EUROPEAN ATM MASTER PLAN

Implementation view

Plan 2023

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PJ20-W2 AMPLE

PJ20-W2 - MASTER PLANNING

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Abstract

The European ATM Master Plan (MP) Level 3 provides a holistic view of the commonly agreed actions to be taken by ECAC States, in the context of the implementation of SESAR. These actions are consolidated in the form of "Implementation Objectives" addressing validated SESAR Solutions that have reached the necessary operational and technical maturity and for which stakeholders have expressed a common interest in their operational introduction. They set out the operational, technical and institutional improvements that have to be applied to the European ATM network to meet the performance requirements for the key ATM performance areas defined in the MP Level 1 – safety, capacity, operational efficiency, cost efficiency, environment and security.

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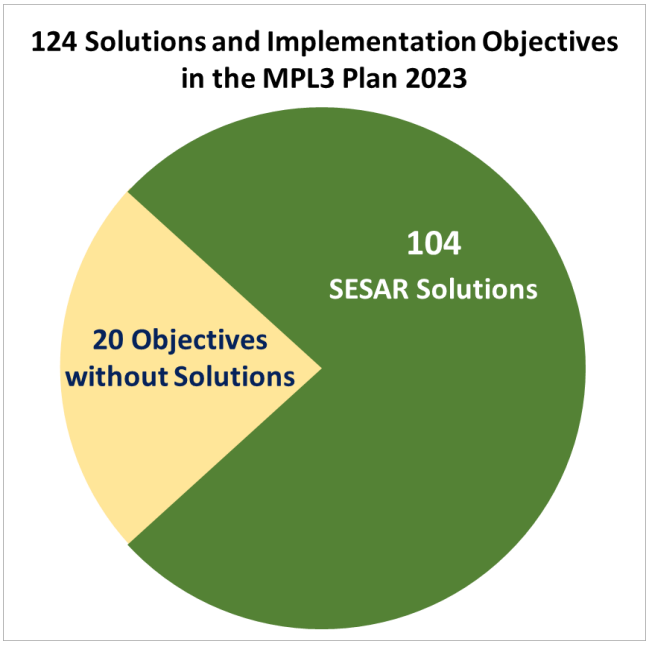
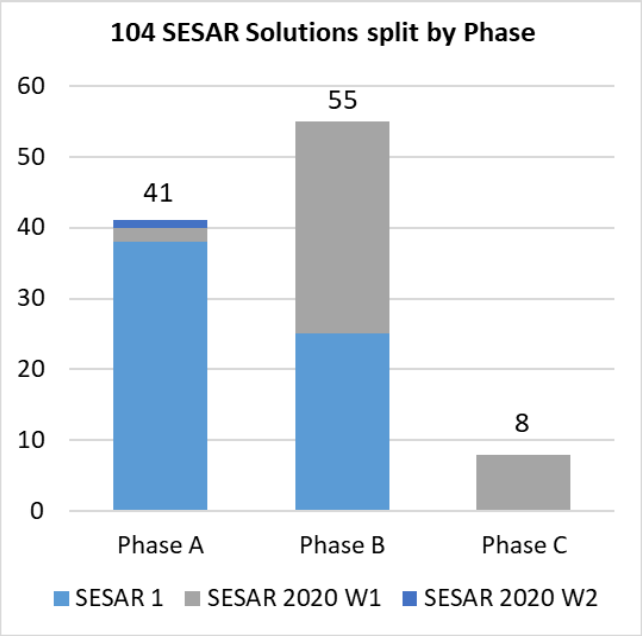
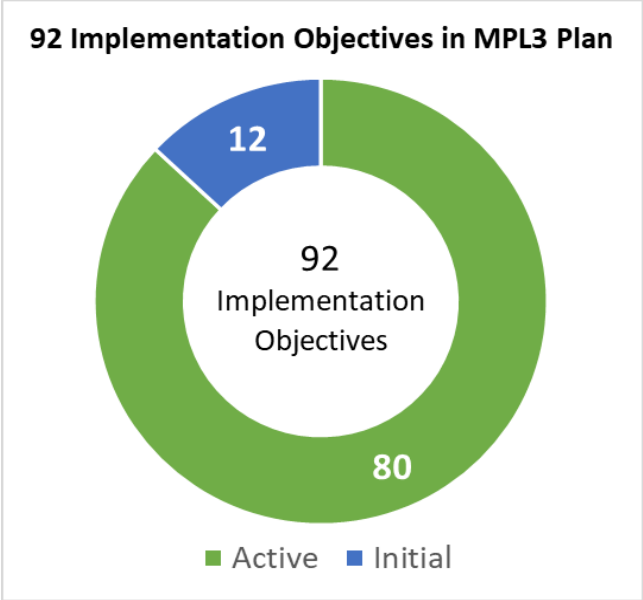
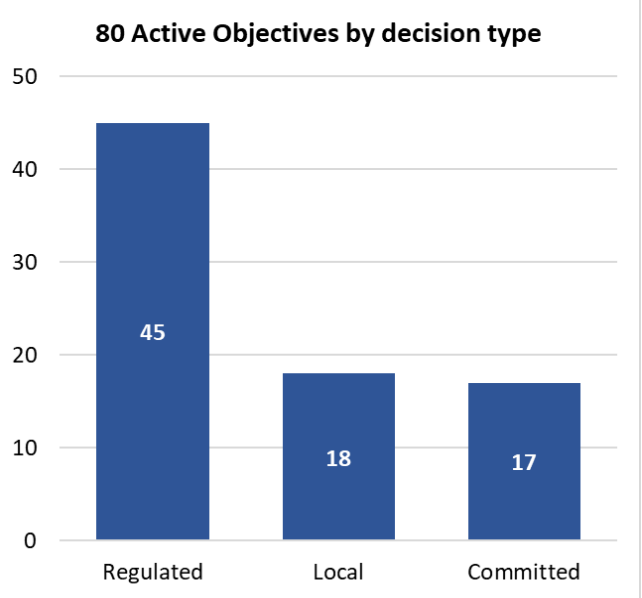
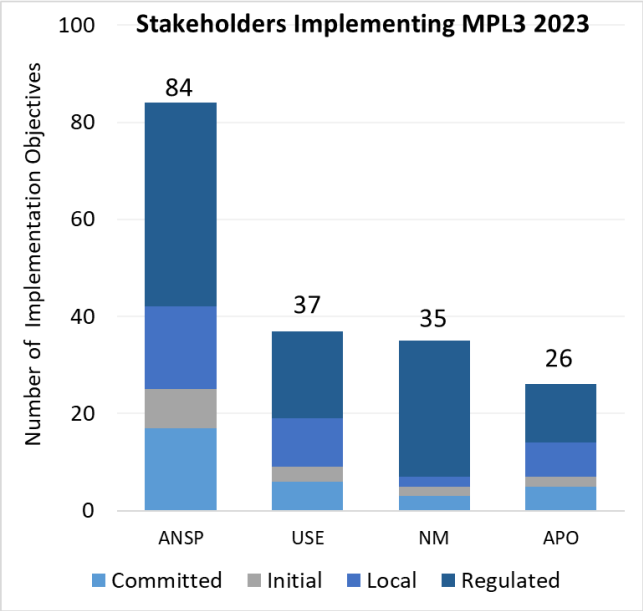
MASTER PLAN LEVEL 3 IMPLEMENTATION PLAN 2023 DASHBOARD

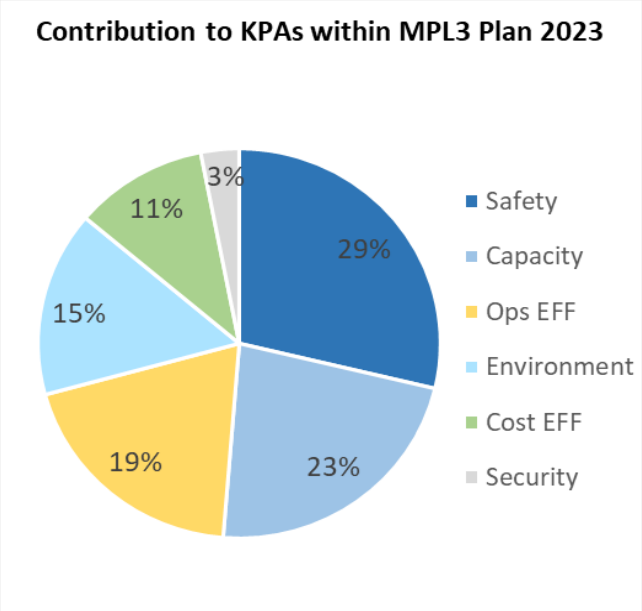












Dashboard Source: DS 22 and LSSIP+ DB

EXECUTIVE SUMMARY

The ATM Master Plan Level 3[1], Implementation Plan, constitutes the "Implementation view" or Level 3 of the European ATM Master Plan (MP). The Plan brings together the framework for the commonly agreed actions that ECAC Stakeholders are bound to take in the context of the implementation of SESAR.

A SESAR SOLUTION-CENTRIC IMPLEMENTATION PLAN

The baseline for the elaboration of this document is represented by the SESAR Solutions Catalogue and the European ATM Working Portal DS 22, which include 84 SESAR Solutions considered to be mature for implementation and delivered during SESAR 1, SESAR 2020 Wave 1 and SESAR 2020 Wave 2 R&D Programmes. Out of these 84 Solutions, 81 are currently monitored via the LSSIP+ mechanism and 3 were achieved over previous editions, hence not included in this edition of the Plan.

On top of these 81 monitored Solutions, the Plan features 20 Implementation Objectives not linked to any Solution, and 20 Solutions and Services in industrialisation, out of which:

- 13 addressing U-Space services,
- 7 linked to Initial Implementation Objectives or Outline Descriptions (ODs).

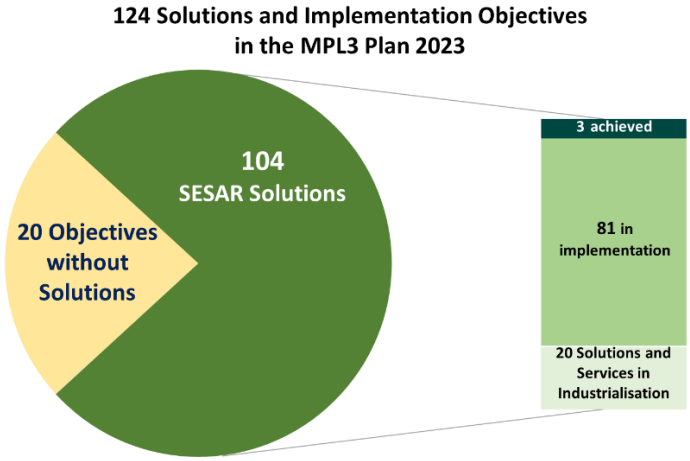


Figure 0-1 The elements included in the Master Plan Level 3 Implementation Plan 2023 Edition

Figure 0-2 shows the distribution of these 124 Solutions and Objectives across the nine EOCs. The most populated are Airport and TMA Performance (ATp) and ATM Interconnected Network (iN) due to their high number of solutions available in those areas.

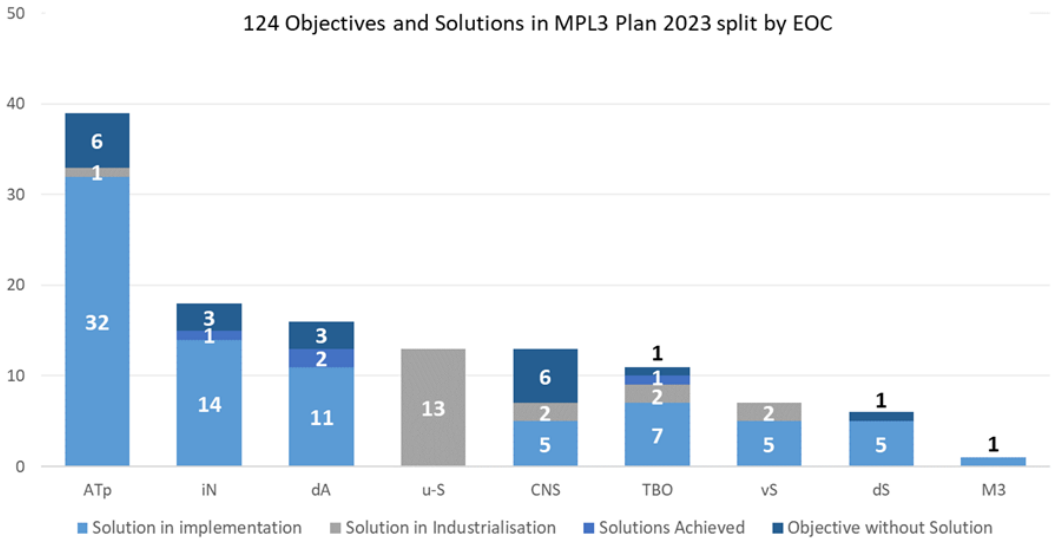


Figure 0-2 The Master Plan Level 3 Implementation Plan elements split by EOC

[1] The Level 3 of the European ATM Master Plan is composed of two documents, the Plan, providing a forward-looking, short to medium term implementation planning and the Report, assessing the level of implementation achieved to date.

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THE EVOLUTION OF THE IMPLEMENTATION PLAN FOR 2023

In line with the usual yearly update of the MPL3 Implementation Plan, the 2023 edition features the following changes in the Implementation Objectives:

- 2 Implementation Objectives changed in status, from Initial to Active (Local)
- 2 achieved Implementation Objectives
- No new or removed Implementation Objectives.

Figure 0-3 reports the total number of Implementation Objectives addressed in this edition of the Plan (92), showing the objectives according to their Status (Active, Initial, Achieved) and to their categorisation from a decision-making point of view (Regulated, Committed or Local):

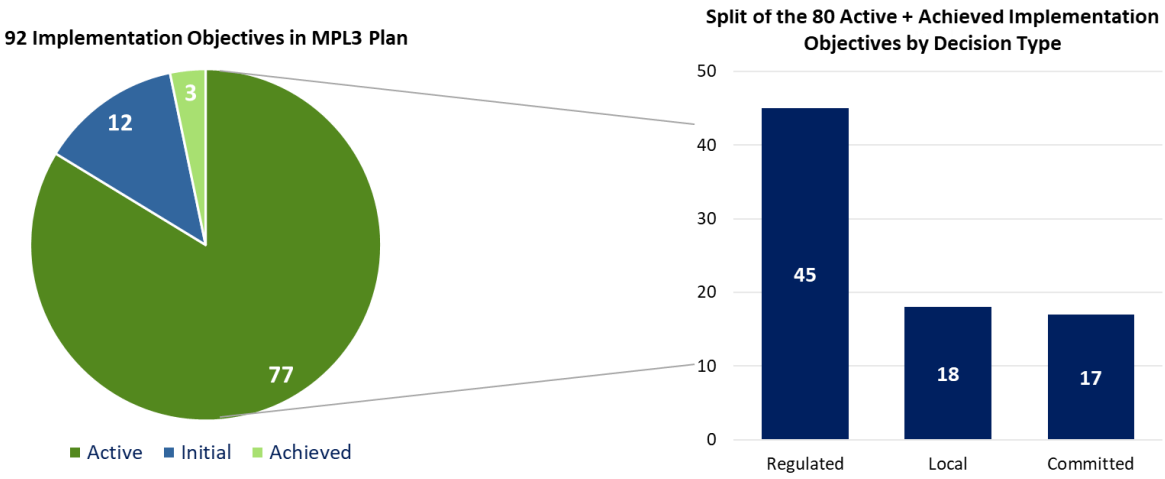

Figure 0-3 2023 Implementation Objectives by Status and decision type

The level of engagement of Stakeholders required to implement the 92 Implementation Objectives varies depending on the different categories and among the four decision types, as reported in the Figure below.

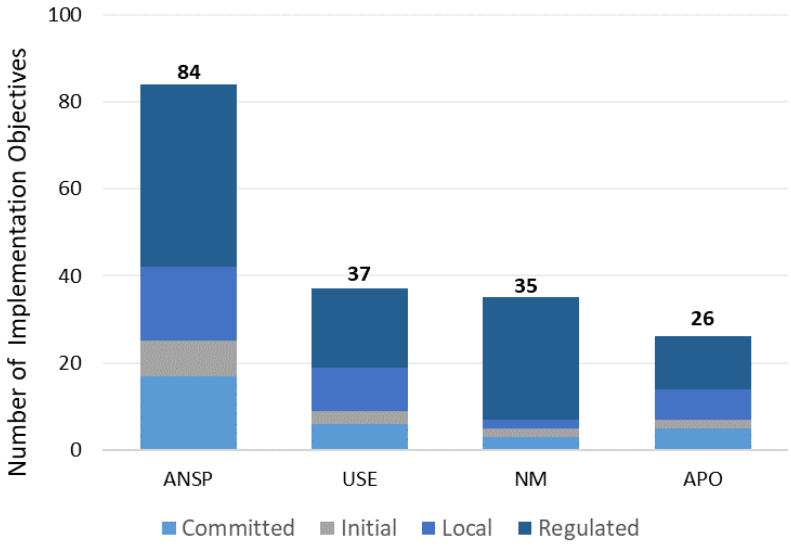

Figure 0-4 Involvement of Operational Stakeholders across the 92 Implementation Objectives split by Decision Type

All stakeholders see the highest involvement in implementing Regulated Implementation Objectives. In particular, Air Navigation Service Providers (ANSPs) are engaged in almost the totality of Implementation Objectives (84), while Airspace Users and NM see themselves engaged in an almost equal number of Objectives (37 and 35, respectively). Finally, Airport Operators are involved in 26 Implementation Objectives.

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CONTRIBUTION TO KPAS IN THE MPL3 PLAN 2023 EDITION

In terms of performance, the 92 Implementation Objectives included in this Plan contribute to different KPAs, where each Objective may contribute to one or more KPA. The pie chart below shows how Objectives and Solutions in Implementation Phase affect Safety, Capacity, Operational and Cost Efficiency, Environment and Security.

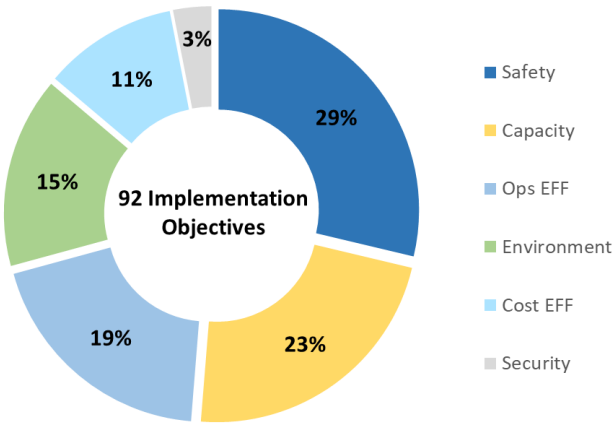

Figure 0-5 KPAs impacted by the MPL3 elements

AIRSPACE ARCHITECTURE STUDY TRANSITION PLAN (AAS-TP)

The AAS-TP, developed by the SJU with support from the Network Manager, aims at addressing the capacity challenge through, for the first time, a coupling of airspace, operations and technical evolution, accompanied by proposed evolution of service provision supported as needed by the relevant regulatory measures.

The Level 3 Implementation Plan 2023 fully addresses Phase 1 of the AAS-TP, covering the period up to 2025[2]. It does so through Implementation Objectives addressing 24 SESAR Solutions.

[2] A full perspective of the AAS is provided in Section 4 – Airspace Architecture Study Transition Plan in MPL3.

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1 INTRODUCTION

1.1 OBJECTIVE AND SCOPE OF THE MASTER PLAN LEVEL 3 IMPLEMENTATION PLAN 2023

The ATM Master Plan Level 3, Implementation Plan, constitutes the "Implementation view" or Level 3 of the European ATM Master Plan (MP). The document addresses validated SESAR Solutions, i.e., having reached the necessary operational and technical maturity for deployment. Within the 2023 edition of the document, the largest portion of these Solutions targets Phases A and B of the Master Plan Level 1 Vision, only partially Phase C, as shown in **Error! Reference source not found.**. Accordingly, the majority were delivered during the first R&D Programmes, SESAR 1, and SESAR 2020 Wave 1, whilst a few over SESAR 2020 Wave 2 package.

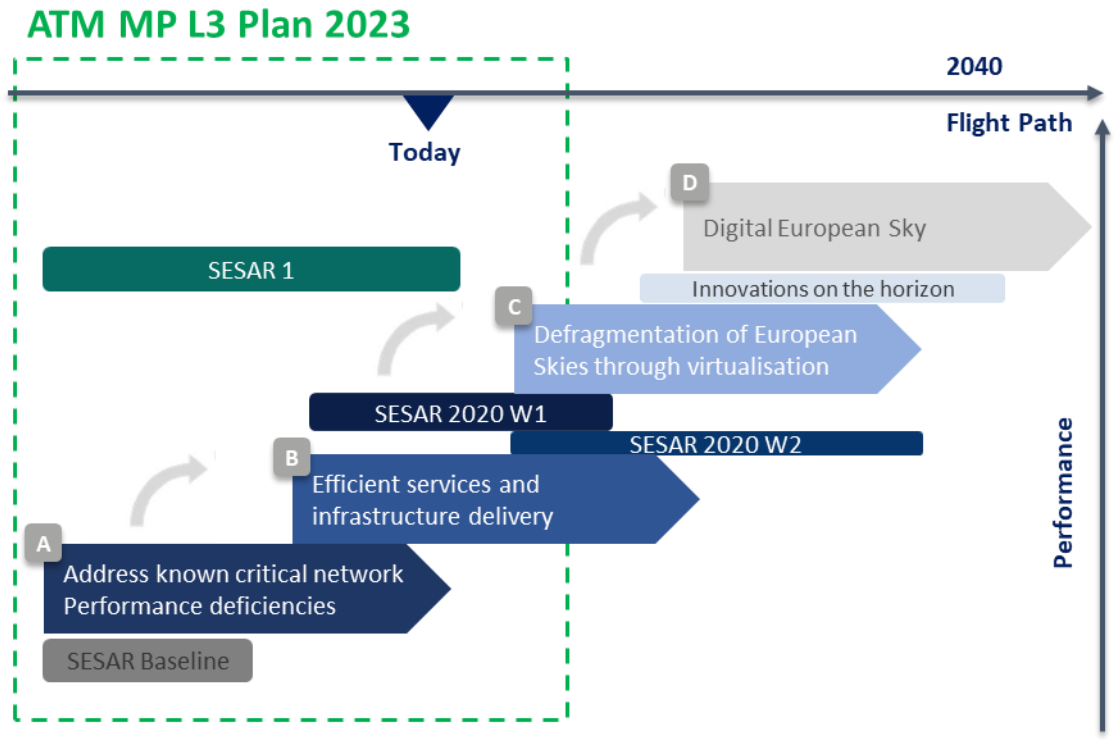

Figure 1-1 The Level 3 Implementation Plan 2023 within the ATM MP L1 Phases

The Implementation Plan brings together the framework for the commonly agreed actions that ECAC Stakeholders should take in the context of the implementation of SESAR. In this respect, it addresses:

- TRL6 validated SESAR Solutions,
- CP1 ATM Functionalities (AFs), based on Commission IR (EU) 2021/116 on Common Project One,
- SESAR Baseline elements, validated or under implementation at the beginning of the SESAR Implementation phase,
- SES and ICAO requirements.

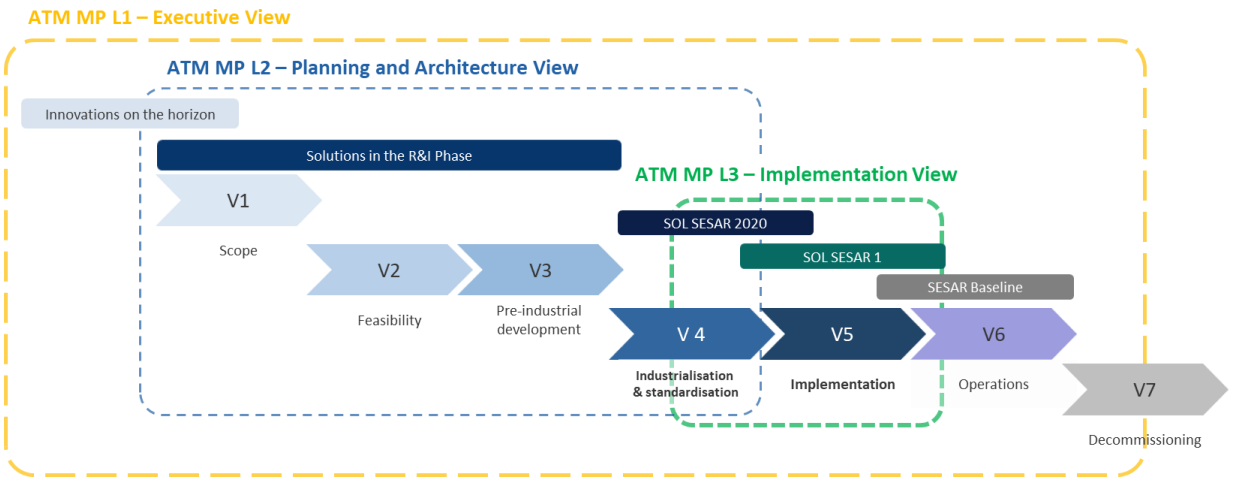

Figure 1-2 Focus of the Level 3 Implementation Plan 2023

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This plan focuses primarily on the Implementation Phase, hence the Solutions with the necessary operational and technical maturity and for which stakeholders have expressed a common agreement/interest in their operational implementation. In addition, it includes an outlook of some SESAR Solutions in the Industrialisation Phase, either linked to initial Implementation Objectives or addressing U-space services.

Updated yearly, the Plan covers a short to medium-term horizon of around 5 years ahead. It is based on the ATM MP L1 and L2, the SESAR Deployment Programme (SDP), the Network Strategy Plan (NSP), and the SES Interoperability Regulations. In turn, the MPL3 Implementation Plan feeds the LSSIP+ monitoring mechanism as well as the reporting process through the yearly elaboration of the MPL3 Progress Report.

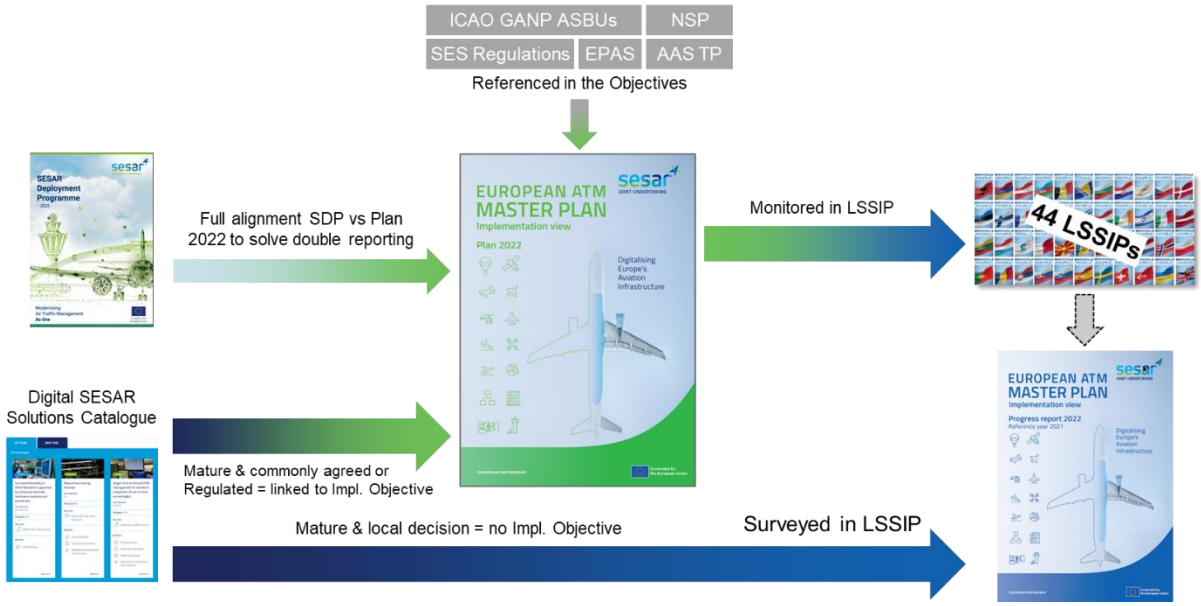

Figure 1-3 Mechanism supporting L3 Plan and implementation of Solutions

The ambition of the Master Plan remains to reach all States within the ECAC area. For this, the joint governance of SJU Admin Board (through the Master Planning Committee) and EUROCONTROL Provisional Council is very beneficial. EUROCONTROL provides the working arrangements that serve as vehicle to extend the agreed implementation actions to the whole of ECAC and the EUROCONTROL Comprehensive Agreement States (see Figure 1-4).

