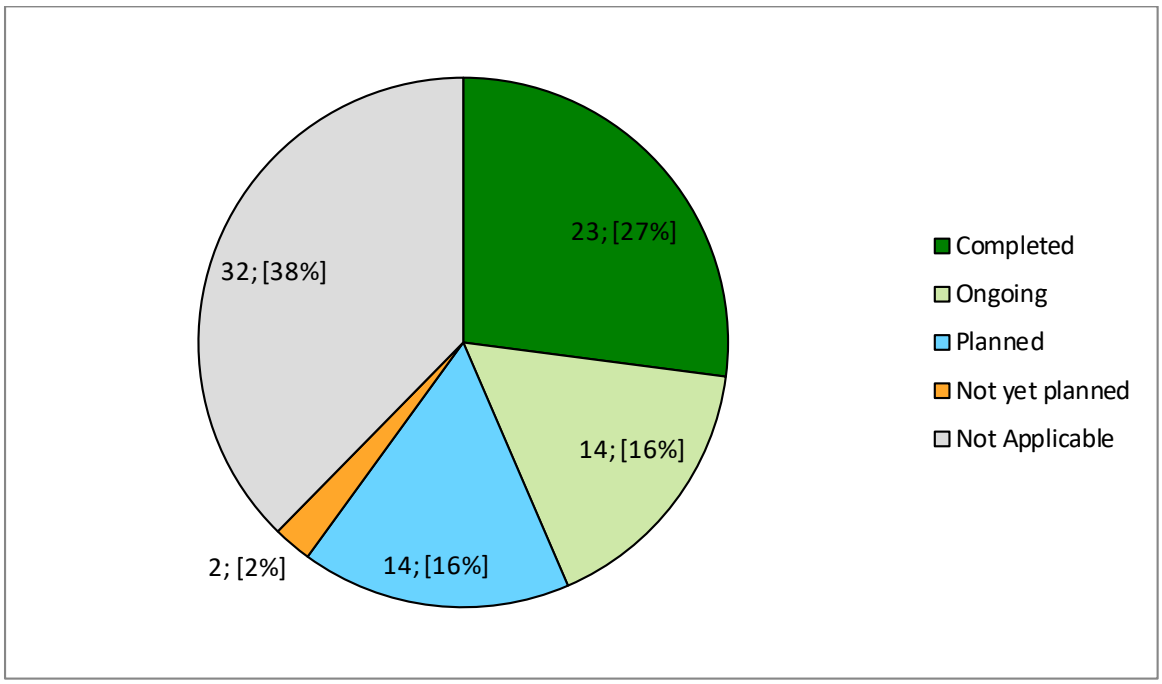
Areas of cooperation:

- Performance / results that FABs have achieved (inventory, questionnaire),
- Essential coordination issues between FABs,
- Airspace optimisation, including cross-border issues or free route airspace,
- SES developments regarding FABs,
- Performance (targets, plans and cooperation with the Commission),
- Interesting practices regarding FAB governance and institutional issues,
- SESAR deployment (e.g. joint activities common procurement of systems),
- Ad-hoc topics,
- Civil/military co-operation, and
- Meetings and discussions with the European Commission.

5. Implementation Objectives Progress

5.1. State View: Overall Objective Implementation Progress

The graph below shows progress for all Implementation Objectives (applicable and not applicable to the State).



Source: LSSIP DB

Summary of the implementation of the objectives

The implementation of the LSSIP objectives in 2021 was heavily impacted by the COVID-19 pandemic. Nevertheless, objectives AOM21.3, COM10.2, COM12, INF10.3, ITY-ACID and ITY-AGDL were completed. By the end of the year, the overall progress was as follows:

1) Problems with objectives due in 2021:

   In 2021 there were issues related to the implementation of some objectives, like AOM13.1, INF07, and ITY-ADQ, due mainly to organisational obstacles and uncontrollable factors like the COVID-19. The harmonisation under AOM13.1 is postponed again due to the delays of the deliveries of the new aircraft for the military air force.

2) Plans for completing objectives due in 2022/2023:

   Some of the objectives, due for 2022, are already implemented. Those are: FCM03 - Collaborative Flight Planning and AOM21.2 - Initial Free Route Airspace. The AOM19.5 - ASM and A-FUA objective is close to completion, while work on AOM19.4 - Management of Predefined Airspace Configurations and FCM04.2- Enhanced Short Term ATFCM Measures has to be accelerated in order to meet the deadline.

   The objectives due in 2023 are either completed (COM11.2 - Voice over Internet Protocol in Airport/Terminal) or ongoing (FCM10–Interactive Rolling NOP).

The CCO and CDO plan, although not applicable for any Bulgarian airports, will be introduced well ahead of the schedule as all existing procedures have been designed according to their requirements.

The existing ATM system SATCAS is already at the end of its lifespan and BULATSA will continue to work on the planning and preparatory process for its replacement.

5.2.Objective Progress per SESAR Essential Operational Changes

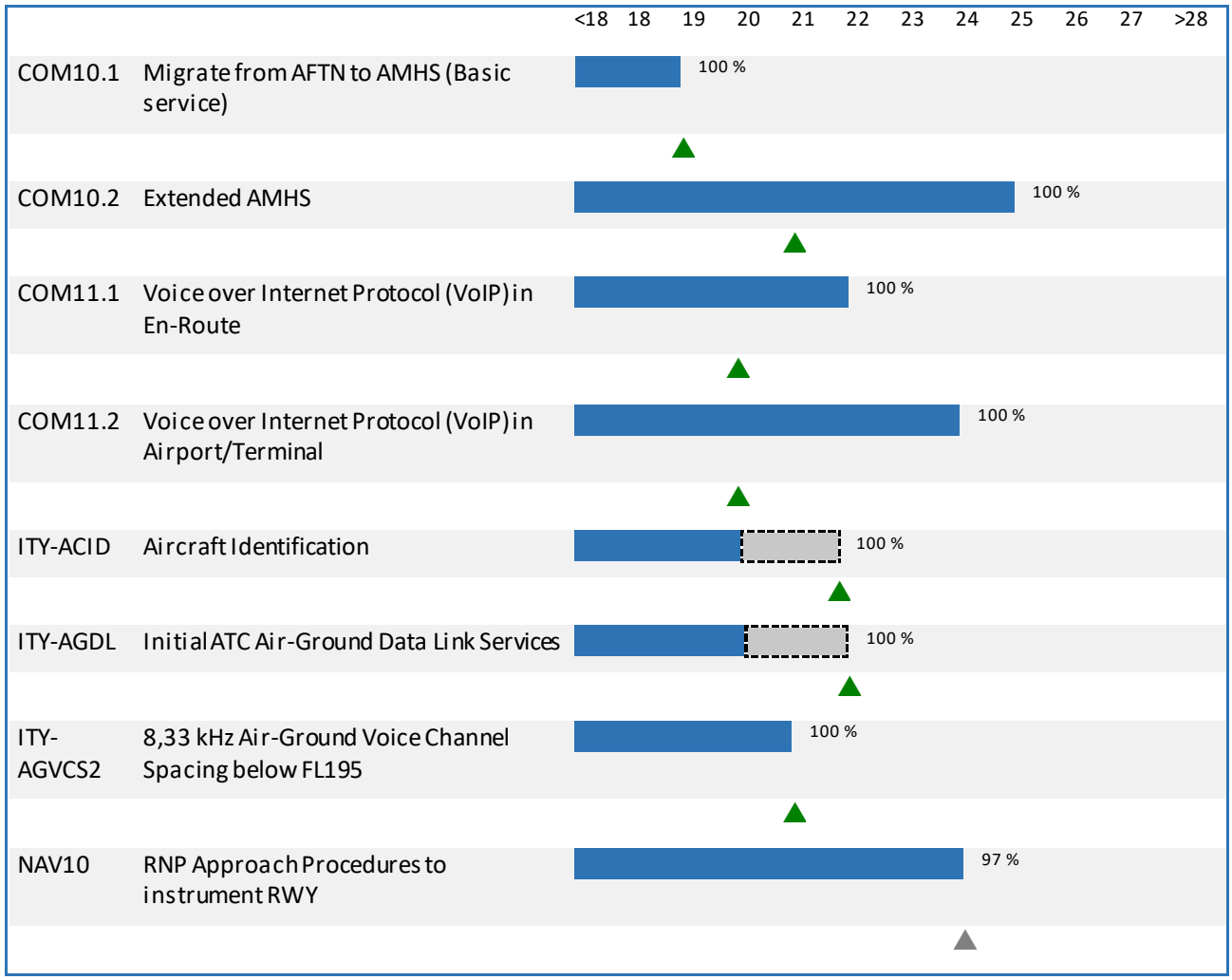
▲ 100% = Objective completed

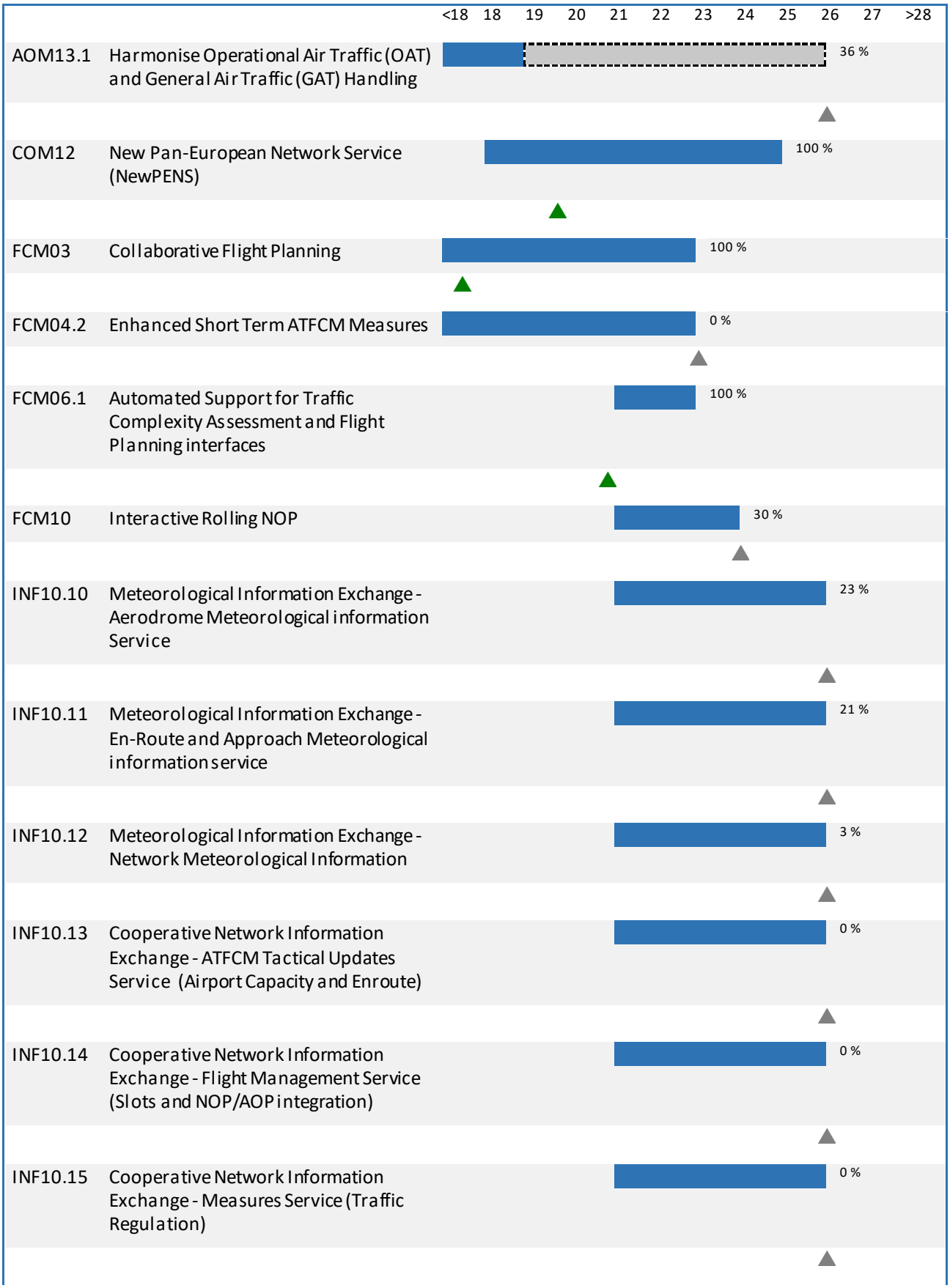
▲ ## % = Expected completion / % Progress

= Implementation Objective timeline (to FOC date)

= Completion beyond Implementation Objective timeline

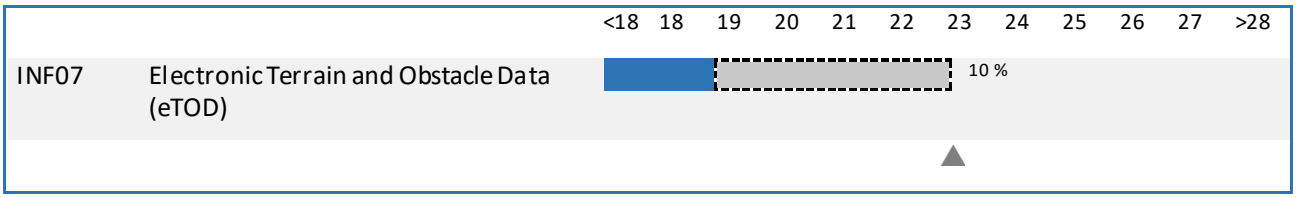
CNS infrastructure and services



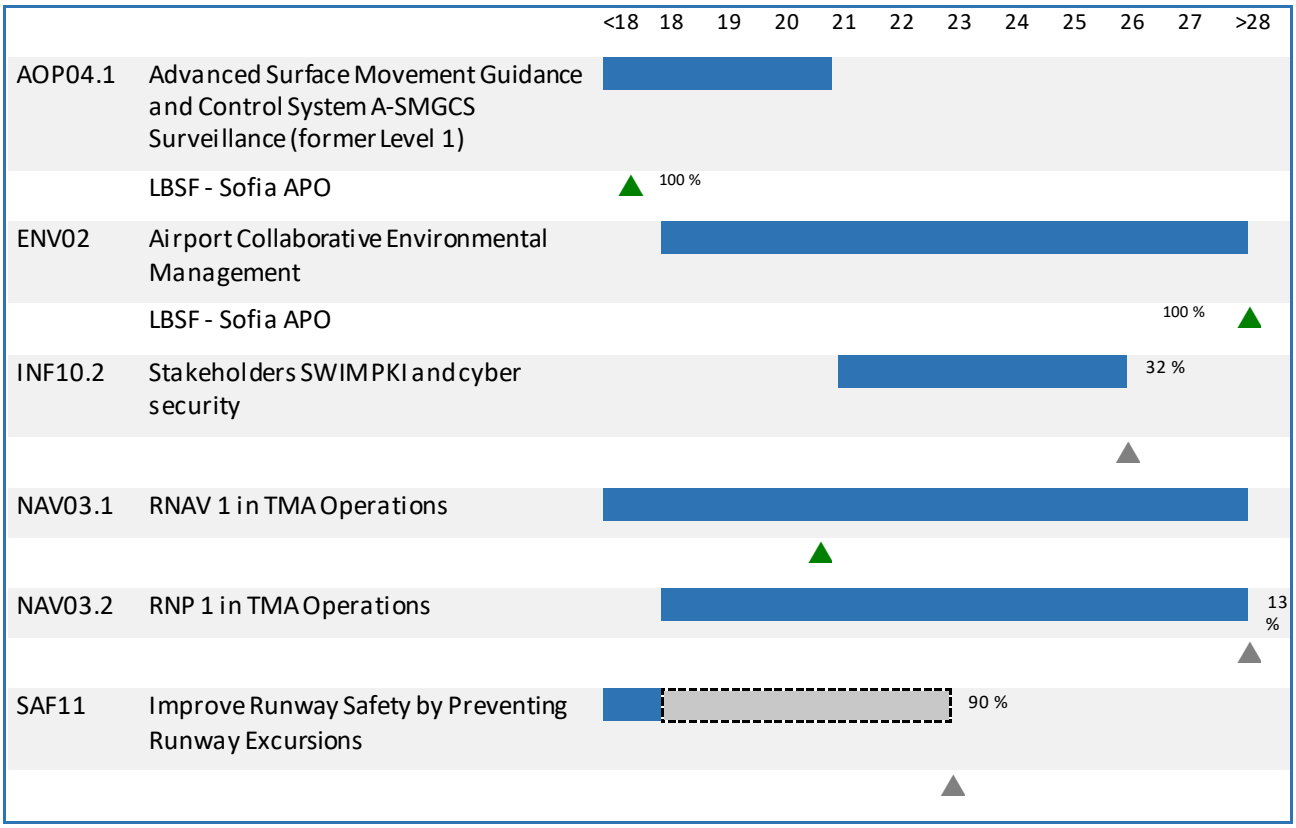

<18
18
19
20
21
22
23
24
25
26
27
>28
AOM13.1
Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling
36 %
COM12
New Pan-European Network Service (NewPENS)
100 %
FCM03
Collaborative Flight Planning
100 %
FCM04.2
Enhanced Short Term ATFCM Measures
0 %
FCM06.1
Automated Support for Traffic Complexity Assessment and Flight Planning interfaces
100 %
FCM10
Interactive Rolling NOP
30 %
INF10.10
Meteorological Information Exchange - Aerodrome Meteorological information Service
23 %
INF10.11
Meteorological Information Exchange - En-Route and Approach Meteorological information service
21 %
INF10.12
Meteorological Information Exchange - Network Meteorological Information
3 %
INF10.13
Cooperative Network Information Exchange - ATFCM Tactical Updates Service (Airport Capacity and Enroute)
0 %
INF10.14
Cooperative Network Information Exchange - Flight Management Service (Slots and NOP/AOP integration)
0 %
INF10.15
Cooperative Network Information Exchange - Measures Service (Traffic Regulation)
0 %