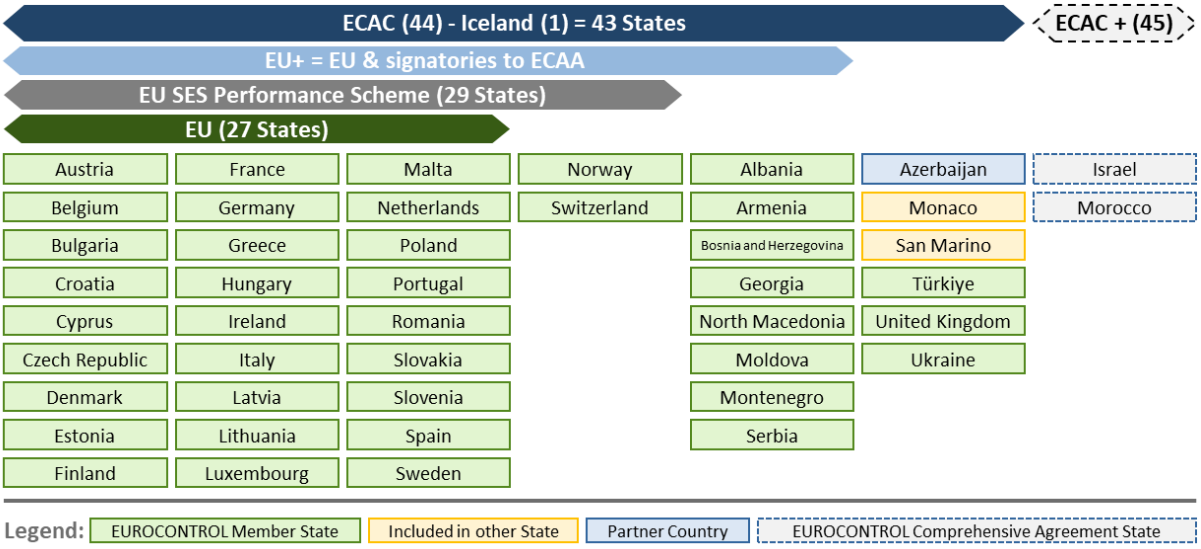

Figure 1-4 Scope of planning and monitoring mechanism supporting L3 Plan

EUROCONTROL also provides the method for implementation planning, monitoring and reporting which relies on Implementation Objectives and the annual LSSIP mechanism.

The Implementation Objectives represent consolidated implementation actions, addressing operationally and technically mature SESAR Solutions, for which stakeholders have expressed a common agreement/interest in their operational implementation.

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Each Implementation Objective features an Applicability Area, listing the States / Airports either mandated to implement a technology by a given Regulation or committing to implement. For the latter, States / Stakeholders take advantage of the annual LSSIP+ process to modify their commitment to an Implementation Objective, e.g., by voluntarily joining the deployment of an Objective / Solution.

An Implementation Objective may also have a "Local" scope, i.e., without a predefined Applicability Area and Full Operational Capability (FOC) date. These Objectives are subject to local business decisions by any stakeholder concerned.

1.2 The Structure of the MPL3 Implementation Plan 2023

The Master Plan Level 3 Implementation Plan 2023 features the following sections:

Executive summary, highlighting the most important elements of this Plan

Introduction, setting the scene for a reader by stating scope and operational elements of MPL3 Plan. It also highlights the main news in this edition.

Operational view, providing a consolidated view across the Essential Operational Changes (EOCs) of the SESAR Solutions within the EOC, the impacted stakeholders, planned implementation date, performance benefits and an outlook of SESAR solutions in Industrialisation and Standardisation phase.

Deployment view, featuring a summary of the main elements (what, who, when, where and all references) included in the Plan. It provides a snapshot of the SESAR Solutions and related Implementation Objectives within the EOC, the associated Deployment Scenarios (DS), the main actions for Stakeholders, performance benefits, implementation timeframes, and the implementation progress from the previous edition of the MPL3 Progress Report.

Airspace Architecture Study – Transition Plan (AAS-TP), presenting a mapping of the elements supporting the milestones of the AAS-TP, with SESAR Solutions and Implementation Objectives in the Plan.

Annexes, complementing the contents of the Plan to allow for an easier reading and understanding of the document. In particular, the Annexes include a how to read section, a mapping of the links between the map and other elements external to the Level 3 itself (e.g., ICAO ASBUs, OIs, etc.), a focus on the applicable Airports per Implementation Objective, and the implementation roadmaps of the Level 3 Objectives.

Engineering View – Technical Annex, which is not integral part of this document, but an essential component of the MPL3 Plan. It is available online, on the European ATM Master Plan Portal and EUROCONTROL website. It provides a complete description of each Implementation Objective, including detailed descriptions of stakeholder lines of action (SLoAs) and relevant supporting material.

In its entirety, the document ensures:

- The full alignment with the 2020 edition of ATM Master Plan Level 1, through the use of EOCs,
- A SESAR Solution-centric approach, where Solutions guide the content of Implementation Objectives,
- A clear top-down content approach, from EOCs to Deployment Scenarios to Solutions to Objectives,
- The consistent use of performance elements, identifying planned contributors to the KPAs,
- The integration of Industrialisation Phase activities, including Solutions that successfully passed the maturity gate.

1.3 What is new in this edition

Update in the Implementation Objectives

The MPL3 Plan 2023 edition features the following changes in the Implementation Objectives:

- 2 Implementation Objectives changed in status, from Initial to Active (Local),
- 2 achieved Implementation Objectives,
- No new or removed Implementation Objectives.

The new active Objectives fully build on mature SESAR Solutions for which Stakeholders expressed their interest. The achieved Objectives are CP1-related and deal with Initial Free Route Airspace and Predefined Airspace Configurations.

The following tables provide a complete list of all Implementation Objectives with the related changes applicable in this 2023 edition of the plan.

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2 OBJECTIVES CHANGED IN STATUS (INITIAL TO ACTIVE/LOCAL)

Objective ID	Objective Title	Status	FOC Date	SESAR Solution	Change details for L3 Plan 2023
AOP21	Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)	Active	n/a (Local)	PJ.02-01-04	From initial to active/local
AOP23	Integrated runway sequence for full traffic optimization on single and multiple runway airports	Active	n/a (Local)	PJ.02-08-01	From initial to active/local

2 ACHIEVED OBJECTIVES

Objective ID	Objective Title	Status	FOC Date	SESAR Solution	Change details for L3 Plan 2023
AOM19.4	Management of Pre-defined Airspace Configurations	Achieved	31-12-2022	#31 #66	Based on progress at end of 2022.
AOM21.2	Initial Free Route Airspace	Achieved	31-12-2022	#32 #33 #66	Based on progress at end of 2022.

COMMON PROJECT 1 – COMMISSION IR (EU) 2021/116

On the 21st of February 2021, the European Commission issued the Common Project 1 (CP1), Commission Implementing Regulation (EU) 2021/116, amending Commission Implementing Regulation (EU) 409/2013 on the SESAR deployment framework and repealing the Pilot Common Project (PCP), Commission Implementing Regulation (EU) 716/2014.

As for the 2022 edition of the MPL3 Implementation Plan, this year's edition ensures the full alignment to the content of the SESAR Deployment Programme (SDP) 2022 and its supporting material. In this respect, the CP1-related Implementation Objectives mirror the SDP Families, avoiding any double or inconsistent reporting by stakeholders.

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2 OPERATIONAL VIEW

In line with the MPL1, the nine Essential Operational Changes (EOCs) group the elements included in the MPL3 Plan.

The EOCs are the nine essential elements triggering structural evolutions of the European ATM. They will be required to deliver the SESAR vision, the defragmentation of European skies through virtualisation, and will enable the delivery of the SES objective of implementing more sustainable and better performing aviation. Some EOCs are closely linked in terms of delivering en-route performance and have driven the definition of the target architecture, while others bring essential changes to other parts of the system.

The list of EOCs is reported below and their full description is included in the ATM Master Plan Executive View (Level1), Edition 2020, Chapter 4.2.

CNS Infrastructure and Services

ATM Interconnected Network

Digital AIM and MET Services

Airport and TMA performance

Fully Dynamic and Optimised Airspace Organisation

Trajectory Based Operations

Multimodal Mobility and integration of all airspace users

U-space Services

Virtualisation of Service Provision

Within this framework, the "Operational View" Chapter reports an outlook of all implementation initiatives supporting the SESAR vision and the performance ambitions. Those initiatives can be both SESAR solutions and Implementation Objectives already planned for implementation by the stakeholders concerned. SESAR solutions that have successfully reached TRL6 maturity and are available for the industrialisation/standardisation phase are included hereafter. Whichever the phase, all Solutions are mapped against the ATM Master Plan Executive View (Level 1), Edition 2020.

In addition, it is worth mentioning that some Implementation Objectives originate from the SESAR definition phase. Others, instead, pre-date SESAR and support a specific SES Regulation. Therefore, considering their contribution to the achievement of the SESAR vision and performance ambitions, the next sections feature also these Implementation Objectives.

Finally, some SESAR Solutions have not yet evolved into Implementation Objectives. The next sections refer to these SESAR Solutions as "Orphan Solutions" and the EUROCONTROL LSSIP+ process captures information on their implementation plans through a specific questionnaire. For this reason, this document also lists these Solutions below.

Overview of the SESAR Solutions included in the ATM Master Plan Level 3 Implementation Plan

The baseline for the elaboration of this document is represented by the SESAR Solutions Catalogue and the European ATM Working Portal, which include 84 SESAR Solutions considered to be mature for implementation and delivered during SESAR 1, SESAR 2020 Wave 1 and SESAR 2020 Wave 2 R&D Programmes. Out of these 84 Solutions:

- 81 are currently monitored via the LSSIP+ mechanism, out of which:
  - 80 are in Implementation Phase,
  - 1 (#32) has been achieved this year, however it is included in this edition of the Plan due to its link to CP1.
- 3 were achieved over previous editions, hence not included in this edition of the Plan. These are #56, #60, #65.

On top of these 81 monitored Solutions, the Plan features 20 Implementation Objectives not linked to any Solution, and 20 Solutions in industrialisation, out of which:

- 13 addressing U-Space services,

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- 7 linked to Initial Implementation Objectives or Outline Descriptions (ODs).

Therefore, the overall number of elements is 124, as shown in Figure 2-1.

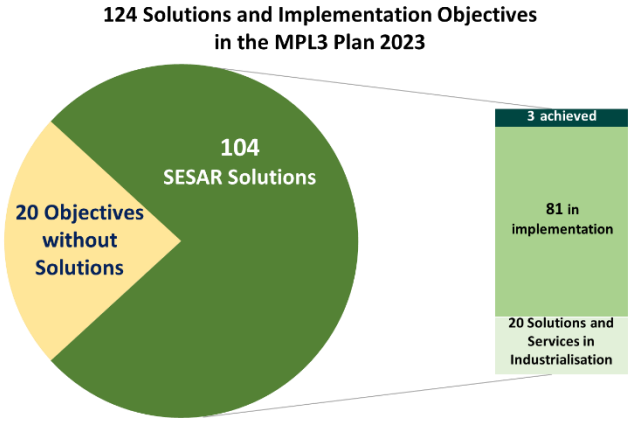

Figure 2-1 Overall number of Solutions and Objectives in the MPL3 Implementation Plan

In the context of implementation planning and monitoring mechanisms and tools used in support of the MPL3, the 81 monitored Solutions in implementation Phase can be of two types: solutions that have a related Implementation Objective and those that do not have an implementation objective yet. Regardless of the type and their relation to an Implementation Objective, all the solutions in Implementation phase are available to the stakeholders concerned for the implementation.

In addition, it is essential to highlight that one Solution can have a one-on-one link to an Implementation Objective. However, one Solution can address multiple Implementation Objectives or multiple Solutions can target only one Implementation Objective.

In order to take this into account and provide the most accurate analysis on the Stakeholders' implementation targets, whenever a Solution is linked to an Objective, the Objective becomes the main reference in order to avoid double counting. This principle is applied throughout the document. In this light, the chart in Figure 2-2 allocates Objectives and Solutions among the nine EOCs, considering as well as their mandate by the CP1 Regulation.

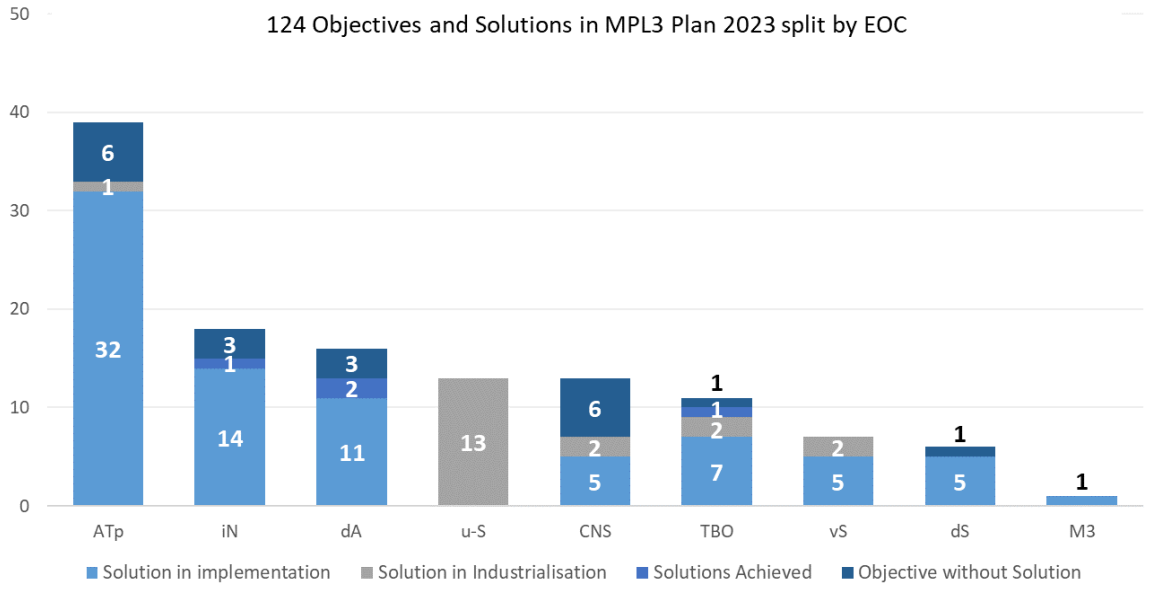

Figure 2-2 Solutions and Objectives per EOC

The ATM Master Plan Level 3 Implementation Plan and its Implementation Objectives

Of the 101 Solutions monitored in this Plan, 82 are linked to Implementation Objectives, which constitute the backbone of the Level 3 and provide all civil and military operational Stakeholders with a basis for short to medium term implementation planning.

Figure 2-3 gives an overview of the Implementation Objectives included in this edition of the Plan. In particular, there are 92 Implementation Objectives organised as below:

- 77 Active and 3 Achieved Implementation Objectives, out of which:
  - 45 Regulated, which address a law act binding the Stakeholders to the implementation,

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- 18 Local, if Stakeholders independently decide to implement a functionality,
- 17 Committed, whereby Stakeholders engaged to implement the functionality in a coordinated manner,

- 12 Initial, which include elements that still require validation / commitment.

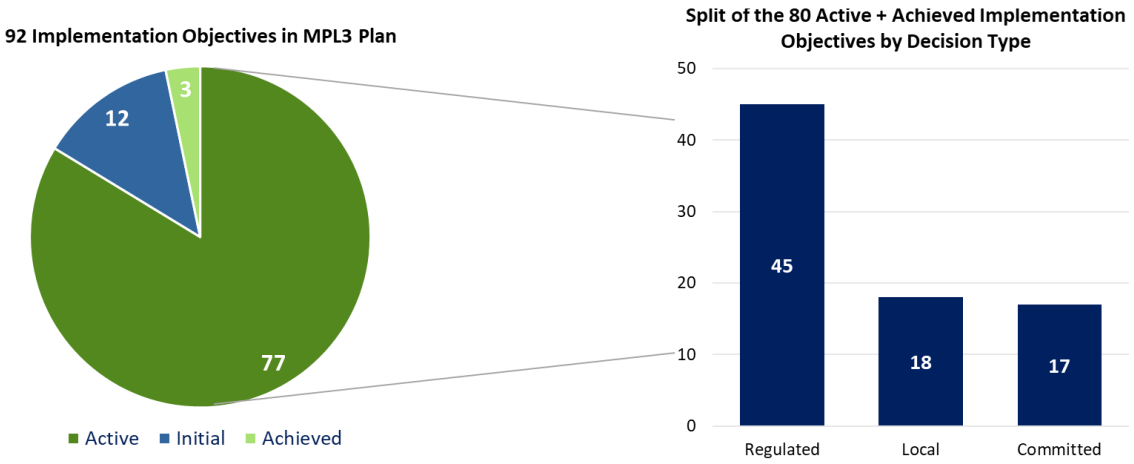

Figure 2-3 Implementation Objectives by status and decision type

Focus on Stakeholder Categories of the Master Plan

The level of engagement of Stakeholders required to implement the 92 Implementation Objectives varies depending on the different categories and among the four decision types, as reported in Figure 2-4.

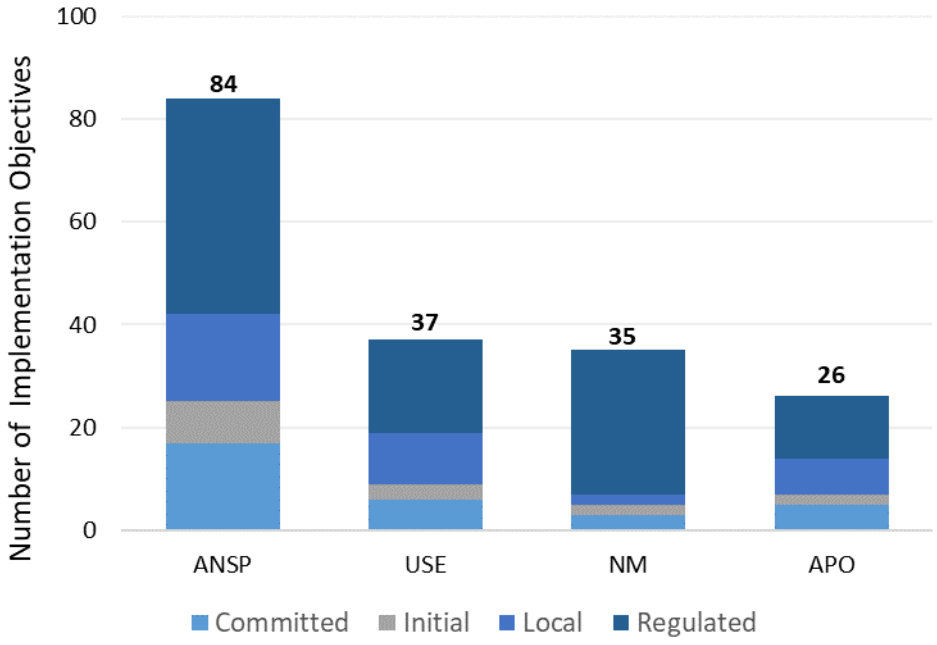

Figure 2-4 Stakeholders' involvement across the 92 Implementation Objectives

All stakeholders see the highest involvement in implementing Regulated Implementation Objectives. In particular, Air Navigation Service Providers (ANSPs) are engaged in almost the totality of Implementation Objectives (84), while Airspace Users and NM see themselves engaged in an almost equal number of Objectives (37 and 35, respectively). Finally, Airport Operators are involved in 26 Implementation Objectives.

Focus on Performance

In terms of performance, the 92 Implementation Objectives included in this Plan contribute to different KPAs, where each Objective may contribute to one or more KPA. The performance benefits of the Implementation Objectives linked to SESAR Solutions are taken from the Solution data packs and other associated information on the SJU website. The performance benefits

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of those Implementation Objectives not related to any SESAR Solution originate from internal EUROCONTROL business cases and analyses.

Taking this into account, Figure 2-5 shows how the 92 Implementation Objectives affect the six KPAs.

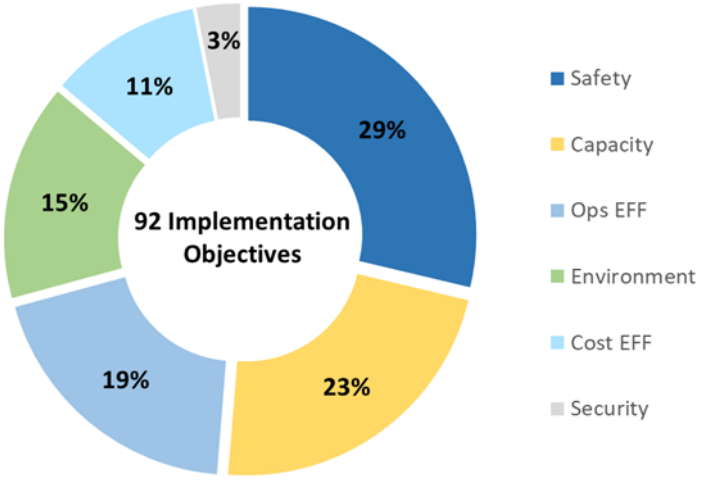

Figure 2-5 Implementation Objectives contributing to KPAs

Clear indication is that more than 70% of the 92 Objectives considered in the chart contribute to the top three KPAs: Safety, Capacity, and Operational Efficiency. Safety remains the top priority with almost 30% of Objectives and Solutions impacted. Capacity and Operational Efficiency are right behind, with 23% and 19% respectively.

The contribution of the 92 Implementation Objectives to the different KPAs across EOCs is provided in Figure 2-6. Airport and TMA Performance (ATp) related elements account for more than double the second EOC in the ranking, ATM Interconnected Network (iN). Regardless, both ATp and iN see their major contribution towards Safety and Capacity. Along the lines of last year, U-Space Services do not yet have any contribution in the L3 Plan 2023 due to the impossibility of assessing yet the benefits related to these services.

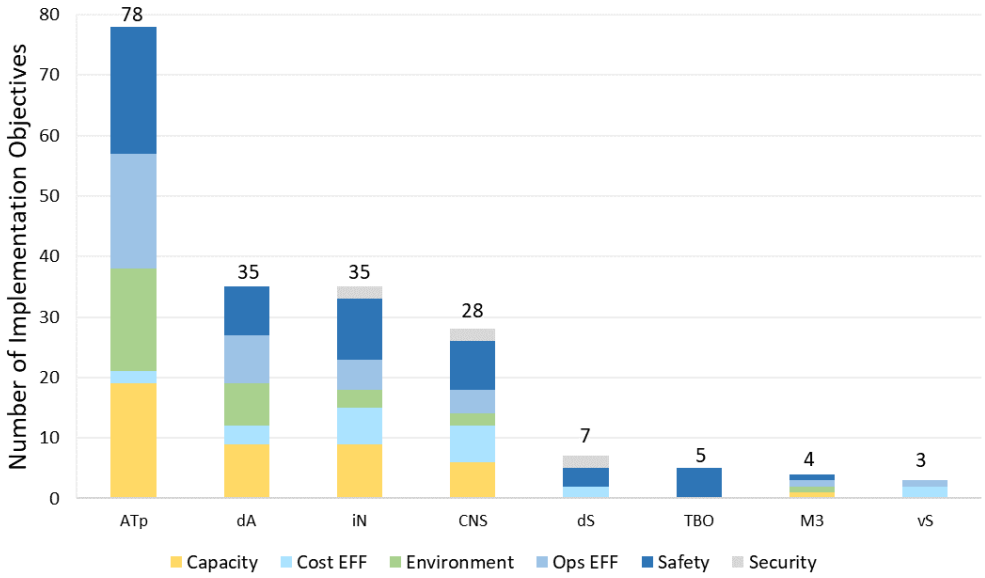

Figure 2-6 Contribution to KPAs per EOC across the 92 Implementation Objectives

The following sections will provide an overview of the elements included in each EOC, and specifically on:

- 81 Solutions in implementation,
- 7 Solutions in industrialisation,
- 13 U-Space Services,
- 20 Implementation Objectives not linked to any Solution.

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2.1 CNS INFRASTRUCTURE AND SERVICES

- 5 (of 88) SESAR Solutions out of which:
  - 2 addressed by 2 Active Objectives
  - 3 Orphans, 2 of which in Industrialisation Phase addressed by 2 Initial Objectives
- 6 Active Objectives not linked to any Solution

CNS SYNOPSIS

Changes in the area of CNS will be driven by a service-based approach and a performance-based approach. This will enable the decoupling of CNS service provision from ATS and ATM data services. This change will make the European ATM system more flexible and resilient, allowing scalability. Through a service-based approach, CNS services will be specified through contractual relationships between customers and providers, with a clearly defined, European-wide set of harmonised services and level of quality. Following on from the implementation of the DLS first steps leading to CPDLC being the main means for air-ground communications, the focus will move towards further integration between airborne and ground systems with a view to accomplish full 4D information sharing. CNS rationalisation is one of the main priorities for the ATM Master Plan. Pending the availability of the comprehensive strategy, the current rationalisation is focused on developments already performed in the pre-SESAR phase, and consolidated by the PCP regulation. CNS implementation initiatives address specific shortcomings faced by the European ATM Network (e.g., shortage of VHF frequency assignments, shortage of SSR transponder codes, surveillance spectrum protection, etc.) and support for the deployment of new technologies (e.g., ADS-B, AMHS, VoIP, New PENS etc.).

CNS-RELATED SESAR SOLUTIONS AND IMPLEMENTATION OBJECTIVES

Solutions and implementation Objectives planned for implementation

Implementation

SESAR Solutions linked to Implementation Objectives							Stakeholders										KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#109	Air Traffic Services datalink using SatCom Class B	COM13	Air Traffic Services datalink using SatCom Class B [A]	-	L	Open	■		■	■												
#103	LPV approaches using SBAS as alternative to ILS CAT I	NAV10	RNP Approach Procedures to instrument RWY	-	R	25 Jan 2024	■		■	■												

Solutions not subject to an Implementation Objective. They are implemented on a voluntary basis without coordination at European level. Their progress is monitored yearly through a dedicated questionnaire via LSSIP Process.				Stakeholders										KPAs					
Solution ID	Solution Name	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#102	Aeronautical mobile airport communication system (AeroMACS)	No decision	-	■	■	■													

Objectives without any link to SESAR Solutions. Originating from SESAR definition Phase or supporting specific SES Regulations					Stakeholders										KPAs					
Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
COM10.2	Extended AMHS	-	C	31 Dec 2024	■									■						
COM11.1	VoIP in En-Route [A]	-	C	31 Dec 2021	■															
COM11.2	VoIP in Airport/Terminal	-	C	31 Dec 2023	■															
ITY-ACID	Aircraft identification	-	R	02 Jan 2020	■		■													
ITY-AGDL	Initial ATC air-ground data link services [A]	-	R	05 Feb 2020	■		■	■				■								
ITY-AGVCS2	8.33 kHz A/G Voice Channel Spacing below FL195	-	R	31 Dec 2020	■	■	■	■				■								

More details about these solutions can be found at https://www.sesarju.eu

[A] Indicates that the solution or implementation objective has a reference to AAS Transition Plan

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Solutions available for industrialisation / standardisation and linked to Implementation Objectives

Industrialisation

SESAR Solutions in Industrialisation Phase linked to Implementation Objectives							Stakeholders									KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#114	Cooperative Surveillance ADS-B / WAM	ATC21	Composite Surveillance (ADS-B/WAM) A	-	No decision	Initial																
#55	Precision approaches using GBAS CATII/III	NAV11.2	Implement precision approach procedures using GBAS CAT II/III based on GPS L1 and/or GALILEO E1	-	No decision	Initial																

CNS PERFORMANCE CONTRIBUTION IN THE DEPLOYMENT PHASE

The charts below show how the CNS-related Objectives and Solutions affect the Key Performance Areas.

The pie chart on the left side provides the different weights of the KPAs impacted by CNS-related Solutions and Objectives. Safety, Cost Efficiency, and Capacity are the main areas to which CNS positively contributes to, for a total combined of 75%.

The bar chart on the right side, instead, provides a breakdown of the elements affecting each KPA, differentiating between the CNS solutions with/without an Implementation Objective and the Implementation Objectives not associated to any solution. For the two main KPAs Safety and Cost Efficiency, a stronger contribution comes from Implementation Objectives, regardless the link to SESAR Solutions.

Beside the inherent safety benefits brought by the deployment of a more robust and resilient CNS infrastructure, the elements of this EOC are expected to provide important cost efficiencies through lower operating costs and better scalability as well as increased capacity by providing the infrastructure enabling the unlocking of multiple operational improvements and new concepts of operations.

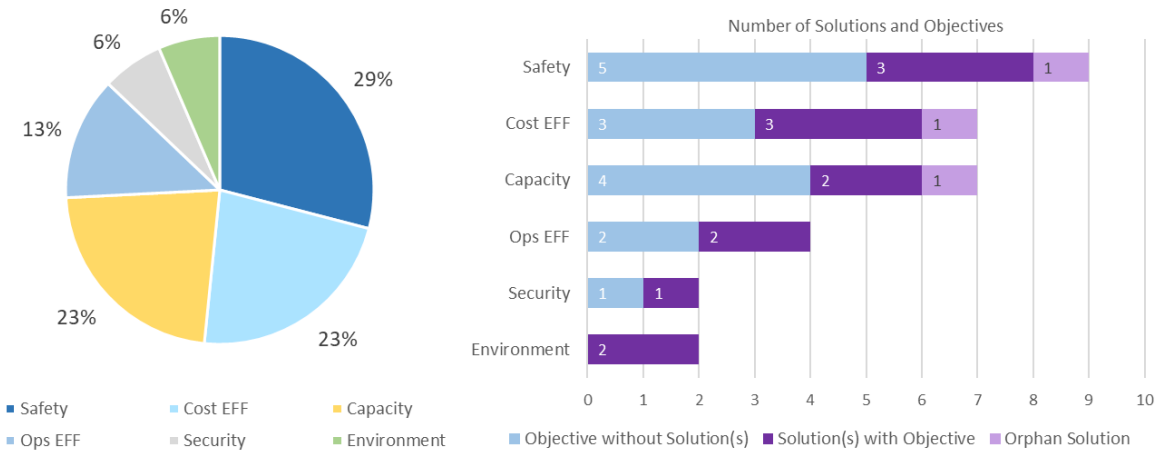

Figure 2-7 CNS contribution to KPAs

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2.2 ATM INTERCONNECTED NETWORK

iN ATM interconnected network

- ❖ 14 (of 88) SESAR Solutions out of which:
  - 10 addressed by 30 Active Objectives
  - 4 Orphans
- ❖ 3 Active Objectives not linked to any Solution

IN SYNOPSIS

The ATM collaborative network enables all relevant stakeholders to participate in collaborative decision-making processes in a transparent framework, and to negotiate their preferences and reach agreements that benefit not only one but all of the stakeholders involved, thus contributing to the performance of the entire network.

One of the aims of this EOC is to pave the way from local-centric operations, planning and decision making to the SESAR target concept of flight and flow-centric operations. Furthermore, User-driven prioritisation process (UDPP) gives all concerned airspace users, including business aviation operators, the opportunity to exchange the departure order of two flights in accordance with their commercial or operational priorities. By addressing UDPP-Departure, ATFCM would evolve to facilitate the planning and departure sequencing through advanced airport operations (advanced collaborative decision-making and demand capacity balancing).

The Network Operations Plan (NOP) integration with Airport Operations Plans (AOP) and further work on the 'Rolling/Dynamic Network Plan' will enable EUROCONTROL NM to further develop 'Common Network Awareness' and 'Collaborative Network Planning'. The NM will offer direct, open and consolidated support through an efficient partnership approach, from planning into operations. A direct link will be ensured between network capacity planning, airspace improvements, updated airport planning, integrated data and tool availability for all planning phases, enhanced ATFCM, as well as for the planning and coordination of significant events.

The further integration of airports into the ATM Network planning function, via the 'AOP-NOP Seamless Integration' by fully integrating those landside processes within the terminal infrastructure that have a performance impact on flight predictability and efficiency with the ATM Network is important. Also integrating small/regional airports not implementing A-CDM or AOP by sharing of departure planning information with NM plays very important role in Network awareness and predictability. It also supports further integration of airports into the Network by addressing the reception from the NM of estimated landing times and is in line with the concept of 'Advanced ATC Tower'.

Solutions and implementation Objectives planned for implementation

Implementation

SESAR Solutions linked to Implementation Objectives							Stakeholders									KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#21	Airport Operations Plan and AOP-NOP Seamless Integration	AOP11.1	Initial Airport Operations Plan	2.2.1	R	31 Dec 2023	■	■														
#21	Airport Operations Plan and AOP-NOP Seamless Integration	AOP11.2	Extended Airport Operations Plan	2.2.2	R	31 Dec 2027	■	■														
#61	CWP Airport - Low Cost and Simple Departure Data Entry Panel	AOP17	Provision/integration of DEP planning info to NMOC	-	L	Open	■				■											
#17	Advanced Short-Term ATFCM Measures (STAM)	FCM04.2	Enhanced Short Term ATFCM Measures A	4.1.1	R	31 Dec 2022	■		■		■											
#19 PJ.18-02c	Automated support for Traffic Complexity Detection and Resolution eFPL distribution to ATC	FCM06.1	Traffic Complexity Assessment A	4.3.1	R	31 Dec 2022	■				■											
#18 #20	CTOT and TTA Collaborative NOP for Step 1	FCM10	Interactive rolling NOP A	4.2.1	R	31 Dec 2023	■	■	■		■											
#20 #21	Collaborative NOP for Step 1 Airport Operations Plan and AOP-NOP Seamless Integration	FCM11.1	Initial AOP/NOP Information Sharing A	4.2.2	R	31 Dec 2023	■	■			■											
#18 #20 #21	CTOT and TTA Collaborative NOP for Step 1 Airport Operations Plan and AOP-NOP Seamless Integration	FCM11.2	AOP/NOP integration A	4.4.1	R	31 Dec 2027	■	■			■											
#46	SWIM Yellow Profile	INF10.2	Stakeholders' SWIM PKI and cybersecurity A	5.2.1	R	31 Dec 2025	■	■	■		■	■		■			Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.3	Aeronautical Information Exchange - Airspace structure service A	5.3.1	R	31 Dec 2025	■				■						Depends on applications run over SWIM infrastr.					

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SESAR Solutions linked to Implementation Objectives							Stakeholders										KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#46	SWIM Yellow Profile	INF10.4	Aeronautical Information Exchange - Airspace availability service A	5.3.1	R	31 Dec 2025	■		■		■						Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.5	Aeronautical Information Exchange - Airspace Reservation (ARES) service A	5.3.1	R	31 Dec 2025	■										Depends on applications run over SWIM infrastr.					
#34 #46	Digital Integrated Briefing SWIM Yellow Profile	INF10.6	Aeronautical Information Exchange - Digital NOTAM service A	5.3.1	R	31 Dec 2025	■						■				Depends on applications run over SWIM infrastr.					
#34 #46	Digital Integrated Briefing SWIM Yellow Profile	INF10.7	Aeronautical Information Exchange - Aerodrome Mapping information exchange service A	5.3.1	R	31 Dec 2025							■				Depends on applications run over SWIM infrastr.					
#34 #46	Digital Integrated Briefing SWIM Yellow Profile	INF10.8	Aeronautical Information Exchange - Aeronautical Information Features service A	5.3.1	R	31 Dec 2025	■						■				Depends on applications run over SWIM infrastr.					
#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.9	Meteorological Information Exchange - Volcanic ash mass concentration information service A	5.4.1	R	31 Dec 2025	■				■	■					Depends on applications run over SWIM infrastr.					
#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.10	Meteorological Information Exchange - Aerodrome Meteorological information Service A	5.4.1	R	31 Dec 2025	■	■			■	■					Depends on applications run over SWIM infrastr.					
#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.11	Meteorological Information Exchange - En-Route and Approach Meteorological information service A	5.4.1	R	31 Dec 2025	■				■	■					Depends on applications run over SWIM infrastr.					
#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.12	Meteorological Information Exchange - Network Manager Meteorological Information A	5.4.1	R	31 Dec 2025	■				■	■					Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.13	Cooperative Network Information Exchange - ATFCM Tactical Updates Service A	5.5.1	R	31 Dec 2025	■				■						Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.14	Cooperative Network Information Exchange - Flight Management Service A	5.5.1	R	31 Dec 2025	■	■	■		■						Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.15	Cooperative Network Information Exchange - Measures Service A	5.5.1	R	31 Dec 2025	■		■		■						Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.16	Cooperative Network Information Exchange - Short Term ATFCM Measures services A	5.5.1	R	31 Dec 2025	■		■		■						Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.17	Cooperative Network Information Exchange - Counts service A	5.5.1	R	31 Dec 2025	■				■						Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.18	Flight Information Exchange (Yellow Profile) – Filing Service A	5.6.1	R	31 Dec 2025			■		■						Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.19	Flight Information Exchange (Yellow Profile) – Flight Data Request Service A	5.6.1	R	31 Dec 2025	■				■						Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.20	Flight Information Exchange (Yellow Profile) – Notification Service A	5.6.1	R	31 Dec 2025	■				■						Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.21	Flight Information Exchange (Yellow Profile) – Data Publication Service A	5.6.1	R	31 Dec 2025	■				■						Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.22	Flight Information Exchange (Yellow Profile) – Trial Service A	5.6.1	R	31 Dec 2025					■						Depends on applications run over SWIM infrastr.					
#46	SWIM Yellow Profile	INF10.23	Flight Information Exchange (Yellow Profile) – Extended AMAN SWIM Service A	5.6.1	R	31 Dec 2025	■										Depends on applications run over SWIM infrastr.					

Solutions not subject to an Implementation Objective. They are implemented on a voluntary basis without coordination at European level. Their progress is monitored yearly through a dedicated questionnaire via LSSIP Process.				Stakeholders										KPAs					
Solution ID	Solution Name	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#37	Extended Flight Plan	No decision	-	■		■		■											
#57	UDPP Departure	No decision	-	■	■	■		■											
#67	AOC data increasing trajectory prediction accuracy	No decision	-	■		■													
PJ.15-01	Initial Sub-regional Demand Capacity Balancing Service	No decision	-	■	■	■		■											

Objectives without any link to SESAR Solutions. Originating from SESAR definition Phase or supporting specific SES Regulations					Stakeholders										KPAs					
Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
AOM13.1	Harmonise OAT and GAT handling	-	C	31 Dec 2018	■			■		■		■		■						
COM12	NewPENS	-	C	31 Dec 2024	■	■	■		■								■			
FCM03	Collaborative flight planning A	-	C	31 Dec 2022	■				■											

More details about these solutions can be found at https://www.sesarju.eu

A Indicates that the solution or implementation objective has a reference to AAS Transition Plan

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iN PERFORMANCE CONTRIBUTION IN THE DEPLOYMENT PHASE

The charts below show how the iN-related Objectives and Solutions affect the Key Performance Areas.

The pie chart on the left side provides the different weights of the KPAs impacted by iN-related Solutions and Objectives. Safety and Capacity alone account for slightly more than 50% of the benefits of this EOC, followed by Cost and Operational Efficiency.

The bar chart on the right side, instead, provides a breakdown of the elements affecting each KPA, differentiating between the iN solutions with/without an Implementation Objective and the Implementation Objectives not associated to any solution. For this EOC, Implementation Objectives, regardless the link to a SESAR Solution, make up for the majority of the contribution to the four main KPAs, namely Safety, Capacity, Cost and Operational Efficiency.

The improved information sharing will benefit stakeholders across the entire ATM ecosystem by reinforcing the network centric approach, with the Network Manager at its core. This will not only enhance safety by improved situational awareness at network level and prevention of ATCO overload but will also have a positive impact on capacity and cost efficiency through better traffic predictions and enhanced traffic smoothing, reducing the impact of the tactical measures taken to accommodate the traffic. Substantial benefits across all the KPAs will be enabled by the multiple SWIM services expected to be deployed over the SWIM infrastructure.

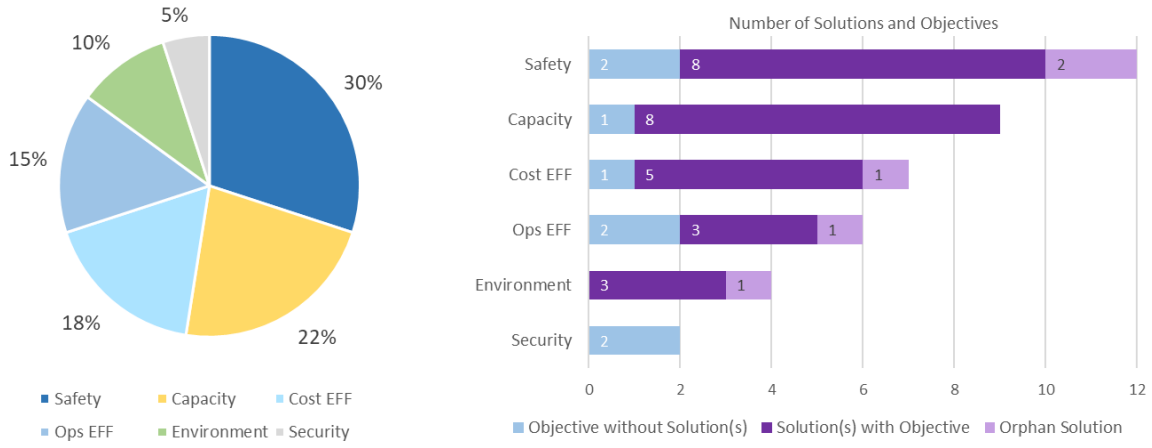

Figure 2-8 iN contribution to KPAs

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2.3 DIGITAL AIM AND MET SERVICES

dS Digital AIM and MET services

- 5 (of 88) SESAR Solutions out of which:
  - 5 Orphans, 2 of which addressed by 2 Initial Objectives
- 1 Active Objective not linked to any Solution

DS SYNOPSIS

The digitalisation of AIM and MET services will enable the implementation of services to provide static and dynamic aeronautical and meteorological information in digital form, useable by ATM systems and human operators. The output is a SWIM compliant dynamic data set, subsets of which can be retrieved by individual requests for specific geographical areas, attributes or functional features. These services will also allow the on-board acquisition, processing and distribution of AIM, MET and other operational information, including the interpretation and representation of this information within the aircraft.

Solutions and implementation Objectives planned for implementation

Implementation

SESAR Solutions linked to Implementation Objectives							Stakeholders										KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
PJ.18-04b-01	Enhanced Ground Weather Management System (GWMS) as local 4DWxCube	INF11.1	Enhanced Ground Weather Management System (GWMS) as local 4DWxCube	-	No decision	Initial		■				■										
PJ.18-04b-02	Cb-global capability and service	INF11.2	Cb-global capability and service	-	No decision	Initial			■			■										

Solutions not subject to an Implementation Objective. They are implemented on a voluntary basis without coordination at European level. Their progress is monitored yearly through a dedicated questionnaire via LSSIP Process.				Stakeholders										KPAs					
Solution ID	Solution Name	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
PJ.15-10	Aeronautical data service	No decision	-	■	■	■		■											
PJ.15-11	Aeronautical digital map service	No decision	-	■	■	■		■											
PJ.18-04a	Aeronautical Dataset service	No decision	-	■	■	■		■											

Objectives without any link to SESAR Solutions. Originating from SESAR definition Phase or supporting specific SES Regulations					Stakeholders										KPAs					
Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
INF07	Electronic Terrain and Obstacle Data (e-TOD)	-	C	31 Dec 2018	■	■		■												

More details about these solutions can be found at https://www.sesarju.eu

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dS PERFORMANCE CONTRIBUTION IN THE DEPLOYMENT PHASE

The charts below show how the dS-related Objectives and Solutions affect the Key Performance Areas.

The pie chart on the left side provides the different weights of the KPAs impacted by dS-related Solutions and Objectives. Cost Efficiency, Security and Safety almost take an even split. In terms of elements contributing to these KPAs, the bar chart of the right shows Objectives and Orphan Solutions take an almost even stake in contributing to the three KPAs.

The elements within the EOC are instrumental in the quest for further digitalisation and creation of a cutting-edge European Single Digital Sky. The availability of quality-assured, secure and up-to-date digital information will improve not only the safety but also the cost-efficiency of the air navigation service provision by supporting the deployment of new concepts of operations.

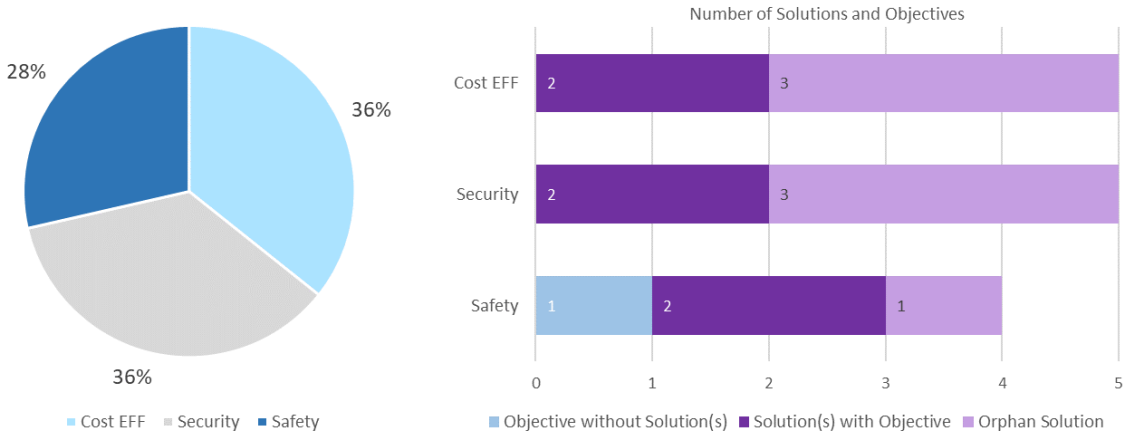

Figure 2-9 dS contribution to KPAs

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2.4 AIRPORT AND TMA PERFORMANCE

ATp Airport and TMA performance

- 35 (of 88) SESAR Solutions out of which:
  - 22 addressed by 19 Active Objectives
  - 13 Orphans
    - 2 of which in Implementation Phase addressed by 2 Initial Objectives
    - 1 of which in Industrialisation Phase addressed by 1 Initial Objective
- 6 Active Objectives not linked to any Solution

ATP SYNOPSIS

This EOC covers both changes to operations at airports and in TMA airspace that allow maintenance of operational capacity under limiting conditions and changes that allow an increase in operational capacity during normal operations. This includes improvements to the planning and execution of operations at and around airports, such as traffic sequencing, reduced separation, reduced and more predictable runway occupancy time, and enhanced management of taxiway throughput, for both arrivals and departures. ATp also addresses the required coordination with TMA operations when aircraft sequencing for the runway begins, and, in addition, with extended arrival management in en-route airspace. It also includes solutions that increase the safety of operations and seeks to reduce environmental impact at or near airports. Enhanced navigation and greater accuracy in LVP on the airport surface need to be made possible by the introduction of new airborne CNS capabilities.

Solutions and implementation Objectives planned for implementation

Implementation

SESAR Solutions linked to Implementation Objectives							Stakeholders									KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#70 #110	Enhanced Ground Controller Situation Awareness in all Weather Conditions ADS-B surveillance of aircraft in flight and on the surface	AOP04.1	A-SMGCS Surveillance Service (former ICAO Level 1)	-	C	31 Dec 2020	■		■	■												
#64	Time Based Separation	AOP10	Time Based Separation	-	C	31 Dec 2023	■		■	■												
#02	Airport Safety Nets for controllers: conformance monitoring alerts and detection of conflicting ATC clearances	AOP12.1	Airport Safety Nets	2.3.1	R	31 Dec 2025	■	■														
#22 #53	Automated Assistance to Controller for Surface Movement Planning and Routing Pre-Departure Sequencing supported by Route Planning	AOP13	Automated Assistance to ATCO for Surface planning and routing	-	C	31 Dec 2025	■			■												
#04	Enhanced Traffic Situational Awareness and Airport Safety Nets for the vehicle drivers	AOP15	Safety Nets for Vehicle Drivers	-	L	Open			■	■					■							
#47	Guidance Assistance through Airfield Ground Lighting	AOP16	Guidance assistance through AGL	-	L	Open	■	■	■						■							
#01	Runway Status Lights	AOP18	Runway Status Lights (RWSL)	-	L	Open	■	■	■	■					■							
#53 #106	Pre-Departure Sequencing supported by Route Planning DMAN Baseline for integrated AMAN DMAN	AOP19	Departure Management Synchronised with Pre-departure sequencing	2.1.1	R	31 Dec 2022	■	■														
PJ.02-01-06	Wake Turbulence Separations (for Departures) based on Static Aircraft Characteristics	AOP20	Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)	-	No decision	Initial	■								■							
PJ.02-01-04	Wake Turbulence Separations (for Arrivals) based on Static Aircraft Characteristics	AOP21	Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)	-	L	Open	■								■							
PJ.02-08-01	Integrated Runway Sequence for full traffic Optimization on Single and Multiple Runway Airports	AOP23	Integrated runway sequence for full traffic optimization on single and multiple runway airports	-	L	Open	■	■														
PJ.02-08-02	Optimised use of runway configuration for multiple runway airports	AOP24	Optimised use of runway configuration for multiple runway airports	-	No decision	Initial	■	■														
#116	De-icing Management Tool	AOP25	De-icing Management Tool	-	L	Open	■	■														
PJ.02-08-03	Reduced separation based on local Runway Occupancy Time characterisation	AOP26	Reduced separation based on local Runway Occupancy Time characterisation	-	L	Open	■															
#54	Flow based Integration of Arrival and Departure Management	ATC19	AMAN/DMAN integration	1.2.1	R	31 Dec 2027	■	■														
#107	Point Merge in complex TMA	ATC26	Point Merge in complex TMA	-	L	Open	■		■													
#11	Continuous Descent Operations (CDO)	ENV01	Continuous Descent Operations	-	C	31 Dec 2023	■	■	■													
#62	P-RNAV in a complex TMA	NAV03.1	RNAV1 in TMA Operations	-	R	06 Jun 2030	■		■	■												

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SESAR Solutions linked to Implementation Objectives							Stakeholders										KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#09 #51 PJ.14-03-04	Enhanced terminal operations with automatic RNP transition to ILS/GLS Enhanced terminal operations with LPV procedures RNP1 reversion based on DME/DME	NAV03.2	RNP1 in TMA Operations	-	R	06 Jun 2030	■		■	■												
#119	GLS CAT II operations using GBAS GAST-C	NAV11.1	GLS CAT II operations using GBAS GAST-C	-	L	Open	■		■	■												

Solutions not subject to an Implementation Objective. They are implemented on a voluntary basis without coordination at European level. Their progress is monitored yearly through a dedicated questionnaire via LSSIP Process.				Stakeholders										KPAs					
Solution ID	Solution Name	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#108	AMAN and Point Merge	No decision	-	■															
#48	Virtual Block Control in LVPs	No decision	-	■	■	■									■				
PJ.02-01-01	Optimised Runway Delivery on Final Approach	No decision	-	■	■	■													
PJ.02-01-02	Optimised Runway Delivery on Final Approach	No decision	-	■	■	■													
PJ.02-01-03	Weather-Dependent Reductions of Wake Turbulence Separations for Departures	No decision	-	■	■	■													
PJ.02-01-05	Weather-Dependent Reductions of Wake Turbulence Separations for Final Approach	No decision	-	■	■	■													
PJ.02-01-07	Wake Decay Enhancing Devices	No decision	-	■	■	■													
PJ.15-02	E-AMAN service	No decision	-	■	■	■		■								■			
PJ.25-01	Collaborative Decision Making (CDM) between airports, TMAs and ACCs for Overlapping AMANs	No decision	-	■		■		■											
PJ.25-02	Target Time of Arrival (TTA) management for seamless integration of out-of-area arrival flights	No decision	-	■		■		■											

Objectives without any link to SESAR Solutions. Originating from SESAR definition Phase or supporting specific SES Regulations				Stakeholders										KPAs					
Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
AOP04.2	A-SMGCS RMCA (former ICAO Level 2)	-	C	31 Dec 2025	■	■														
AOP05	Airport CDM	-	C	31 Dec 2020	■	■	■		■								■			
ATC07.1	AMAN Tools and Procedures	-	C	31 Dec 2019	■															
ENV02	Airport Collaborative Env. Management	-	L	Open	■	■	■													
ENV03	Continuous Climb Operations	-	L	Open	■	■	■									■				
SAF11.1	Improve RWY safety by preventing RWY excursions	-	L	Open	■	■	■	■										■		

Solutions available for industrialisation / standardisation and linked to Implementation Objectives

Industrialisation

SESAR Solutions in Industrialisation Phase linked to Implementation Objectives							Stakeholders										KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
PJ.02-03	Minimum-Pair separations based on RSP	AOP22	Minimum pair separations based on RSP	-	No decision	Initial	■								■							

More details about these solutions can be found at https://www.sesarju.eu

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ATp PERFORMANCE CONTRIBUTION IN THE DEPLOYMENT PHASE

The charts below show how the ATp-related Objectives and Solutions affect the Key Performance Areas.

The pie chart on the left side provides the different weights of the KPAs impacted by ATp -related Solutions and Objectives. Safety prevails with an impact of 28%, followed by Capacity and Operational Efficiency with almost an even split.

The bar chart on the right side, instead, provides a breakdown of the elements affecting each KPA, differentiating between the ATp solutions with/without an Implementation Objective and the implementation objectives not associated to any solution. For the four most impacting KPAs, namely Safety, Capacity, Operational Efficiency and Environment, the number of Implementation Objectives clearly prevails over Orphan Solutions in the Implementation Phase.