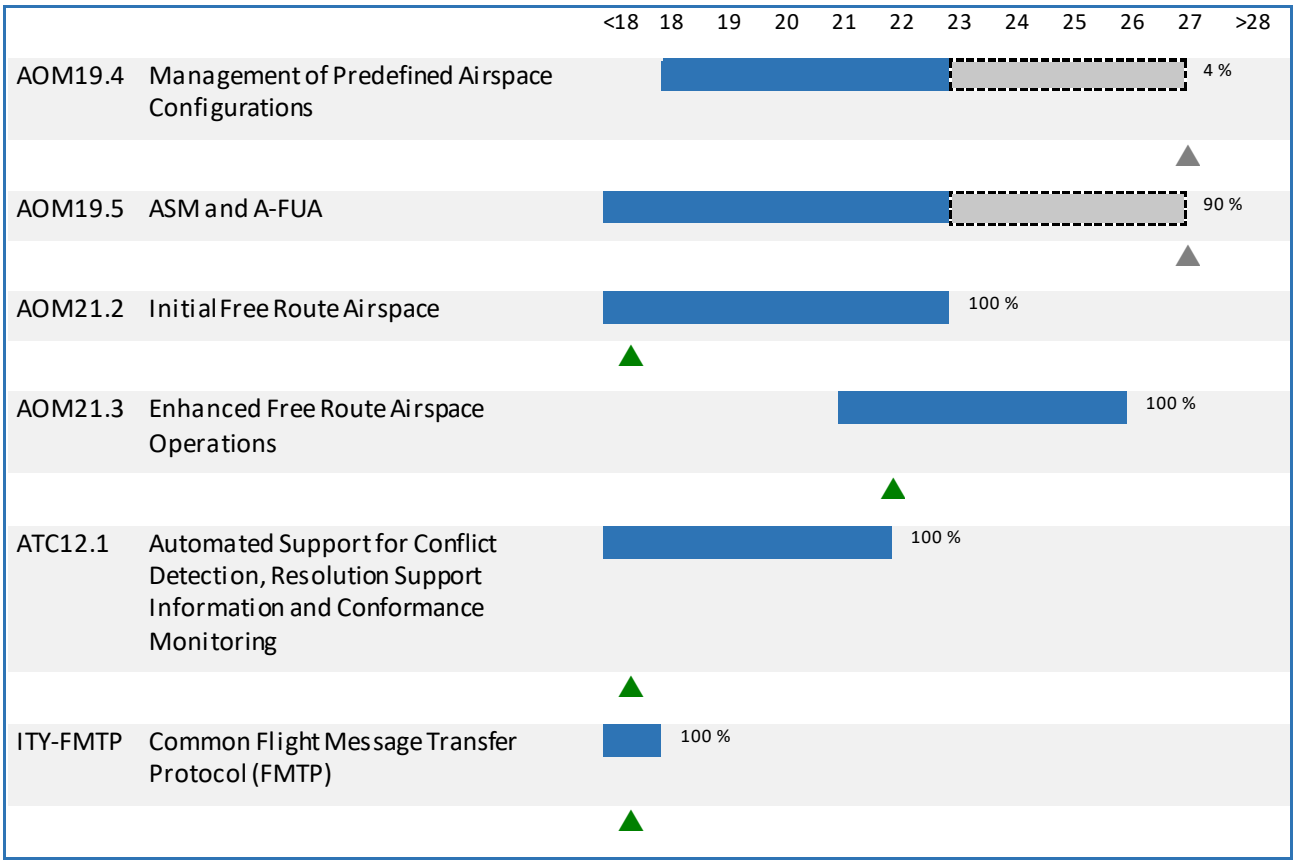
INF10.16	Cooperative Network Information Exchange - Short Term ATFCM Measures services (MCDM, eHelpdesk, STAM measures)	0 %
INF10.17	Cooperative Network Information Exchange - Counts service (ATFCM Congestion Points)	0 %
INF10.19	Flight Information Exchange (Yellow Profile) - Flight Data Request Service	0 %
INF10.2	Stakeholders SWIM PKI and cyber security	32 %
INF10.20	Flight Information Exchange (Yellow Profile) - Notification Service	0 %
INF10.21	Flight Information Exchange (Yellow Profile) - Data Publication Service	0 %
INF10.3	Aeronautical Information Exchange - Airspace structure service	100 %
INF10.4	Aeronautical Information Exchange - Airspace Availability Service	0 %
INF10.5	Aeronautical Information Exchange - Airspace Reservation (ARES)	25 %
INF10.6	Aeronautical Information Exchange - Digital NOTAM service	0 %
INF10.7	Aeronautical Information Exchange - Aerodrome mapping service	0 %
INF10.8	Aeronautical Information Exchange - Aeronautical Information Features service	0 %
INF10.9	Meteorological Information Exchange - Volcanic Ash Mass Concentration information service	0 %

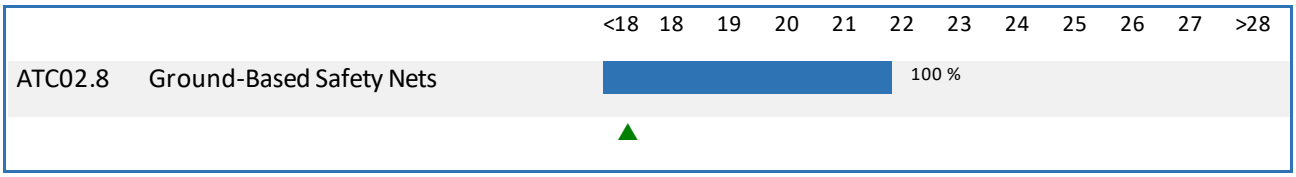

dS
Digital
AIM and MET
services

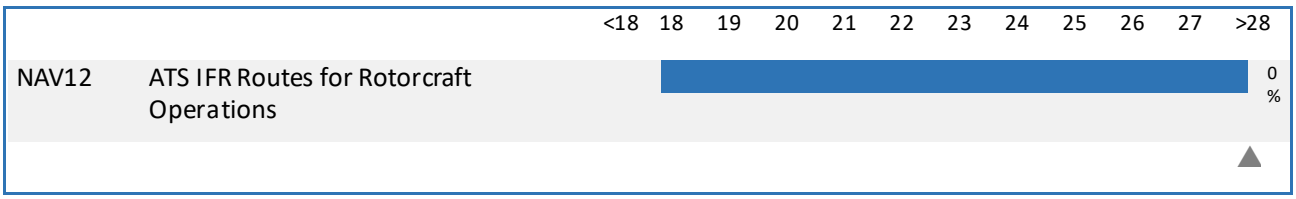

<18 18 19 20 21 22 23 24 25 26 27 >28
INF07
Electronic Terrain and Obstacle Data (eTOD)
10 %


ATp
Airport
and TMA
performance


<18 18 19 20 21 22 23 24 25 26 27 >28
AOP04.1
Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)
LBSF - Sofia APO
100 %
ENV02
Airport Collaborative Environmental Management
LBSF - Sofia APO
100 %
INF10.2
Stakeholders SWIM PKI and cyber security
32 %
NAV03.1
RNAV 1 in TMA Operations
NAV03.2
RNP 1 in TMA Operations
13 %
SAF11
Improve Runway Safety by Preventing Runway Excursions
90 %







Source: LSSIP DB

5.3.ICAO ASBU Implementation Progress

The following tables show, for each of the ASBU Elements belonging to a particular ASBU Thread and Block, the overall status, the final date foreseen for completion and the percentage of progress achieved in the current cycle.

The final set of Block 0 and Block 1 ASBU elements to be monitored in ICAO EUR Region has been approved by written European Aviation System Planning Group (EASPG) consultation procedure in May 2021, based on the conclusions of the EUR Global Air Navigation Plan (GANP) Transition Project Team.

Results below were determined using the LSSIP Year 2021 declared statuses and progress of the relevant Implementation objectives in accordance with the updated mapping approved by the EASPG/3 meeting.

Legend:

ACAS

		<18	18	19	20	21	22	23	24	25	26	27	>28
ACAS-B1/1	ACAS Improvements					74.0 %				100 %			

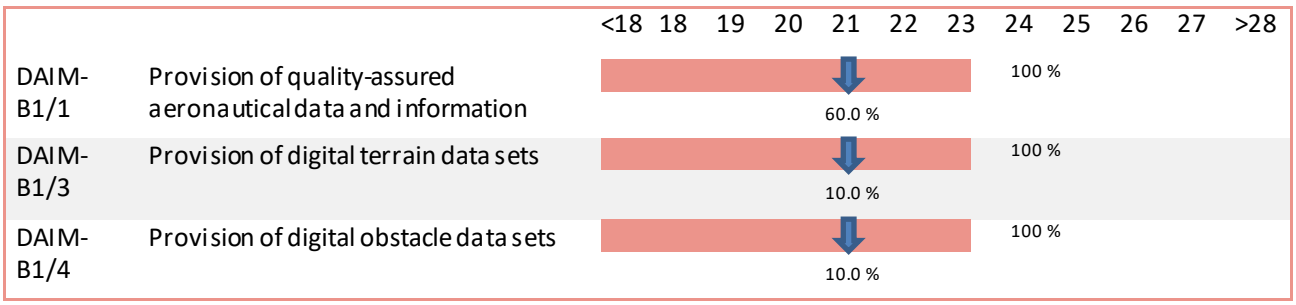
APTA

		<18	18	19	20	21	22	23	24	25	26	27	>28
APTA-B0/1	PBN Approaches (with basic capabilities)					97.0 %				100 %			
APTA-B0/2	PBN SID and STAR procedures (with basic capabilities)					100 %							
APTA-B0/6	PBN Helicopter Point in Space (PinS) Operations					No Plan							
APTA-B1/1	PBN Approaches (with advanced capabilities)					97.0 %				100 %			
APTA-B1/2	PBN SID and STAR procedures (with advanced capabilities)					No Plan							

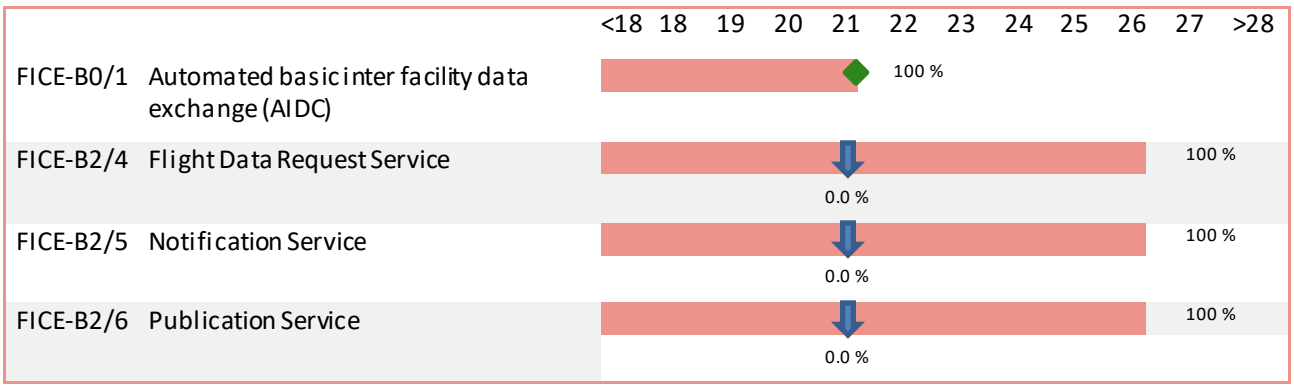
COMI

		<18	18	19	20	21	22	23	24	25	26	27	>28
COMI-B0/4	VHF Data Link (VDL) Mode 2 Basic					100 %							
COMI-B0/7	ATS Message Handling System (AMHS)					100 %							
COMI-B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)					100 %							
COMI-B1/2	VHF Data Link (VDL) Mode 2 Multi-Frequency					100 %							
COMI-B2/1	Air-Ground ATN/IPS					100 %							