By addressing the operational environments at and around airports, the elements of the EOC are potentially addressing hundreds of airports in Europe. These elements are not only benefiting the large airports handling substantial amounts of traffic but also smaller airports by providing tailor made solutions, fit for different needs and environments. The main expected performance contribution is in the field of safety, by the deployment of various levels of airport safety nets, providing incremental capabilities, from basic, to functionalities adapted to very complex airport environments. The capacity performance area will also benefit through increased runway throughput as well as optimised traffic flows in the terminal areas.

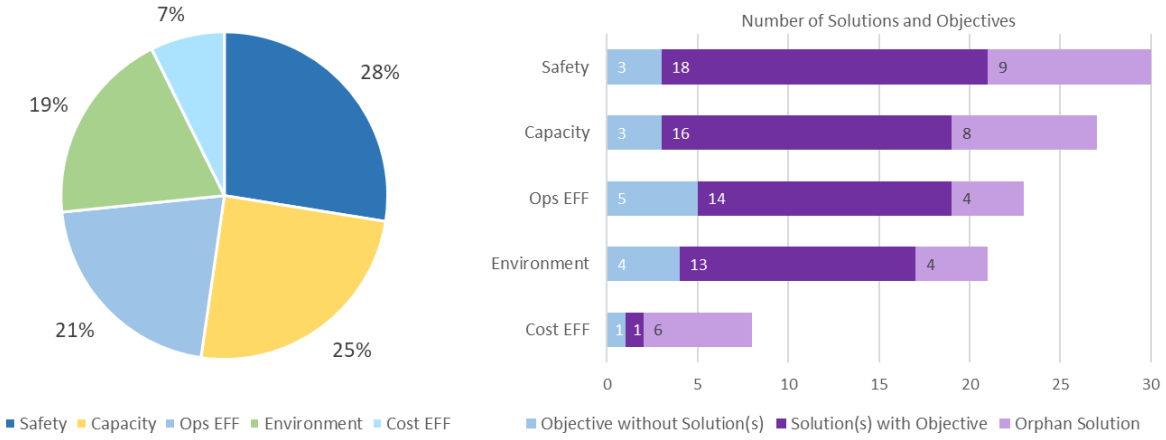

Figure 2-10 ATp contribution to KPAs

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2.5 Fully Dynamic and Optimized Airspace Organisation

dA Fully dynamic and optimised airspace

- 12 (of 88) SESAR Solutions out of which:
  - 8 addressed by 6 Active Objectives
  - 1 addressed by 1 Achieved Objective
  - 3 Orphans
- 3 Active Objectives not linked to any Solution

dA Synopsis

This EOC includes further steps towards TBO by enhancing free-route airspace (FRA) processes and system support. It will need to cover large-scale cross-border FRA. There is a need to ensure a smooth transition between FRA and highly structured airspace based on dynamic airspace configuration (DAC) principles. There is also a need for more dynamic, accurate and precise information on constraints, to allow the extension of FRA and the accommodation of different business trajectories.

Extended AMAN horizon of up to 200 nautical miles from the arrival airport, increases predictability and resilience at an airport. The change in ATCO team organisation at ATCU by multi-sector planner (MSP) providing support to several tactical controllers operating in different adjacent sectors is expected to improve cost efficiency. The adoption of modular airspace reservations (ARES) using the variable profile area (VPA) design principles, facilitates a better response to military requirements and constraints and enhances civil-military coordination including real time airspace status update for defining different airspace scenarios with acceptable network impact.

Solutions and implementation Objectives planned for implementation

Implementation

SESAR Solutions linked to Implementation Objectives							Stakeholders										KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEP	CEF	SAF	ENV	SEC
#31 #66	Variable profile military reserved areas and enhanced (further automated) civil-military collaboration Automated Support for Dynamic Sectorisation	AOM19.4	Management of Pre-defined Airspace Configurations A	3.1.2	R	31 Dec 2022	■				■											
#31 #66	Variable profile military reserved areas and enhanced (further automated) civil-military collaboration Automated Support for Dynamic Sectorisation	AOM19.5	ASM and A-FUA A	3.1.1	R	31 Dec 2022	■		■		■											
#32 #33 #66	Free Route through the use of Direct Routing Free Route through Free Routing for Flights both in cruise and vertically evolving above a specified Flight Level Automated Support for Dynamic Sectorisation	AOM21.2	Initial Free Route Airspace A	3.2.1	R	31 Dec 2022	■		■		■											
#33 PJ.06-01	Free Route through Free Routing for Flights both in cruise and vertically evolving above a specified Flight Level Optimized traffic management to enable Free Routing in high and very high complexity cross border environments	AOM21.3	Enhanced Free Route Airspace Operations A	3.2.2	R	31 Dec 2025	■		■		■											
#27 #104	MTCD and conformance monitoring tools Sector Team Operations - En-route Air Traffic Organiser	ATC12.1	MONA, TCT and MTCD	-	C	31 Dec 2021	■															
#05	Extended Arrival Management (AMAN) horizon	ATC15.2	Arrival Management Extended to En-route Airspace A	1.1.1	R	31 Dec 2024	■				■											
#63	Multi Sector Planning	ATC18	Multi Sector Planning En-route 1P2T	-	L	Open	■															

Solutions not subject to an Implementation Objective. They are implemented on a voluntary basis without coordination at European level. Their progress is monitored yearly through a dedicated questionnaire via LSSIP Process.				Stakeholders											KPAs					
Solution ID	Solution Name	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEP	CEF	SAF	ENV	SEC
#10	Optimised Route Network using Advanced RNP	No decision	-	■		■		■											
#118	Basic EAP (Extended ATC Planning) function	No decision	-	■	■	■		■											
PJ.10-01a1	High Productivity Controller Team Organisation in En-Route (1PC –2ECs)	No decision	-	■															

Objectives without any link to SESAR Solutions. Originating from SESAR definition Phase or supporting specific SES Regulations					Stakeholders										KPAs					
Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEP	CEF	SAF	ENV	SEC
ATC15.1	Information Exchange with en-route in Support of AMAN	-	C	31 Dec 2019	■		■	■												
ITY-FMTP	Common flight message transfer protocol (FMTP) A	-	R	31 Dec 2014	■							■								
SAF10.1	Implement measures to reduce the risk to aircraft operations caused by airspace infringements	-	L	Open	■		■	■			■									

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More details about these solutions can be found at https://www.sesarju.eu

A Indicates that the solution or implementation objective has a reference to AAS Transition Plan

dA PERFORMANCE CONTRIBUTION IN THE DEPLOYMENT PHASE

The charts below show how the dA-related Objectives and Solutions affect the Key Performance Areas.

The pie chart on the left side provides the different weights of the KPAs impacted by dA-related Solutions and Objectives. Capacity is the most affected one (25%), closely followed by Operational Efficiency, Safety, and Environment, which settle around 20% each.

The bar chart on the right side, instead, provides a breakdown of the elements affecting each KPA, differentiating between the dA solutions with/without an Implementation Objective and the implementation objectives not associated to any solution. The main contribution to KPAs derives from Objectives linked to Solutions.

The EOC is expected to bring benefits mainly in the Capacity area, in particular through better airspace utilisation and increased sector team productivity. The potential for improved operational efficiency is not to be neglected either, through improved arrival flows and increased use of preferred flight profiles with a direct contribution to reduced fuel burn and emissions.

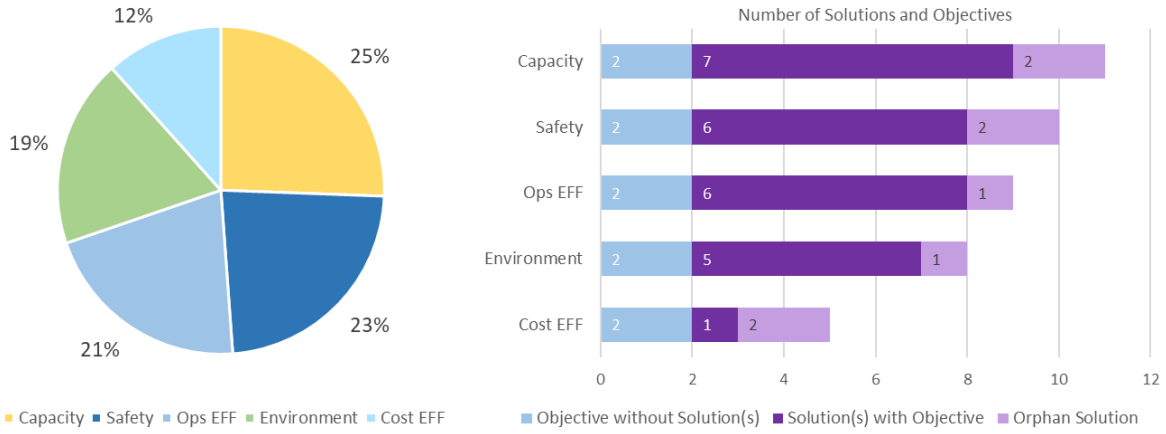

Figure 2-11 dA contribution to KPAs

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2.6 TRAJECTORY BASED OPERATIONS

- 9 (of 88) SESAR Solutions out of which:
  - 1 addressed by 1 Active Objective
  - 8 Orphans, 2 of which in Industrialisation Phase addressed by 4 Initial Objectives
- 1 Active Objective not linked to any Solution

TBO SYNOPSIS

The integration of trajectory management processes into the planning and execution phases will involve the management, negotiation and sharing of the shared business trajectory (SBT) as well as the management, updating, revision and sharing of the reference business trajectory (RBT) and finally the transition from the SBT to the RBT. The EOC also includes some legacy deployments (ground-based and airborne safety nets) that are already validated concepts, but have been included as they will facilitate trajectory execution for specific low-capability aircraft or in fall-back procedures.

Progressive increase of automation support as an enabler of trajectory-based operations (TBO) will reduce manual intervention, allowing controllers to handle more aircraft at any time. This will include providing support to the controllers to deal with sector specifics, enabling them to control traffic within a substantially increased number of sectors.

Solutions and implementation Objectives planned for implementation

Implementation

SESAR Solutions linked to Implementation Objectives							Stakeholders										KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#69	Enhanced STCA with down-linked parameters	ATC20	Enhanced STCA with DAPs via Mode S EHS	-	L	Open	■			■												

Solutions not subject to an Implementation Objective. They are implemented on a voluntary basis without coordination at European level. Their progress is monitored yearly through a dedicated questionnaire via LSSIP Process.				Stakeholders										KPAs					
Solution ID	Solution Name	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#06	Controlled Time of Arrival (CTA) in Medium density / medium complexity environment	No decision	-	■	■	■		■											
#08	Arrival Management into Multiple Airports	No decision	-	■	■														
#100	ACAS Ground Monitoring and Presentation system	No decision	-	■		■													
#101	Extended hybrid surveillance	No decision	-	■	■	■													
PJ.07-01-01	Reactive Flight Delay Criticality Indicator	No decision	-	■		■		■											
PJ.10-02a1	Integrated tactical and medium Conflict Detection & Resolution (CD&R) services and Conformance Monitoring tools for En-Route and TMA	No decision	-	■		■													

Objectives without any link to SESAR Solutions. Originating from SESAR definition Phase or supporting specific SES Regulations					Stakeholders									KPAs					
Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
ATC02.8	Ground based safety nets	-	C	31 Dec 2021	■															

Solutions available for industrialisation / standardisation and linked to Implementation Objectives

Industrialisation

SESAR Solutions in Industrialisation Phase linked to Implementation Objectives							Stakeholders										KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#115	Extended Projected Profile (EPP) availability on ground	ATC22	Initial Air-Ground Trajectory Information Sharing (Airborne Domain) A	6.1.1	R	31 Dec 2027			■													
#115 PJ.18-06b1	Extended Projected Profile (EPP) availability on ground NM Profile Improvement using ADS-C	ATC23	Initial Air-Ground Trajectory Information Sharing (Ground Domain) A	6.1.2	R	31 Dec 2027	■															
PJ.18-06b1	NM Profile Improvement using ADS-C	ATC24	Network Manager Trajectory Information Enhancement	6.2.1	R	31 Dec 2027					■											
#115	Extended Projected Profile (EPP) availability on ground	ATC25	Initial Trajectory Information Sharing ground distribution A	6.3.1	R	31 Dec 2027	■				■											

EUROPEAN PARTNERSHIP

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More details about these solutions can be found at https://www.sesarju.eu

A Indicates that the solution or implementation objective has a reference to AAS Transition Plan

TBO PERFORMANCE CONTRIBUTION IN THE DEPLOYMENT PHASE

The charts below show how the TBO-related Objectives and Solutions affect the Key Performance Areas.

The pie chart on the left side provides the different weights of the KPAs impacted by TBO-related Solutions and Objectives. Safety takes almost half of the weight, while the others KPAs take almost even stake.

The bar chart on the right side, instead, provides a breakdown of the elements affecting each KPA, differentiating between the TBO solutions with/without an Implementation Objective and the Implementation Objectives not associated to any solution. For this EOC, Implementation Objectives greatly contribute to the area of Safety, whilst the others KPAs are only addressed by Orphan Solutions.

In particular, Safety takes such a wide portion due to the various measures meant to improve this KPA. Among others, the Solutions and Objectives in this EOC allow to detect unauthorised penetrations into airspace volumes ahead of their occurrence, spot possible infringements of minimum safe altitudes in due time, signal deviations from the glide path. Moreover, they contribute to improve warning times, decrease the rate of nuisance alerts and increase the rate of genuine alerts.

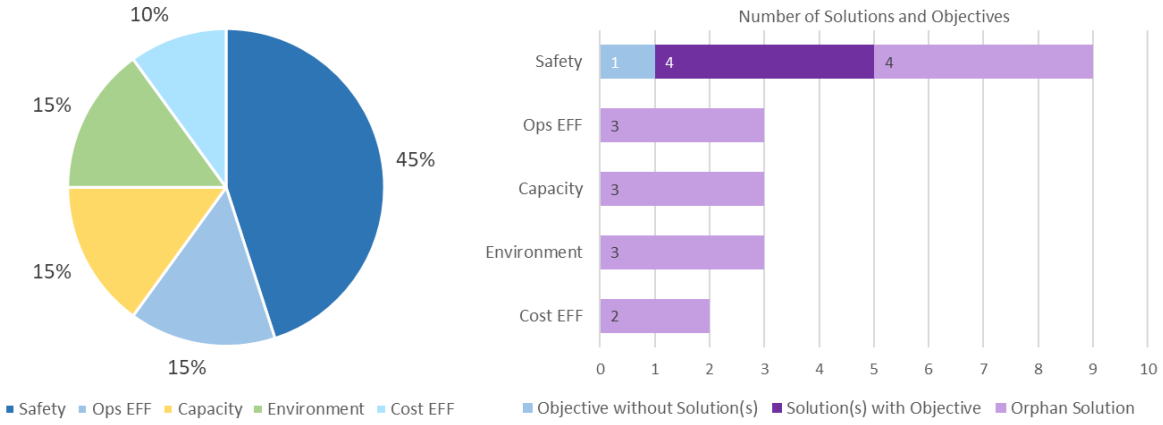

Figure 2-12 TBO contribution to KPAs

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2.7 MULTIMODAL MOBILITY AND INTEGRATION OF ALL AIRSPACE USERS

M3 Multimodal mobility and integration of all airspace users

❖ 1 (of 88) SESAR Solutions addressed by 1 Active Objective

M³ SYNOPSIS

This EOC supports a safe, efficient and green travel experience and promotes use of the most appropriate means of transport. Mobility as a service will take intermodality to the next level, connecting numerous modes of transport, for people and goods, in seamless door-to-door services. Various modes of transport, such as car, train, helicopter, drone and aircraft, for different segments of a trip will be seamlessly combined. The integration of RPAS, rotorcraft, and business and general aviation operations through IFR procedures using performance-based CNS infrastructure in the airspace surrounding airports, as well as in TMAs, is a priority.

Solutions and implementation Objectives planned for implementation

Implementation

SESAR Solutions linked to Implementation Objectives							Stakeholders									KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#113	Optimised low-level instrument flight rules (IFR) routes for rotorcraft	NAV12	ATS IFR Routes for Rotorcraft Operations	-	R	06 Jun 2030																

More details about these solutions can be found at https://www.sesarju.eu

M³ PERFORMANCE CONTRIBUTION IN THE DEPLOYMENT PHASE

The charts below show how the M³-related Objectives and Solutions affect the Key Performance Areas.

The pie chart on the left provides the different weights of the KPAs impacted by M³-related Solutions and Objectives, while the bar chart on the right side provides a breakdown of the elements affecting each KPA. The charts show how the only Implementation Objective included in the present EOC contributes to Cost Efficiency, Operational Efficiency, Safety and Environment which consequently take a 25% weight each.

For the time being the EOC is only focussing on the development of ATS IFR routes for rotorcraft operations, with expected benefits driven by reduced track mileage, enhanced transition from the en-route phase to the approach phase to the Final Approach and Take off Area-FATO (and vice versa), more direct routing in dense terminal airspace and an increase of passenger throughput at medium and large airports.

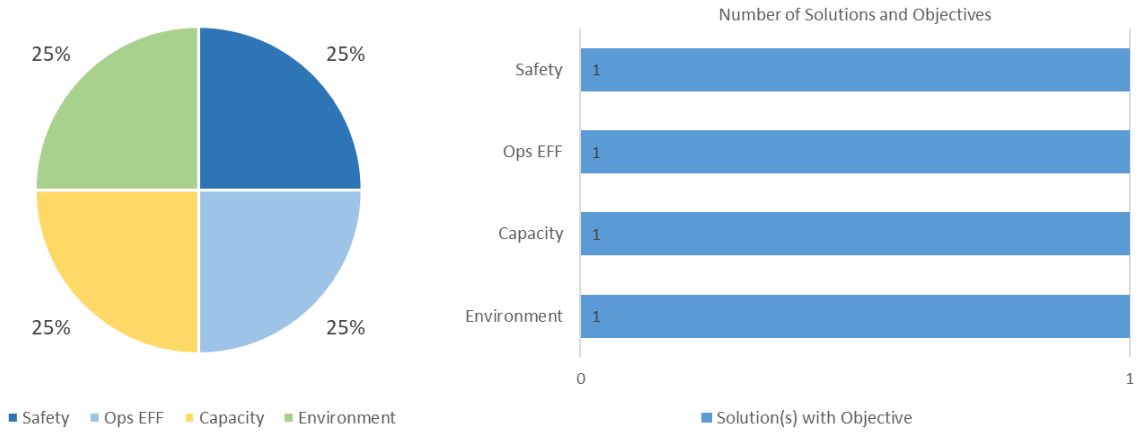

Figure 2-13 M3 contribution to KPAs

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2.8 U-SPACE SERVICES

❖ 13 SESAR Solutions in Industrialisation Phase

U-S SYNOPSIS

U-space is an enabling framework including a set of new services along with specific procedures designed to support safe, efficient and secure access to airspace for large numbers of drones. U-space is therefore not to be considered a defined volume of airspace, which is segregated and designated for the sole use of drones. U-space services will rely on a high level of digitalisation and automation of functions, whether on board the drone or as an element of the ground-based environment. Therefore, the implementation of the new services is associated with airborne capabilities and adequate/qualified ground infrastructure.

Complementary infrastructure may be required if the existing ATM infrastructure does not meet requirements. The U-space framework includes a safe, secure, clear and effective interface with manned aviation, with ATM services / ANS providers and with the relevant authorities. U-space is capable of ensuring the smooth operation of drones in all operating environments and in all types of airspace. U-space operations will also enable national military airspace defence systems to react to any drone-related situation deemed critical to national security. U-space is developed and deployed in an agile way using short life cycles in which technologies are deployed as they become mature. This is done in four phases (U1, U2, U3 and U4), which serve as the basis for the gradual deployment of services.

Solutions available for industrialisation/standardisation

Industrialisation

Solutions available for industrialisation / standardisation		KPAs						MP Vision Phase
SOL #	Solution Name	CAP	OEF	CEF	SAF	ENV	SEC	
U1S-01	e-Registration service	Not available						A
U1S-02	e-Identification service	Not available						A
U1S-03	Pre-tactical geo-fencing service	Not available						A
U2S-01	Tactical geo-fencing service	Not available						B
U2S-02	Emergency Management Service	Not available						B
U2S-03	Strategic de-confliction service	Not available						B
U2S-04	Weather information service	Not available						B
U2S-05	Tracking service	Not available						B
U2S-06	Flight planning management service	Not available						B
U2S-07	Monitoring service	Not available						B
U2S-08	Traffic information service	Not available						B
U2S-09	Drone aeronautical information management service	Not available						B
U2S-10	Procedural Interface with ATC service	Not available						B

More details about these solutions can be found at https://www.sesarju.eu

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2.9 VIRTUALISATION OF SERVICE PROVISION

- 7 (of 88) SESAR Solutions out of which:
  - 4 addressed by 1 Active Objective
  - 3 Orphans, 1 of which in Industrialisation Phase addressed by 1 Initial Objective

vS SYNOPSIS

The ability to provide ATS from a remote location is relevant in all operating environments: airport, TMA or en route. In TMA and en-route environments, the virtual-centre concept allows a geographical sector to be managed from any place subject to the availability of some services crucial for the provision of ATS, namely CNS, MET, AIS and all data related to the flight plan.

In airport environments, the remote TWR concept supports several use cases that allow the provision of ATS from a remote TWR centre (RTC), with a dynamic allocation of a number of physical aerodromes to remote TWR modules. It offers new alternatives for the provision of TWR ATS and in some cases reduces ANS costs. The integration of APP services to these airports through a remote virtual centre is also possible.

Solutions and implementation Objectives planned for implementation

Implementation

SESAR Solutions linked to Implementation Objectives							Stakeholders									KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
#12 #13 #52 #71	Single Remote Tower operations for medium traffic volumes Remotely Provided Air Traffic Service for Contingency Situations at Aerodromes Remote Tower for two low density aerodromes ATC and AFIS service in a single low density aerodrome from a remote CWP	AOP14.1	Remote Tower Services	-	L	Open	■	■		■												

Solutions not subject to an Implementation Objective. They are implemented on a voluntary basis without coordination at European level. Their progress is monitored yearly through a dedicated questionnaire via LSSIP Process.				Stakeholders									KPAs					
Solution ID	Solution Name	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
PJ.16-04-01	Multi-Touch Input at the Controller Working Position	No decision	-	■															
PJ.16-03	Enabling rationalisation of infrastructure using virtual centre based technology (OD-5)	No decision	-	■			■												

Solutions available for industrialisation / standardisation and linked to Implementation Objectives

Industrialisation

SESAR Solutions in Industrialisation Phase linked to Implementation Objectives							Stakeholders									KPAs					
Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	ASP	APO	USE	REG	NM	MET	AIS	MIL	INT	IND	CAP	OEF	CEF	SAF	ENV	SEC
PJ.05-02	Multiple remote tower module	AOP14.2	Multiple Remote Tower Module	-	No decision	Initial	■			■												

More details about these solutions can be found at https://www.sesarju.eu

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vS PERFORMANCE CONTRIBUTION IN THE DEPLOYMENT PHASE

The charts below show how the vS-related Objectives and Solutions affect the Key Performance Areas.

The pie chart on the left side provides the different weights of the KPAs impacted by vS-related Solutions and Objectives. Cost Efficiency has the biggest share (50%), followed by Security and Operational Efficiency with 25% each.

In particular, the Solutions in this EOC allow improving the uniformity of the service provision in low to medium density and remote aerodromes, whilst increasing its availability. This brings a high cost reduction through the optimisation of ATCOs and cuts in maintenance expenses.

The bar chart on the right side, instead, provides a breakdown of the elements affecting each KPA, differentiating between the vS solutions with/without an Implementation Objective and the implementation objectives not associated to any solution. Whilst Cost and Operational Efficiency are addressed by both Objectives ad Orphan Solutions, Security is only affected by two Orphan Solutions.

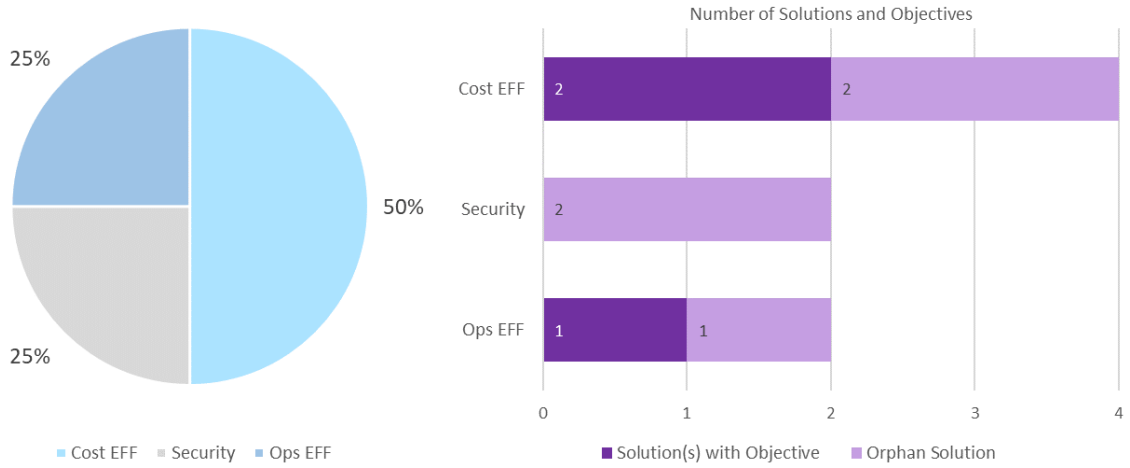

Figure 2-14 vS contribution to KPAs

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3 DEPLOYMENT VIEW

The Deployment View is organised per Essential Operational Change (EOC). While each Deployment View provides a full description of the implementation objectives, it remains Solution centric.

Each View is structured in a table layout where each box includes key information of the implementation objective, providing the reader with a one-pager picture as explained in the example below:

<table>
<tr><td> 

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[3] Local Single Sky ImPlementation (LSSIP) – ECAC-wide EUROCONTROL reporting process on Single European Sky ATM changes

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3.1 CNS INFRASTRUCTURE AND SERVICES

CNS infrastructure and services	**Deployment Scenario Cooperative SUR ADS-B / WAM**
Phase B - #114	**Composite surveillance ADS-B/WAM[4]**
ATC21	**Composite surveillance (ADS-B/WAM)**

This implementation objective is addressing a surveillance system that exploits the similarities between the two surveillance techniques (ADS-B and WAM) and combines them into a single system. The term composite is used to signify that various system components and data items are shared whilst ensuring that the required degree of channel autonomy/independence is retained. ADS-B information received by WAM system is evaluated and if matching with WAM information extracted by others methods, then it´s used in the WAM output. Information is then periodically re-evaluated. The exploitation of synergies between the two surveillance techniques into a "composite surveillance system" supports a number of benefits: e.g., cost savings achieved through the co-mounting of system components into a single unit, reducing the 1030/1090 MHz footprint of a WAM surveillance system especially a reduction in the number of 1030 MHz interrogations. Enabling the allowance of temporary reductions in ADS-B quality indicator values, by resolving ADS-B data-to-track association issues related to non-unique 24-bit addresses, by reducing the effects on the resulting along-track horizontal position error.