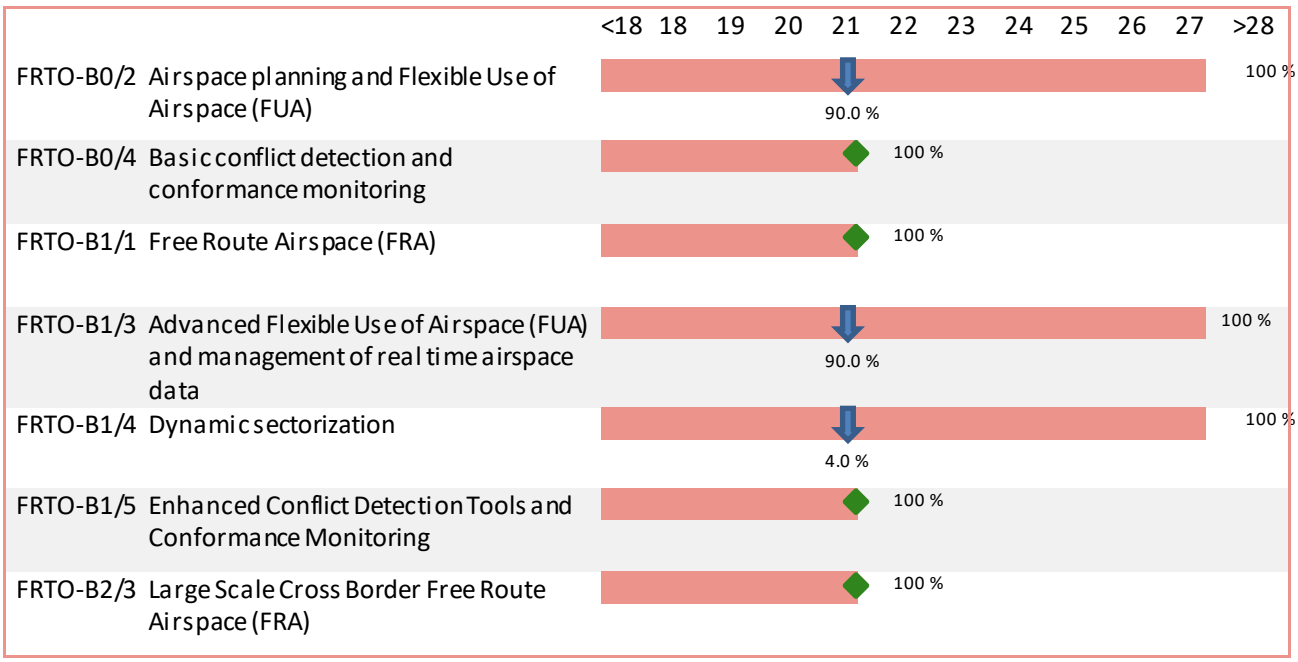
DAIM



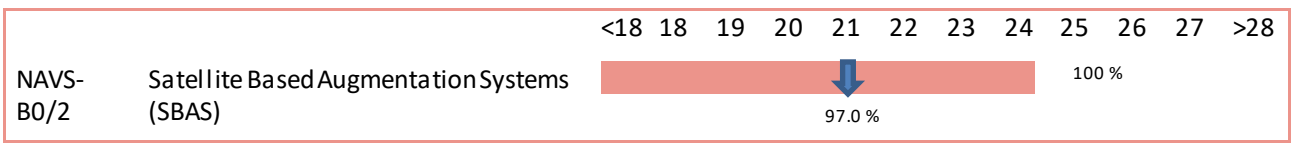
FICE



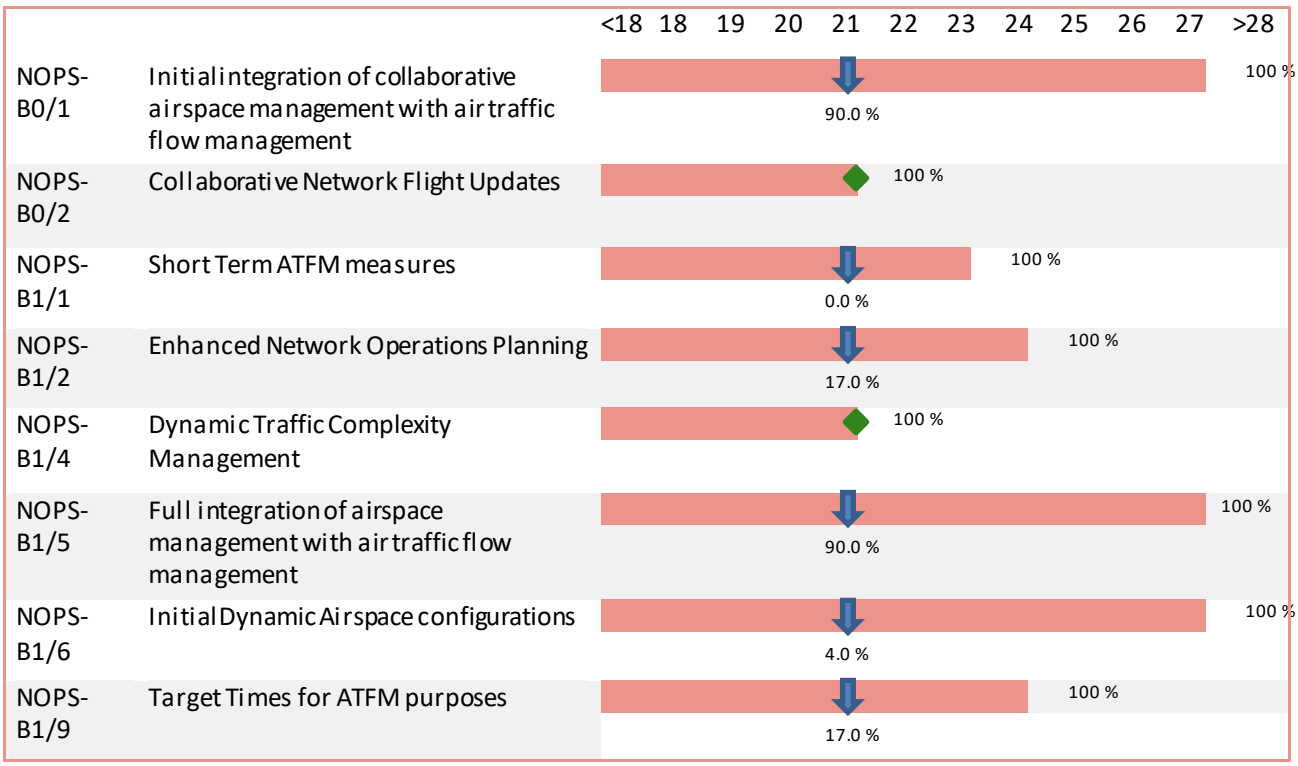
FRTO



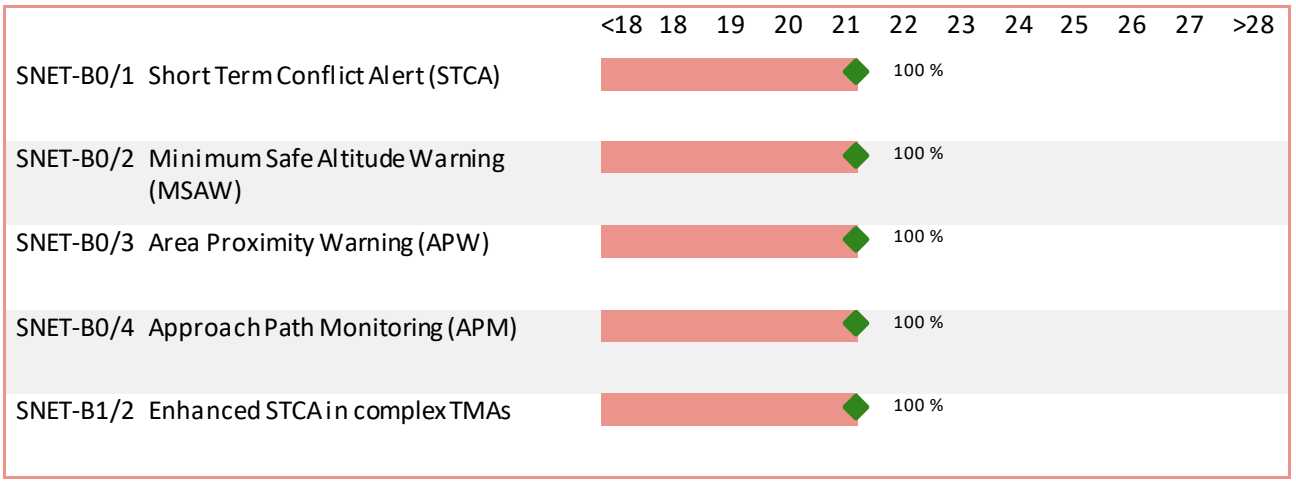
NAVS



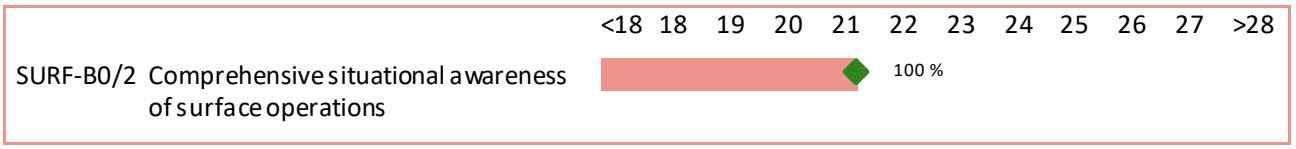
NOPS



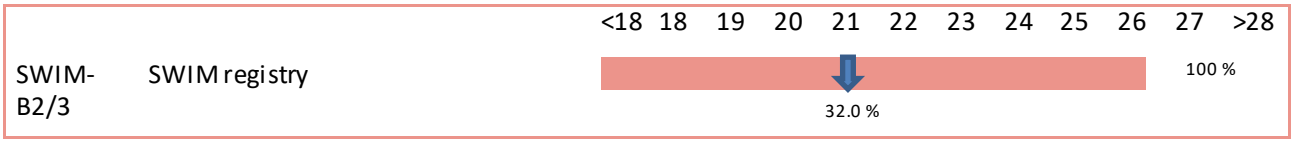
SNET



SURF



SWIM



Source: LSSIP DB

5.4. Detailed Objectives Implementation progress

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

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		**36%**	**Ongoing**
	-			
The applicability of EUROAT is being analysed for implementation. The new national Regulation No.19 is proposed for implementation after public discussion. After its publication, Instruction No.24 and Instruction No.25 (tactical level of FUA) will be updated according to the new requirements stipulated in Regulation No.19. The Bulgarian military authority plans to apply the same rules, principles and procedures concerning the OAT/GAT interface.				**31/12/2025**
REG (By:12/2018)				
BULGARIAN MILITARY AUTHORITY	The Bulgarian military authority will apply the same rules, principles and procedures concerning the OAT/GAT interface.	-	40%	Ongoing 31/12/2022
DG CAA	The new national Regulation No.19 is proposed for implementation after public discussion. After its publication, Instruction No.24 and Instruction No.25 (tactical level of FUA) will be updated according to the new requirements stipulated in Regulation No.19.	-	40%	Ongoing 31/12/2022
ASP (By:12/2018)				
BULATSA	The principal Letter of Agreement (LoA) between the Civil and Military ATSUs is under consideration. 3 LoAs (out of 5) are signed. The two remaining LoAs between military and civil ATSUs to be amended. One of the MIL airports is currently being renovated and after completion of works, the LoA will be signed. Instruction No. 25 concerning the tactical level of FUA is being revised.	-	25%	Ongoing 31/12/2022
BULGARIAN MILITARY AUTHORITY	The new national Regulation No.19 is proposed for implementation after public discussion. After its publication, Instruction No.24 and Instruction No.25 (tactical level of FUA) will be updated according to the new requirements stipulated in Regulation No.19.	-	10%	Ongoing 31/12/2025
MIL (By:12/2018)				
BULGARIAN MILITARY AUTHORITY	The Bulgarian military authority will apply the same rules, principles and procedures concerning the OAT/GAT interface. Revision of the national legislation and recognition of the respective military authorities as military ANSP is in progress. There are no plans for EAD migration. The EUROAT is going to be implemented.	-	42%	Ongoing 31/12/2023

AOM19.4	**Management of Predefined Airspace Configurations** ***Timescales:*** Initial operational capability: 01/01/2018 Full Operational Capability / Target Date: 31/12/2022		**4%**	**Ongoing**
	-			
The ATM system SATCAS is at the end of its operational lifespan. The required functionalities will be procured for the future ATM system.				**31/12/2026**
ASP (By:12/2022)				
BULATSA	The ATM system SATCAS is at the end of its operational lifespan. The required functionalities will be procured for the future ATM system.	-	4%	Ongoing 31/12/2026

AOM19.5	**ASM and A-FUA** ***Timescales:*** Initial Operational Capability: 01/01/2014 Full Operational Capability / Target Date: 31/12/2022		**90%**	**Ongoing**
	-			
LARA is operational as of January 2015. BULATSA AMC uses CIAM application to send AUP/UUP on a daily basis. Only the adaptation of the ASM and ATC systems for automatic ASM data exchanges is not feasible as the existing ATC system (SATCAS) is at the end of its lifecycle and its replacement is planned for 2026.				**31/12/2026**
ASP (By:12/2022)				
BULATSA	-	-	90%	Ongoing 31/12/2026

AOM21.2	**Initial Free Route Airspace** ***Timescales:*** Initial operational capability: 01/01/2015 Full Operational Capability / Target Date: 31/12/2022		**100%**	**Completed**
	-			
Night FRA was implemented in Bulgaria in 2013. Cross border FRA operations started in 2017. Seasonal FRA as of 2018. H24 SEE FRA implemented on 07 Nov 2019 (AIRAC AIP AMDT 06/19).				**30/11/2013**
ASP (By:12/2022)				
BULATSA	Night FRA was implemented in Bulgaria in 2013. Cross border FRA operations started in 2017. Seasonal FRA as of 2018. H24 SEE FRA implemented on 07 Nov 2019 (AIRAC AIP AMDT 06/19).	Free Route Airspace	100%	Completed 30/11/2013

AOM21.3	**Enhanced Free Route Airspace Operations** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**100%**	**Completed**
	-			
FRA connectivity with TMAs is still under preparation.				**31/12/2021**
ASP (By:12/2025)				
BULATSA	FRA connectivity with TMAs is still under preparation.	-	100%	Completed 31/12/2021

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: 31/12/2020		**100%**	**Completed**
LBSF - Sofia APO				
The A-SMGCS is planned outside the objective implementation timeframe according the local needs. The procurement of a new A-SMGCS system comprising a Surface Movement radar, Multilateration sensors, data fusion and situation awareness displays started in 2012. These technical upgrades, accompanied by ATCO training /licensing in ground movement control are the main pre-requisites for the implementation of the Sofia Airport ground control operations. The A-SMGCS is installed, tested, passed site acceptance tests and all pre-operational activities were carried out. It was commissioned on 10.07.2017.				**10/07/2017**
REG (By:12/2010)				
DG CAA	-	-	100%	Completed 10/07/2017
ASP (By:01/2021)				
BULATSA	The A-SMGCS is planned outside the objective implementation timeframe according the local needs. The procurement of a new A-SMGCS system comprising a Surface Movement radar, Multilateration sensors, data fusion and situation awareness displays started in 2012. These technical upgrades, accompanied by ATCO training /licensing in ground movement control are the main pre-requisites for the implementation of the Sofia Airport ground control operations.	-	100%	Completed 10/07/2017
APO (By:01/2021)				
SOFIA AIRPORT	-	-	100%	Completed 10/07/2017

AOP04.2	**Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA) (former Level 2)** ***Timescales:*** - not applicable -		**0%**	**Not Applicable**
LBSF - Sofia APO **(Outside Applicability Area)**				
Bulgaria is not within the objective applicability area.				**-**
ASP (By:12/2025)				
BULATSA	-	-	0%	Not Applicable -
APO (By:12/2025)				
SOFIA AIRPORT	-	-	0%	Not Applicable -

AOP05	Airport Collaborative Decision Making (A-CDM) ***Timescales:*** - not applicable -		0%	Not Applicable
LBSF - Sofia APO (Outside Applicability Area)				
Bulgaria is not within the objective applicability area.				-
ASP (By:01/2021)				
BULATSA	-	-	0%	Not Applicable -
APO (By:01/2021)				
SOFIA AIRPORT	-	-	0%	Not Applicable -

AOP10	Time-Based Separation ***Timescales:*** - not applicable -		0%	Not Applicable
LBSF - Sofia APO (Outside Applicability Area)				
Bulgaria is not within the objective applicability area.				-
REG (By:01/2024)				
DG CAA	-	-	0%	Not Applicable -
ASP (By:12/2024)				
BULATSA	-	-	0%	Not Applicable -

AOP11.1	Initial Airport Operations Plan ***Timescales:*** - not applicable -		0%	Not Applicable
LBSF - Sofia APO (Outside Applicability Area)				
Bulgaria is not within the objective applicability area.				-
ASP (By:12/2023)				
BULATSA	-	-	0%	Not Applicable -
APO (By:12/2023)				
SOFIA AIRPORT	-	-	0%	Not Applicable -

AOP11.2	Extended Airport Operations Plan *Timescales:* - not applicable -		0%	Not Applicable
LBSF - Sofia APO (Outside Applicability Area)				
Bulgaria is not within the objective applicability area.				-
ASP (By:12/2027)				
BULATSA	-	-	0%	Not Applicable -
APO (By:12/2027)				
SOFIA AIRPORT	-	-	0%	Not Applicable -

AOP12.1	Airport Safety Nets *Timescales:* - not applicable -		0%	Not Applicable
LBSF - Sofia APO (Outside Applicability Area)				
Bulgaria is not within the objective applicability area.				-
ASP (By:12/2025)				
BULATSA	-	-	0%	Not Applicable -
APO (By:12/2025)				
SOFIA AIRPORT	-	-	0%	Not Applicable -

AOP13	Automated Assistance to Controller for Surface Movement Planning and Routing *Timescales:* - not applicable -		0%	Not Applicable
LBSF - Sofia APO (Outside Applicability Area)				
Bulgaria is not within the objective applicability area.				-
REG (By:12/2025)				
DG CAA	-	-	0%	Not Applicable -
ASP (By:12/2025)				
BULATSA	-	-	0%	Not Applicable -

AOP19	Departure Management Synchronised with Pre-departure sequencing *Timescales:* - not applicable -	0%	Not Applicable
LBSF - Sofia APO (Outside Applicability Area)			
Bulgaria is not within the objective applicability area.			-
ASP (By:12/2022)			
BULATSA	-	-	0%	Not Applicable -
APO (By:12/2022)			
SOFIA AIRPORT	-	-	0%	Not Applicable -

ATC02.8	Ground-Based Safety Nets *Timescales:* Initial operational capability: 01/01/2009 Full operational capability: 31/12/2021	100%	Completed
-			
SATCAS has APW function since 2009 and MSAW function since 2010. The implementation of Approach Path Monitoring is not intended.			31/10/2010
ASP (By:12/2021)			
BULATSA	SATCAS has APW function since 2009 and MSAW function since 2010. The implementation of Approach Path Monitoring is not planned.	-	100%	Completed 31/10/2010

ATC07.1	AMAN Tools and Procedures *Timescales:* - not applicable -	0%	Not Applicable
LBSF - Sofia APO (Outside Applicability Area)			
Bulgaria is outside the objective applicability area.			-
ASP (By:01/2020)			
BULATSA	-	-	0%	Not Applicable -

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**
-				
By 31.12.2016, the MTCD was upgraded with new functionalities and features (EXE/PLN ATCO role distribution regarding the conflict detection/monitoring, geo markers, further enhancements, etc.). MTCD/MONA functions have been implemented within the first version of SATCAS. Further MTCD upgrades and new MONA functions (potential level bust, potential co-ordination failure and SSR code assignment) have been implemented with SATCAS v.2. There is no Resolution Support Function included. ATCO training on how to use the MTCD and MONA functions has been performed. ATCO training on the enhanced MTCD and TCT functions was completed in 2016. The safety assessment report is completed and delivered to the NSA.				**31/12/2016**
ASP (By:12/2021)				
BULATSA	See State Comment.	-	100%	Completed 31/12/2016

ATC15.1	**Information Exchange with En-route in Support of AMAN** **(Outside Applicability Area)** ***Timescales:*** - not applicable -		**0%**	**Not Applicable**
-				
BULATSA intends to implement AMAN in en-route operations to enable smooth operations with Istanbul airport. The actual implementation and planning dates are further to be discussed and aligned with the deployment of AMAN at Istanbul airport. The integration of en-route AMAN for operational use into the current ATM infrastructure is to be considered. The plans are to have it implemented in the new future ATC system.				-
ASP (By:12/2019)				
BULATSA	BULATSA intends to implement AMAN in en-route operations to enable smooth operations with Istanbul airport. The actual implementation and planning dates are further to be discussed and aligned with the deployment of AMAN at Istanbul airport. The integration of en-route AMAN for operational use into the current ATM infrastructure is to be considered. The plans are to have it implemented in the new future ATC system.	-	0%	Not Applicable -

ATC15.2	**Arrival Management Extended to En-route Airspace** ***Timescales:*** - not applicable -		**0%**	**Not Applicable**
LBSF - Sofia APO **(Outside Applicability Area)**				
Bulgaria is not within the objective applicability area.				-
ASP (By:12/2024)				
BULATSA	-	-	0%	Not Applicable -

ATC15.2bis	**Arrival Management Extended to En-route Airspace (non CP1)** **(Outside Applicability Area)** ***Timescales:*** - not applicable -		**0%**	**Not Applicable**
-				
No current need to implement.				-
ASP (By:12/2024)				
BULATSA	-	-	0%	Not Applicable -

ATC19	**AMAN/DMAN Integration** ***Timescales:*** - not applicable -		**0%**	**Not Applicable**
LBSF - Sofia APO **(Outside Applicability Area)**				
Bulgaria is not within the objective applicability area.				-
ASP (By:12/2027)				
BULATSA	-	-	0%	Not Applicable -
APO (By:12/2027)				
SOFIA AIRPORT	-	-	0%	Not Applicable -

COM10.1	**Migrate from AFTN to AMHS (Basic service)** ***Timescales:*** Initial Operational Capability: 01/12/2011 Full Operational Capability: 31/12/2018		**100%**	**Completed**
-				
Completed.				-
ASP (By:12/2018)				
BULATSA	-	-	100%	Completed -

COM10.2	**Extended AMHS** ***Timescales:*** Initial Operational Capability: 01/12/2011 Full Operational Capability: 31/12/2024		**100%**	**Completed**
-				
The system procured had enhanced AMHS capability (Extended ATSMHS). Operational with this functionality since 14.12.2020.				**14/12/2020**
ASP (By:12/2024)				
BULATSA	Extended ATSMHS operational since 14.12.2020.	-	100%	Completed 14/12/2020

COM11.1	**Voice over Internet Protocol (VoIP) in En-Route** ***Timescales:*** Initial operational capability: 01/01/2013 Full operational capability: 31/12/2021		**100%**	**Completed**
	-			
A new Voice Communication System was implemented in 2015 with VoIP in accordance to ED-137A. During 2018, an upgrade was made to comply with ED-137B. In 2020, an upgrade was made to comply with ED-137C. **The technical file (TF) with evidences of compliance and the EC Declaration of Verification of systems (DoV) has been delivered to the National Supervisory Authority (NSA).**				**31/12/2019**
ASP (By:12/2021)				
BULATSA	-	Regional Communication Network	100%	Completed 31/12/2019

COM11.2	**Voice over Internet Protocol (VoIP) in Airport/Terminal** ***Timescales:*** Initial operational capability: 01/01/2013 Full operational capability: 31/12/2023		**100%**	**Completed**
	-			
A new Voice Communication System was implemented in 2015 with VoIP in accordance to ED-137A. During 2018, an upgrade was made to comply with ED-137B. In 2020, an upgrade was made to comply with ED-137C. **The technical file (TF) with evidences of compliance and the EC Declaration of Verification of systems (DoV) has been delivered to the National Supervisory Authority (NSA).**				**31/12/2019**
ASP (By:12/2023)				
BULATSA	-	Technical Rationalisation and Infrastructure	100%	Completed 31/12/2019

COM12	**New Pan-European Network Service (NewPENS)** ***Timescales:*** Initial operational capability: 01/01/2018 Full operational capability (33 ANSPs): 31/12/2024	**100%**	**Completed**
-			
NewPENS SDP in BULATSA was put in operation in September 2019. By the end of 2020, the following services were using its network: tCAT, AMHS and LARA. By the end of 2021, the AIM system was also connected to the NM, and the AHMS connections are: AMHS-BG to the European Directory Service (EDS); AMHS-BG to Austrocontrol - the European Regional MET Centre; AMHS-BG to ROMATSA; AMHS-BG to SMATSA; and AMHS-BG to DHMI.			**23/09/2019**
ASP (By:12/2024)			
BULATSA	-	NewPENS Stakeholders contribution for the procurement and deployment of NewPENS	100%	Completed 23/09/2019
APO (By:12/2024)			
SOFIA AIRPORT	-	-	0%	Not Applicable -
PLOVDIV AIRPORT	-	-	0%	Not Applicable -
GORNA ORYAHOVITSA AIRPORT	-	-	0%	Not Applicable -
VARNA AIRPORT	-	-	0%	Not Applicable -
BURGAS AIRPORT	-	-	0%	Not Applicable -

ENV01	Continuous Descent Operations (CDO) *Timescales:* - not applicable -		0%	Not Applicable
LBBG - Burgas APO (Outside Applicability Area)				
No local need existing.				-
ASP (By:12/2023)				
BULATSA	No local need existing.	-	0%	Not Applicable -
APO (By:12/2023)				
BURGAS AIRPORT	-	-	0%	Not Applicable -

ENV01	Continuous Descent Operations (CDO) *Timescales:* - not applicable -		0%	Not Applicable
LBSF - Sofia APO (Outside Applicability Area)				
No local need existing.				-
ASP (By:12/2023)				
BULATSA	No local need existing.	-	0%	Not Applicable -
APO (By:12/2023)				
SOFIA AIRPORT	-	-	0%	Not Applicable -

ENV01	Continuous Descent Operations (CDO) *Timescales:* - not applicable -		0%	Not Applicable
LBWN - Varna APO (Outside Applicability Area)				
No local need existing.				-
ASP (By:12/2023)				
BULATSA	No local need existing.	-	0%	Not Applicable -
APO (By:12/2023)				
VARNA AIRPORT	-	-	0%	Not Applicable -

FCM03	**Collaborative Flight Planning** ***Timescales:*** Initial operational capability: 01/01/2000 Full operational capability: 31/12/2022		**100%**	**Completed**
	-			
The current FDPS (SATCAS v.3) is able to receive and transmit FPL data in ADEXP format. BULATSA still reviews the institutional arrangements with the IFPS for flight data exchange in ADEXP format.				**31/12/2013**
ASP (By:12/2022)				
BULATSA	The current FDPS (SATCAS v.3) is able to receive and transmit FPL data in ADEXP format. BULATSA still reviews the institutional arrangements with the IFPS for flight data exchange in ADEXP format.	-	100%	Completed 31/12/2013

FCM04.2	**Enhanced Short Term ATFCM Measures** ***Timescales:*** Initial operational capability: 01/11/2017 Full Operational Capability / Target Date: 31/12/2022		**0%**	**Planned**
	-			
BULATSA plans to use the NM-provided STAM application.				**31/12/2022**
ASP (By:12/2022)				
BULATSA	BULATSA plans to use the NM-provided STAM application.	-	0%	Planned 31/12/2022

FCM06.1	**Automated Support for Traffic Complexity Assessment and Flight Planning interfaces** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target date: 31/12/2022		**100%**	**Completed**
	-			
Operational since 16.11.2020.				**16/11/2020**
ASP (By:12/2022)				
BULATSA	Operational since 16.11.2020.	-	100%	Completed 16/11/2020

FCM10	**Interactive Rolling NOP** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2023		**30%**	**Ongoing**
	-			
Work in progress. BULATSA uses the NM technical platform and NM B2B service.				**31/12/2023**
ASP (By:12/2023)				
BULATSA	BULATSA uses the NM technical platform and NM B2B service.	-	17%	Ongoing 31/12/2023

FCM11.1	Initial AOP/NOP Information Sharing ***Timescales:*** - not applicable -		0%	Not Applicable
LBSF - Sofia APO (Outside Applicability Area)				
Bulgaria is not within the objective applicability area.				-
ASP (By:12/2023)				
BULATSA	-	-	0%	Not Applicable -
APO (By:12/2023)				
SOFIA AIRPORT	-	-	0%	Not Applicable -

FCM11.2	AOP/NOP integration ***Timescales:*** - not applicable -		0%	Not Applicable
LBSF - Sofia APO (Outside Applicability Area)				
Bulgaria is not within the objective applicability area.				-
ASP (By:12/2027)				
BULATSA	-	-	0%	Not Applicable -
APO (By:12/2027)				
SOFIA AIRPORT	-	-	0%	Not Applicable -

INF07	Electronic Terrain and Obstacle Data (eTOD) ***Timescales:*** Initial operational capability: 01/11/2014 Full operational capability: 31/12/2018		10%	Ongoing
-				
The national TOD policy and implementation programmes, setting up the necessary steps to enable the provision of electronic terrain and obstacle data will be established according to the objective.				**31/12/2022**
REG (By:01/2019)				
DG CAA	The national TOD policy and implementation programmes, setting up the necessary steps to enable the provision of electronic terrain and obstacle data will be established according to the objective.	-	10%	Ongoing 31/12/2022
ASP (By:01/2019)				
BULATSA	Objective will be completed after the establishment of the national TOD policy implementation programmes.	-	10%	Ongoing 31/12/2022
APO (By:01/2019)				
SOFIA AIRPORT	Objective will be completed after the establishment of the national TOD policy implementation programmes.	-	10%	Ongoing 31/12/2022

INF10.10	**Meteorological Information Exchange - Aerodrome Meteorological information Service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025	**23%**	**Ongoing**
-			
BULATSA is in the role of an aviation MET provider. Aerodrome Meteorological information service is provided, but not exchanged securely over SWIM yet.			**31/12/2025**
ASP (By:12/2025)			
BULATSA	-	-	0%	Planned 31/12/2025
APO (By:12/2025)			
BURGAS AIRPORT	-	-	0%	Not Applicable -
GORNA ORYAHOVITSA AIRPORT	-	-	0%	Not Applicable -
SOFIA AIRPORT	-	-	0%	Not Applicable -
PLOVDIV AIRPORT	-	-	0%	Not Applicable -
VARNA AIRPORT	-	-	0%	Not Applicable -
MET (By:12/2025)			
BULATSA	-	-	27%	Ongoing 31/12/2025

INF10.11	**Meteorological Information Exchange - En-Route and Approach Meteorological information service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025	**21%**	**Ongoing**
-			
BULATSA is in the role of an aviation MET provider. En-Route and Approach Meteorological information service is provided, but not exchanged securely under SWIM yet.			**31/12/2025**
ASP (By:12/2025)			
BULATSA	-	-	0%	Planned 31/12/2025
MET (By:12/2025)			
BULATSA	-	-	27%	Ongoing 31/12/2025

INF10.12	**Meteorological Information Exchange - Network Meteorological Information** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**3%**	**Ongoing**
-				
BULATSA is in the role of an aviation MET provider. Network Meteorological information service is provided to the NM, but not exchanged securely under SWIM yet.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025
MET (By:12/2025)				
BULATSA	-	-	3%	Ongoing 31/12/2025

INF10.13	**Cooperative Network Information Exchange - ATFCM Tactical Updates Service (Airport Capacity and Enroute)** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
-				
Work in progress.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025

INF10.14	**Cooperative Network Information Exchange – Flight Management Service (Slots and NOP/AOP integration)** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
-				
Work in progress.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025
APO (By:12/2025)				
BURGAS AIRPORT	-	-	0%	Not yet planned -
GORNA ORYAHOVITSA AIRPORT	-	-	0%	Not yet planned -
PLOVDIV AIRPORT	-	-	0%	Not yet planned -
SOFIA AIRPORT	-	-	0%	Not yet planned -
VARNA AIRPORT	-	-	0%	Not yet planned -

INF10.15	**Cooperative Network Information Exchange – Measures Service (Traffic Regulation)** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
-				
Our tCAT became operational before CP1 and lacks this service. BULATSA plans to upgrade it or to use the NM B2B services.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	The service now is achieved via phone calls to the NM.	-	0%	Planned 31/12/2025

INF10.16	**Cooperative Network Information Exchange - Short Term ATFCM Measures services (MCDM, eHelpdesk, STAM measures)** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
-				
Our tCAT became operational before CP1 and lacks this service. BULATSA plans to upgrade it or to use the NM B2B services.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	The service now is achieved via phone calls to the NM.	-	0%	Planned 31/12/2025

INF10.17	**Cooperative Network Information Exchange – Counts service (ATFCM Congestion Points)** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
-				
Our tCAT became operational before CP1 and lacks this service. BULATSA plans to upgrade it or to use the NM B2B services.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	The service now is achieved by our ATM system (SATCAS) sending CPR messages directly to the NM.	-	0%	Planned 31/12/2025

INF10.19	**Flight Information Exchange (Yellow Profile) - Flight Data Request Service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
-				
Activity planned. Success highly dependent on whether the NM system is upgraded to support the FF-ICE/R1 Flight Data Request Service.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025

INF10.2	**Stakeholders' SWIM PKI and cyber security** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**32%**	**Ongoing**
-				
Local PKI established and ready to adapt to the EACP after its implementation.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	-	-	96%	Ongoing 31/12/2025
APO (By:12/2025)				
GORNA ORYAHOVITSA AIRPORT	-	-	0%	Not yet planned -
PLOVDIV AIRPORT	-	-	0%	Not yet planned -
SOFIA AIRPORT	-	-	0%	Not yet planned -
VARNA AIRPORT	-	-	0%	Not yet planned -
BURGAS AIRPORT	-	-	0%	Not yet planned -
MET (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025

INF10.20	**Flight Information Exchange (Yellow Profile) - Notification Service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
-				
Activity planned. Success highly dependent on whether the NM system is upgraded to support the FF-ICE/R1 Notification Service in order to be able to receive information about departure and arrival of flights.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025

INF10.21	**Flight Information Exchange (Yellow Profile) - Data Publication Service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
-				
Activity planned. Success highly dependent on whether the NM system is upgraded to support the FF-ICE/R1 Publication Service for the distribution and publication of eFPLs to the concerned stakeholders.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025

INF10.23	**Flight Information Exchange (Yellow Profile) - Extended AMAN SWIM Service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Not Applicable**
-				
No extended AMAN requirement at present.				**-**
ASP (By:12/2025)				
BULATSA	-	-	0%	Not Applicable -

INF10.3	**Aeronautical Information Exchange - Airspace structure service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**100%**	**Completed**
-				
LARA is in service since 26.04.2017.				**26/04/2017**
ASP (By:12/2025)				
BULATSA	-	-	100%	Completed 26/04/2017

INF10.4	**Aeronautical Information Exchange - Airspace Availability Service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
-				
BULATSA uses CIAM for exchange of tactical data and LARA for exchange of pre-tactical data.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	BULATSA uses CIAM for exchange of tactical data and LARA for exchange of pre-tactical data.	-	0%	Planned 31/12/2025

INF10.5	**Aeronautical Information Exchange - Airspace Reservation (ARES)** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**25%**	**Ongoing**
	-			
Work on the objective is ongoing.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	-	-	25%	Ongoing 31/12/2025

INF10.6	**Aeronautical Information Exchange – Digital NOTAM service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
	-			
Planned as part of the AIM system procured.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025
AIS (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025

INF10.7	**Aeronautical Information Exchange - Aerodrome mapping service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
	-			
Planned as part of the AIM system procured.				**31/12/2025**
AIS (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025

INF10.8	**Aeronautical Information Exchange - Aeronautical Information Features service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
	-			
Planned as part of the AIM system procured.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025
AIS (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025

INF10.9	**Meteorological Information Exchange - Volcanic Ash Mass Concentration information service** ***Timescales:*** Initial Operational Capability: 01/01/2021 Full Operational Capability / Target Date: 31/12/2025		**0%**	**Planned**
	-			
BULATSA is in the role of an aviation MET provider. The plans are only to consume Volcanic Ash Mass Concentration information service.				**31/12/2025**
ASP (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025
MET (By:12/2025)				
BULATSA	-	-	0%	Planned 31/12/2025

ITY-ACID	**Aircraft Identification** ***Timescales:*** Entry into force of the Regulation: 13/12/2011 System capability: 02/01/2020		**100%**	**Completed**
	-			
Aircraft ID functionality is already implemented in the ATM system. Mode S surveillance contract is signed. Mode S deployment was made in 2017 and ADS-B in 2021. All Mode S radar station were operational before the end of 2018. WAM sensors in TMA Varna and TMA Burgas are installed and tested, while those in Sofia TMA were delayed due to COVID-19 and will be operational in Q3 2022.				**30/10/2021**
ASP (By:01/2020)				
BULATSA	Aircraft ID functionality is already implemented in the ATM system. Mode S surveillance contract is signed. All Mode S radar station were operational before the end of 2018. WAM sensors in TMA Varna and TMA Burgas are installed and tested, while those in Sofia TMA were delayed due to COVID-19 and will be operational in Q3 2022.	-	100%	Completed 30/10/2021

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**
	-			
Completed.				**31/12/2021**
REG (By:02/2018)				
DG CAA	National regulation No.141 will be used for the certification of communication infrastructure and ATM system data-link capabilities.	-	100%	Completed 05/02/2018
ASP (By:02/2018)				
BULATSA	Completed.	Free Route Airspace / Technical Rationalisation and Infrastructure	100%	Completed 31/12/2021
MIL (By:01/2019)				
BULGARIAN MILITARY AUTHORITY	The existing military transport aircraft are not capable of flying above FL285.	-	0%	Not Applicable -

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		**100%**	**Completed**
	-			
The necessary actions are planned as per the objective description according to Regulation (EU) 1079/2012. A derogation until 2025 has been approved by the EC.				**31/12/2020**
REG (By:12/2018)				
DG CAA	Local exemptions will be analysed and published accordingly. The 8,33 kHz channel spacing capability of the radios was tested in 2016.	-	100%	Completed 31/12/2020
BULGARIAN MILITARY AUTHORITY	A derogation until 2025 has been approved by the EC.	-	100%	Completed 31/12/2020
ASP (By:12/2018)				
BULGARIAN MILITARY AUTHORITY	A derogation till 2025 has been approved by the EC.	-	100%	Completed 31/12/2020
BULATSA	All finished. Implemented on 08.11.2018.	-	100%	Completed 31/12/2018
MIL (By:12/2020)				
BULGARIAN MILITARY AUTHORITY	The necessary actions will be planned as per the objective description according to Regulation (EU) 1079/2012. A derogation until 2025 has been approved by the EC.	-	100%	Completed 31/12/2020
APO (By:12/2018)				
PLOVDIV AIRPORT	The 8,33 kHz channel spacing capability achieved.	-	100%	Completed 13/02/2019
GORNA ORYAHOVITSA AIRPORT	The 8,33 kHz channel spacing capability achieved.	-	100%	Completed 31/12/2018
VARNA AIRPORT	The 8,33 kHz channel spacing capability achieved.	-	100%	Completed 31/12/2018
BURGAS AIRPORT	The 8,33 kHz channel spacing capability achieved.	-	100%	Completed 31/12/2018
SOFIA AIRPORT	The 8,33 kHz channel spacing capability achieved.	-	100%	Completed 31/12/2018

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**
-				
The current ATM system (SATCAS v.3) is capable of supporting information exchange via FMTP. FMTP exchange is implemented between Sofia, Constanta, Otopeni, Ankara and Belgrade. The migration of the existing OLDI links to TCP/IP is dependent on the TCP/IP capabilities of the neighbouring States.				**31/12/2014**
ASP (By:12/2014)				
BULATSA	The current ATM system (SATCAS) is capable of supporting the OLDI data exchange via TCP/IP.	OLDI interface and related functionalities upgrade	100%	Completed 31/12/2014
MIL (By:12/2014)				
BULGARIAN MILITARY AUTHORITY	The objective is not applicable for MIL.	-	0%	Not Applicable -

NAV03.1	**RNAV 1 in TMA Operations** ***Timescales:*** Initial operational capability: 01/01/2001 One SID and STAR per instrument RWY, where established: 25/01/2024 All SIDs and STARs per instrument RWY, where established: 06/06/2030		**100%**	**Completed**
-				
PBN implementation for Varna and Burgas TMAs was completed in 2015. PBN implementation in Sofia TMA and Gorna Oryahovitsa CTR was completed in 2016. PBN implementation in Plovdiv TMA was completed in 2018.				**09/09/2020**
REG (By:06/2030)				
DG CAA	-	-	100%	Completed 09/09/2020
ASP (By:06/2030)				
BULATSA	PBN implementation for Varna and Burgas TMAs was completed in 2015. PBN implementation in Sofia TMA and Gorna Oryahovitsa CTR was completed in 2016. PBN implementation in Plovdiv TMA was completed in 2018.	-	100%	Completed 09/09/2020

NAV03.2	**RNP 1 in TMA Operations** ***Timescales:*** Start: 07/08/2018 One SID and STAR per instrument RWY, where established: 25/01/2024 All SIDs and STARs per instrument RWY, where established: 06/06/2030		**13%**	**Not yet planned**
-				
BULATSA still has to prepare its plan for the implementation of designated RNP 1 arrival and departure procedures with Radius to Fix (RF).				-
REG (By:06/2030)				
DG CAA	-	-	100%	Completed -
ASP (By:06/2030)				
BULATSA	BULATSA still has to prepare its plan for the implementation of designated RNP 1 arrival and departure procedures with Radius to Fix (RF).	-	0%	Not yet planned -

NAV10	**RNP Approach Procedures to instrument RWY** ***Timescales:*** Initial operational capability: 01/06/2011 Instrument RWY ends without precision approach in EU SES States.: 03/12/2020 Instrument RWY ends served by precision approach.: 25/01/2024		**97%**	**Ongoing**
-				
RNP APCH down to LNAV and LNAV/VNAV minima are implemented to all RWY ends at Bulgarian civil airports. In 2021 RNP APCH down to LPV minima were implemented to all RWY ends at LBBG, LBGO and LBPD, LBWN and LBSF are planned for 2022-2024.				**25/01/2024**
REG (By:01/2024)				
DG CAA	The national Regulation No.37 from 05.10.2007, on the terms and procedures for the issuance and control of air operator certificates for commercial air transportation refers to JAR OPS.	-	100%	Completed 09/09/2020
ASP (By:01/2024)				
BULATSA	RNP APCH down to LNAV and LNAV/VNAV minima are implemented to all RWY ends at Bulgarian civil airports. In 2021 RNP APCH down to LPV minima were implemented to all RWY ends at LBBG, LBGO and LBPD, LBWN and LBSF are planned for 2022-2024.	-	95%	Ongoing 25/01/2024

NAV12	**ATS IFR Routes for Rotorcraft Operations** ***Timescales:*** Rotorcraft RNP0.3, RNP1 or RNAV1 ATS routes above FL150, where established.: 03/12/2020 One rotorcraft RNP0.3, RNP01 or RNAV1 SID and STAR per instrument RWY, where established.: 25/01/2024 Rotorcraft RNP0.3, RNP1 or RNAV1 ATS routes below FL150, where established.: 25/01/2024 All rotorcraft RNP0.3, RNP01 or RNAV1 SIDs and STARs per instrument RWY, where established.: 06/06/2030		**0%**	**Not yet planned**
	-			
No heliports at present. Rotorcraft use existing RWYs.				-
REG (By:06/2030)				
DG CAA	-	-	0%	Not yet planned -
ASP (By:06/2030)				
BULATSA	-	-	0%	Not yet planned -

SAF11	**Improve Runway Safety by Preventing Runway Excursions** ***Timescales:*** Initial operational capability: 01/09/2013 Full operational capability: 31/01/2018		**90%**	**Ongoing**
	-			
Most of the measures envisaged in the European Action Plan for the Prevention of Runway Excursions are implemented. The remaining measures are to be analyzed and implemented accordingly.				**31/12/2022**
REG (By:01/2018)				
DG CAA	Most of the measures of the EAPRE are implemented. The ones planned to be analyzed in 2020 for implementation were postponed for 2022 due to the COVID-19.	-	50%	Ongoing 31/12/2022
ASP (By:12/2014)				
BULATSA	The measures are already implemented. Guidance material as specified in the EAPRE is used in the unit training plans.	-	100%	Completed 31/01/2019
APO (By:12/2014)				
VARNA AIRPORT	All appropriate measures are implemented by the Bulgarian airports serving international flights.	-	100%	Completed -
SOFIA AIRPORT	All appropriate measures are implemented by the Bulgarian airports serving international flights.	-	100%	Completed -
BURGAS AIRPORT	All appropriate measures are implemented by the Bulgarian airports serving international flights.	-	100%	Completed 31/12/2014
PLOVDIV AIRPORT	All appropriate measures are implemented by the Bulgarian airports serving international flights.	-	100%	Completed -
GORNA ORYAHOVITSA AIRPORT	-	-	100%	Completed -

Additional Objectives for ICAO ASBU Monitoring

AOM21.1	**Direct Routing** **(Outside Applicability Area)** ***Timescales:*** - not applicable -	**0%**	**Not Applicable**
	-		
Currently FRA operations are implemented 24/7 at DANUBE FAB level. Therefore, this objective is not applicable to Bulgaria.			-
ASP (By:12/2017)			
BULATSA	-	-	0%	Not Applicable -

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**
	-		
BULATSA has implemented a state of the art STCA function within the CNATCC project (SATCAS system) for Sofia ACC/APP. Further adaptation of the STCA parameters and working methods was made in 2009. In the context of the 'Tight Tower Project', considered as an extension of SATCAS system, the STCA implementation at the Burgas APP unit was completed in 2009. STCA was implemented also at the Varna APP.			**31/12/2009**
ASP (By:01/2013)			
BULATSA	BULATSA has implemented a state of the art STCA function within the CNATCC project (SATCAS system) for Sofia ACC/APP. Further adaptation of STCA parameters and working methods was made in 2009. In the context of the 'Tight Tower Project', considered as an extension of SATCAS system, the STCA implementation at the Burgas APP unit was completed in 2009. STCA was implemented also at the Varna APP.	-	100%	Completed 31/12/2009

ATC02.9	**Short Term Conflict Alert (STCA) for TMAs** ***Timescales:*** Initial operational capability: 01/01/2018 Full operational capability: 31/12/2020	**100%**	**Completed**
	-		
SATCAS has STCA function since 2009.			**31/12/2009**
ASP (By:12/2020)			
BULATSA	SATCAS has STCA function since 2009.	-	100%	Completed 31/12/2009