FOC Date	n/a (Initial Objective)	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	-	-
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs	ASUR-B0/1, ASUR-B0/2	
Stakeholders	ANSPs, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: n/a

Applicable Standards and Regulations:
Regulation (EU) No 2020/587 amending Regulation (EU) No 1206/2011 (ACID) and Regulation (EU) No 1207/2011 (SPI)

Benefits

System provides two surveillance layers sharing HW components, with the associated **cost reduction**. Increases **security** of ADS-B surveillance layer by verification of received information.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- EUROCONTROL Specification for European Mode S Station (EMS)
- MOPS Mode S GA transponder ED-115A, EUROCAE
- TS for WAM Ground System with Composite Surveillance Functionality, ED-142A, EUROCAE
- TS for an ADS-B Ground System, ED-129C, EUROCAE
- Wide Area Multilateration (WAM) systems Harmonised Standard for access to radio spectrum, EN 303 489 (V 1.1.1), ETSI

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

Regulatory Authorities[5] have to mandate the airborne carriage and operation of suitable equipment (ADS-B transponders).

ANSPs have to deploy composite surveillance ADS-B/WAM systems.

Airspace Users[6] have to equip the aircraft with ADS-B out systems and get airworthiness certification and operational approval.

[4] Solution in Industrialisation Phase

[5] For the EU+ States, the carriage requirement is addressed by Regulation (EU) No 1207/2011 (the Surveillance Performance and Interoperability (SPI) Regulation) as amended. However, this SLoA may be applicable in case the State wishes to extend the carriage requirements beyond the scope of the SPI IR. The non-EU States may have to issue local mandates for the carriage and operation of ADS-B transponders.

[6] The aircraft systems are assumed compliant with EU Regulation 1207/2011 (Surveillance Performance and Interoperability Implementing Rule - SPI IR) as amended.

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CNS infrastructure and services	**Deployment Scenario** -
SOLUTION #	**-**
COM10.2	**Extended AMHS**

AFTN, complemented in Europe by the CIDIN, has provided an effective store-and-forward messaging service for the conveyance of text messages, using character-oriented procedures, for many years. However, AFTN/CIDIN technology is now becoming obsolete, and is not sufficiently flexible to support future messaging requirements. It is intended that existing AFTN and CIDIN users and systems will transition to more modern technology, using the ATSMHS application, defined by ICAO to replace the AFTN telegraphic style of working with a store-and-forward message handling system based on international standards and providing enhanced functionality.
The purpose of this objective is to enable EATM Network-wide support of a specific profile of the **Extended level of service** of the ATSMHS (ATS Message Handling Service), as defined by ICAO.

FOC Date	31/12/2024	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	77%	ICAO ASBUs	COMI-B0/7	
Stakeholders	ANSPs, EUROCONTROL Industry	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC+ States

Applicable Standards and Regulations: EUROCONTROL Specification on the ATS Message Handling System (AMHS) Edition 2.1

Benefits 

Use of COTS messaging systems will de-facto reduce the cost of messaging services and support any kind of message format including the exchange of new binary data leading to lower ANS provision costs. Benefits resulting from the application of a harmonised set of safety requirements. AMHS security services may help to protect against safety hazards such as accidental or deliberate message corruption and can provide protection against undetected misdelivery.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Enhance AMHS capability (provide the Extended ATSMHS in accordance with the profile specified in the AMHS Community Specification);
2. Ensure that the AMHS systems and associated procedures comply with the AMHS Community Specification;
3. Organise personnel awareness and training;
4. Participate in AMC activities for ATS Messaging Management.

Industry has to ensure that the available AMHS systems comply with the AMHS Community Specification.

EUROCONTROL has to:

1. Provide AMC (ATS Messaging Management Centre) service;
2. Enhance AMHS capability (Extended ATSMHS);
3. Develop further relevant elements of the Extended ATSMHS in AMHS Community Specification;
4. Implement AMHS-CS compliance testing methodology and tools;
5. Support personnel training.

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CNS infrastructure and services	**Deployment Scenario** -
SOLUTION #	**-**
COM11.1	**VoIP in En-Route**

This Implementation Objective aims at an efficient use of voice over Internet protocol (VoIP) by harmonised and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation. The initiative covers inter centre (encompassing all type of ATM Units) voice communication and the links with the ground radio stations. Inter-centre voice communications are currently mainly performed via analogue and digital circuits. This legacy ATM voice services will soon no longer be supported by the European telecommunication service providers, making the use of new technology necessary.
COM11.1 is applicable to 'En-Route' and 'Network' Operating Environments.

FOC Date	31/12/2021	Dependencies	-	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	-	-
Completion Rate 2022	33%	ICAO ASBUs	COMI-B2/1	
Stakeholders	ANSPs	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC+ States except: Armenia, Luxembourg

Applicable Standards and Regulations:

- ICAO - Doc 9896 ed.2 - Manual for the ATN using IPS Standards and Protocols
- EUROCAE - ED-136 - VoIP ATM System Operational and Technical Requirements
- EUROCAE - ED-137B - Interoperability Standards for VoIP ATM Components (Volumes 1 to 5)
- EUROCAE - ED-137C - Interoperability Standards for VoIP ATM Components (Volume 1)
- EUROCAE - ED-138 - Network Requirements and Performances for VoIP ATM Systems (Part 1 and 2)

Benefits 

Capacity maintained or improved by providing enhanced signalisation functions. Reduced costs by enabling flexible and dynamic use of ANSP resources, leading to long-term savings. Safety maintained or improved by providing enhanced signalisation functions and by providing a more resilient infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Upgrade and put into service voice communication systems to support VoIP inter-centre telephony by upgrading voice communication systems and their HMI to enable inter-centre communication using VoIP telephony at ATS units providing services en-route.
2. Upgrade and put into service voice communication systems to support VoIP links to the ground radio stations by upgrading voice communication systems to enable the operators to perform AG radio communication using VoIP links between VCS and ground radio stations, for services provided en-route.

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CNS infrastructure and services	**Deployment Scenario** -
SOLUTION #	**-**
COM11.2	**VoIP in Airport/Terminal**

This Implementation Objective aims at an efficient use of voice over Internet protocol (VoIP) by harmonised and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation. The initiative covers centre-tower voice communication and the links with the ground radio stations. Centre-tower voice communications are currently mainly performed via analogue and digital circuits. This legacy ATM voice services will soon no longer be supported by the European telecommunication service providers, making the use of new technology necessary.

FOC Date	31/12/2023	Dependencies	-	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	-	-
Completion Rate 2022	22%	ICAO ASBUs	COMI-B2/1	
Stakeholders	ANSPs	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC+ States except: Armenia, Maastricht UAC, Malta

Applicable Standards and Regulations:

- ICAO - Doc 9896 ed.2 - Manual for the ATN using IPS Standards and Protocols
- EUROCAE - ED-136 - VoIP ATM System Operational and Technical Requirements
- EUROCAE - ED-137B - Interoperability Standards for VoIP ATM Components (Volumes 1 to 5)
- EUROCAE - ED-137C - Interoperability Standards for VoIP ATM Components (Volume 1)
- EUROCAE - ED-138 - Network Requirements and Performances for VoIP ATM Systems (Part 1 and 2)

Benefits      

Capacity maintained or improved by providing enhanced signalisation functions. Reduced costs by enabling flexible and dynamic use of ANSP resources, leading to long-term savings. Safety maintained or improved by providing enhanced signalisation functions and by providing a more resilient infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Upgrade and put into service voice communication systems to support VoIP centre-tower Telephony by upgrading voice communication systems and their HMI to enable centre-tower communication using VoIP telephony at ATS units providing services in Airport and Terminal environments.
2. Upgrade and put into service voice communication systems to support VoIP links to the ground radio stations by upgrading voice communication systems shall enable the operators to perform AG radio communication using VoIP links between VCS and ground radio stations, for services provided in Airport and Terminal environments.

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CNS infrastructure and services	**Deployment Scenario** **CNS Rationalisation**
Phase B - #109	**Air Traffic Services datalink using SatCom Class B**
COM13	**Air Traffic Services (ATS) datalink using SatCom Class B**

Communication services in terms of datalink systems and services are required in support of i4D and Aeronautical information data sharing. The Objective aims to establish the necessary communication infrastructure to support interoperable Oceanic and Continental i4D operations. The aim is to augment the existing VHF datalink (VDL) capability in Europe in order to increase reliability and capacity, and help establish satellite communications as a key component in the future ATM communications landscape.

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	0%	ICAO ASBUs	COMI-B1/3	
Stakeholders	ANSPs, Airspace Users, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States except: Belgium, Bulgaria, Estonia, France, Greece, Hungary, Latvia, Lithuania, Portugal, Romania, Spain. Plus: Azerbaijan, Türkiye, Ukraine, United Kingdom

Applicable Standards and Regulations: n/a

Benefits

Improvements through enabling initial i4D operations.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Revision of MASPS for AMS®S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP) ED-242C

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to install and operate commercial SATCOM systems with a satellite A/G datalink to provide service redundancy to the existing terrestrial datalink VDL2 both in multilink and in a standalone environment.

Regulators have to ensure that the safety requirements are implemented in line with the safety assessment performed.

Airspace Users have to upgrade the aircraft avionics with Satellite A-G datalink in Commercial SATCOM system in multilink or in a standalone environment, based on existing recent commercial SATCOM systems (e.g. Inmarsat SBB), allowing augmentation of the terrestrial VDL2 network capability for increased datalink capacity and availability in continental airspace, and also the capability to extend support for i4D operations in oceanic areas (where the terrestrial VDL capability is not available).

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CNS infrastructure and services	**Deployment Scenario** -
SOLUTION #	-
ITY-ACID	**Aircraft Identification**

The scope of this implementation objective is limited to the milestone of 2 January 2020 as identified in the Regulation (EU) No 1206/2011 (the ACID IR). This regulation requires that air navigation service providers, in all Member States, have the capability to establish individual aircraft identification using the downlinked aircraft identification feature, for all IFR/GAT flights. This may require a.o. the deployment of modern surveillance technologies paving the way to the rationalisation of the current infrastructure. The possibility of delayed compliance, under very specific conditions (approach area where air traffic services are provided by military units or under military supervision) is also envisaged.

FOC Date	02/01/2020	Dependencies	-	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	-	-
Completion Rate 2022	37%	ICAO ASBUs	-	
Stakeholders	ANSPs, Airspace Users	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC States. Plus: Israel

Applicable Standards and Regulations:

- Regulation (EU) 1206/2011 on aircraft identification for surveillance, as amended by Regulation (EU) 2020/587
- Regulation (EU) 1207/2011 on performance and interoperability of surveillance, as amended by Regulation (EU) 2020/587
- ICAO Annex 2 - Rules of the Air
- ICAO Annex 10 - Surveillance Radar and Collision Avoidance Systems
- EASA CS-ACNS

Benefits      

Avoidance of delays and of reduction in network capacity due to shortage of SSR transponder codes or by increased controller workload caused by code changes. The use of downlinked aircraft identification represents the most efficient long term solution as primary mean of identification, as shown in the impact assessment of Regulation (EU) No 1206/2011 as amended. Enhanced safety levels by ensuring that unambiguous individual aircraft identification is achieved, maintained and shared accurately throughout EATMN airspace.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to ensure that the cooperative surveillance chain has the necessary capability to allow the establishment of the individual aircraft identification using the downlinked aircraft identification feature and its operational use. ANSPs have the choice between Mode S surveillance, ADS-B or WAM, taking into account the local operating environments, constraints and needs as well as the capabilities of the airspace users.

Airspace Users have to:

1. Equip aircraft with Mode S and ADS-B out systems;
2. Get airworthiness certification and operational approval.

NOTE: The aircraft systems are assumed compliant with the EU Regulation 1207/2011 (Surveillance Performance and Interoperability Implementing Rule - SPI IR) as amended.

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CNS infrastructure and services	**Deployment Scenario** -
SOLUTION #	-
ITY-AGDL	**Initial ATC air-ground Data Link Services**

The early introduction of data link services to complement controller pilot voice communications in the en-route phase is foreseen by the European Air Traffic Management Master Plan. This implementation objective requires the interoperable implementation of the first set of en-route non-time-critical air-ground data link services DLIC, ACL, ACM and AMC above FL285, as mandated by Regulation (EU) 2015/310.

FOC Date	ATS (EU+NO+CH): 05/02/2018 AUs (EU+NO+CH): 05/02/2020	Dependencies	-	
Estimated achievement	31/03/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	65%	ICAO ASBUs	COMI-B0/4, COMI-B1/2	
Stakeholders	ANSPs, Airspace Users, Industry, Military, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU+ States except: Georgia, Luxembourg, Moldova. Plus: Morocco, Türkiye, United Kingdom.

Applicable Standards and Regulations: Regulation (EU) 2015/310

Benefits      

Capacity increase through both reduction of voice congestion and increase in controller and sector productivity. Capacity gain is expected from 3.4% (if 25% of flights is equipped) up to 11% (if 75% of flights is equipped). This will lead to reduction of delays. Safety improved through the delivery of standard and unambiguous messages (significant error and fatigue reduction), provision of a communications backup and the possibility of immediate message retrieval.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- EUROCONTROL Specification on Data Link Services – New Edition
- Data Link Services (DLS) System; Community Specification ; Requirements for ground constituents and system testing, Revision EN 303 214 (V 1.3.1), ETSI
- Data Link Services RMT.0524, EASA
- VDL 2 Airborne MOPS, ED-92D, EUROCAE
- VHF air-ground Digital Link (VDL) Mode 2; Technical characteristics and methods of measurement for ground-based equipment; Part 1: Physical layer and MAC sub-layer, EN 301 841-1 (V 1.5.1), ETSI
- VHF A-G Digital Link (VDL) Mode 2, Pt. 3: Harmonized standard for access to radio spectrum, EN 301 841-3 (V 2.2.1), ETSI

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Ensure the conformity of communications, flight data and initial flight plan processing systems and associated procedures,
2. Ensure ground communication systems comply with air-ground communication requirements;
3. Implement a process for the transmission of logon parameters of flight data (Logon Forward - LOF) between ATC units;
4. Implement a process for the transmission of information of flight data (Next Authority Notified – NAN) between ATC units.

Airspace Users have to equip aircraft with data link equipment supporting the identified services and specify relevant operational procedures.

Military Authorities have to:

1. Equip transport-type State aircraft;
2. Ensure the conformity of communications, flight data and initial flight plan processing systems and associated procedures.

National Regulators have to notify potential exemption cases to the European Commission.

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CNS infrastructure and services	**Deployment Scenario** -
SOLUTION #	-
ITY-AGVCS2	**8.33 kHz A/G Voice Channel Spacing below FL195**

This objective is derived from Regulation (EU) No 1079/2012 on the coordinated introduction of air-ground voice communications based on 8,33 kHz channel spacing. It applies to all radios operating in the VHF band allocated to the aeronautical mobile route service and all flights operating as general air traffic. All frequency assignments need to be converted to 8,33 kHz except those used for emergency, search and rescue, VHF digital link (VDL), ACARS and those where offset carrier operation within a 25 kHz channel spacing is utilised. States can grant exemptions on some requirements based on Article 14 of the Regulation.

FOC Date	Radio equipment 31/12/2017 Freq. converted 31/12/2018 State aircraft 31/12/2020	Dependencies	-	
Estimated achievement	31/12/2024	CP1 AF & SDP Family	-	-
Completion Rate 2022	66%	ICAO ASBUs	-	
Stakeholders	ANSPs, Airport Operators, Airspace Users, Military, NM, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU+ States except: Georgia, Maastricht UAC, Moldova. Plus: United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 1079/2012 laying down requirements for voice channels spacing
- ICAO Annex 10, Volume III - Aeronautical Telecommunications

Benefits

Optimisation of the use of the bandwidth, which is a prerequisite to a number of crucial operational improvements that will deliver benefits such as reduced delays and increased capacity. Such benefits will be postponed or even impossible if the additional frequencies required are not readily available.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- EUROCONTROL Guidelines on 8.33kHz Channel Spacing for Military Operators – Edition 3.0.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

National Regulators have to:

1. Ensure that radios have 8,33 kHz channel spacing capability;
2. Ensure compliance with the requirements on 8,33 kHz frequency conversions.

ANSPs have to:

1. Ensure conformity of voice communications systems and associated procedures;
2. Convert all 25 kHz frequencies to 8,33 kHz

Airport Operators have to:

1. Convert all 25 kHz frequencies to 8,33 kHz;
2. Accommodate non-equipped vehicles

Military Authorities have to equip State aircraft with radio equipment with 8,33 kHz channel spacing capability;

Airspace Users have to equip aircraft with radio equipment with 8,33 kHz channel spacing capability.

NOTE: The Network Manager has ensured that the centralised flight planning processing and distribution service complies with the Regulation.

Co-funded by the European Union

CNS infrastructure and services	**Deployment Scenario CNS Rationalisation**
Phase A - #103	**Approach Procedures with vertical guidance**
NAV10	**Approach Procedures with vertical guidance**

The main intention is to transition from conventional Non Precision Approach (NPA) procedures to RNP approach procedures with vertical guidance using: SBAS flown to LPV minima, and Baro flown to LNAV/VNAV minima. In addition, RNP approach operations using SBAS can be flown to LNAV/VNAV minima. At RWY ends where, due to terrain, obstacles or ATC conditions, the implementation of RNP approach procedures to LNAV/VNAV and LPV minima is excessively difficult or not feasible, ANSP shall implement RNP
Non-precision approach procedures (NPA) in accordance with RNP APCH specification, flown to LNAV minima. The main incentive is to enhance safety but there are potential benefits in terms of reduced minima and better access to airports that do not have precision approach and landing capabilities.

FOC Date	25/01/2024	Dependencies	-	
Estimated achievement	31/12/2026	CP1 AF & SDP Family	-	-
Completion Rate 2022	35%	ICAO ASBUs	NAVS-B0/2, APTA-B0/1, APTA-B1/1	
Stakeholders	ANSPs, Airspace Users, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations:
Regulation (EU) 2018/1048 - airspace usage requirements and operating procedures concerning PBN.

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Potential to enhance capacity due to lower minima can be achieved through conventional NPA. Operational efficiency improved through shortened approaches, increased flexibility in the use of runways reduced landing minima with only conventional NPAs, fall-back during precision approach system outages. Reduction in Controlled Flight Into Terrain (CFIT) occurrences. Improved pilot situation awareness and reduced crew workload. Emissions and noise nuisance reduced by use of optimal flight procedures and routings and the elimination of step-down approach procedures

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Performance-based Navigation (PBN) Manual ICAO Doc 9613 Edition 5.
- MASPS for SVS SVGS CVS, ED-XX, EUROCAE. MASPS for EVS CVS EFVS, ED-XX, EUROCAE
- MASPS for a Combined Vision System for Helicopter Operations for Low Visibility Operational Credit, ED-XX, EUROCAE
- MASPS for Required Navigation Performance for Area Navigation ED-75E
- MASPS for RNP reversion using DME/DME positioning

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Design and publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs served by precision approach, as well as to RWY without precession approach. As an alternative when PA is not feasible, design and publish RNP non-precision (NPA) approach procedures to LNAV minima.
2. Establish the transition plan for PBN in ANS provision

Regulators have to:

1. Publish national regulatory material for RNP approach procedures based on EASA AMC 20-27 (LNAV/VNAV minima) and EASA AMC 20-28 (LPV minima).
2. Verify the transition plan for PBN in ANS provision.

Airspace Users have to equip aircraft with systems approved for RNP APCH down to LNAV/VNAV and/or LPV minima operations.

EUROPEAN PARTNERSHIP
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CNS infrastructure and services	**Deployment Scenario CNS Rationalisation**
Phase A - #55	**Precision approaches using GBAS Cat II/III[7]**
NAV11.2	**Implement precision approach procedures using GBAS CAT II/III based on GPS L1 and/or GALILEO E1**

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 enables:

- Flexible approaches; synergistic with RNAV/RNP, PA where ILS cannot due to geography, signal stability;
- complement ILS at airports with multiple RWYs during LVP;
- the rationalization of some ILS thus reducing operation and maintenance costs and optimizing spectrum;
- 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, which are not ILS CATII/III equipped to be used for CATII/III operations as long as the runway is CATII/III qualified. This objective adds GALILEO single frequency operations to the basic GAST D functionality to improve availability. It is an intermediate step to achieve full Dual Frequency Multi-Constellation (DFMC) GBAS.

FOC Date	n/a (Initial Objective)	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	-	-
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs	NAVS-B1/1	
Stakeholders	ANSPs, Airspace Users, International Organisations, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: n/a

Applicable Standards and Regulations: n/a

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Limited or no protection areas, located outside aircraft movement area reduce RWY occupancy times in LVP. RWY throughput gain depends on WTC separation and other additional spacing needs. One GBAS station provides PAs for multiple RWY ends as well as multiple PA per RWY end. The GBAS station maintenance and inspection costs are less, in the long term, than the ILS costs. Saving of jet fuel due to the resilience of the system capacity even in LVP. Reduction in CO2 emissions due to fuel saving. Local air quality benefits by having less aircraft queuing for departure conditions. Fewer flights cancelled or diverted saving the Airspace User (Main and Regional airliners) associated costs. Avoiding the loss of RWY capacity will reduce the level of delay and avoid the associated costs. GBAS improves safety in the segment of avoiding a scenario of false LOC or GP beam capture.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- MOPS For Global Navigation Satellite Ground Based Augmentation System Ground Equipment To Support Precision Approach and Landing, ED-114B, Change 1
- SARPS DFMC GBAS

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to Install and put into service GBAS GAST C CAT II/III ground equipment to support the precision approach procedures based on GBAS CAT II/III as well as to develop and publish appropriate procedures.

International organisations have to develop material for certification of GBAS ground facilities.

Regulators have to publish national regulatory material for GBAS CAT II/III procedures based on ICAO standards.

Airspace Users have to equip aircraft with systems approved for GBAS CAT II/III, get the airworthiness certification and the operational approval.

[7] Solution in Industrialisation Phase

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3.2 ATM INTERCONNECTED NETWORK

iN ATM interconnected network	**Deployment Scenario** -
SOLUTION #	-
AOM13.1	**Harmonise OAT and GAT handling**

This objective aims at ensuring that the principles, rules and procedures for handling operational air traffic (OAT) and general air traffic (GAT) are commonly applied to the maximum possible extent within ECAC airspace. Harmonised rules are set in the 'EUROCONTROL Specifications for harmonized Rules for OAT under Instrument Flight Rules (IFR) inside controlled Airspace (EUROAT)'. OAT means all flights, which do not comply with the provisions stated for GAT and for which rules and procedures have been specified by appropriate national authorities. GAT means all movements of aircraft carried out in conformity with ICAO procedures.

FOC Date	31/12/2018	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	67%	ICAO ASBUs	-	
Stakeholders	ANSPs, Military, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC States except: Albania, Latvia, Luxembourg, Malta, Moldova, Montenegro, Serbia. Plus: Israel

Applicable Standards and Regulations:

- Regulation (EC) No 2150/2005 on common rules for the flexible use of airspace
- Regulation (EU) 2015/340 on technical requirements and administrative procedures relating to air traffic controllers' licences and certificates pursuant to Regulation (EC) No 216/2008

Benefits

Increased operational efficiency of civil-military operations through the use of harmonized procedures at pan-European level. Less risk of error through the use of common rules and procedures for OAT handling and for OAT/GAT interface. Security increased through robust pan-European OAT provisions and structures to effectively support international and multinational military operations.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to Apply common principles, rules and procedures for OAT handling and OAT/GAT interface.

Regulators have to perform conformance analysis between existing rules and the EUROAT specification and determine, changes of regulatory material, where necessary. Develop and enact national regulations and rules pertinent to this specification.

Military have to:

1. Apply common principles, rules and procedures for OAT handling and OAT/GAT interface
2. Provide EUROCONTROL with a national point of contact (POC) and a distribution list for the dissemination of EUROAT specification.
3. Migrate military aeronautical information to EAD

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iN ATM interconnected network	**Deployment Scenario Collaborative NOP**
Phase B - # 21	**AOP and AOP-NOP seamless integration**

AOP11.1	**Initial Airport Operations Plan**	**CP1**

Airport Operations Plan (AOP) means a single, common and collaboratively agreed rolling plan used by all involved airport stakeholders whose purpose is to provide common situational awareness and to form the basis upon which airport stakeholder decisions relating to process optimisation for operations can be made.
The AOP can be implemented in two steps: Initial AOP (iAOP) and Extended AOP. The iAOP focuses on the short-term planning phase and the execution phase, it comprises the basic elements to exchange the data elements with the NOP and paves the way to Extended AOP. The following data are part of the initial AOP:

- Flight trajectory data: Information sharing related to Flight Progress Information Elements of an Inbound / Outbound / Airport transit Trajectory to / from / at Airport.
- Airport Resources data: resources such as but not limited to runway capacity and configuration, or parking stands.
- Local weather data: Information sharing related to MET Information Elements of airport.

The iAOP shares flight trajectory data and some airport resources data with the NOP via Arrival Planning Information (API) and Departure Planning Information (DPI) messages.

FOC Date	31/12/2023	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	AF2	2.2.1
Completion Rate 2022	16%	ICAO ASBUs	ACDM-B1/1	
Stakeholders	ANSPs, Airport Operators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: Regulation (EU) No 2021/116 on the establishment of the Common Project On

Benefits

Enhanced predictability. Improved airport resilience/limiting capacity reduction in degraded situations.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Specification on Airport CDM (EUROCONTROL), A-CDM Community Specification (ETSI)
- AIXM Edition 5.2, EUROCONTROL

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

Airport Operators have to:

1. Ensure the coordination, collection and integration in the system of the following iAOP data:
   - Flight trajectory data;
   - Airport Resources data;
   - MET data.

   This activity is performed with all airport stakeholders involved, defining a Memorandum of Understanding (MOU)/Memorandum of Cooperation (MOC) if necessary.
2. Ensure the iAOP data quality (accuracy and integrity).

ANSPs have to:

1. Ensure the coordination, collection and integration in the system of iAOP data (for the data that is centralised by the AN–P - e.g., flight trajectory or MET data) with all airport stakeholders involved. This activity is performed with the airport operator and all airport stakeholders involved, defining a Memorandum of Understanding (MOU)/Memorandum of Cooperation (MOC) if necessary.
2. Ensure the iAOP data quality (accuracy and integrity).

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ATM interconnected network	**Deployment Scenario Collaborative NOP**
Phase B - # 21-	**AOP and AOP-NOP seamless integration**

AOP11.2	**Extended Airport Operations Plan**	**CP1**

Airport Operations Plan (AOP) means a single, common and collaboratively agreed rolling plan used by all involved airport stakeholders whose purpose is to provide common situational awareness and to form the basis upon which airport stakeholder decisions relating to process optimisation for operations can be made. The AOP can be implemented in two steps: Initial AOP (iAOP) and Extended AOP. The Extended AOP increases the iAOP scope, beyond the airside operating environment and addresses processes within the landside and terminal infrastructure that have a performance impact on flight predictability and efficiency. In this case the Extended AOP monitors the progress of passengers through the airport from check-in to the gate. Monitoring data is stored in the AOP and allows stakeholders to increase their confidence around TOBT accuracy and stability. The landside and airside airport stakeholders shall make changes within their own sphere of operations and shall use and share the AOP as the principal source of information for airport operations.

FOC Date	31/12/2027	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF2	2.2.2
Completion Rate 2022	0%	ICAO ASBUs	ACDM-B1/1	
Stakeholders	ANSPs, Airport Operators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: Regulation (EU) No 2021/116 on the establishment of the Common Project One

Benefits

Enhanced predictability. Improved airport resilience/limiting capacity reduction in degraded situations.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Specification on Airport CDM (EUROCONTROL), A-CDM Community Specification (ETSI)
- AIXM Edition 5.2, EUROCONTROL

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

Airport Operators have to:

1. Ensure the coordination, collection and integration in the system of AOP data:
   - iAOP data including Flight trajectory Airport resources and MET data. (Applicable ONLY to AOs that do not have an iAOP in operation);
   - Extended AOP data including landside data that have a performance impact on flight predictability and efficiency; This activity is performed with all airport stakeholders involved, defining a Memorandum of Understanding (MOU)/Memorandum of Cooperation (MOC) if necessary.
2. Ensure the implementation of airport performance services.
3. Ensure the AOP data quality (accuracy and integrity).