ATC16	**Implement ACAS II compliant with TCAS II change 7.1** ***Timescales:*** Initial operational capability: 01/03/2012 Full operational capability: 31/12/2015		**74%**	**Ongoing**
	-			
NSA supervision tasks are undergoing. The training plan and package has been developed by the ANSP, the ATCOs were trained in 2014 accordingly. A monitoring system of the performance of ACAS in the ATC environment has been established. Some of the military transport-type aircraft are still equipped with TCAS II, Version 7.0. A monitoring system of the performance of ACAS in the military ATC systems has not been established.				**31/12/2023**
REG (By:12/2015)				
DG CAA	The supervision tasks for compliance with regulatory provisions, airworthiness certification and operational approval is in progress.	-	100%	Completed 31/12/2015
ASP (By:03/2012)				
BULATSA	The training plan and package has been developed by the ANSP. The concerned personnel were trained according to the training plan. A monitoring system of the performance of ACAS in the ATC environment has been established.	-	100%	Completed 31/12/2011
MIL (By:12/2015)				
BULGARIAN MILITARY AUTHORITY	Some of the transport-type aircraft are equipped with ACAS II (TCAS II Version 7.0). Training plans for aircrews flying aircraft not equipped with ACAS II have not been developed. A monitoring system of the performance of ACAS in the military ATC systems has not been established.	-	10%	Ongoing 31/12/2023

FCM01	**Implement enhanced tactical flow management services** ***Timescales:*** Initial operational capability: 01/08/2001 Full operational capability: 31/12/2006		**100%**	**Completed**
	-			
The SATCAS system in operation at the CNATCC provides standard correlated position reports in ASTERIX cat.62. The dissemination of CPRs to the CFMU by the CNATCC started in August 2009. FSA messages for all departures from Bulgarian airports, as well as for overflight traffic, entering Bulgarian airspace, is transmitted to the ETFMS. FSA implementation in case of re-routing and holding was introduced in 2010, with the SATCAS v.2 LINUX.				**31/12/2009**
ASP (By:07/2014)				
BULATSA	See State comment.	-	100%	Completed 31/12/2009

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		**60%**	**Ongoing**
-				
The ITY-ADQ implementation is in progress.				**31/12/2022**
REG (By:06/2017)				
DG CAA	ITY-ADQ implementation is in progress.	-	72%	Ongoing 31/12/2022
ASP (By:06/2017)				
BULATSA	ITY-ADQ implementation is in progress.	-	79%	Ongoing 31/12/2022
APO (By:06/2017)				
SOFIA AIRPORT	ITY-ADQ implementation is in progress.	-	28%	Ongoing 31/12/2022
GORNA ORYAHOVITSA AIRPORT	ITY-ADQ implementation is in progress.	-	10%	Ongoing 31/12/2022
PLOVDIV AIRPORT	ITY-ADQ implementation is in progress.	-	10%	Ongoing 31/12/2022
VARNA AIRPORT	ITY-ADQ implementation is in progress.	-	42%	Ongoing 31/12/2022
BURGAS AIRPORT	ITY-ADQ implementation is in progress.	-	42%	Ongoing 31/12/2022

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**
-				
Objective is fully implemented. **The current ATM system at Sofia ACC is capable of sending and receiving a complete set of basic OLDI messages (ACT, LAM, PAC, REV, MAC ABI and INF). The system supports the transfer of communication messages (ROF/MAS/COF/TIM/HOP/SDM) and co-ordination dialogue messages (RAP, RRV, SBY, ACP, RJC and CDN). The implementation of LOF and NAN messages was achieved in 2016.**				**05/05/2016**
ASP (By:12/2012)				
BULATSA	The current ATM system at Sofia ACC is capable of sending and receiving a complete set of basic OLDI messages (ACT, LAM, PAC, REV, MAC ABI and INF). The system supports the transfer of communication messages (ROF/MAS/COF/TIM/HOP/SDM) and co-ordination dialogue messages (RAP, RRV, SBY, ACP, RJC and CDN). The implementation of LOF and NAN messages was achieved in 2016. Data link capabilities were implemented into the system in 2016.	-	100%	Completed 05/05/2016
MIL (By:12/2012)				
BULGARIAN MILITARY AUTHORITY	The military unit integrated in the Common National Air Traffic Control Center (CNATCC) shares the complete FP data with Civilian ATS units. BULATSA and the military units (not located in the CNATCC) exchange the FP data using CPL message. SATCAS is equipped with the internal system capabilities for XIN/XRQ data exchange. All requests for crossing the reserved military airspace are handled within the SATCAS in the CNATCC.	-	0%	Not Applicable -

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 Applicable**
	-		
No current need to implement.			**-**

AOP15	**Enhanced traffic situational awareness and airport safety nets for the vehicle drivers** ***Applicability and timescale: Local***	**0%**	**Not Applicable**
	LBSF - Sofia APO		
No current need to implement.			**-**

AOP16	**Guidance assistance through airfield ground lighting** ***Applicability and timescale: Local***	**0%**	**Not Applicable**
	LBSF - Sofia APO		
No current need to implement. **Objective AOP13 (Automated Assistance to Controller for Surface Movement Planning and Routing) is a pre-requisite to AOP16, AOP13 s Not Applicable to BG,**			**-**

AOP17	**Provision/integration of departure planning information to NMOC** ***Applicability and timescale: Local***	**0%**	**Not Applicable**
	LBSF - Sofia APO		
No current need to implement.			**-**

AOP18	**Runway Status Lights (RWSL)** ***Applicability and timescale: Local***	**0%**	**Not Applicable**
	LBSF - Sofia APO		
No current need to implement.			**-**

ATC18	**Multi-Sector Planning En-route - 1P2T** ***Applicability and timescale: Local***	**%**	**Not Applicable**
	-		
No current need to implement.			**-**

ATC20	**Enhanced STCA with down-linked parameters via Mode S EHS** ***Applicability and timescale: Local***	**%**	**Not Applicable**
	-		
No current need to implement.			**-**

ENV02	Airport Collaborative Environmental Management *Applicability and timescale: Local*	100%	Completed
LBSF - Sofia APO			
Bulgaria is not within the applicability area of this objective. Nevertheless, CEM was established formally in 2013 by adopting and signing two documents as per the EUROCONTROL CEM guidelines: -Shared Environmental Vision for Aircraft Operations, and -Terms of Reference of CEM Council. These documents have been revised for compliance with the EUROCONTROL Specification for Collaborative Environmental Management (CEM) (published in September 2014) and adopted by the stakeholders in 2015. The following stakeholders have signed the above mentioned documents for the establishment of CEM: A. operational stakeholders: A.1 ASP - BULATSA A.2 APO - Sofia Airport EAD, Fraport Twin Star Airport Management AD (Varna and Burgas airports), Plovdiv Airport EAD, Gorna Oryahovitsa Airport EAD A.3 USE - Bulgaria Air, Wizz Air; Qatar Airways, BAA - Bulgarian Airlines Association B. other stakeholder: B.1 REG - DG Civil Aviation Authority			31/07/2013

ENV03	Continuous Climb Operations (CCO) *Applicability and timescale: Local*	0%	Not Applicable
LBBG - Burgas APO			
No local need existing.			31/12/2023

ENV03	Continuous Climb Operations (CCO) *Applicability and timescale: Local*	0%	Not Applicable
LBGO - Gorna Oryahovitsa APO			
No local need existing.			31/12/2023

ENV03	Continuous Climb Operations (CCO) *Applicability and timescale: Local*	0%	Not Applicable
LBPD - Plovdiv APO			
No local need existing.			31/12/2023

ENV03	Continuous Climb Operations (CCO) *Applicability and timescale: Local*	0%	Not Applicable
LBSF - Sofia APO			
No local need existing.			31/12/2023

ENV03	Continuous Climb Operations (CCO) *Applicability and timescale: Local*	0%	Not Applicable
LBWN - Varna APO			
No local need existing.			31/12/2023

6. Annexes

A. Specialists involved in the ATM implementation reporting for Bulgaria

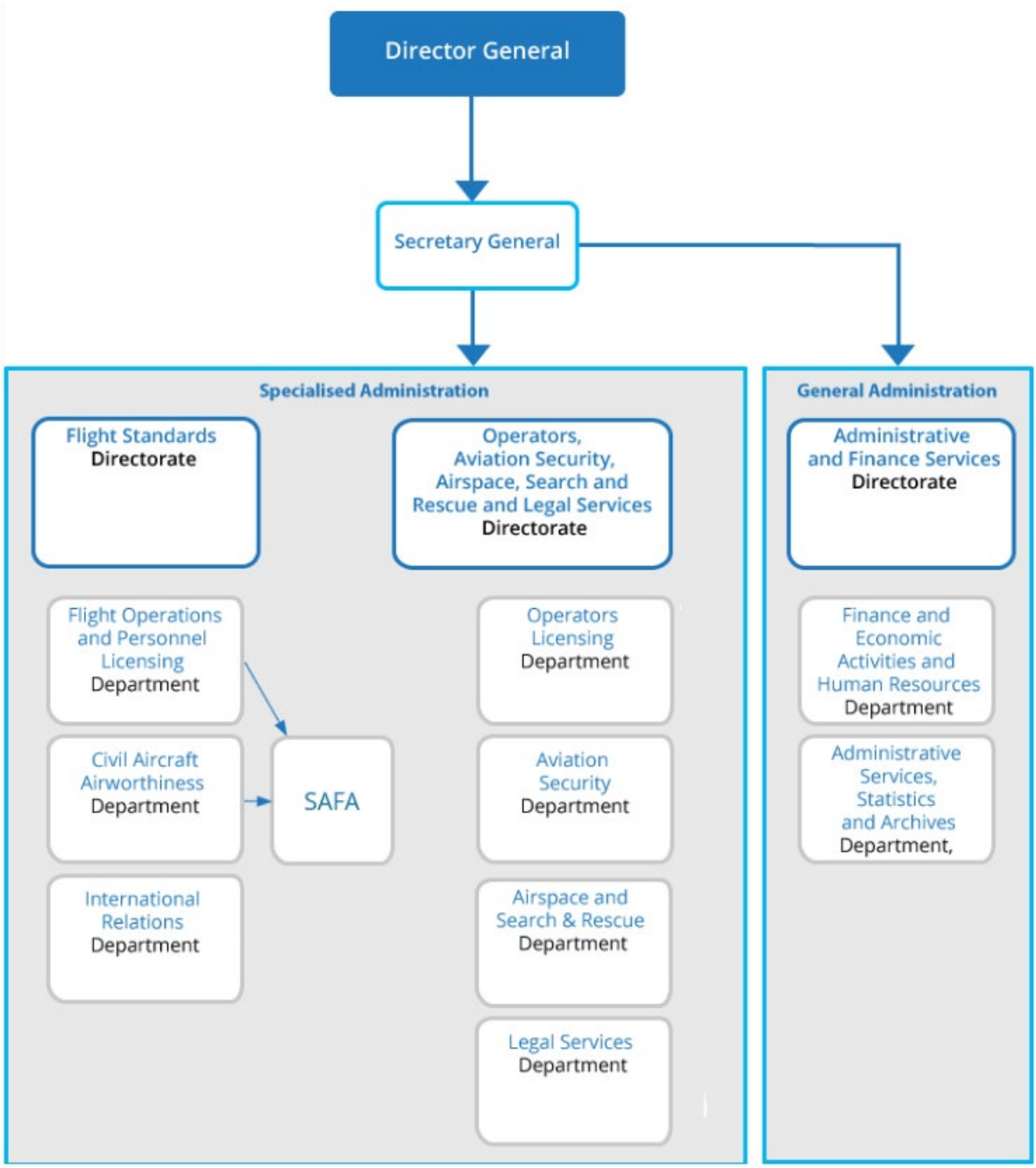
LSSIP Co-ordination

LSSIP Focal Points	Organisation	Name
LSSIP National Focal Point	BULATSA	Ivan ILIEV
LSSIP Focal Point for NSA/CAA	CAA	Hristo GUNCHEV
LSSIP Focal Point for ANSP	BULATSA	Alexander ZARBOV
LSSIP Focal Point for Airport	BULATSA	Alexander ZARBOV
LSSIP Focal Point for Military	Military Authorities	Col. Hristo STANEV
LSSIP Focal point for MET	BULATSA	Alexander ZARBOV

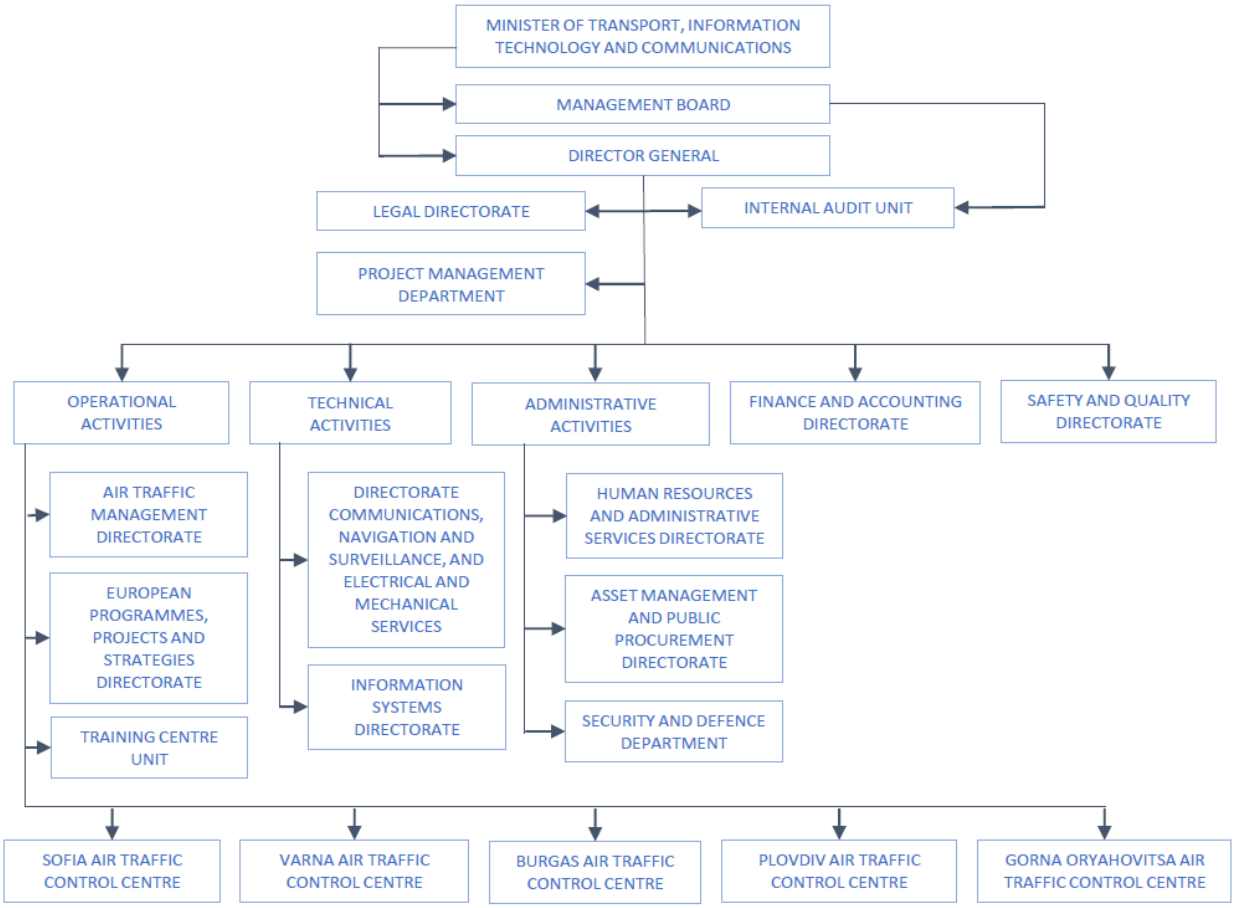
Other Focal Points	Organisation	Name
Focal Point for NETSYS	BULATSA	Veselin VASILEV
Focal Point for SUR	BULATSA	Nikolay TERZIEV
Focal Point for SDP/CP1	BULATSA	Alexander ZARBOV

B. National stakeholders organisation charts

DG CAA organisational chart



BULATSA organisational chart



C. Implementation Objectives' links with other plans

The table below (extracted from the MPL3 Plan 2021) shows for each implementation objective, the mapping of the L3 implementation Objectives to the corresponding SESAR Essential Operational Changes, the SESAR Solutions, the Deployment Program families, the ICAO ASBU, the EASA EPAS, the Network Strategy Plan, the Airspace Architecture Study Transition Plan (AAS TP) Milestones and the SESAR Key Features.

EOC	Level 3 Implementation Objectives	SESAR Sol.	DP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
CNS	ATC21 – Composite surveillance ADS-B/WAM	#114	-	ASUR-B0/1 ASUR-B0/2	RMT.0679 RMT.0519	SO8/3 SO8/4	AM-1.17	EAI
	COM10.1 – Migration from AFTN to AMHS (Basic service)	-	-	COMI B0/7	-	SO7/4	-	-
	COM10.2 – Extended AMHS	-	-	COMI B0/7	-	SO7/4	-	-
	COM11.1 – Voice over Internet Protocol (VoIP) in En-Route	-	-	COMI B2/1	-	SO8/4	AM-1.3	EAI
	COM11.2 – Voice over Internet Protocol (VoIP) in Airport/Terminal	-	-	COMI B2/1	-	SO8/4	-	EAI
	ITY-ACID – Aircraft identification	-	-	-	-	SO8/2	-	EAI
	ITY-AGDL – Initial ATC air-ground data link services	-	-	COMI B0/4 COMI B1/2	RMT.0524	SO4/1 SO8/3	AM-1.1	EAI
	ITY-AGVCS2 – 8.33 kHz Air-Ground Voice Channel Spacing below FL195	-	-	-	-	SO8/1	-	EAI
	NAV10 – RNP Approach Procedures to instrument RWY	#103	-	APTA B0/1 APTA B1/1 NAVS B0/2	RMT.0445 RMT.0643	SO6/5	-	AATS
	NAV11 – Precision Approach using GBAS CAT II/III based on GPS L1	#55	-	NAVS B1/1	RMT.0682 RMT.0379	-	-	HPAO
iN	AOM13.1 – Harmonise OAT and GAT handling	-	-	-	-	SO6/2	-	OANS
	AOP11.1 – Initial Airport Operations Plan	#21	2.2.1	ACDM-B1/1	-	SO6/2	-	HPAO
	AOP11.2 – Extended Airport Operations Plan	#21	2.2.2	ACDM-B1/1	-	SO5/2	-	HPAO
	AOP17 – Provision/integration of DPI to NMOC	#61	-	NOPS B0/4	-	-	-	HPAO

EOC	Level 3 Implementation Objectives	SESAR Sol.	DP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
	COM12 – NewPENS	-	-	COMI B1/1	-	SO2/3 SO2/4 SO8/3 SO8/4	-	EAI
	FCM03 – Collaborative flight planning	-	-	NOPS B0/2	-	SO4/3	AM-1.14	OANS
	FCM04.2 – Enhanced Short Term ATFCM Measures	#17	4.1.1	NOPS B1/1	-	SO4/5	AM-1.11	OANS
	FCM06.1 – Automated Support for Traffic Complexity Assessment and Flight Planning interfaces	#19	4.3.1	NOPS B0/2, NOPS B1/4	-	SO4/3, SO4/5	AM-1.13	OANS
	FCM09 – Enhanced ATFM Slot swapping	#56	-	NOPS B1/7	-	SO6/1	-	OANS
	FCM10 – Interactive rolling NOP	#18 #20	4.2.1	NOPS B1/2	-	SO2/2 SO4/2 SO4/5	AM-1.9 AM-1.12	OANS
	FCM11.1 – Initial AOP/NOP Information Sharing	#20 #21	4.2.2	NOPS-B0/4	-	SO4/4 SO4/5 SO5/2	AM-1.12	OANS
	FCM11.2 – AOP/NOP integration	#18 #20 #21	4.4.1	NOPS-B1/3	-	SO4/4 SO4/5 SO5/2	AM-1.12	OANS
	INF10.2 – Stakeholders' SWIM PKI and cyber security	#46	5.2.1	SWIM-B2/3	RMT.0720	SO2/4	AM-1.5	EAI
	INF10.3 – Aeronautical Information Exchange - Airspace structure service	#46	5.3.1	-	-	SO2/4	AM-1.5	EAI
	INF10.4 – Aeronautical Information Exchange - Airspace availability service	#46	5.3.1	-	-	SO2/4	AM-1.5	EAI
	INF10.5 – Aeronautical Information Exchange - Airspace Reservation (ARES) service	#46	5.3.1	-	-	SO2/4	AM-1.5	EAI
	INF10.6 – Aeronautical Information Exchange - Digital NOTAM service	#34 #46	5.3.1	-	-	SO2/4	AM-1.5	EAI
	INF10.7 – Aeronautical Information Exchange - Aerodrome Mapping information exchange service	#34 #46	5.3.1	-	-	SO2/4	AM-1.5	EAI

EOC	Level 3 Implementation Objectives	SESAR Sol.	DP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
	INF10.8 – Aeronautical Information Exchange - Aeronautical Information Features service	#34 #46	5.3.1	-	-	SO2/4	AM-1.5	EAI
	INF10.9 – Meteorological Information Exchange - Volcanic ash concentration service	#34 #35 #46	5.4.1	-	-	SO2/4	AM-1.5	EAI
	INF10.10 – Meteorological Information Exchange - Aerodrome Meteorological information Service	#34 #35 #46	5.4.1	-	-	SO2/4	AM-1.5	EAI
	INF10.11 – Meteorological Information Exchange - En-Route and Approach Meteorological information service	#34 #35 #46	5.4.1	-	-	SO2/4	AM-1.5	EAI
	INF10.12 – Meteorological Information Exchange - Network Manager Meteorological Information	#34 #35 #46	5.4.1	-	-	SO2/4	AM-1.5	EAI
	INF10.13 – Cooperative Network Information Exchange - ATFCM Tactical Updates Service	#46	5.5.1	-	-	SO2/4	AM-1.5	EAI
	INF10.14 – Cooperative Network Information Exchange - Flight Management Service	#46	5.5.1	-	-	SO2/4, SO5/2	AM-1.5	EAI
	INF10.15 – Cooperative Network Information Exchange - Measures Service	#46	5.5.1	-	-	SO2/4, SO4/5	AM-1.5	EAI
	INF10.16 – Cooperative Network Information Exchange - Short Term ATFCM Measures services	#46	5.5.1	-	-	SO2/4, SO4/5	AM-1.5	EAI
	INF10.17 – Cooperative Network Information Exchange - Counts service	#46	5.5.1	-	-	SO2/4	AM-1.5	EAI

EOC	Level 3 Implementation Objectives	SESAR Sol.	DP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
	INF10.18 – Flight Information Exchange - Filing Service	#46	5.6.1	FICE-B2/2	-	SO2/4	AM-1.5	EAI
	INF10.19 – Flight Information Exchange - Flight Data Request Service	#46	5.6.1	FICE-B2/4	-	SO2/4	AM-1.5	EAI
	INF10.20 – Flight Information Exchange - Notification Service	#46	5.6.1	FICE-B2/5	-	SO2/4	AM-1.5	EAI
	INF10.21 – Flight Information Exchange - Publication Service	#46	5.6.1	FICE-B2/6	-	SO2/4	AM-1.5	EAI
	INF10.22 – Flight Information Exchange - Trial Service	#46	5.6.1	FICE-B2/3	-	SO2/4	AM-1.5	EAI
	INF10.23 – Flight Information Exchange - Extended AMAN SWIM Service	#46	5.6.1	DAIM-B2/1 SWIM-B3/1	-	SO2/4	AM-1.5	EAI
dS	INF07 – Electronic Terrain and Obstacle Data (e-TOD)	-	-	DAIM B1/3 DAIM B1/4	RMT.0703 RMT.0722	SO2/5	-	EAI
U-s	-	-	-	-	-	-	-	-
vS	AOP14 – Remote Tower Services	#12 #13 #52 #71	-	RATS B1/1	RMT.0624	SO6/5	-	HPAO
	AOP04.1 – A-SMGCS Surveillance (former Level 1)	#70	-	SURF B0/2	MST.0029	SO6/6	-	HPAO
	AOP04.2 – A-SMGCS RMCA (former Level 2)	-	-	SURF B0/3	MST.0029	SO6/6	-	HPAO
ATp	AOP05 – Airport CDM	-	-	ACDM B0/1 ACDM B0/2 NOPS B0/4	-	SO6/4	-	HPAO
	AOP10 – Time Based Separation	#64	-	WAKE B2/7	-	SO6/5	-	HPAO
	AOP12.1 – Airport Safety Nets	#02	2.3.1	SURF B1/3	MST.0029	SP6/6	-	HPAO
	AOP13 – Automated assistance to Controller for Surface Movement planning and routing	#22 #53	-	SURF B1/4	MST.0029	SO6/6	-	HPAO

EOC	Level 3 Implementation Objectives	SESAR Sol.	DP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
	AOP15 – Safety Nets for vehicle drivers	#04	-	SURF B2/2	MST.0029	-	-	HPAO
	AOP16 – Guidance assistance through airfield lighting	#47	-	SURF B1/1	MST.0029	-	-	HPAO
	AOP18 – Runway Status Lights	#01	-	-	MST.0029	-	-	HPAO
	AOP19 – Departure Management Synchronised with Pre-departure sequencing	#53 #106	2.1.1	RSEQ-B0/2	-		-	HPAO
	AOP20 – Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)	PJ.02-01-06	-	WAKE-B2/4	RMT.0476		-	HPAO
	AOP21 – Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)	PJ.02-01-04	-	WAKE-B2/4	RMT.0476		-	HPAO
	AOP22 – Minimum pair separations based on SRP	PJ.02-03	-	-	-		-	HPAO
	AOP23 – Integrated runway sequence for full traffic optimization on single and multiple runway airports	PJ.02-08-01	-	RSEQ – B2/1	-		-	HPAO
	AOP24 – Optimised use of runway configuration for multiple runway airports	PJ.02-08-02	-	RSEQ-B3/3	-		-	HPAO
	ATC07.1 – Arrival management tools	-	-	RSEQ B0/1	-	SO4/1	-	AATS
	ATC19 – Enhanced AMAN-DMAN integration	#54	1.2.1	RSEQ B2/1	-	SO6/5 SO4/1	-	AATS
	ENV01 – Continuous Descent Operations	#11	-	APTA B0/4 APTA-B1/4	-	SO6/5	-	AATS
	ENV02 – Airport Collaborative Environmental Management	-	-	-	-	-	-	HPAO
	ENV03 – Continuous Climb Operations	-	-	APTA B0/5 APTA-B1/5	-	SO6/5	-	AATS

EOC	Level 3 Implementation Objectives	SESAR Sol.	DP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
	NAV03.1 – RNAV1 in TMA Operations	#62	-	APTA B0/2	RMT.0445	SO6/5	-	AATS
	NAV03.2 – RNP1 in TMA Operations	#09, #51	-	APTA B1/2	RMT.0445	SO6/5	-	AATS
	SAF11 – Improve runway safety by preventing runway excursions	-	-	-	MST.0028 RMT.0570 RMT.0703	-	-	HPAO
dA	AOM19.4 – Management of Pre-defined Airspace Configurations	#31 #66	3.1.2	NOPS B1/6 FRTO B1/4	-	SO3/2 SO3/3	AM-1.10 AM-1.8-	OANS
	AOM19.5 – ASM and A-FUA	#31 #66	3.1.1	NOPS B1/5, NOPS B0/1, FRTO B1/3, FRTO B0/2	-	SO3/2, SO3/3	AM-1.10 AM-1.8	OANS
	AOM21.2 – Initial Free Route Airspace	#32 #33 #66	3.2.1	FRTO B1/1	-	SO3/1 SO3/4	AM-1.10 AM-5.1	AATS
	AOM21.3 – Enhanced Free Route Airspace Operations	PJ.06-01	3.2.2	FRTO B2/3	-	SO3/1 SO3/4	AM-1.6 AM-1.7	AATS
	ATC12.1 – MONA, TCT and MTCD	#27 #104	3.2.1	FRTO B0/4 FRTO B1/5	-	SO3/1 SO4/1	AM-1.15 AM-5.1	AATS
	ATC15.1 – Initial Extension of AMAN to En-route	-	-	-	-	SO4/1	-	AATS
	ATC15.2 – Arrival Management Extended to En-route Airspace	#05	1.1.1	RSEQ B1/1 NOPS B1/8	-	SO4/1	AM-1.3	AATS
	ATC18 – Multi Sector Planning En-route – 1P2T	#63	-	FRTO B1/6	-	SO4/1	AM-4.3 AM-5.1	AATS
	ITY-FMTP – Apply a common flight message transfer protocol (FMTP)	-	-	-	-	SO8/3	AM-1.3	EAI
TBO	ATC02.8 – Ground based safety nets	-	3.2.1	SNET B0/1 SNET B0/2 SNET B0/3 SNET B0/4	-	SO4/1	-	AATS
	ATC20 – Enhanced STCA with DAP via Mode S EHS	#69	-	SNET B1/1	MST.0030	SO7/2	-	AATS
	ATC22 – Initial Air-Ground Trajectory Information Sharing (Airborne Domain)	#115	6.1.1	-	RMT.0682	SO4/5	AM-1.2	EAI

EOC	Level 3 Implementation Objectives	SESAR Sol.	DP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
	ATC23 – Initial Air-Ground Trajectory Information Sharing (Ground Domain)	#115 PJ.18-06b1	6.1.2	-	RMT.0682	SO4/5	AM-1.2	EAI
	ATC24 – Network Manager Trajectory Information Enhancement	PJ.18-06b1	6.2.1	-	RMT.0682	SO4/5	-	EAI
	ATC25 – Initial Trajectory Information Sharing ground distribution	#115	6.3.1	-	MST.0031		AM-1.2	EAI
M3	NAV12 – ATS IFR Routes for Rotorcraft Operations	#113	-	APTA B0/6	MST.0031	SO6/5	-	AATS

D. SESAR Solutions implemented in a voluntary way[4]

These SESAR Solutions are not included yet in the ATM MP L3 Plan.

EUROCONTROL is tasked by the SJU to identify the implementation progress of functionalities corresponding to validated SESAR Solutions published in the SJU Solutions Catalogue (https://www.sesarju.eu/newsroom/brochures-publications/sesar-solutions-catalogue), for which there is no implementation Objective (yet) in the ATM MP L3 Plan. This will allow to identify early movers and to gauge the interest generated by some of these functionalities, with the view of potentially addressing them with new Implementation Objectives in the ATM MPL3 Plan.

For practical reasons, a facilitated questionnaire using the existing ATM MP L3 / LSSIP methodology is added in the LSSIP tool to capture information on non-committed SESAR solutions.

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
						
#55	Precision approach using GBAS Category II/III https://www.sesarju.eu/sesar-solutions/precision-approaches-using-gbas-	GBAS has limited (GBAS Local Object Consideration Areas) or no protection areas, usually located outside aircraft movement areas. This allows the reduction of runway occupancy times in LVP, reducing spacing between arrival aircraft. Use of GBAS Cat II/III eliminates ILS critical zones, enables flexible approaches, offers PA where ILS cannot due to geography and signal stability (immune to signal bends inherent in ILS), complements ILS at airports with multiple RWYs during LVP, the		Not Planned		

[4] Referred as 'Non-committed' SESAR solutions in the MP L3 Report.

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	cat-iiiii	rationalization of some ILS thus reducing operation and maintenance costs and optimizing spectrum; offers PA at aerodromes without SBAS coverage or where PA performances cannot be achieved with SBAS. GBAS CATII/II improves resilience of airport capacity with fewer flight cancellations due to LVP in force. GBAS CATII/III will enable runway ends that are not ILS CATII/III equipped to be used for CATII/III operations as long as the runway is CATII/III qualified.				
#102	Aeronautical mobile airport communication system (AeroMACS) https://www.sesarju.eu/index.php/sesar-solutions/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).		Not Planned		
#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		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	https://www.sesarju.eu/index.php/sesar-solutions/air-traffic-services-ats-datalink-using-iris-precursor	used to provide end-to-end air–ground communications for i4D operations, connecting aircraft and air traffic management ground systems.				
#110	ADS-B surveillance of aircraft in flight and on the surface https://www.sesarju.eu/sesar-solutions/ads-b-surveillance-aircraft-flight-and-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.		Not Planned		
#114	Composite Surveillance ADS-B / WAM https://www.sesarju.eu/sesar-solutions/composite-	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,		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	surveillance-ads-b-wam	thereby 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.				
PJ.14-02-06	AeroMACs integrated with ATN, Digital Voice and Multilink https://www.sesarju.eu/sesar-solutions/aeromacs-integrated-atn-digital-voice-and-multilink	The SESAR Solution PJ14.02.06 ("AeroMACS integrated with ATN, Digital Voice and Multilink") builds upon Solution #102 (AeroMACS) published in the SESAR 1 catalogue. AeroMACS is part of the Future Communication Infrastructure supporting the Airport Surface Component and is reflected within the ICAO Global Air Navigation Plan (GANP) and the ICAO Communication Roadmap in the GANP.		Not Planned		
PJ.14-03-04	RNP1 reversion based on DME-DME https://www.sesarju.eu/index.php/sesar-	Alternative-Position, Navigation and Timing (A-PNT) is the technological enabler related with the need to introduce ground and airborne systems that can support currently definedand standardized PBN and other CNS-based operations and provide a backup with the required level of performance in case of		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	solutions/rnp 1-reversion-based-dmedme	degradation and absence/loss of GNSS. According to the existing regulations, RNP1 navigation integrity requires the use of GNSS positioning. Therefore, the GNSS loss may become a critical issue for the design of TMA airspace complying with PBN-IR.				
PJ.16-04-01	Multi-touch inputs (MTI) for the human machine interface (HMI) of the controller working position (CWP) https://www.sesarju.eu/sesar-solutions/multi-touch-inputs-mti-human-machine-interface-hmi-controller-working-position-cwp	Providing the human machine interface (HMI) of the controller working position (CWP) with advanced technologies can help to minimise the workload and mental strain on controllers in area control centres and towers. This is especially true when managing high density traffic or complex operations. SESAR 1 research found multi-touch functionality including handheld or tablet devices are technically mature enough to be used in the ATC/ATM environment. In addition to providing faster input methods such as 'one-touch' cleared flights, the technology supports complex tools such as map manipulation and gestures recognition to enhance usability and controller productivity.		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
						