ANSPs have to:

1. Ensure the coordination, collection and integration in the system of AOP data:
   - iAOP data including Flight trajectory Airport resources and MET data. (Applicable ONLY to ANSPs that do not have an iAOP in operation);
   - Extended AOP data including landside data that have a performance impact on flight predictability and efficiency; This activity is performed with all airport stakeholders involved, defining a Memorandum of Understanding (MOU)/Memorandum of Cooperation (MOC) if necessary.
2. Support the AO in the implementation of airport performance services.
3. Ensure the AOP data quality (accuracy and integrity).

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ATM interconnected network	**Deployment Scenario** **Airport integration into the network**
Phase A - #61	**CWP airport - low cost simple DEP entry panel**
AOP17	**Provision/integration of DEP planning info to NMOC**

The Network integration of departure estimates from medium and small sized airports via the exchange of Departure Planning Information (DPI), specifically ATC-DPI and CNL-DPI messages is needed to enhance the network benefit and improve the flow management process. This functionality aims to improve integration of departure estimates from medium or small-size airports when serving a complex airspace with dense traffic through improved availability of aircraft pre-departure information to the ATM Network, through the provision of accurate pre-departure information to the NM. The objective also supports further integration of airports into the Network by addressing the reception from the NM of estimated landing times. This objective should be considered as not applicable for the airports that already deployed A-CDM or planned to deploy A-CDM in near future.

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	56%	ICAO ASBUs	NOPS-B0/4	
Stakeholders	ANSPs, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) SPEC-107

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Improved availability of more accurate departure data will improve the performance of network management, thereby enabling the improvement of capacity through better confidence in NMOC traffic load predictions. The improved data will increase predictability within the NMOC systems for demand on a sector, leading to:

- Better decision making concerning when to open or close a sector;
- Fewer unnecessary regulations leading to a reduction of ATFM delays;
- Fewer overloads as sudden increases in demand will be rare.

There will be an overall minor improvement in the safety of operations through the provision of timely and accurate information that is widely shared amongst all partners in the ATM business.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- EUROCONTROL Specification on A-CDM

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Upgrade the local ATC system so as to provide departure planning information. TWR tools and systems (e.g., Advanced Tower tools, Electronic flight strip) are upgraded as necessary so with the capability of providing departure planning information (ATC-DPI and CNL-DPI messages) to NM.
2. Upgrade the local system to support reception of estimated landing time from NM. The upgrade of TWR systems should allow the reception/ presentation of estimated landing time (ELDT) from NM. ELDT may be received via AFTN using the FUM messages or via dedicated NM B2B web services.

Network Manager has to integrate Departure Planning Information (DPI) in NM systems.

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ATM interconnected network	**Deployment Scenario** -
SOLUTION #	**-**
COM12	**New PENS**

PENS (Pan-European Network Service) is an international ground/ground communications infrastructure jointly implemented by EUROCONTROL and European ANSPs in order to meet existing and future ATM communication requirements.
NewPENS builds on PENS and aims at providing a new framework and governance to reap the benefits of a single IP backbone for all ATM services. It will support SESAR requirements and the PCP functionalities, in particular, the blue SWIM Technical Infrastructure Profile which includes the exchange of flight object (FO) information. ANSPs implementing the exchange of FO information will therefore have to become NewPENS users.
The aim of NewPENS is to support all ATM services, for not only ANSPs and NM, but also military, airport and aircraft operators. It is up to these stakeholders, depending on their requirements, to join NewPENS or use public Internet network.

FOC Date	31/12/2024	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	73%	ICAO ASBUs	COMI-B1/1	
Stakeholders	ANSPs, Airport Operators, Airspace Users, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC+ States

Applicable Standards and Regulations: n/a

Benefits

Significant cost savings for the international communications of all connected stakeholders compared to:
- Keeping the inter-stakeholder connections separate from the Network.
- Continuing to run all international communications on bilateral international links.

NewPENS shall be compliant with the Security levels requested by the applications it will support, including SWIM.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:
- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to adapt communications systems and infrastructure to enable connectivity between NewPENS and the ANSP's network, and migrate the selected services and applications to NewPENS. This shall include, when and where applicable, the exchange of flight object (FO) information.

Airport Operators and Airspace Users have to, according to local needs and requirements, migrate to NewPENS for communications with ANSPs and NM (e.g., CDM, messages).

Network Manager has to adapt NM systems to allow stakeholders have access to existing data centres via NewPENS and migrate the selected services and applications to NewPENS including exchange of FO information.

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ATM interconnected network	**Deployment Scenario** -
SOLUTION #	**-**
FCM03	**Collaborative Flight Planning**

Improve collaboration between the NM, ANSPs, airports and airspace users in flight plan (FP) filing, in particular to assist airspace users in filing their FPs and in re-routings according to the airspace availability and ATFM situation. The ATC flight plan (AFP) messages sent to the NM serve purpose of:

- Enabling NM to provide ATC Units with more accurate FP information, improving their traffic situation awareness and reducing the workload caused by last minute updates or missing FPs.
- Updating the ETFMS with FP information in order to reflect as accurately as possible the current and future flight trajectories, providing accurate sector load calculations.

FOC Date	31/12/2022	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	55%	ICAO ASBUs	NOPS-B0/2	
Stakeholders	ANSPs, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC+ States

Applicable Standards and Regulations: n/a

Benefits

Better use of the available network capacity, hence reducing delays. A better traffic prediction will enhance traffic smoothing allowing less “unnecessary” actions to be taken. Earlier awareness of the updated traffic situation will permit the Flow Management Positions to consider and implement remedial actions to reduce the impact of the measures taken to accommodate the traffic. From the perspective of the airspace users, better traffic prediction will provide improved ability to maintain accurate estimated off-block times (EOBTs) for the return and subsequent legs for a flight/aircraft. Prevention of ATCO overload.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Provide flight plan message processing in ADEXP format;
2. Automatically provide AFP for missing flight plans;
3. Automatically provide AFP message for change of route;
4. Automatically provide AFP message for a diversion;
5. Automatically provide AFP message for a change of flight rules or flight type;
6. Automatically provide AFP message for a change of requested cruising level;
7. Automatically provide AFP message for change of aircraft type;
8. Automatically provide AFP message for change of aircraft equipment.

Network Manager has to ensure integration of Automatic AFP in NM systems.

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ATM interconnected network	**Deployment Scenario** **Enhanced short-term ATFCM measures**
Phase A - #17	**Advanced short-term ATFCM measures (STAM)**

FCM04.2	**Enhanced Short Term ATFCM Measures**	**CP1**

Short-term ATFCM measures (STAM) consists of a system supported approach to smooth sector workloads by reducing traffic peaks through short-term application of minor ground delays, appropriate flight level capping, timing and modalities of ATC re-sectorisation, exiguous re-routings to a limited number of flights. These measures are capable of reducing the traffic complexity for ATC with minimum curtailing for the airspace users.
ATFCM shall be coordinated at network level by the Network Manager and at local level by the flow management position to support hot-spot detection, execution of STAM, network assessment and continuous monitoring of network activity. STAM shall be established requiring coordination between Air Traffic Control, Airport, Airspace Users and Network Manager.
Tactical capacity management using STAM shall ensure a close and efficient coordination between ATC and the network management function. Tactical capacity management shall implement STAM using cooperative decision-making to manage flow before flights enter a sector.

FOC Date	31/12/2022	Dependencies	-	
Estimated achievement	31/12/2024	CP1 AF & SDP Family	AF4	4.1.1
Completion Rate 2022	65%	ICAO ASBUs	NOPS-B1/1	
Stakeholders	ANSPs, Airspace Users NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU+ States except: Georgia, Moldova. Plus: Türkiye, United Kingdom

Applicable Standards and Regulations: Regulation (EU) 2021/116 on the establishment of the Common Project One

Benefits

Better use of airspace capacity in terminal and enroute airspace. Increased cost efficiency. Improved situational awareness of the European network.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Develop STAM procedures;
2. Upgrade the local systems **OR** use the NM STAM application.

Airspace Users have to follow the validity of the flight plan and ATFM slot vs STAM measure.

Network Manager has to develop STAM procedures, upgrade NM systems and provide interface between NM and local tools.

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ATM interconnected network	**Deployment Scenario** **Automated support for traffic complexity assessment**
Phase A - #19 **Phase C - #PJ.18-02c**	**Automated support for Traffic Complexity Detection and Resolution** **eFPL distribution to ATC**
FCM06.1	**Automated Support for Traffic Complexity Assessment and Flight Planning interfaces** — **CP1**

The Traffic Complexity tool continuously monitors and evaluates current and expected traffic loads and estimates the impact of traffic complexity on controller's workload. The predicted complexity enables ATFCM to take timely action to adjust capacity or request the traffic profile changes in coordination with Network Manager, ATC and airspace users.
The rigid application of ATFCM regulations based on standard demand thresholds as the pre-dominant tactical capacity measure needs to be replaced by a dynamic working relationship between ANSPs and Network Manager, which evolves towards monitoring of the real controller's workload, the resulting sector capacity and their dynamic management.
As the Trajectory predictability is crucial for complexity management, this objective also addresses the FF-ICE Release 1 implementation and message exchange between NM systems and operational Stakeholders in respect of collaborative flight planning, improving flight plan distribution and enhanced tactical flow management.

FOC Date	31/12/2022	Dependencies	-	
Estimated achievement	31/07/2024	CP1 AF & SDP Family	AF4	4.3.1
Completion Rate 2022	44%	ICAO ASBUs	NOPS-B0/2, NOPS-B1/4	
Stakeholders	ANSPs, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC+ States.

Applicable Standards and Regulations: Regulation (EU) 2021/116 on the establishment of the Common Project One

Benefits

Increased ATC capacity. Improved punctuality. Increased cost efficiency. Enhanced safety. Reduced fuel and emissions.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SPEC-0107 EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) Edition 3.3, Community Specification

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Automatically provide AFP for airborne flights and process APL and ACH messages;
2. Implement Local Traffic Complexity tool **OR** use NM systems for traffic complexity management;
3. Process and Integrate EFD for Local Traffic Complexity Tool;
4. Develop Local Traffic Complexity procedures.

Network Manager has to:

1. Implement Traffic Complexity supporting tools;
2. Integrate automatic AFP in NM systems and provide flight update information;
3. Upgrade the NM systems related to FF-ICE Release 1.

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ATM interconnected network	**Deployment Scenario Collaborative NOP**
Phase A - #18 **Phase A - #20**	**CTOT and TTA** **Collaborative NOP for Step 1**

FCM10	**Interactive Rolling NOP**	**CP1**

The rolling view of the network situation and the support to the collaborative processes is based on an information management platform, accessible online by all stakeholders for consultation (not only passive but including dialogue opportunities), and updated when needed, in a secure and tailored way. An initial implementation of the Interactive Rolling NOP was achieved through the deployment of the NOP Portal. The scope of this objective consists of the implementation of a platform that uses the state-of-the-art technologies.
The Target Time (TT) management is an important part of Collaborative NOP. NM systems shall be able to derive the TT from the trajectory and the constraint and adjust calculated take-off times ('CTOT') based on refined and agreed TTs. NM shall assess the network impact of TT proposals, facilitate the coordination process if required, and transmit (updated) CTOT/TT messages to operational stakeholders. This process will be limited to the planning phase and transmission of updated CTOT. Operational Stakeholders need to be capable of receiving and processing these TT's.

FOC Date	31/12/2023	Dependencies	-	
Estimated achievement	31/12/2027	CP1 AF & SDP Family	AF4	4.2.1
Completion Rate 2022	23%	ICAO ASBUs	NOPS-B1/2, NOPS-B1/9	
Stakeholders	ANSPs, Airport Operators, Airspace Users, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States. Plus: Albania, Montenegro, Serbia, Türkiye, United Kingdom

Applicable Standards and Regulations: Regulation (EU) 2021/116 on the establishment of the Common Project One

Benefits

Improved information sharing. Enhanced safety. Enhanced predictability. Improved situational awareness. Increased capacity.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Develop and implement procedures for interaction with the NOP;
2. Use NM technical platform and NM B2B service;
3. Adapt systems to receive TT for ATFCM purposes.

Airport Operators have to use the NM technical platform for collaborative NOP and NM B2B services (if necessary).

Airspace Users have to implement procedures and processes in reception of Target Time.

Network Manager has to:

1. Enhance the NM technical platform and services, including:
   - Improvement and integration of the different functionalities/interfaces in support of the Interactive Rolling NOP;
   - Improved usability;
   - Technical support for the capabilities required by other objectives;
   - Enhancements of post-analysis tools and process.
2. Develop Network Manager B2B services;
3. Implement the Collaborative NOP procedures;
4. Adapt NM systems to support Target Time sharing.

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ATM interconnected network	**Deployment Scenario Collaborative NOP**
Phase A - #20 **Phase B - #21**	**Collaborative NOP for Step 1** **AOP and AOP-NOP seamless integration**
FCM11.1	**Initial AOP/NOP Information Sharing** — **CP1**

In order to improve the European ATM network performance, notably capacity and flight efficiency through exchange, modification and management of trajectory information there is a clear need for information sharing between the Airport Operations Plan (AOP) and the Network Operations Plan (NOP). The initial AOP/NOP integration is the technical data layer for the collaborative NOP information sharing.
The integration of AOP and NOP provides a rolling picture of the network and airport situation used by stakeholders to prepare and update their plans and their inputs to the network CDM processes, with a focus on the availability of shared operational planning and real-time data. The iAOP/NOP integration focuses on exchanging between Airports/Airports Operational stakeholders' systems and NM systems the Arrival Planning Information (API) and Departure Planning Information (DPI) messages; those messages are an add-on to DPI messages currently provided by CDM Airports. The procedures to generate those messages and their detailed contents have to be defined in collaboration between the NM and the implementing stakeholders.

FOC Date	31/12/2023	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	AF4	4.2.2
Completion Rate 2022	0%	ICAO ASBUs	NOPS-B0/4	
Stakeholders	ANSPs, Airport Operators, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: Regulation (EU) 2021/116 on the establishment of the Common Project One

Benefits

Increased capacity. Enhanced predictability. Enhanced safety. Improved airport resilience/limiting capacity reduction in degraded situations.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Specification on Airport CDM (EUROCONTROL), A-CDM Community Specification (ETSI).

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Coordinate the procedures and content of API and DPI messages with NM, Airport Operators and all relevant local implementing stakeholders;
2. Implement Network Manager B2B services and perform data validation through a process of system testing of the data exchange.

Airport Operators have to:

1. Coordinate the procedures and content of API and DPI messages with NM, ANSP and all relevant local implementing stakeholders;
2. Implement Network Manager B2B services and perform data validation through a process of system testing of the data exchange.

Network Manager has to:

1. Develop operational requirements for API and DPI messages in coordination with airport operational stakeholders;
2. Enhance the NM technical platform and services for Collaborative NOP;
3. Develop and implement NM B2B services and perform data validation through a process of system testing of the data exchange.

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ATM interconnected network	**Deployment Scenario Collaborative NOP**
Phase A - #18	**CTOT and TTA**
Phase A - #20	**Collaborative NOP for Step 1**
Phase B - #21	**AOP and AOP-NOP seamless integration**

FCM11.2	**AOP/NOP integration**	**CP1**

In the evolution of processes and procedures new data elements will be shared and also negotiated between AOP and NOP. These will have to be integrated in addition to the information that is shared in the iAOP-NOP exchange. The processes, procedures and underlying concepts for the creation and integration will have to be agreed upon and/or adapted.
This will apply to arrival planning information (e.g., TTO/TTA via API), as well as departure information (e.g., P-DPI based on airport capacity information), and also enhanced management of capacities (e.g., diversion capabilities).

FOC Date	31/12/2027	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF4	4.4.1
Completion Rate 2022	0%	ICAO ASBUs	NOPS-B1/3	
Stakeholders	ANSPs, Airport Operators, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: Regulation (EU) 2021/116 on the establishment of the Common Project One

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Increased capacity. Improved information sharing. Improved situational awareness. Enhanced predictability. Enhanced safety. Improved airport resilience/limiting capacity reduction in degraded situations.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Specification on Airport CDM (EUROCONTROL), A-CDM Community Specification (ETSI).

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to define AOP/NOP integration data and procedures.

Airport Operators have to define AOP/NOP integration data and procedures and prepare AOP for the exchange with NOP.

Network Manager has to define AOP/NOP integration data and procedures and prepare NOP for the exchange with AOP.

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**

INF10.2	**Stakeholders' SWIM PKI and cybersecurity**	**CP1**

The Objective is dealing with the Stakeholders' SWIM PKI and cyber security. It aims at implementing basic/generic public key infrastructure management at each civil or military stakeholder, in line with their own Security Management System approved by their National Supervisory Authority (NSA). The local implementation may differ depending on whether the stakeholders will become a CA (Certificate Authority) themselves or use the European Common Aviation PKI (EACP) to generate certificates (or a combination of the options)

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	AF5	5.2.1
Completion Rate 2022	0%	ICAO ASBUs	SWIM-B2/3	
Stakeholders	ANSPs, Airport Operators, Airspace Users, MET Service Providers, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC States except: Armenia, Bosnia and Herzegovina, Georgia, North Macedonia, Ukraine

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs, Airport Operators, Military Authorities, Airspace Users, MET Service Providers and **Network Manager** have to:

1. Complete a local PKI framework either through the use of the EACP policies and procedures or through the definition of local ones, in compliance with the EACP ;
2. Implement audit programmes ensuring continuous compliance with the EACP policies and standards (and with the local ones if existing);
3. Adapt the systems so as to use the EACP solution or the local certificates and EACP services;
4. Implement local PKI (ONLY if such PKIs have been developed);
5. Implement monitoring and control to protect the IT systems against cyber-attacks

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**

INF10.3	**Aeronautical Information Exchange – Airspace structure service**	**CP1**

This implementation objective is addressing one of the services in support of Airspace Management and Advanced Flexible Use of Airspace. The following services support the ASM level 2:

- Airspace Structure Service - Management of the AUP/UUP by the local ASM support systems requires that the same airspace data is used by both NM and the ASM support systems. The airspace data is available via NM B2B Airspace Structure Service, which allows to obtain in AIXM 5.1 all the airspace data needed by the local ASM support systems for the management of the AUP (AIRAC data and the live updates)
- Airspace Availability Service - part of the NM B2B Services, allows the local ASM support systems to provide the AUP and its dynamic updates (UUP) to NM in a timely manner; it also allows NM to share the local AUPs/UUPs with all stakeholders involved in the ASM Level 2. It also allows also the publication of the consolidated European AUP/UUP (EAUP/EUUP) to all stakeholders, AUs, for use in the flight planning systems
- Airspace Reservation (ARES) information: this service allows the exchange of information regarding ARES between local ASM support systems, in particular to support cross-border operations

The following services support the ASM level 3:

- Notification of the activation and de-activation of an Airspace Reservation/Restriction (ARES)
- Pre-notification of the activation of an Airspace Reservation/Restriction (ARES)
- Notification of the release of an Airspace Reservation/Restriction (ARES)
- Query Airspace Reservation/Restriction (ARES) information

The current implementation objective is addressing the **Airspace structure service**

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	AF5	5.3.1
Completion Rate 2022	47%	ICAO ASBUs	-	
Stakeholders	ANSPs, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States

Applicable Standards and Regulations: Regulation (EU) No 2021/116 on the establishment of the Common Project One. EUROCONTROL Specification for SWIM Service Description, EUROCONTROL Specification for SWIM Information Definition, EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Adapt their systems in order to be interoperable with the NM systems and be able to consume airspace information via the NM B2B Airspace Structure Service
2. Use in operations the airspace structure provided by NM

Network Manager has to provide airspace structure information needed by the local ASM support systems for the AUP process. The information is provided via the NM B2B Airspace Structure Service, which is upgraded to be SWIM compliant

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**

INF10.4	**Aeronautical Information Exchange – Airspace availability service**	**CP1**

This implementation objective is addressing one of the services in support of Airspace Management and Advanced Flexible Use of Airspace. The following services support the ASM level 2:

- Airspace Structure Service - Management of the AUP/UUP by the local ASM support systems requires that the same airspace data is used by both NM and the ASM support systems. The airspace data is available via NM B2B Airspace Structure Service, which allows to obtain in AIXM 5.1 all the airspace data needed by the local ASM support systems for the management of the AUP (AIRAC data and the live updates)
- Airspace Availability Service - part of the NM B2B Services, allows the local ASM support systems to provide the AUP and its dynamic updates (UUP) to NM in a timely manner; it also allows NM to share the local AUPs/UUPs with all stakeholders involved in the ASM Level 2. It also allows also the publication of the consolidated European AUP/UUP (EAUP/EUUP) to all stakeholders, AUs, for use in the flight planning systems
- Airspace Reservation (ARES) information: this service allows the exchange of information regarding ARES between local ASM support systems, in particular to support cross-border operations

The following services support the ASM level 3:

- Notification of the activation and de-activation of an Airspace Reservation/Restriction (ARES)
- Pre-notification of the activation of an Airspace Reservation/Restriction (ARES)
- Notification of the release of an Airspace Reservation/Restriction (ARES)
- Query Airspace Reservation / Restriction (ARES) information

The current implementation objective is addressing the **Airspace Availability service.**

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	AF5	5.3.1
Completion Rate 2022	42%	ICAO ASBUs	-	
Stakeholders	ANSPs, Airspace Users, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States. Plus: United Kingdom

Applicable Standards and Regulations: Regulation (EU) No 2021/116 on the establishment of the Common Project One. EUROCONTROL Specification for SWIM Service Description. EUROCONTROL Specification for SWIM Information Definition. EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to adapt their systems in order to be interoperable with the NM systems and be able to provide the AUP/UUP to NM via the NM B2B Airspace Availability Services.

Airspace Users have to adapt their flight planning systems so as to consume and use in operations the European Airspace Use Plan (EAUP) and its updates (EUUP) published by the NM via the NM B2B Airspace Availability Service.

Network Manager has to provide services for the publication of the European Airspace Use Plan (EAUP) and its updates (EUUP) and for the exchange of AUP/UUP information with the local ASM support systems. The information is provided via the NM B2B Airspace Availability Service, which is upgraded to be SWIM compliant.

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**

INF10.5	**Aeronautical Information Exchange – Airspace Reservation (ARES) service**	**CP1**

This implementation objective is addressing one of the services in support of Airspace Management and Advanced Flexible Use of Airspace. The following services support the ASM level 2:

- Airspace Structure Service - Management of the AUP/UUP by the local ASM support systems requires that the same airspace data is used by both NM and the ASM support systems. The airspace data is available via NM B2B Airspace Structure Service, which allows to obtain in AIXM 5.1 all the airspace data needed by the local ASM support systems for the management of the AUP (AIRAC data and the live updates)
- Airspace Availability Service - part of the NM B2B Services, allows the local ASM support systems to provide the AUP and its dynamic updates (UUP) to NM in a timely manner; it also allows NM to share the local AUPs/UUPs with all stakeholders involved in the ASM Level 2. It also allows also the publication of the consolidated European AUP/UUP (EAUP/EUUP) to all stakeholders, AUs, for use in the flight planning systems
- Airspace Reservation (ARES) information: this service allows the exchange of information regarding ARES between local ASM support systems, in particular to support cross-border operations

The following services support the ASM level 3:

- Notification of the activation of an Airspace Reservation/Restriction (ARES)
- Notification of the de-activation of an Airspace Reservation/Restriction (ARES)
- Pre-notification of the activation of an Airspace Reservation/Restriction (ARES)
- Notification of the release of an Airspace Reservation/Restriction (ARES)
- Query Airspace Reservation/Restriction (ARES) information

The current implementation objective is addressing the **Airspace Reservation (ARES) service**

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.3.1
Completion Rate 2022	0%	ICAO ASBUs	-	
Stakeholders	ANSPs	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States. Plus: United Kingdom

Applicable Standards and Regulations: Regulation (EU) No 2021/116 on the establishment of the Common Project One. EUROCONTROL Specification for SWIM Service Description. EUROCONTROL Specification for SWIM Information Definition. EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Adapt their systems in order to provide SWIM services for the exchange of ARES information at local and FAB level, with civil and military stakeholders
2. Consume, when relevant, the ARES information made available via SWIM services by ASM support systems

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46 **Phase B - #34**	**SWIM Yellow Profile** **Digital integrated briefing**

INF10.6	**Aeronautical Information Exchange – Digital NOTAM service**	**CP1**

This implementation objective is addressing the Digital NOTAM Service which provides event (Digital NOTAM) information as a data service. The service enables dynamic data sharing of aeronautical information updates and propose them for Digital NOTAM processing. Digital NOTAM service output is a small data set which contains digitally coded data about changes related to aeronautical information, which are temporary nature or provided on short notice. Digital NOTAM data can be formatted into textual or graphical formats for presentation to end-user. The event information can be shared in a short loop when Digital NOTAM is not necessary but deemed relevant for users accessing SWIM.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.3.1
Completion Rate 2022	0%	ICAO ASBUs	-	
Stakeholders	AISPs, ANSPs	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU+ States except: Albania, Bosnia and Herzegovina, North Macedonia. Plus: Israel, Türkiye, United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

AISPs have to implement a SWIM Service that enables the provision of Digital NOTAM event information to other stakeholders

ANSPs have to adapt their systems in order to consume and use operationally the information provided by the Digital NOTAM Service

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46 **Phase B - #34**	**SWIM Yellow Profile** **Digital integrated briefing**

INF10.7	**Aeronautical Information Exchange – Aerodrome Mapping information exchange service**	**CP1**

This implementation objective is addressing the Aerodrome Mapping Service which provides on-request airport layout features and maps as a data service. The service aims to deliver Aerodrome digital maps to operational stakeholders. The service supports information filtering with spatial, temporal and logical operators. Digital Aerodrome Map can be used to present actual/real-time information about closure of runway, taxiway, work in progress on aerodrome movement area, temporary erected obstacles.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.3.1
Completion Rate 2022	0%	ICAO ASBUs	-	
Stakeholders	AISPs	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States except: Croatia, Hungary, Maastricht UAC, Portugal, Romania. Plus: Moldova, Montenegro, Morocco, Serbia, United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits 

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

AISPs have to implement a SWIM Service that enables the provision of Aerodrome Mapping information to other stakeholders.

(Note: Airport operators providing aeronautical information services qualify as AISP and are covered by the action above)

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46 **Phase B - #34**	**SWIM Yellow Profile** **Digital integrated briefing**
INF10.8	**Aeronautical Information Exchange – Aeronautical Information Feature service** — **CP1**

This Implementation Objective is addressing the Aeronautical information feature Service which provides on-request aeronautical information features as a data service. It allows to query and retrieve aeronautical data based on optional filters that may include feature type, feature name and spatial, temporal and logical operators.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.3.1
Completion Rate 2022	0%	ICAO ASBUs	-	
Stakeholders	AISPs, ANSPs	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States. Plus: Georgia, Morocco, United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

AISPs have to implement a SWIM Service that enables the provision of aeronautical information features to other stakeholders.

ANSPs have to adapt their systems in order to consume and use operationally the information provided by the Aeronautical Information Feature service.

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46 **Phase B - #34** **Phase B - #35**	**SWIM Yellow Profile** **Digital integrated briefing** **MET Information Exchange**

INF10.9	**Meteorological Information Exchange – Volcanic Ash Mass Concentration information service**	**CP1**

This implementation objective is addressing the Volcanic Ash Mass Concentration Service. All volcanic ash advisory information and the supplementary ash concentration information shall be available as a service(s) in compliance with the EUROCONTROL SWIM specifications. The service shall be implemented focusing on provision of volcanic ash concentration information. However, other related information concerning an operationally significant volcanic ash event, will also be considered when implemented as a SWIM service. Volcanic ash SWIM services will be provided by the designated VAAC(s) and available to be accessed by all relevant stakeholders in Europe, including military. Ideally, all stakeholders that use current VA advisory and VA concentration products, will implement the same using the new SWIM service. Volcanic ash service shall support exchange of volcanic ash information in IWXXM format when applicable.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.4.1
Completion Rate 2022	0%	ICAO ASBUs	-	
Stakeholders	ANSPs, MET service providers, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States. Plus: United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One.
- EUROCONTROL Specification for SWIM Service Description.
- EUROCONTROL Specification for SWIM Information Definition.
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits 

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to adapt their systems in order to be able to access, consume and use operationally the volcanic ash SWIM information services published by the VAACs.

MET SPs (Designated European VAACs) have to implement SWIM Services for volcanic ash information commensurate with the products listed in chapter 4 of Annex V to (EU) 2017/373, and volcanic ash concentration information service(s). Additional or supplementary volcanic ash SWIM information services may also be considered. The services will be available for operational use in the event of a volcanic event within the geographical area of responsibility.

All MET service providers which require volcanic ash information, including those listed in section 3.5(c) of Annex V to (EU) 2017/373) i.e., MWOs and WAFC, will be able to access, consume and use operationally the volcanic ash SWIM information services published by the VAACs, including ash concentration service(s)

Network Manager has to adapt its systems in order to be able to access, consume and use operationally the volcanic ash SWIM information services published by the VAAC

Co-funded by the European Union

ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46 **Phase B - #34** **Phase B - #35**	**SWIM Yellow Profile** **Digital integrated briefing** **MET Information Exchange**

INF10.10	**Meteorological Information Exchange - Aerodrome Meteorological information Service**	**CP1**

This implementation objective is addressing the Aerodrome Meteorological information Service. The certified MET service provider for the aerodrome will be those which are selected by the relevant competent authority. There may be more than one selected MET service provider for an aerodrome. As a minimum, the aerodrome MET service provider will execute the tasks related to the aerodrome meteorological office, as defined in chapter 2 of Annex 5 to (EU) 2017/373). The aerodrome MET service provider(s) will liaise closely with the operational stakeholders at the aerodrome to determine and help define the local needs and requirements for MET information support, specific to that aerodrome. This may (for example) focus on unique weather constraints such as fog, snow, convection etc., or on particular operational constraints such as aerodrome capacity, winter procedures, noise abatement procedures etc., and their dependency on weather. Services could include only MET information e.g., to be used as input into another system or decision process, or visualisation of information critical to aerodrome operations. Ideally, services will integrate MET information with other types of aerodrome information, as driven by local requirements.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.4.1
Completion Rate 2022	0%	ICAO ASBUs	-	
Stakeholders	ANSPs, Airport Operators, MET service providers, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States except: Maastricht UAC. Plus: United Kingdom

Applicable Standards and Regulations: Regulation (EU) No 2021/116 on the establishment of the Common Project One. EUROCONTROL Specification for SWIM Service Description. EUROCONTROL Specification for SWIM Information Definition. EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits 

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to collaborate with other airport users and the MET provider(s) to jointly define requirements for new advanced MET service(s) to better support operations specific to that airport. They also have to adapt their systems to access, consume and use operationally the aerodrome MET SWIM information services published by the certified MET provider(s) at that airport. This may also include enhanced information services that are agreed locally.

Airport Operators have to collaborate with other airport users/stakeholders and the MET provider(s) to jointly define requirements for new advanced MET service(s) to better support operations specific to that airport. They also have to adapt their systems to access, consume and use operationally the aerodrome MET SWIM information services published by the certified MET provider(s) at that airport. This may also include enhanced information services that are agreed locally.

MET Service Providers (aeronautical meteorological stations or other certified MET provider at the airport) have to collaborate with airport users to jointly define requirements for new advanced MET service(s) to better support operations. They also have to have their information published and accessible as a SWIM service (either directly or indirectly).

Network Manager has to adapt its systems to be able to access, consume and use operationally aerodrome MET SWIM information services published by the certified MET provider(s). This may also include enhanced information services that are agreed locally.

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46 **Phase B - #34** **Phase B - #35**	**SWIM Yellow Profile** **Digital integrated briefing** **MET Information Exchange**

INF10.11	**Meteorological Information Exchange – En-Route and Approach Meteorological information service**	**CP1**

This implementation objective is addressing the En-Route and Approach Meteorological information Service. The certified MET service provider for the En-route and approach ATC units will be those which are selected by the relevant competent authority and/or regional air navigation agreement. There may be more than one selected certified MET service provider. The certified MET service provider will be the aerodrome meteorological office, the MWO or WAFC, as defined in Annex V to (EU) 2017/373). The MET service provider(s) will liaise closely with the operational stakeholders in the approach and En-route domains, to determine and help define the needs and requirements for MET information support, specific to that area. This may (for example) focus on unique weather constraints such as fog, snow, convection etc., or on particular operational constraints such as runway throughput, winter procedures, noise abatement procedures, free routing, etc. and their dependency on weather.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.4.1
Completion Rate 2022	0%	ICAO ASBUs	-	
Stakeholders	ANSPs, MET service providers, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States. Plus: United Kingdom

Applicable Standards and Regulations: Regulation (EU) No 2021/116 on the establishment of the Common Project One. EUROCONTROL Specification for SWIM Service Description. EUROCONTROL Specification for SWIM Information Definition. EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to collaborate with each other, AUs and the MET provider(s) to jointly define requirements for new advanced MET service(s) to better support operations specific to that airspace. They also have to adapt their systems in order to be able to access, consume and use operationally the MET SWIM information services published by the certified MET provider(s). This may also include enhanced information services that are agreed locally.

MET SPs (MWO's and WAFC or other certified MET provider in the En-Route and approach domains) have to collaborate with applicable ANSP users to jointly define requirements for new advanced MET service(s) to better support operations specific to that airspace. They also have to have their information published and accessible as a SWIM service (either directly or indirectly).

Network Manager has to engage in any collaboration between the En-Route and approach users/stakeholders and the MET provider(s) and contribute to the requirements definition for new advanced MET service(s) to better support operations of that airspace. It also has to adapt its systems in order to be able to access, consume and use operationally the En-Route and approach MET SWIM information services published by the certified MET provider(s) in these domains. This may include enhanced information services that are agreed locally

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**
Phase B - #34	**Digital integrated briefing**
Phase B - #35	**MET Information Exchange**

INF10.12	**Meteorological Information Exchange - Network Meteorological Information**	**CP1**

This implementation objective is addressing the Network Manager Meteorological Information Service, the needs and requirements for MET information support. This may (for example) focus on impactful weather events which affect En-Route flight phases and cross-border or affect the ability of critical/busiest aerodromes to maintain flow rates. The NM will liaise also with other ATM stakeholders and synchronise their implementation plans.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.4.1
Completion Rate 2022	0%	ICAO ASBUs	-	
Stakeholders	ANSPs, MET service providers, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States. Plus: United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One.
- EUROCONTROL Specification for SWIM Service Description.
- EUROCONTROL Specification for SWIM Information Definition.
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Collaborate with NM, AUs and the MET provider(s) to jointly define requirements for new advanced MET service(s) to better support operations specific to the NM.
2. Adapt their systems in order to be able to access, consume and use operationally the MET SWIM information services published by the MET provider(s). This may also include enhanced information services that are agreed locally.

MET SPs have to:

1. Collaborate with NM to jointly define requirements for new advanced MET service(s) to better support operations specific to safe and efficient NM operations.
2. Have their information published and accessible as a SWIM service (either directly or indirectly).

Network Manager has to:

1. Collaborate with ANSP stakeholders, AUs and the MET provider(s) to jointly define requirements for new advanced MET service(s) to better support operations specific to NM.
2. Adapt its systems in order to be able to access, consume and use operationally the network MET SWIM information services published by the certified MET provider(s) in this domain. This may include enhanced information services that are agreed locally.

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**	
Phase A - #46	**SWIM Yellow Profile**	
INF10.13	**Cooperative Network Information Exchange - ATFCM Tactical Updates Service**	**CP1**

The Cooperative Network Information will be exchanged between the systems of the operational stakeholders and the Network Manager by means of cooperative network information SWIM services, using the Yellow SWIM TI Profile, for Air Traffic Flow and Capacity Management (ATFCM) purposes.
Operational stakeholders use the NM B2B Services, which support the exchange of the following cooperative network information:

- **Maximum airport capacity based on current and near-term weather conditions**
  This information exchange is supported by the ATFCM Tactical Updates Service, which allows to update dynamically the airport capacity values and the runway configuration.
- **Network and en-route approach operation plans**

This information exchange is supported by the ATFCM Tactical Updates Service, part of the NM B2B Services, which allows to update dynamically the sector configuration plans, the capacity values, the monitoring values (OTMV), the traffic volume activations and the runway configurations.

FOC Date	31/12/2025	Dependencies	FCM10	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.5.1
Completion Rate 2022	14%	ICAO ASBUs	-	
Stakeholders	ANSPs, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States except: Austria, Croatia, Cyprus, Denmark, Estonia, Ireland, Latvia, Lithuania, Slovenia, Sweden. Plus: Türkiye, United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One.
- EUROCONTROL Specification for SWIM Service Description.
- EUROCONTROL Specification for SWIM Information Definition.
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits 

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to provide ATFCM tactical and pre-tactical updates to NM.

Network Manager has to upgrade NM systems for SWIM compliance.

Co-funded by the European Union

iN ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**	
Phase A - #46	**SWIM Yellow Profile**	
INF10.14	**Cooperative Network Information Exchange – Flight Management Service**	**CP1**

The Cooperative Network Information will be exchanged between the systems of the operational stakeholders and the Network Manager by means of cooperative network information SWIM services, using the Yellow SWIM TI Profile, for Air Traffic Flow and Capacity Management (ATFCM) purposes.

Operational stakeholders use the NM B2B Services, which support the exchange of the following cooperative network information:

- **Slots**
  This information exchange is supported by the Flight Management Service, which publishes flight information, including the ATFCM slots for flights subject to regulations.
- **Synchronisation of network operations plan (NOP) and all airport operations plans (AOP)**
  This information exchange is supported by the Flight Management Service, which publishes flight information (Flight update messages) and allows the provision to NM of the Predicted Departure Planning Information (P-DPI) and Arrival Planning Information. This service also supports the provision of the Departure Planning Information (DPI)

FOC Date	31/12/2025	Dependencies	FCM10, FCM11.1	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.5.1
Completion Rate 2022	8%	ICAO ASBUs	-	
Stakeholders	ANSPs, Airport Operators, Airspace Users, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States except: Cyprus, Estonia, Latvia, Lithuania, Malta, Slovak Republic. Plus: Türkiye

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One.
- EUROCONTROL Specification for SWIM Service Description.
- EUROCONTROL Specification for SWIM Information Definition.
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits 

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to consume NM flight update information relative to the flights in their AOR/AOI (including the ATFM slot).

Airport Operators have to provide the Predicted Departure Planning Information (P-DPI) and Arrival Planning Information (API) to NM, as well as to consume NM flight update information.

Airspace Users have to consume NM flight update information relative to their flights (including the ATFM slot).

Network Manager has to upgrade NM systems for SWIM compliance.

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**

INF10.15	**Cooperative Network Information Exchange – Measures Service**	**CP1**

The Cooperative Network Information will be exchanged between the systems of the operational stakeholders and the Network Manager by means of cooperative network information SWIM services, using the Yellow SWIM TI Profile, for Air Traffic Flow and Capacity Management (ATFCM) purposes.

Operational stakeholders use the NM B2B Services, which support the exchange of the following cooperative network information:

- **Traffic regulations**
  This information exchange is supported by the Measures Service, which allows to manage regulation proposals and to publish ATFCM measures updates.
- **Short term ATFCM measures (STAM)**
  This information exchange is supported by the Measures Service, which allows to make proposals of cherry pick regulations in support of STAM.

FOC Date	31/12/2025	Dependencies	FCM04.2	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.5.1
Completion Rate 2022	19%	ICAO ASBUs	-	
Stakeholders	ANSPs, Airspace Users, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States except: Austria, Croatia, Cyprus, Denmark, Estonia, Ireland, Latvia, Lithuania, Norway, Slovenia, Sweden. Plus: Türkiye, United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One.
- EUROCONTROL Specification for SWIM Service Description.
- EUROCONTROL Specification for SWIM Information Definition.
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits 

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to provide traffic regulation proposals to NM.

Airspace Users have to consume the measures updates, published by NM via the NM B2B Services, which may affect their flights.

Network Manager has to upgrade NM systems for SWIM compliance.

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ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**
INF10.16	**Cooperative Network Information Exchange - Short Term ATFCM Measures services** — **CP1**

The Cooperative Network Information will be exchanged between the systems of the operational stakeholders and the Network Manager by means of cooperative network information SWIM services, using the Yellow SWIM TI Profile, for Air Traffic Flow and Capacity Management (ATFCM) purposes.

Operational stakeholders use the NM B2B Services, which support the exchange of the following cooperative network information:

- **Short term ATFCM measures (STAM)**
  This information exchange is supported by the following three NM B2B Services:
  - The Measure Collaborative Decision Making (MCDM) Service, which supports the collaborative decision making for the implementation of a measure or individual flight actions
  - The eHelpdesk Service, for requesting NMOC to apply actions to individual flights

The Measures Service, which allows to make proposals of cherry pick regulations in support of STAM.

FOC Date	31/12/2025	Dependencies	FCM04.2	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.5.1
Completion Rate 2022	10%	ICAO ASBUs	-	
Stakeholders	ANSPs, Airspace Users, NM	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: All EU SES States except: Austria, Croatia, Cyprus, Denmark, Estonia, Ireland, Latvia, Lithuania, Norway, Slovenia, Sweden. Plus: United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits 

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to use the NM B2B Services (as a consumer) in order to collaborate with NM on the definition and application of STAM measures.

Airspace Users have to use the NM B2B Services in order to collaborate with NM on the application of STAM measures.

Network Manager has to upgrade NM systems for SWIM compliance.

Co-funded by the European Union

ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**

INF10.17	**Cooperative Network Information Exchange – Counts service**	**CP1**

The Cooperative Network Information will be exchanged between the systems of the operational stakeholders and the Network Manager by means of cooperative network information SWIM services, using the Yellow SWIM TI Profile, for Air Traffic Flow and Capacity Management (ATFCM) purposes.

Operational stakeholders use the NM B2B Services, which support the exchange of the following cooperative network information:

- **ATFCM congestion points**
  This information exchange is currently supported by the Counts Service, which provides data supporting the assessment of the ATFCM congestions and hotspot detection.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5	5.5.1
Completion Rate 2022	32%	ICAO ASBUs	-	
Stakeholders	ANSPs, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States except: Austria, Croatia, Cyprus, Denmark, Estonia, Finland, Ireland, Latvia, Lithuania, Norway, Slovenia, Sweden. Plus: United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits      

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- SARPS on Information Management (PANS-IM), ICAO
- Technical Standard on SWIM Information Service Specification Template and Methodology, EUROCAE

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to compute the ATFCM congestion points based on the information received via the NM B2B Counts service.

Network Manager has to upgrade NM systems for SWIM compliance.

Co-funded by the European Union

ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**

INF10.18	**Flight Information Exchange (Yellow Profile) – Filing Services**	**CP1**

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall comply with the FIXM standard.
It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations with a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means. Adoption of FF-ICE/R1 organisational provisions by concerned stakeholders is pre-requisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Filing Service implements:

- FF-ICE flight plan (eFPL, including updates and cancellations) submission to the Network Manager that includes information such as 4D trajectory information, flight specific performance data and the Global Unique Flight Identifier (GUFI).

Feedback provision (validation and flight status) to eFPL originators

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	AF5	5.6.1
Completion Rate 2022	100% (NM only)	ICAO ASBUs	FICE-B2/2	
Stakeholders	Airspace Users, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits 

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

Network Manager has to upgrade NM systems for SWIM compliance.

Airspace users have to adapt their systems in order to consume and use operationally the NM FF-ICE/R1 Filing Service for the submission of eFPLs and any updates to NM.

Co-funded by the European Union

ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**

INF10.19	**Flight Information Exchange (Yellow Profile) – Flight Data Request Service**	**CP1**

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall comply with the FIXM standard.

It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations with a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means. Adoption of FF-ICE/R1 organisational provisions by concerned stakeholders is pre-requisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Flight Data Request Service implements allows FF-ICE-enabled stakeholders to retrieve data about a flight such as the whole eFPL, search and rescue data or the filing status.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not available	CP1 AF & SDP Family	AF5	5.6.1
Completion Rate 2022	0%	ICAO ASBUs	FICE-B2/4	
Stakeholders	ANSP, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States. Plus: United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to adapt their systems to consume and use operationally the NM FF-ICE/R1 Flight Data Request Service when requiring access to the information of a particular eFPL.

Network Manager have to develop and provide FF-ICE/R1 Flight Data Request Service as an operational SWIM compliant service.

Co-funded by the European Union

ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**

INF10.20	**Flight Information Exchange (Yellow Profile) – Notification Service**	**CP1**

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall comply with the FIXM standard.
It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations with a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means. Adoption of FF-ICE/R1 organisational provisions by concerned stakeholders is pre-requisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Notification service implements the capability to notify FF-ICE-enabled stakeholders about flight departure and arrival events (replacement of DEP and ARR).

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not available	CP1 AF & SDP Family	AF5	5.6.1
Completion Rate 2022	0%	ICAO ASBUs	FICE-B2/5	
Stakeholders	ANSP, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States except: Maastricht UAC. Plus: United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to adapt their systems to consume and use operationally the NM FF-ICE/R1 Flight Data Request Service when requiring access to the information of a particular eFPL.

Network Manager have to develop and provide FF-ICE/R1 Flight Data Request Service as an operational SWIM compliant service.

EUROPEAN PARTNERSHIP
Co-funded by the European Union

ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**

INF10.21	**Flight Information Exchange (Yellow Profile) – Data Publication Service**	**CP1**

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall comply with the FIXM standard.
It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations with a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means. Adoption of FF-ICE/R1 organisational provisions by concerned stakeholders is pre-requisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Publication service allows the Network Manager to publish and distribute eFPLs to the concerned FF-ICE-enabled stakeholders.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not available	CP1 AF & SDP Family	AF5	5.6.1
Completion Rate 2022	0%	ICAO ASBUs	FICE-B2/6	
Stakeholders	ANSP, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States. Plus: United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to adapt their systems to consume and use operationally the NM FF-ICE/R1 Publication Service.

Network Manager have to develop and provide FF-ICE/R1 Publication Service as an operational SWIM compliant service

Co-funded by the European Union

ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**
Phase A - #46	**SWIM Yellow Profile**

INF10.22	**Flight Information Exchange (Yellow Profile) – Trial Service**	**CP1**

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall comply with the FIXM standard.
It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations with a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means. Adoption of FF-ICE/R1 organisational provisions by concerned stakeholders is pre-requisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Trial service allows FF-ICE-enabled AUs (eAUs) to request to the Network Manager feedback on a trial in a "what-if" operational evaluation context. The service enables eAUs to explore the impacts of any intended change to a filed eFPL and determine the feasibility/validity of a flight plan before committing to it.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	31/12/2021	CP1 AF & SDP Family	AF5	5.6.1
Completion Rate 2022	Achieved	ICAO ASBUs	FICE-B2/3	
Stakeholders	NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

Network Manager has to develop and provide FF-ICE/R1 Trial Service as an operational SWIM compliant service.

Co-funded by the European Union

ATM interconnected network	**Deployment Scenario** **Initial SWIM: infrastructure and profiles**	
Phase A - #46	**SWIM Yellow Profile**	
INF10.23	**Flight Information Exchange (Yellow Profile) – Extended AMAN SWIM Service**	**CP1**

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall comply with the FIXM standard.
It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations with a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means. Adoption of FF-ICE/R1 organisational provisions by concerned stakeholders is pre-requisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Extended AMAN SWIM Service implements:

- Provision of SWIM service with AMAN data to associated En-Route sectors (e.g.: as described in EUROCAE ED254 Arrival Sequence Service Performance Standard)
- Consumption of the extended AMAN data from the AMAN system.

FOC Date	31/12/2025	Dependencies	-	
Estimated achievement	Not available	CP1 AF & SDP Family	AF5	5.6.1
Completion Rate 2022	0%	ICAO ASBUs	DAIM-B2/1, SWIM-B3/1	
Stakeholders	ANSP	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States except: Bulgaria, Cyprus, Greece, Lithuania, Malta, Romania. Plus: United Kingdom

Applicable Standards and Regulations:

- Regulation (EU) No 2021/116 on the establishment of the Common Project One
- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

Benefits

The benefits are dependent upon the applications that will be run over the SWIM infrastructure.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to provide, consume and use operationally FF-ICE/R1 Extended AMAN SWIM Service as an operational SWIM compliant service.

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3.3 DIGITAL AIM AND MET SERVICES

dS Digital AIM and MET services	**Deployment Scenario** -
SOLUTION #	-
INF07	**Electronic Terrain and Obstacle Data (e-TOD)**

ICAO Annex 15 requires the States to provide TOD for their own territory and to announce it in the national AIPs. States need to assess the national regulations and policies in order to evaluate their suitability in relation to eTOD requirements of ICAO Annex 15. States also need to create capabilities and processes for the origination, collection, exchange, management and distribution of eTOD information as digital datasets, ensuring the provision of up-to-date data meeting the operational requirements and in compliance with the requirements of Regulation (EC) No 73/2010 on aeronautical data quality.

Note: Regulation (EC) No 73/2010 on aeronautical data quality has been repealed and replaced by Commission Implementing Regulation (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010

FOC Date	31/12/2018	Dependencies	-	
Estimated achievement	31/12/2024	CP1 AF & SDP Family	-	-
Completion Rate 2022	28%	ICAO ASBUs	DAIM B1/3, DAIM B1/4	
Stakeholders	ANSPs, Airport Operators, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC+ States except MUAC

Applicable Standards and Regulations:

- Annex 15 - Aeronautical Information Services. Annex 14 - Aerodromes Volume I Aerodrome Design and Operations. Annex 4 - Aeronautical Charts.
- Regulation (EU) 2020/469.
- Regulation (EU) 139/2014 on administrative procedures related to Aerodromes as amended by Regulation (EU) 2020/2148.
- EUROCAE - ED 98 & ED119

Benefits Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security

The availability of quality-assured electronic terrain and obstacle data from the State's authoritative sources will significantly improve situational awareness with respect to terrain or obstacle hazards, separation assurance and the visualization of approaches in challenging terrain environments. It will thereby contribute to increased safety levels and performance in airborne and ground-based systems (e.g., EGPWS, MSAW, APM, SVS, A-SMGCS and Instrument Procedure Design).

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Specification for Obstacle Data Set Coding using AIXM 5.1.1, EUROCONTROL
- Specification for Obstacle Data Set Coding using AIXM 5.2, EUROCONTROL

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

National Regulators have to establish a National TOD policy and a TOD regulatory framework.

ANSPs and **Airport Operators** have to plan and execute the collection, management and provision of TOD in accordance with the national TOD policy and regulatory framework.

Co-funded by the European Union

dS Digital AIM and MET services	**Deployment Scenario** **Improved aviation AIM and MET services through automation and digitalisation**
Phase B - #PJ.18-04b-01	**Enhanced Ground Weather Management System (GWMS) as local 4DWxCube**
INF11.1	**Enhanced Ground Weather Management System (GWMS) as local 4DWxCube**

The capabilities and information services addressed by this Objective aim to provide enhanced MET data capabilities, in order to improve the accuracy and timely delivery of certain Meteorological conditions at an airport. Specifically, supporting the airport operator and other local stakeholders and, in turn, airspace users to improve their situation awareness and decision making.
It should be noted that the implementation of new MET information services, including high resolution wind profiling, are not mandatory for deployment at all airports, but should be considered if there is an operational need for such enhancements

FOC Date	n/a (Initial Objective)	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	-	-
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs	-	
Stakeholders	MET Service Providers, Airport Operators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: n/a

Applicable Standards and Regulations: n/a

Benefits

Increased cost efficiency. Enhanced safety and security.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- MET SWIM Service
- EUROCONTROL Specification for SWIM Service Description EUROCONTROL- SPEC-168 Edition 2.0

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

MET Service Providers have to upgrade their systems to provide METForTAM SWIM Yellow Profile service where there is a determined operational need for enhanced weather observations at an airport. They also have upgraded their systems in order to be able to process MET information

Airport Operators have to be able to consume METForTAM Service where this service is deemed as an appropriate solution for the operational needs.

Co-funded by the European Union

dS Digital AIM and MET services	**Deployment Scenario** **Improved aviation AIM and MET services through automation and digitalisation**
Phase B - #PJ.18-04b-02	**Cb-global capability and service**
INF11.2	**Cb-global capability and service**

Cb-global capability uses data on cumulonimbus (Cb) clouds 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.

FOC Date	n/a (Initial Objective)	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	-	-
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs	-	
Stakeholders	MET Service Providers, Airspace Users	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: n/a

Applicable Standards and Regulations: n/a

Benefits

Increased cost efficiency. Enhanced safety and security. Potential fuel savings.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- MET SWIM Service
- EUROCONTROL Specification for SWIM Service Description EUROCONTROL- SPEC-168 Edition 2.0

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

If chose to implement, **MET Service Providers** have to upgrade their systems to be able to compile data for a METHazardEnrouteObservation and METHazardEnrouteForecast services, including satellite data to provide thunderstorm cell detection and tracking including forecasts and subsequently to provide a Cb-Global Service via SWIM Yellow Profile.

Airspace Users have to upgrade their systems to be able to consume the Cb-global service via SWIM, noting that other solutions for identifying en-route weather hazards are also available on the SWIM Registry.

3.4 AIRPORT AND TMA PERFORMANCE

ATp Airport and TMA performance	**Deployment Scenario** **Enhanced GND ATCO awareness in AWO**
Phase A - #70 **Phase B - #110**	**Enhanced ground ATCO situation awareness in AWO** **ADS-B surveillance of aircraft in flight and on the surface**
AOP04.1	**A-SMGCS Surveillance Service (former ICAO Level 1)**

Advanced surface movement guidance and control system (A-SMGCS) Surveillance' service (former Level 1) consists in a surveillance system that provides ATC the controller with the position and automatic identity of all suitably equipped relevant aircraft on the movement area and all suitably equipped relevant vehicles on the manoeuvring area. A-SMGCS Surveillance service may be used to replace visual observation and as the basis of controller decision making. Traffic is controlled through appropriate procedures allowing the issuance of information and clearance to traffic on the basis of A-SMGCS Surveillance data.