#57	User-driven prioritisation process (UDPP) departure https://www.sesarju.eu/sesar-solutions/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.		Not Planned		
#67	AOC data increasing trajectory prediction accuracy https://www.sesarju.eu/sesar-solutions/aoc-data-increasing-trajectory-prediction-	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		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	accuracy	collaborative environment (FF-ICE).				
PJ.09-03-02	AOP/NOP departure information integrated in EFPL https://www.sesarju.eu/sesar-solutions/aop-nop-departure-information-integrated-efpl	Some elements of AOP/NOP information are important to consider in AU flight planning in order to better align AU and NM trajectories, improve AU fuel prediction and support target times management. These elements are: • The departure taxi time • The planned departure runways • The planned SID. With the implementation of airport CDM procedures, NM receives from most of the major airports up-to-date and reliable information in DPI messages and updates much more dynamically than the FOC this information in its planned trajectory thanks to live information received from airports. Therefore, this solution defines new information flows for AUs to consider same information as NM related to the departure phase of the flight.		Not Planned		
PJ.15-01	Sub-regional Demand Capacity Balancing Service https://www.sesarju.eu/index.php/sesar-solutions/sub-regional-demand-capacity-	The purpose of the Sub-regional Demand Capacity Balancing (DCB) Service (Supporting the DCB capability within the ICAO Global Concept) is to facilitate an improved usage of the airspace at the sub-regional level, through enhanced planning and consequently more appropriate tactical intervention in support of AU and AO operations.		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	balancing-common-service					
PJ.17-01	SWIM TI purple profile for airground advisory information sharing https://www.sesarju.eu/index.php/sesar-solutions/swim-t1-purple-profile-airground-advisory-information-sharing	The SWIM-TI Purple Profile (PP) consists of open standards based on reliable and secure SWIM technical infrastructure enabling the integration of the aircraft into the SWIM network, thus giving it access to air/ground SWIM services (e.g. uplink and downlink of meteorological and aeronautical information). It will enable operational applications to uplink meteorological and aeronautical information using SWIM, as well as downlink (e.g. aircraft provided meteorological observations) of information using SWIM.		Not Planned		
PJ.18-02b	Flight object interoperability https://www.sesarju.eu/index.php/sesar-solutions/flight-object-interoperability	An essential component of the future system is ground-to-ground interoperability (IOP), a solution designed to enable the swift and seamless exchange of flight trajectory information in real time between Europe's network of air traffic control centres.		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
dS Digital AIM and MET services						
PJ.15-10	The common service for aeronautical information management https://www.sesarju.eu/index.php/sesar-solutions/common-service-aeronautical-information-management	The Common Service for Aeronautical Information Management significantly reduces the overall cost of providing AIM services by using a common, managed service instead of operating numerous individual national systems. Instead of duplicating aeronautical information and manually updating the aeronautical information in different Ground Systems, the Common Service for Aeronautical Information Management offers a means of maintaining and validating the aeronautical information once and centrally. The ground systems will have to replace their legacy data storage by an interface based on SWIM allowing direct access to quality assured and consistent aeronautical information.		Not Planned		
PJ.15-11	Aeronautical digital map common service https://www.sesarju.eu/index.php/sesar-solutions/aeronautical-	The Aeronautical Digital Map Common Service (COSER) provides users the capability to retrieve graphical representation of aeronautical data/information. The output is a standardized/harmonised graphic information that can be retrieved by individual requests demanding specific geographical areas. The retrieval can be performed using regular internet protocols or through SWIM services.		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	digital-map-common-service	Instead of having to perform the rendering of aeronautical information as a visualisation in a GIS viewer or aeronautical map over and over again for different systems, generating tremendous development efforts and potentially diverging and unharmonized representations that could potentially lead to safety risks, a harmonized visualisation for different use-cases can be provided centrally.				
PJ.18-04a	Aeronautical dataset service https://www.sesarju.eu/index.php/sesar-solutions/aeronautical-dataset-service	The Aeronautical Dataset Service supports the provision of the aeronautical information product digital data set as defined by ICAO Annex 15: AIP data set, Obstacle data set, Terrain data set, Airport mapping data set, Instrument flight procedure data set. Providing dataset in digital format will improve the consistency and quality of the data and enhance the exchange of information. The Aeronautical Dataset Service will also help service providers meet the requirements for the provision of digital dataset information required by ICAO. The service is created fully in line with the requirements and guidelines defined in the EUROCONTROL SWIM Specifications.		Not Planned		
PJ.18-04b-01	Ground weather management system (GWMS) https://www.	This solution addresses the provision of local MET information to airports and considers the use of existing sensors and MET capabilities for the measurement and generation of MET data. The Glide Wind Profile has been developed as the provider of glide wind data to the Ground		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	sesarju.eu/sesar-solutions/ground-weather-management-system-gwms	Weather Management System (GWMS) using mature sources like Radar and Lidar sensors. The purpose is to enhance separation procedures based on the collected wind data. The METForTAM is an information service that provides enhanced local MET information (e.g. METEO forecasts and observations) to a specific airport (airport operational centre, APOC). The developed capability and information service aim at enhancing MET data provision capabilities in order to improve the accuracy and timely delivery of expected Meteorological conditions at an airport.				
PJ.18-04b-02	Improved MET information services https://www.sesarju.eu/sesar-solutions/improved-met-information-services	Cb-global capability uses data from geostationary satellites to detect, track, and nowcast thunderstorms in order to provide pilots an overview of the current weather hazard situation beyond the limited view of the on-board radar. It is relevant for the upper airspace en-route and enables a pilot to strategically plan a safe and smart flight route around the thunderstorms well ahead in time instead of flying tactical manoeuvres and searching for gaps between the thunder cells.		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
ATp Airport and TMA performance						
#11	Continuous descent operations (CDO) using point merge https://www.sesarju.eu/sesar-solutions/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		Not Planned		
#23	D-TAXI service for controller-pilot datalink communications (CPDLC) application https://www.sesarju.eu/sesar-solutions/d-taxi-service-controller-pilot-datalink-	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.		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	communications-cpdlc-application					
#26	Manual taxi routing function	Presenting a graphical display of the taxi route instructions received from air traffic control provides another means for the flight crew to check they are following the right route. The on-board moving map of the airfield can be overlaid with the taxi route so the pilot can see exactly where the aircraft is in relation to the cleared route. If the taxi clearance is sent via datalink, through the D-TAXI service, the corresponding message is interpreted and translated as a graphical path by the on-board moving map database. If the taxi clearance is sent via voice, the flight crew can enter it manually into the airport moving map.		Not Planned		
#48	Virtual block control in low visibility procedures (LVPs) https://www.sesarju.eu/sesar-solutions/virtual-block-control-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 unauthorised movement (Watch Dog).		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
#107	Point merge in complex terminal airspace https://www.sesarju.eu/sesar-solutions/point-merge-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).		Not Planned		
#116	De-icing management tool https://www.sesarju.eu/sesar-solutions/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		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
		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.				
#117	Reducing Landing Minima in Low Visibility Conditions using Enhanced Flight Vision Systems (EFVS) https://www.sesarju.eu/sesar-solutions/reducing-landing-minima-low-visibility-conditions-using-enhanced-flight-vision	The SESAR Solution "Reducing landing minima in low visibility conditions using enhanced Flight vision systems (EFVS)" is intended for flight crews, and corresponds to the use of EFVS visual based technologies displayed in HUD or an equivalent display system. The objective is to provide operational credit in approach as permitted per EASA EU 965/2012 and its coming amendments (NPA 2018-06 AWO) to face to Low visibility conditions. Enabling EFVS operations with operational credits provides a greater availability of suitable destination and alternate aerodromes during periods of reduced visibility. This effectively reduces the number of weather-related delays, cancellations or diversions of flights to CAT II/III aerodromes, permits shorter routings and reduced fuel costs, a faster return to scheduled operations, and less passenger inconveniences. A unique advantage of the EFVS on board solution is that it is mainly supported by the aircraft system instead of airports and the need of complex and costly ground infrastructures as those implemented in CATII/III airports. From a global ATM network standpoint, the EFVS		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
		operation allows to retain traffic at most of secondary aerodromes by providing operational credit at most of runway ends with precision or non-precision landing minima (LPV, LNAV/ VNAV, ILS CAT1, etc.). The operational credit provided by EFVS is particularly important regarding secondary aerodromes because they usually have CAT1 or higher than CAT 1 RVR - DA/DH minima and are therefore potentially more frequently impacted by adverse weather conditions. In addition, EFVS capability is a key operational advantage more especially for the business aviation community that is mainly composed of small/ medium operators with limited resources and operating frequently at small/ medium airports. Beyond operational credit, the Vision Systems such as the EFVS improves situational awareness in all weather conditions for all operators at all airports contributing supporting decision-making and increasing safety margin all the time.				
PJ.02-01-01	Optimised Runway Delivery on Final Approach https://www.sesarju.eu/sesar-solutions/optimised-	Optimised Runway Delivery (ORD) tool is the ATC support tool to enable safe, consistent and efficient delivery of the required separation or spacing between arrival pairs on final approach to the runway-landing threshold. The ORD tool can be used to support the application of Distance Based and Time Based wake separation rules e.g. ICAO, RECAT-EU, PWS-A and WDS-A wake separation schemes, and aims at consistently and efficiently managing the		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	runway-delivery-final-approach	spacing compression that occurs on short final from the lead aircraft crossing the deceleration fix.				
PJ.02-01-02	Optimised Separation Delivery for Departure https://www.sesarju.eu/sesar-solutions/optimised-separation-delivery-departure	"Optimised Separation Delivery for Departure" (OSD) is the ATC support to enable safe, consistent and efficient delivery of the required separation or spacing between departure pairs from the follower aircraft becoming airborne. Different variants of the tool have been developed in SESAR 2020 Wave 1. These variants include an automatic wake count down timer and a distance indicator displayed on the tower controller's radar screen. The OSD tools can be used to support the tower controllersin the delivery of time or distance separations. This includes the departure wake separations of ICAO, RECAT-EU, PWS-D and WDS-D as well as departure route separations such as the SID separations and MDIs and ADIs. In airports that require support for both TB and DB separation and spacing rules a combined TBS / DBS variant of the OSD tool may be necessary.		Not Planned		
PJ.02-01-03	Weather-Dependent Reductions of Wake Turbulence Separations for Departures https://www.	Weather Dependent Separations (WDS) for departures is the conditional reduction or suspension of wake separation minima on path of departures over the straight-out initial departure path, applicable under pre-defined wind conditions, so as, to enable runway throughput increase compared to the applicable standard weatherindependent wake separation minima. This is on the basis that		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	sesarju.eu/sesar-solutions/weather-dependent-reductions-wake-turbulence-separations-departures	under the pre-defined wind conditions the wake turbulence generated by the lead aircraft is either wind transported out of the path of the follower aircraft on final approach or has decayed sufficiently to be acceptable to be encountered by the follower aircraft. The solution covers WDS cross wind concept for departures in segregated mode runway operations.				
PJ.02-01-04	Wake Turbulence Separations (for Arrivals) based on Static Aircraft Characteristics https://www.sesarju.eu/sesar-solutions/wake-turbulence-separations-arrivals-based-static-aircraft-characteristics	Static PairWise Separation for arrivals (S-PWS-A) is the efficient aircraft type pairwise wake separation rules for final approach consisting of both the 96 x 96 aircraft type based wake separation minima (for the most common aircraft in ECAC area) and the twenty wake category (20-CAT) based wake separation minima for arrival pairs involving all the remaining aircraft types. The S-PWS are applied using a separation delivery tool; the pairwise separations will be used as input into the separation delivery tool.		Not Planned		
PJ.02-01-05	Weather-Dependent Reductions of	"Weather-Dependent Reductions of Wake Turbulence Separations for Final Approach"		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	Wake Turbulence Separations for Final Approach https://www.sesarju.eu/sesar-solutions/weather-dependent-reductions-wake-turbulence-separations-final-approach	aims at the optimisation of the ICAO wake turbulence separation by use of weather-dependent separation minima on arrivals (WDS-A), applicable under given wind conditions. This allows conditional reduction or suspension of separation minima for most aircraft pairs, enabling runway throughput increase compared to ICAO scheme, whilst maintaining acceptable levels of safety. This is on the basis that under the pre-defined wind conditions the wake turbulence generated by the lead aircraft is either wind transported out of the path of the follower aircraft on final approach or has decayed sufficiently to be acceptable to be encountered by the follower aircraft.				
PJ.02-01-06	Wake Turbulence Separations (for Arrivals) based on Static Aircraft Characteristics https://www.sesarju.eu/sesar-solutions/wake-turbulence-separations-	The Static PairWise Separation for Departures (S-PWS-D) concept optimises wake separations between departures on the initial departure path by moving from schemes defined by a small number of wake categories (4 to 7 wake categories) to a scheme defined between aircraft type pairs for the 96 aircraft types frequently at European major airports, together with a scheme defined by a larger number of wake categories (20-CAT (6-CAT + 14-CAT)) for other aircraft type combinations. S-PWS for departures are applied using the OSD tool; the pairwise separations will be used as input into the OSD tool.		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	arrivals-based-static-aircraft-characteristics					
PJ.02-01-07	Wake Vortex Decay Enhancing Devices https://www.sesarju.eu/sesar-solutions/wake-decay-enhancing-devices	PJ.02-01-07 is a technological solution reducing the Wake Turbulence Risk via positioning of decay enhancing devices that accelerate the Wake Vortex Decay in Ground Proximity. Wake Vortex Decay Enhancing Devices, so-called plate lines, can be installed at any major European airport in order to increase safety by reducing the risk of low-altitude wake encounters.		Not Planned		
PJ.02-03	Minimum-pair separations based on required surveillance performance (RSP) https://www.sesarju.eu/sesar-solutions/minimum-pair-separations-based-	This solution has a technical aspect and an operational aspect. On the technical aspect, the solution has validated to V3 that the application of 2NM minimum radar separation (MRS) between two aircraft established on the final approach course to the same runway sufficiently mitigates the risk of collision between them, provided the required surveillance performance (RSP) are complied with. In addition to the MRS, runway occupancy time and wake separation constraints need to be considered when determining the minimum separation or spacing required to be applied between two aircraft (the largest of the constraints will need to be applied). The routine		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	required-surveillance-performance-rsp	application of the 2NM minimum on final approach may require an increased consistency and accuracy in the separation delivery service on final approach. More specifically, the maximum acceptable rate of under-separated pairs on final approach may be lower if the minimum radar separation that is applied is 2NM than if it were to be 2.5 NM, because the consequences of an under-separation event are potentially more severe. For ATC facilities with a separation monitoring function (SMF) that alerts the supervisor, and also possibly the final approach controller, of a significant separation infringement on final approach, where there is currently a spacing minimum margin of 0.5 NM before the alert is triggered, consideration should be given to reducing this margin, e.g. to 0.2NM.				
PJ.02-08-01	Integrated Runway Sequence for full traffic Optimization on Single and Multiple Runway Airports https://www.sesarju.eu/sesar-solutions/integrated-	Trajectory based Integrated RWY Sequence function establishes an integrated arrival and departure sequence by providing accurate Target Take off Times (TTOTs) and Target Landing Times (TLDTs), including dynamic balancing of arrivals and departures while optimising the runway throughput. It supports TWR and APP ATCOs. The look ahead Time Horizon is the time at which flights become eligible for the integrated sequence. The Stable Sequence Time Horizon is the time horizon within which no automatic swapping of flights in the sequence will occur, but landing and departure time will still be updated. The value		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	runway-sequence-full-traffic-optimisation-single-and-multiple-runway	of these time horizons is determined by the local implementation and they are not necessarily the same for arrivals and departures. The Integrated Runway Sequence is planned before Arrival flights top of decent and linked with Airport CDM procedures for departures.				
PJ.02-08-02	Optimised use of runway configuration for multiple runway airports https://www.sesarju.eu/sesar-solutions/optimised-use-runway-configuration-multiple-runway-airports	Runway Manager (RMAN), is a support tool for the Tower Supervisor to determine the optimal runway configuration and distribution of demand according to capacity and local constraints. During the Planning Phase, the RMAN checks the intentional demand versus the available capacity and it is capable of forecasting imbalances, raising alarms and alerts based on the indicators provided. In the Execution Phase, the RMAN monitors departure, arrival and overall delay and punctuality, in addition to the capacity shortage proposing changes if necessary. RMAN continuously computes the optimal runway configuration and the associated Forecasted Landing (FLDT) and Take Off (FTOT) Times of arrival and departures flights that maximises the runway throughput. The Forecasted Times calculated by the RMAN are provided to the Integrated Runway Sequence using them to calculate the final Target Times. As a conclusion TLDT and TTOT calculated by the Integrated Sequence, follow the Runway DCB Plan allowing the feedback to the RMAN to monitor the status of the Runway and to detect possible		Not Applicable		No multiple RWY APTs at present.

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
		imbalances.				
PJ.02-08-03	Reduced separation based on local runway occupancy time characterisation https://www.sesarju.eu/sesar-solutions/reduced-separation-based-local-runway-occupancy-time-characterisation-rocat	The intention is to reduce the in-trail separation on final approach by taking into account the Runway Occupancy Time (ROT). A new separation minimum is computed based on the prediction of the ROT, the MRS and WTC separation. ROCAT defines separation sub-categories based on ROT, wake minima from RECAT and reduced radar separation based on ICAO approved minima. The solution consists on developing the runway occupancy minima through big data analytics to identify a ROT per aircraft type using machine learning techniques and historical data. A change in the separation minima used by ATCO for the aircraft on final approach is supported by decision support tool called LORD (Leading Optimised Runway Delivery). ROCAT can increase runway throughput where the traffic is predominantly medium aircraft, especially where RECAT is inefficient due to the lack of wide-body aircraft types.		Not Planned		
PJ.03a-04	Enhanced visual operations https://www.sesarju.eu/sesar-solutions/enhanced-visual-operations	"Enhanced Visual Operations" are enabled by enhanced vision systems (EVS), synthetic vision systems (SVS), which make more aircraft capable of LVC operations and enable more efficient approach, landing and taxi and operations in LVC. This is applicable to all platforms, even if the main airline platforms have auto land capabilities to facilitate approaches in LVC. The solution consists of 3		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
		activities focusing on: • HMD fitted with taxi routing and traffic information for easing taxi operation in degraded weather conditions. • HMD equipment as an alternative to HUD equipment for EFVS operations using legacy EFVS sensors. • Use of active sensor with improved performance to overcome the observed limitation of EVS legacy sensors. The Vision based System is an on board alternative solution to heavy and expensive ground infrastructures for approach in LVC.				
PJ.03b-05	Traffic alerts for pilots for airport operations https://www.sesarju.eu/sesar-solutions/traffic-alerts-pilots-airport-operations	Although TCAS has been in use since long time ago, there is currently no aircraft system to prevent runway collisions. "Traffic alerts for pilots for airport operations" improves safety during airport operations. The flight crew is provided with alert when the on-board system detects a risk of collision with an aircraft on runway or taxiways. The improvement is further split into 2 implementations:•The mainline aircraft implementation consists of an on-board system, which detects risk of collision with other traffic during runway operations and provides the Flight Crew with aural alerts (mostly 'warning' alert level). • The business aircraft implementation consists of an on-board system, which detects potential and actual risk of collision with other traffic during runway and taxiway operations and provides the Flight Crew with visual and aural alerts (indication, caution and warning alert levels).		Not Planned		
PJ.15-02	E-AMAN			Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	Service https://www.sesarju.eu/sesar-solutions/e-aman-common-service	The E-AMAN Common Service provides functions necessary to operate Arrival Management with an extended horizon in an environment where multiple actors are involved e.g. multiple Airports, AMANs, ACCs, UACs and other interested parties, e.g. NM (i.e. Cross Boarder Arrival Management).The capability provided by the E-AMAN Federation Common Service is the capability of harmonising the output of local E-AMAN technical capabilities on different geographic or organisational levels (ECAC, FAB, however any other scaling could be considered in principle). The output of the Common Service is delivered to the end-users (e.g. adjacent ACCs / UACs). By this, relocation of functions between stakeholders is performed.				
#108	Arrival Management (AMAN) and Point Merge https://www.sesarju.eu/sesar-solutions/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.		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
dA Fully dynamic and optimised airspace						
#10	Optimised route network using advanced RNP https://www.sesarju.eu/sesar-solutions/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		Not Planned		
#118	Basic EAP (Extended ATC Planning) function https://www.sesarju.eu/sesar-solutions/basic-extended-atc-planning-beap	The basic Extended ATC Planner aims at bridging the gap between Air Traffic Flow and Capacity Management (ATFCM) and Air Traffic Control (ATC) providing real-time and fine-tuning measures to solve ATFCM hotspots, and to perform early measures to alleviate complexity closest to ATC activities. The solution consists of an automated tool and associated procedures supporting the basic communication between the Local DCB position and the Controllers' Work Positions allowing the EAP and the ATC team in identifying, assessing and resolving local complexity situations. The		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
		basic EAP relies on a real time integrated process for managing the complexity of the traffic with capability to reduce traffic peaks through early implementation of fine-tuned solutions to solve workload imbalances at the local level, compatible with the short-term timeframe of execution phase of the flights.				
PJ.06-01	Optimised traffic management to enable free routing in high and very high complexity environments https://www.sesarju.eu/index.php/sesar-solutions/optimised-traffic-management-enable-free-routing-high-and-very-high-complexity	"Optimized traffic management to enable Free Routing in high and very high complexity environment" supports the implementation of FRA across ACC/FIR borders by contributing to the improvement of ATM at local level. More precisely, it focuses on the improvement of Separation Provision to enable Free Routing operations within high and very high complexity cross-border environments in Upper En Route airspace. The Solution is not targeting unrestricted free routing operations, but aims at enabling safe and efficient operations in FRA with minimum structural limits to manage airspace and demand complexity. The Solution also relies on the Network Management (NM) function to cope with any Demand and Capacity imbalances created from changes in dominant traffic flows in FRA through the monitoring of the traffic complexity levels together with the level of the traffic demand.		Not Planned		
PJ.10-01a1	High Productivity Controller Team Organisation	"High Productivity Controller Team Organisation in En-Route (including eTMA)" consists of developing new concepts of operation and identifying the nature of system		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	in En-Route (including eTMA) https://www.sesarju.eu/sesar-solutions/high-productivity-controller-team-organisation-en-route-including-etma	support required for operating in team structures that are not the usual Planner/Executive (1PC – 1EC) two-person ATC sector team. In particular, the Multi-Sector Planner (MSP) where a Planner Controller has responsibility for the airspace under the executive control of two independent Executive Controllers (1PC – 2ECs). The SESAR Solution "High Productivity Controller Team Organisation in En-Route (including eTMA)" focused on the typical one Planner Controllerto 2 Executive Controllers MSP organization and team organisation in eTMA (lower En Route sectors) as well as in En Route.				

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
		TBO Trajectory -based operations				
#06	Controlled time of arrival (CTA) in medium-density/medium-	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		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	complexity environments https://www.sesarju.eu/sesar-solutions/controlled-time-arrival-cta-medium-densitymedium-complexity-environment	needed for a flight, the ground system may calculate a CTA as part of the arrival management process, and then it may be 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.				
#08	Arrival management into multiple airports https://www.sesarju.eu/sesar-solutions/arrival-management-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.		Not Planned		
#100	ACAS Ground Monitoring and	The ACAS provides resolution advisories (RAs) to pilots in order to avoid collisions. Controllers		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	Presentation System https://www.sesarju.eu/index.php/sesar-solutions/acas-ground-monitoring-and-presentation-system	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.				
#101	Extended hybrid surveillance https://www.sesarju.eu/index.php/sesar-solutions/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.		Not Planned		
PJ.07-01-01	Reactive flight delay criticality indicator (FDCI) https://www.sesarju.eu/sesar-solutions/reactive-flight-	The Flight Delay Criticality Indicator (FDCI) information, for a flight having an ATFCM delay, is provided by the Airspace User to both NM and FMPs to indicate that the concerned flight is critical for his business and that he requested that the flight progresses and arrives as much as possible on time. • The resolution of an FDCI request is NMOC driven upon the reception of the FDCI improvement request and when more than one regulation is affecting the		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	delay-criticality-indicator-fdci	flight, alternatively in the case there is only one regulation affecting the flight the local FMP can requests the resolution to NMOC. • The resolution is mostly a regulation exclusion or delay reduction (force slot) by NMOC. In this, the focus is put on reactive FDCI that means the FDC flight has an ATFCM delay and slot issued.				
PJ.10-02a1	Improved performance in the provision of separation without use of ADS-C/p data https://www.sesarju.eu/sesar-solutions/improved-performance-provision-separation-without-use-ads-cepp-data	Integrated tactical and medium conflict detection & resolution (CD&R) services and conformance monitoring tools for En-Route and TMA aims at improving the separation (tactical layer) in the En-Route and TMA (but not APP) operational environments through improved ground trajectory prediction. This is achieved using existing information on lateral and vertical clearances that are known by the ground system and airborne information such as Mode S data. This solution is built on SESAR 1 Sol. #27. New features and enhancement brought by PJ10.02a1 are: •Extension of TCT to all environments: TMA & ER • Improvement of the MTCD to handle level segments • Enhanced resolution features for MTCD & TCT including what-if and what-else probes. • Conformance monitoring tool, based on improved ground trajectory prediction and enriched with additional alerts, such as rate monitoring.		Not Planned		
PJ.18-02c	eFPL supporting SBT transition to RBT	This solution addresses the technical enablers supporting the distribution of eFPL information to ATC systems in order to improve the ATC		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
	https://www.sesarju.eu/index.php/sesar-solutions/efpl-supporting-sbt-transition-rbt	prediction with additional information to better assess the expected sector load and to reduce the number of false conflict detections, as well as to provide the ATCO with better knowledge of airline intentions thanks to a more accurate profile and additional elements such as ToC or ToD. The main actors are the Network Manager that provides the eFPL distribution service, and the ATS service providers that integrate and use the information in the ATC systems.				

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
VS Virtualisation of service provision						
PJ.05-02	Multiple remote tower module https://www.sesarju.eu/sesar-solutions/multiple-remote-tower-module	The main driver for MRTM (multiple remote tower module) is increased cost efficiency. The objective is to implement a MRTM that allows the ATCO to maintain situational awareness for 2 or 3 airports simultaneously (including traffic mix of IFR and VFR, as well as aerodrome vehicles). MRTM requires advanced features of the visual reproduction as well as additional voice services. It is assumed that an ATCO can hold endorsements for up to 3 (single) different		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
		airports. There is a fixed allocation of airports to a set of MRTMs. However, in case of high workload, due to e.g. emergency, high traffic volumes or degraded mode, the ATCO can split one airport into a spare MRTM if required. The prerequisite for multiple remote tower operations is the single remote tower operations.				
PJ.16-03	Enabling rationalisation of infrastructure using virtual centre based technology https://www.sesarju.eu/index.php/sesar-solutions/enabling-rationalisation-infrastructure-using-virtual-centre-based-technology	This solution enables the separation of the data centre where the data is produced (the ATM Data Service Provider - ADSP) from the ATCOs location (the Virtual Centre ATSU). Virtual Centre is a grouping of Air Traffic Service Units (ATSU), possibly geographically separated, sharing ATC operations amongst themselves using data services provided by one or more ADSPs through interfaces defined in Service Level Agreements, in a safe and secure manner. This decoupling delivers the flexibility and performance aspects of the services to ensure the ability of the virtual centre solution to at least support or to improve the operational performance.		Not Planned		

SESAR Solution Code	SESAR Solution Title(hyper link)	Solution Description	Location	Status	(Planned) Date of implementation	Comment
M3 Multimodal mobility and integration of all airspace users						
PJ.02-05	Independent rotorcraft operations at the airports https://www.sesarju.eu/sesar-solutions/independent-rotorcraft-operations-airports	This solution refers to simultaneous and non-interfering operations through SBAS (and GBAS as an optional enabler) approach/departure procedures independent from the main runway and dedicated only to rotorcraft operations. The aim is to move rotorcraft operations from the active runway to facilitate fixed wing aircraft. Specific PBN RNP0.3 IFR procedures to/from an existing VFR FATO shall be deployed to reach a point-in-space (PinS) to access FATO. The solution targets, in particular, relatively large and very large airports and high complexity airspaces.		Not Planned		
PJ.01-06	Enhanced rotorcraft operations in the TMA https://www.sesarju.eu/sesar-solutions/enhanced-rotorcraft-operations-tma	"Enhanced Rotorcraft operations in the TMA" integrate pilot support of both EVS (enhanced vision systems) including visual segments and automated flight path following by autopilot system. Advanced Point-In-Space RNP approaches and departures to/from FATO are based on SBAS navigation. The corresponding rotorcraft specific contingency procedures in case of loss of communication are defined. The pilot is supported during these operations by dedicated symbology presented on a Head Mounted Display system.		Not Planned		

E. Surveillance (SUR)

European ATM Surveillance data are captured to enable Network performance improvements and ensure global interoperability.
This Annex includes Surveillance implementation information related to projects, sensors and data integration.
The objective for the inclusion of this information in LSSIP is to consolidate the data collection process and increase efficiency by avoiding parallel surveys.

The corresponding tables have been prefilled with information already available from recent surveys within the surveillance area.

For practical reasons to harmonise the reporting, since the LSSIP 2021 cycle the questionnaire is included in the LSSIP Annex.

Surveillance Projects

This section includes Surveillance system projects covering the full chain from Sensor to Surveillance data integration into SDPS and CWP.

Activity Description **Area / Airspace**	**System Description** (for new system, replacement/upgrade or decommissioning)	**Expected contribution to the Key Performance Areas**	**Schedule**
Area/Name: TMA Sofia, FIR Sofia **Activity type:** New system **Relationship with other projects:** Expansion of MSS-A SOF system **Objective:** **Airspace**: TMA, CTR, ENR **Service**: ATC, separation 3NM TMA, 5NM ENR	**Type:** WAM with ADS-B capability **Number of sites**: 29 (22 new + 7 of MSS-A SOF) **Provider**: ERA a.s. **Coverage:** WAM – TMA Sofia, Western part of FIR Sofia ADS-B: TMA Sofia, FIR Sofia	**Capacity:** Increased capacity in Sofia TMA. Provides surveillance coverage where the Sofia TMA radar cannot see due to obstacles or terrain limitations. **Operational-Efficiency:** **Safety:** Redundant surveillance coverage in Sofia TMA and the Western part of Sofia FIR. **Security:** **Environment:** **RF/Spectrum:** **Cost-Efficiency:** The system provides coverage at low altitudes where the radars cannot see due to the mountainous terrain.	**Sensor installation date:** 2020+ **Operational date:** 2022 **ADS-B operational integration date (ATCO CWP) where applicable:** 2022 **Estimated End of Life: 2036**

Activity Description Area / Airspace	System Description (for new system, replacement/upgrade or decommissioning)	Expected contribution to the Key Performance Areas	Schedule
Area/Name: TMA Burgas **Activity type:** Replacement of old TAR system (PSR/Mode A/C MSSR) **Relationship with other projects:** **Objective:** **Airspace**: TMA, CTR, ENR **Service**: ATC, separation 3NM TMA	**Type:** S-band PSR/Mode S MSSR **Number of sites**: 1 **Provider**: THALES **Coverage:** TMA Burgas, Eastern part of FIR Sofia PSR – 80NM MSSR – 256NM	**Capacity:** Increased capacity in Burgas TMA **Operational-Efficiency:** **Safety:** Redundant surveillance coverage in Burgas TMA and the Eastern part of Sofia FIR **Security:** **Environment:** **RF/Spectrum:** **Cost-Efficiency:** The system provides non-cooperative and cooperative coverage	**Sensor installation date:** 2020+ **Operational date:** 2021 **ADS-B operational integration date (ATCO CWP) where applicable:** **Estimated End of Life: 2036**

Activity Description Area / Airspace	System Description (for new system, replacement/upgrade or decommissioning)	Expected contribution to the Key Performance Areas	Schedule
Area/Name: TMA Varna **Activity type:** Replacement of old TAR system (PSR/Mode A/C MSSR) **Relationship with other projects:** **Objective:** **Airspace**: TMA, CTR, ENR **Service**: ATC, separation 3NM TMA	**Type:** S-band PSR/Mode S MSSR **Number of sites**: 1 **Provider**: THALES **Coverage:** TMA Varna, Eastern part of FIR Sofia PSR – 80NM MSSR – 256NM	**Capacity:** Increased capacity in Varna TMA **Operational-Efficiency:** **Safety:** Redundant surveillance coverage in Varna TMA and the Eastern part of Sofia FIR **Security:** **Environment:** **RF/Spectrum:** **Cost-Efficiency:** The system provides non-cooperative and cooperative coverage	**Sensor installation date:** 2020+ **Operational date:** 2022 **ADS-B operational integration date (ATCO CWP) where applicable:** **Estimated End of Life: 2037**

Activity Description Area / Airspace	System Description (for new system, replacement/upgrade or decommissioning)	Expected contribution to the Key Performance Areas	Schedule
Area/Name: FIR Sofia **Activity type:** New system **Relationship with other projects:** **Objective:** **Airspace**: ENR **Service**: ATC, separation 5NM FIR Sofia Eastern part	**Type:** L-band PSR/Mode S MSSR **Number of sites**: 1 **Provider**: THALES **Coverage:** Eastern part of FIR Sofia PSR – 200NM MSSR – 256NM	**Capacity:** Increased capacity in Eastern part of FIR Sofia **Operational-Efficiency:** **Safety:** Redundant surveillance coverage in the Eastern part of Sofia FIR **Security:** **Environment:** **RF/Spectrum:** **Cost-Efficiency:** The system provides non-cooperative and cooperative coverage	**Sensor installation date:** 2022+ **Operational date:** 2023 **ADS-B operational integration date (ATCO CWP) where applicable:** **Estimated End of Life: 2038**

Surveillance sensors (just numbers, no technical/ops details)

This section summarises the number of Surveillance sensors per state. This covers all current and planned sensors intended for operational use.

Note: Please only count each sensor once even if it is part of combined systems. A combined PSR and Mode S SSR is only counted once in the row for CMB PSR Mode S (and consequently not counted in the PSR nor in the Mode S rows). Similarly, for a multilateration system, providing coverage both on the airport surface and in the CTR or TMA the individual sensor can be allocated to one or the other but each sensor must only be counted once, either in one of the MLAT/WAM rows or in one of the Airport MLAT/LAM rows.

*Note 2: Please indicate the **total number** of operational sensors each year.*

Note 3: For MLAT/WAM and MLAT/LAM indicate the total number of systems and the total number of individual transmitter and receiver antennas/sites of the multilateration systems/clusters.

Sensor Type	2021	2022	2023	2024	2025	2026
WAM Systems/Clusters	1	2	2	2	2	2
WAM Sensors (Rx, Tx, Rx/Tx)	22	44	44	44	44	44
Mode S	0	0	0	0	0	0
Airport MLAT Systems/Clusters	1	1	1	1	1	1
Airport MLAT Sensors (Rx, Tx, Rx/Tx)	11	11	11	11	11	11
ADS-B equipped Vehicles	25	25	25	25	25	25
Mode A/C	1	1	0	0	0	0
Space-based ADS-B	0	0	0	0	0	0
Surface Movement Radar (SMR)	1	1	1	1	1	1
ADS-B receivers (not part of MLAT/WAM)	0	0	0	0	0	0
CMB PSR Mode A/C	1	1	0	0	0	0
CMB PSR Mode S	4	4	5	6	6	6
PSR stand alone	0	0	0	0	0	0

Surveillance Data Use

This section provides and overview of the use of Surveillance data. This includes usage of Downlinked Aircraft derived Parameters (DAP) / Aircraft Derived Data (ADD) and ADS-B data.

ADD/DAP data usage

Per data item and use case, please indicate: (1) how the data is used, (2) the initial operational date and (3) the source (Mode S, ADS-B, WAM)
Use the "Other" column to include other uses cases or to add additional information.

ADD/DAP data item	Usage of DAP/ADD			
	Indicate if and how the data is used by ATCOs: - not used - Displayed for information - Part of operational procedure - Other (please indicate) **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Indicate if and how the data is used by TOOLS:** - Please indicate tools and status per tool (e.g. operational, evaluation, other) **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Indicate if and how the data is used by the Tracker:** - Operational usage - Evaluation - Other **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Other**
Selected Altitude	- displayed for information - operational since 2016 - surveillance source: Mode S, WAM, ADS-B (since 2021)	- used by Safety Nets subsystem (STCA) - operational since 2016 - surveillance source: Mode S, WAM, ADS-B (since 2021)	- operational usage -tracker processing of ADD is limited to store and forward - operational since 2008 - surveillance source: Mode S, WAM, ADS-B (since 2021)	
Barometric pressure setting	- displayed for information - operational since 2016 - surveillance source: Mode S, WAM, ADS-B (since 2021)		- operational usage -tracker processing of ADD is limited to store and forward - operational since 2008 - surveillance source: Mode S, WAM, ADS-B (since 2021)	
Roll angle	- displayed for information - operational since 2016		- operational usage -tracker processing of ADD is limited to store and forward	

ADD/DAP data item	Usage of DAP/ADD			
	Indicate if and how the data is used by ATCOs: - not used - Displayed for information - Part of operational procedure - Other (please indicate) **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Indicate if and how the data is used by TOOLS:** - Please indicate tools and status per tool (e.g. operational, evaluation, other) **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Indicate if and how the data is used by the Tracker:** - Operational usage - Evaluation - Other **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Other**
	- surveillance source: Mode S, WAM, ADS-B (since 2021)		- operational since 2008 - surveillance source: Mode S, WAM, ADS-B (since 2021)	
True track angle	- displayed for information operational since 2016 - surveillance source: Mode S, WAM, ADS-B (since 2021)		- operational usage - tracker processing of ADD is limited to store and forward - operational since 2008 - surveillance source: Mode S, WAM, ADS-B (since 2021)	
Ground speed	- displayed for information - operational since 2016 - surveillance source: Mode S, WAM, ADS-B (since 2021)		- operational usage - tracker processing of ADD is limited to store and forward - operational since 2008 - surveillance source: Mode S, WAM, ADS-B (since 2021)	
Track angle rate	- displayed for information - operational since 2016 - surveillance source: Mode S, WAM, ADS-B (since 2021)		- operational usage - tracker processing of ADD is limited to store and forward - operational since 2008 - surveillance source: Mode S, WAM, ADS-B (since 2021)	
Magnetic heading	- displayed for information - operational since 2016 - surveillance source: Mode S,		- operational usage - tracker processing of ADD is limited to store and forward	

ADD/DAP data item	Usage of DAP/ADD			
	Indicate if and how the data is used by ATCOs: - not used - Displayed for information - Part of operational procedure - Other (please indicate) **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Indicate if and how the data is used by TOOLS:** - Please indicate tools and status per tool (e.g. operational, evaluation, other) **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Indicate if and how the data is used by the Tracker:** - Operational usage - Evaluation - Other **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Other**
	WAM, ADS-B (since 2021)		- operational since 2008 - surveillance source: Mode S, WAM, ADS-B (since 2021)	
Indicated airspeed	- displayed for information - operational since 2016 - surveillance source: Mode S, WAM, ADS-B (since 2021)		- operational usage - tracker processing of ADD is limited to store and forward - operational since 2008 - surveillance source: Mode S, WAM, ADS-B (since 2021)	
Mach No	- displayed for information - operational since 2016 - surveillance source: Mode S, WAM, ADS-B (since 2021)		- operational usage - tracker processing of ADD is limited to store and forward - operational since 2008 - surveillance source: Mode S, WAM, ADS-B (since 2021)	
Vertical rate (Baro, Inertial)	- displayed for information - operational since 2016 -surveillance source: Mode S, WAM, ADS-B (since 2021)		- operational usage - tracker processing of ADD is limited to store and forward - operational since 2008 - surveillance source: Mode S, WAM, ADS-B (since 2021)	
True Airspeed	- displayed for information - operational since 2016 -surveillance source: Mode S,		- operational usage - tracker processing of ADD is limited to store and forward	

ADD/DAP data item	Usage of DAP/ADD			
	Indicate if and how the data is used by ATCOs: - not used - Displayed for information - Part of operational procedure - Other (please indicate) **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Indicate if and how the data is used by TOOLS:** - Please indicate tools and status per tool (e.g. operational, evaluation, other) **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Indicate if and how the data is used by the Tracker:** - Operational usage - Evaluation - Other **Indicate Initial operational date or planned ops date** **Indicate source(s) (Mode S, ADS-B, WAM)**	**Other**
	WAM, ADS-B (since 2021)		- operational since 2008 - surveillance source: Mode S, WAM, ADS-B (since 2021)	
Other data items				

ADS-B integration

Note: Fill in the "Operational date or planned ops date column the starting date of usage

ADS-B use case and integration date	Operational or planned ops date	Sites
ACC ATC integration ENR	Operational since Q3 2021	The sensors of WAM/ADS-B West and WAM/ADS-B East systems
ACC ATC integration TMA	Operational since Q3 2021	The sensors of WAM/ADS-B West and WAM/ADS-B East systems
ATC integration TWR CTR/TMA	Operational since Q3 2021	The sensors of WAM/ADS-B West and WAM/ADS-B East systems
Flight Information Service	Operational since Q3 2021	The sensors of WAM/ADS-B West and WAM/ADS-B East systems
ATCO Traffic Awareness		
Traffic planning e.g. Arrival Manager		
Conflict Alerting, e.g. STCA	Operational since Q3 2021	The sensors of WAM/ADS-B West and WAM/ADS-B East systems
Airport surveillance e.g. Traffic awareness, Target identification support		
Other:		

F. Glossary of abbreviations

This Annex mainly shows the abbreviations that are specific to the LSSIP Document for Bulgaria.

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

https://www.eurocontrol.int/airial/

Term	Description
AF	ATM Functionality
AFHQ	Air Force Headquarters
AOC	Air Operations Centre
CBS	Cross Border Sectors
CNATCC	Common National Air Traffic Control Centre
CWP	Controller Working Position
DFL	Division Flight Level
DG CAA	Directorate General Civil Aviation Administration
FT	Fast Track
IFCW	Inter-FAB Coordination Workshop
LNAV	Lateral navigation
MoD	Ministry of Defense
MTITC	Ministry of Transport, Information Technology and Communications
OPEX	Operational Expenditure
PCP	Pilot Common Project
PDP	Preliminary Deployment Programme
PCN	Pavement Classification Number
RTS	Real Time Simulation
SAPSC	Strategy and Planning Standing Committee
SoD	Staff of Defense
SQSESC	Safety, Quality, Environment and Security Standing Committee
TAR	Terminal Approach Radar
TRA	Temporary Reserved Area
S-AF	Sub ATM Functionality
SEE-FRA	South East European Free Route
SEEN-FRA	South East European Night Free Route