FOC Date	31/12/2020	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	74%	ICAO ASBUs	SURF-B0/2	
Stakeholders	ANSPs, Airport Operators, Airspace Users, International Organisations, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations:
EUROCONTROL Specification for A-SMGCS Services, EUROCAE ED-87E, ED-116 & ED-117

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Traffic throughput increased in low visibility conditions. More efficient control of surface traffic. Improved situational awareness of the controller, especially during periods of reduced visibility and darkness. Reduction in fuel burn and emissions.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Interop Document on Surveillance, Routing, Safety Support, EUROCAE
- Interop Document on Guidance Service data exchange, EUROCAE
- Guidelines for Surveillance Data Fusion for A-SMGCS Levels 1&2, ED-128A, EUROCAE
- MASPS for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) ED-87E
- CS on ASMGCS, Part 8: A-SMGCS routing service EN 303 213-8 (V 1.1.1)
- A-SMGCS, Part 5: Harmonised Standard for access to the radio spectrum for Multilateration (MLAT) equipment; Sub-part 2: Reference and vehicle transmitters, EN 303 213-5-2, (V 1.1.1)

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details).

Regulators have to mandate the carriage of required aircraft and vehicle equipment to enable location and identification of the aircraft and vehicles on the movement area (including military aircraft, as appropriate). They also have to publish A-SMGCS Surveillance procedures (including transponder-operating procedures) in national aeronautical information publications.
ANSPs have to install all the surveillance equipment and related systems to enable aerodrome controllers to locate and identify aircraft and vehicles on the manoeuvring area and implement approved A-SMGCS operational procedures.

Airport Operators have to install all the surveillance equipment and related systems to enable aerodrome controllers to locate and identify aircraft and vehicles on the manoeuvring area and implement approved A-SMGCS operational procedures. They also have to equip vehicles operating on the manoeuvring area to provide their position and identity to the A-SMGCS system.

Airspace users have to adopt the procedures for use of correct Mode-S transponder setting for enabling cooperative A-SMGCS detection on the movement areas.

Co-funded by the European Union

ATp Airport and TMA performance	**Deployment Scenario** -
SOLUTION #	-
AOP04.2	**A-SMGCS RMCA (former ICAO Level 2)**

Runway monitoring and conflict alerting (RMCA) (former Level 2) is the first element of the A-SMGCS 'Airport Safety Support' service. RMCA consists of an airport surface surveillance system (i.e., A-SMGCS Surveillance –former Level 1) complemented with a short-term conflicting alerting tool that monitors movements on or near the runway and detects conflicts between an aircraft and another mobile as well as runway incursion by intruders. Appropriate alerts are visualised on the controller's HMI.

NOTE: This objective is only relevant for the airports that are not listed in the CP1 Regulation (Section 2.2.1 of the Annex to Regulation (EU) 2021/116).

For the CP1 Airports, objective AOP12.1 on Airport Safety Nets which includes the RMCA functionality applies.

FOC Date	31/12/2025	Dependencies	**AOP04.1**	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	69%	ICAO ASBUs	SURF-B0/3	
Stakeholders	ANSPs, Airport Operators, International Organisations, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: 33 See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations:

- EUROCONTROL SPEC 171 for A-SMGCS Services
- EUROCAE ED-87E, ED-116 & ED-117

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

More efficient control of surface traffic. Better situational awareness and support to controller in detecting potentially hazardous conflicts on or near the runway or infringements of runway.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Interop Document on Surveillance, Routing, Safety Support, EUROCAE
- Interop Document on Guidance Service data exchange, EUROCAE
- Guidelines for Surveillance Data Fusion for A-SMGCS Levels 1&2, ED-128A, EUROCAE
- MASPS for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) ED-87E
- CS on ASMGCS, Part 8: A-SMGCS routing service EN 303 213-8 (V 1.1.1)
- A-SMGCS, Part 5: Harmonised Standard for access to the radio spectrum for Multilateration (MLAT) equipment; Sub-part 2: Reference and vehicle transmitters, EN 303 213-5-2, (V 1.1.1)

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to install runway monitoring and conflict alerting (RMCA) function systems and adopt RMCA operational procedures in order to enable the detection of conflicts and intrusions in accordance with A-SMGCS RMCA requirements.

Airport Operators have to install runway monitoring and conflict alerting (RMCA) function systems in order to enable the detection of conflicts & intrusions in accordance with A-SMGCS RMCA requirements.

Co-funded by the European Union

ATp Airport and TMA performance	**Deployment Scenario** -
SOLUTION #	-
AOP05	**Airport CDM**

Implement airport CDM (A-CDM) aims to enhance the operational efficiency of airports and improve their Integration into the air traffic management Network.
This is achieved by increasing the information sharing between the local ANSP, airport operator, aircraft operators, ground handlers, the NM and other airport service providers, and by improving the cooperation between these partners. A-CDM allows enhancing the predictability of events, optimising the utilisation of resources and therefore increasing the efficiency of the overall system.

FOC Date	31/12/2020	Dependencies	-	
Estimated achievement	31/12/2024	CP1 AF & SDP Family	-	-
Completion Rate 2022	57%	ICAO ASBUs	ACDM B0/1, ACDM B0/2, NOPS B0/4	
Stakeholders	ANSPs, Airport Operators, Airspace Users, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations:

- ICAO Annex 14 – Aerodromes
- Airport Collaborative Decision Making (A-CDM); Community Specification EN 303 212 (V 1.1.1)

Benefits Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security

Capacity improved through optimal use of facilities and services, better use of airport and ATFM slots. Improved system efficiency and predictability. Significant decrease in fuel burn through better time operations. Increased airport revenue through additional flights and passengers. Environment will benefit through reduced noise and emissions due to limiting engine ground running time due to better timed operations.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- EUROCONTROL Specification on A-CDM
- Airport CDM Interface Specification, ED-145A (EUROCAE)
- Guidelines for Test and Validation Related to Airport CDM Interoperability (EUROCAE)
- Airport CDM SWIM Service Performance Specification (EUROCAE)
- Airport Collaborative Decision Making (A-CDM); Community Specification (ETSI)

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs, Airport Operators and Airspace Users have to:

1. Define and agree performance objectives and KPIs at local level;
2. Define and implement local procedures for information sharing through Letters of Agreement and/or Memorandum of Understanding;
3. Define and implement local procedures for turnaround processes;
4. Define and implement procedures for CDM in adverse conditions, including the de-icing;
5. Continually review and measure airport performance.

Airport Operators have to define and implement the exchange of messages, Flight Update Message (FUM) and Departure Planning Information (DPI) between NMOC and the airport;

Network Manager has already updated NM systems and defined procedures to support the exchange of messages, Flight Update Message (FUM) and Departure Planning Information (DPI) between NMOC and airports.

Co-funded by the European Union

ATp Airport and TMA performance	**Deployment Scenario** **Time based separation for final approach**
Phase A - #64	**Time based separation**
AOP10	**Time based separation**

Time-based separation (TBS) consists in the separation of aircraft in sequence on the approach to a runway using time intervals instead of distances. It may be applied during final approach by allowing equivalent distance information to be displayed to the controller taking account of prevailing wind conditions. Radar separation minima and wake turbulence separation (WBS) parameters shall be integrated to provide guidance to the air traffic controller to enable time-based spacing of aircraft during final approach that considers the effect of headwind.

FOC Date	31/12/2023	Dependencies	**ATC07.1, ATC15.1, ATC15.2, AOP12.1**	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	5%	ICAO ASBUs	WAKE-B2/7	
Stakeholders	ANSPs, Airspace Users, Regulators	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations:
EUROCONTROL Specification for Time-Based Separation (TBS) support tool for Final Approach
EUROCONTROL Guidelines on Time-Based Separation (TBS) for Final Approach

Benefits

Improved aircraft landing rates leading to increased airport throughput. Reduction of holding times and stack entry to touchdown times leading to reduced delays and reduced emissions. More consistent separation delivery on final approach.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- EUROCONTROL Specification on A-CDM
- Airport CDM Interface Specification, ED-145A (EUROCAE)
- Guidelines for Test and Validation Related to Airport CDM Interoperability (EUROCAE)
- Airport CDM SWIM Service Performance Specification (EUROCAE)
- Airport Collaborative Decision Making (A-CDM); Community Specification (ETSI)

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Ensure that the flight data processing and AMAN systems are compatible with the TBS support tool for the visualisation of the final approach separation or spacing, and are able to switch between time and distance based wake turbulence radar separation rules. Switching from TBS to Distance Based Separation (DBS) is necessary to cover contingency and other locally-driven requirements
2. Modify the controller working position (CWP) to integrate the new TBS support tool with safety nets to support the air traffic controller
3. Feed local meteorological (MET) information providing actual glide slope wind conditions to the TBS support tool;
4. Ensure that the TBS Support tool to provide automatic monitoring and alerting of non-conformant behaviours, infringements, wrong aircraft.

Airspace Users have to train flight crews on TBS operations

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ATp Airport and TMA performance	**Deployment Scenario** **Airport Safety Nets**
Phase A - #02	**Airport Safety Nets for controllers: conformance monitoring alerts and detection of conflicting ATC clearances**

AOP12.1	**Airport Safety Nets**	**CP1**

This objective consists of the runway monitoring and conflict alerting (RMCA), the detection and alerting of conflicting ATC clearances (CATC) to aircraft and vehicles and non-conformance to procedures and clearances (CMAC) for traffic on the movement area.
The RMCA function acts as a short-term alerting tool, whereas the CATC and CMAC serve to be more predictive tools that aim at preventing situations where an RMCA alert may be triggered. CMAC alerts controllers when aircraft and vehicles deviate from ATC instructions, procedures. The detection of conflicting ATC clearances (CATC) provides an early prediction of situations that if not corrected would end up in hazardous situations that would be detected in turn by the runway monitoring and conflict alerting (RMCA). The controller shall input all clearances given to aircraft or vehicles into the ATC system using an electronic clearance input (ECI) means such as the electronic flight strip (EFS).

FOC Date	31/12/2025	Dependencies	**AOP04.1, AOP04.2**	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	AF2	2.3.1
Completion Rate 2022	6%	ICAO ASBUs	SURF B1/3	
Stakeholders	ANSPs, Airport Operators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: Regulation (EU) No 2021/116 on the establishment of the Common Project One
EUROCAE MASPS for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) ED-87D

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Increased situational awareness. Improved safety in airport operations.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Interop Document on Surveillance, Routing, Safety Support, EUROCAE
- Interop Document on Guidance Service data exchange, EUROCAE
- Guidelines for Surveillance Data Fusion for A-SMGCS Levels 1&2, ED-128A, EUROCAE
- MASPS for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) ED-87E
- CS on ASMGCS, Part 8: A-SMGCS routing service EN 303 213-8 (V 1.1.1)
- A-SMGCS, Part 5: Harmonised Standard for access to the radio spectrum for Multilateration (MLAT) equipment; Sub-part 2: Reference and vehicle transmitters, EN 303 213-5-2, (V 1.1.1)

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs/AOs have to:

1. Implement appropriate systems, constituents and associated procedures supporting RMCA, CATC and CMAC functions.
   - Active RMCA alerts shall be triggered according to the alert's parameters tailored for the local environment and displayed on Controller CWP with a distinction of colours between alarms alerts and information alerts, alarm alerts shall trigger an audio warning
   - The systems allowing the detection of CATC and CMAC, shall be integrated with A-SMGCS surveillance data and ECI (Electronic Clearance Input)

Note: The deployment actions should be addressed to air navigation service providers (ANSPs) as well as to airport operators (AOs). This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASp SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities.

EUROPEAN PARTNERSHIP
Co-funded by the European Union

ATp Airport and TMA performance	**Deployment Scenario** **Auto assist to ATCO for surface movement planning & routing** **DMAN synchronised with pre-departure sequencing**
Phase A - #22 **Phase A - #53**	**Auto assist to ATCO for surf movement planning and routing** **Pre-DEP sequencing supported by route planning**
AOP13	**Automated Assistance to ATCO for Surface Planning & Routing**

The A-SMGCS Routing service provides the generation of taxi routes, with the corresponding estimated taxi times for planning considerations. This function calculates the most operationally relevant route, which permits the aircraft to go from stand to runway, from runway to stand or any other surface movement.
Taxi routes may be modified by the air traffic controller before being assigned to aircraft and vehicles. The controller working position allows the controller to manage surface route modification and creation. Traffic will be controlled through the use of appropriate procedures allowing the issuance of information and clearances to traffic.
The A-SMGCS Routing Service should provide to external systems the estimated taxi-out time (EXOT) for aircraft as long as they are before pushback, if benefit provided compared to already existing A-CDM.

FOC Date	31/12/2025	Dependencies	**AOP04.1, AOP04.2, AOP12.1**	
Estimated achievement	Not available	CP1 AF & SDP Family	-	-
Completion Rate 2022	4%	ICAO ASBUs	SURF B1/4	
Stakeholders	ANSPs, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: EUROCAE MASPS for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) ED-87D.

Benefits

Increased availability of taxiway resources and reduced total taxi time by ground movements. Improved traffic flow on the aerodrome's manoeuvring area. Reduced environmental impact by reducing fuel consumption and then CO2 emissions. Reduced fuel consumption due to reduced taxi time and reduced number of stops while taxiing. Safety improved through increased controllers' situational awareness for all ground movements and potential conflicts resolution.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Interop Document on Surveillance, Routing, Safety Support, EUROCAE
- Interop Document on Guidance Service data exchange, EUROCAE
- Guidelines for Surveillance Data Fusion for A-SMGCS Levels 1&2, ED-128A, EUROCAE
- MASPS for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) ED-87E
- CS on ASMGCS, Part 8: A-SMGCS routing service EN 303 213-8 (V 1.1.1)
- A-SMGCS, Part 5: Harmonised Standard for access to the radio spectrum for Multilateration (MLAT) equipment; Sub-part 2: Reference and vehicle transmitters, EN 303 213-5-2, (V 1.1.1)

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Upgrade ATS systems to support the capability of receiving planned and cleared surface routes assigned to aircraft and vehicles and managing the status of the routes for all concerned aircraft and vehicles;
2. Ensure the planning and routing function is used to optimise pre-departure sequencing;
3. Define and implement local procedures for surface movement planning and routing.

REGs have to provide the appropriate supervisory function in relation to the deployment of the automated assistance to ATCO for surface planning and routing function.

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ATp Airport and TMA performance	**Deployment Scenario** **Airport safety nets vehicle**
Phase A - #04	**Enhanced traffic sit. awareness and APO Safety Nets for vehicle drivers**
AOP15	**Safety Nets for Vehicle Drivers**

Vehicle drivers allowed to operate in the manoeuvring area of an aerodrome should use the functionality. The system consists of the following improvements:

- Provision of an Airport Moving Map in the vehicle, together with the display of the surrounding traffic,
- Provision of alerts to vehicle drivers to warn them of situations that if not corrected could end up in hazardous situations.

The alerts are provided to the vehicle drivers in the form of an aural and/or visual alert with two levels of alert severity depending on the severity of situations:

- Caution alert for the less critical situations; and
- Warning alert for the most critical situations

In implementation of this functionality, the frequency load of 1030/1090 MHz should be considered.
Increased situational awareness is essential for operations at airports especially in adverse weather conditions or other similar operating situations. Situational Awareness is important for vehicle drivers, as they need to operate within the manoeuvring area regardless of weather conditions.

FOC Date	n/a (Local decision)	Dependencies	**AOP04.1**	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	11%	ICAO ASBUs	SURF-B2/2	
Stakeholders	Airspace Users, International Organisations, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: n/a

Benefits

This improved situational awareness combined with an alerting/warning system in case potential hazardous situations are detected, will not only improve safety for vehicles operating in the manoeuvring area but also provide a safety enhancement for the aircraft operations, both on taxiways and runways, at the airport.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

Regulators have to Promulgate the procedures for use of "Onboard Ground Vehicle System" and SNET.

International organisations have to develop standard for interface between A-SMGCS and On Board Vehicle System.

Airport Operators have to install "Onboard Ground Vehicle System" to process and display the own position and surrounding traffic. The processing may be provided by the central server making use of the A-SMGCS system or autonomously by Onboard Ground Vehicle system. SNET alerts to vehicle drivers function shall be installed an "Onboard Ground Vehicle System" too.

ATp Airport and TMA performance	**Deployment Scenario** **Integrated Surface Management**
Phase A - #47	**Guidance Assistance through Airfield Ground Lighting**
AOP16	**Guidance assistance through AGL**

The Objective is intended for controllers, flight crews and vehicle drivers and corresponds to the A-SMGCS Guidance function foreseen in ICAO's A-SMGCS Manual (Doc. 9830). It links aerodrome lighting infrastructure with the taxi route management system (Routing & Planning), thus providing an unambiguous route for the taxiing aircraft/vehicle to follow. To achieve this, taxiway centre line lights are automatically and progressively activated (switched on to green), either in segments of several lights or individually, along the route cleared by the controller. If this cleared route includes a limit and if a physical stop bar exists at this point, this stop bar is also automatically activated (switched on to red) when the mobile nears it. The implementation strongly relies on the surface movement surveillance system to provide accurate aircraft position data.
The automation might also include the management of priorities at intersections, based on pre-defined criteria (e.g., aerodrome rules, speed or target times). However, controllers are able to override the guidance decisions, which shows activated lights on the HMI.

FOC Date	n/a (Local decision)	Dependencies	**AOP13**	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	0%	ICAO ASBUs	SURF B1/1	
Stakeholders	ANSPs, Airport Operators, Airspace Users, International Organisations	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: EUROCAE ED-87E

Benefits

Reduction of controller workload (radio communication / instructions) will have a positive impact on the capacity of the airport's ground movement system in particular at the aerodromes with multiple complex taxiways system and large manoeuvring area. Significant reduction in taxi time in both good and low visibility conditions. The reduction is strongly dependent of local conditions and will therefore differ per airport. The variability of taxi times (for the same combination of used parking position and runway) might be reduced Increase of situational awareness from pilots perspectives. Reduction of unplanned / unwanted taxi route deviations. Significantly lower runway incursion risk. Fewer speed changes as also reduce the number of stops along routes between runway and parking position (and vice versa). This reduces the fuel burn for taxiing both in good and low visibility conditions, although the benefits have been shown to be larger during low visibility

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

International organisations have to develop the procedures and phraseology for taxi guidance by AGL and integrate taxi guidance by AGL in MASPS for the A-SMGCS.

ANSPs have to upgrade CWP/HMI to display and manage lights and routes and implement procedures for use of taxi guidance by AGL, as well as upgrade A-SMGCS to send taxi instructions as commands to the AGL system.

Airport Operators have to upgrade AGL system to enable the selective switching of the lamps and upgrade A-SMGCS to send taxi instructions as commands to the AGL system. The procedures for use of taxi guidance by AGL shall be implemented too.

Airspace users have to develop and implement procedures for use of taxi guidance by AGL.

EUROPEAN PARTNERSHIP
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ATp Airport and TMA performance	**Deployment Scenario** **Enhanced Airport Safety Nets**
Phase A - #01	**Runway Status Lights**
AOP18	**Runway Status Lights (RWSL)**

Runway Status Lights (RWSL) system is an automatic independent system based on aerodrome surveillance data that can be used on airports to increase safety by preventing runway incursions. The RWSL will provide an independent system that uses A-SMGCS surveillance data to dynamically switch on and off additional and dedicated airfield lights on RWY and on the runway entry TWY.

It will directly inform the flight crews / vehicle drivers about the instantaneous runway usage. Runway status lights switched "on" is an indication that the runway is unsafe for entering (for line-up or crossing) or for taking-off. The system is meant to be compatible with airport operations and independent of ATC clearances, even if TWR will have access to the status of the Runway Entrance Lights (EHL) and Take-off Hold Lights (THL), with no change in their operating methods, except in case of flight crew request or failure of the system.

The purpose of the RWSL system is to act as a safety net for flight crew and vehicle drivers, thus reducing the number of runway incursions without interfering with normal runway operations. It is recommended to implement RWSL at medium to highly utilized airports with complex runway and taxiway lay-out.

FOC Date	n/a (Local decision)	Dependencies	**AOP04.1**	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	5%	ICAO ASBUs	SURF-B2/2, SURF-B2/3	
Stakeholders	ANSPs, Airport Operators, Airspace Users, International Organisations, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: ICAO Annex 11 – Air Traffic Services. ICAO Annex 14 – Aerodromes, Volume I and II. EUROCONTROL SPEC-171.

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Less severe and less frequent runway incursions due to an increase of runway usage awareness through accurate and timely indication of runway occupancy. More efficient control of surface traffic.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

International organisations have to develop the standards for operational use of RWSL, RWSL design and approval, and interfaces and information exchanges of RWSL Management Tool.

Regulators have to promulgate the procedures for use of RWSL.

ANSPs have to Install RWSL management tool, upgrade TWR CWP to interface with RWSL management tool and implement procedures for the use of RWSL.

Airport Operators have to upgrade Airfield Ground Lighting system to provide the RWSL, install RWSL management tool, and implement procedures for the use of RWSL.

Airspace users have to develop and implement procedures for use of RWSL.

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ATp Airport and TMA performance	**Deployment Scenario** **DMAN Synchronised with Pre-Departure Sequencing**
Phase A - #53 **Phase A - #106**	**Pre-Departure Sequencing supported by Route Planning** **DMAN Baseline for integrated AMAN DMAN**
AOP19	**Departure Management Synchronised with pre-departure Sequencing** — **CP1**

Departure Management (DMAN) system is calculating and metering the departure flow to a chosen runway by managing Off-block-Times (via Start-up-Times), obtained from the turn-round process and from A-SMGCS services if available. DMAN, synchronised with pre-departure sequencing, is a means to improve the departure flows at airports, ensuring flights to depart from the airport, leaving allocated parking stands in a more efficient and optimal order taking account of the available runway capacity and updated taxi-times.
Departure management synchronised with pre-departure sequencing reduces taxi times, increases Air Traffic Flow Management-Slot adherence (ATFM-Slot) and predictability of departure times. Departure management aims at maximising and optimising traffic flow on the chosen runway by setting up a sequence of departing traffic with optimised separations.

FOC Date	31/12/2022	Dependencies	-	
Estimated achievement	31/07/2027	CP1 AF & SDP Family	AF2	2.1.1
Completion Rate 2022	62%	ICAO ASBUs	RSEQ-B0/2	
Stakeholders	ANSPs, Airport Operators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: Regulation (EU) No 2021/116 on the establishment of the Common Project One

Benefits — Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Enhanced tactical runway scheduling. Reduced waiting time at the runway holding point, which saves fuel and CO2 emissions and allows air navigation service efficiency. Increased accuracy of taxi time-out predication and hence take-off time predictability, which in turn allows the aircraft to adhere to their target take-off time (TTOT). Provision of a more stable pre-departure sequence. Reduced waiting and taxi times and runway delays.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Specification on Airport CDM (EUROCONTROL), A-CDM Community Specification (ETSI)
- Updated ED-87D to include Guidance Services - ED-87E (EUROCAE)

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

Airport Operators have to:

1. Provide relevant additional data to A-CDM systems to feed DMAN synchronised with pre-departure sequencing.
2. Integrate the DMAN system with A-CDM, A-SMGCS and electronic clearance input (ECI) systems
3. Develop appropriate procedures

ANSPs have to:

1. Integrate the DMAN system with A-CDM, A-SMGCS and electronic clearance input (ECI) systems
2. Develop appropriate procedures

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ATp Airport and TMA performance	**Deployment Scenario** **Efficient aircraft separation during take-off and final approach**
Phase B - #PJ.02-01-06	**Wake Turbulence Separations (for Departures) based on Static Aircraft Characteristics**
AOP20	**Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)**

This objective represents optimisation of the ICAO wake turbulence separation classes by use of longitudinal wake turbulence static pair-wise separation minima for departures (S-PWS-D), applicable in all operating conditions.
The Static PairWise Separation for Departures concept optimises wake separations between departures on the initial departure path by moving to a scheme defined between aircraft type pairs for the 96 aircraft types frequently at ECAC 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.
The S-PWS-D is applied using a separation delivery tool, where the pairwise separations will be used as input into the separation delivery tool. S-PWS-D requires the Optimised Runway Delivery (ORD) tool to be integrated at CWP and the wind measurement or forecast on the final approach path.
This objective targets capacity constrained runways during high intensity runway operations and applies to very large, large and possibly medium airports

FOC Date	n/a (Initial Objective)	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	-	-
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs		
Stakeholders	ANSPs , International Organisations	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: n/a

Applicable Standards and Regulations: n/a

Benefits

Increased airport capacity. Safety maintained while increasing capacity.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Install ATC tools to support static pair-wise wake separation for departures and develop appropriate procedures;
2. Adapt DMAN systems to use static pair-wise wake separation for departures.

International Organisations have to publish Regulatory provisions (AMC) for static pair-wise wake separation minima.

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ATp Airport and TMA performance	**Deployment Scenario** **Efficient aircraft separation during take-off and final approach**
Phase B - #PJ.02-01-04	**Wake Turbulence Separations (for Arrivals) based on Static Aircraft Characteristics**
AOP21	**Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)**

This objective represents optimisation of the ICAO wake turbulence separation classes by use of longitudinal wake This objective represents optimisation of the ICAO wake turbulence separation classes by use of longitudinal wake turbulence static pair-wise separation minima on arrivals (S-PWS-A), applicable in all operating conditions.
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 types in ECAC area) and the twenty wake category (20-CAT) based wake separation minima for arrival pairs involving all the remaining aircraft types. This allows reduction of separation minima for most aircraft pairs, enabling runway throughput increase compared to ICAO scheme, whilst maintaining acceptable levels of safety.
The S-PWS-A is applied using a separation delivery tool, where the pairwise separations will be used as input into the separation delivery tool.
S-PWS-A requires the Optimised Runway Delivery (ORD) tool to be integrated at CWP and the wind measurement or forecast on the final approach path.
This objective targets capacity constrained runways during high intensity runway operations and applies to very large, large and possibly medium airports.

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	-	-
Completion Rate 2022	n/a (New Objective)	ICAO ASBUs	WAKE-B3/3	
Stakeholders	ANSPs , International Organisations,	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: n/a

Benefits

Increased airport capacity. Safety maintained while increasing capacity.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Install ATC tools to support static pair-wise wake separation for final approach and develop appropriate procedures;
2. Adapt DMAN systems to use static pair-wise wake separation for final approach.

International Organisations have to publish Regulatory provisions (AMC) for static pair-wise wake separation minima.

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ATp Airport and TMA performance	**Deployment Scenario** **Efficient aircraft separation during take-off and final approach**
Phase B - #PJ.02-03	**Minimum pair separations based on RSP[8]**
AOP22	**Minimum pair separations based on RSP**

Minimum Pair Separations Based on Required Surveillance Performance "(RSP)" in support of a reduction of the in-trail minimum Radar Separation focus to provide a direct positive impact on runway throughput (capacity, efficiency and resilience). The runway capacity and in particular the runway throughput resilience in moderate, strong and very strong headwind conditions on the straight-in approach to the runway landing threshold are improved thanks to the implementation of Minimum radar separations based upon required surveillance performance implying the application (by ATC) of a non-wake turbulence separation down to 2 NM for arrivals on final approach, based upon required surveillance performance. This minimum radar separation could be applied when separation is not constrained by wake turbulence, either because of favourable weather conditions (e.g., cross wind) or simply when the pair-wise wake turbulence separation is less than the MRS.

FOC Date	n/a (Initial Objective)	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	-	-
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs	-	
Stakeholders	ANSPs, International Organisations	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: n/a

Applicable Standards and Regulations: n/a

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Increased airport capacity. Safety maintained while increasing capacity.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Update ATC systems and procedures for Minimum Separation Based on Required Surveillance Performance (separation delivery);
   a. visual assistance of the minimum separation to be applied (Target Display Indicator),
   b. automated alerting of conflicts when this minima is violated (whilst avoiding false alerts during the use of non-wake turbulence pairwise separation).

International Organisations have to:

1. Publish Regulatory provisions (AMC) for Minimum-Pair separations based on RSP (Required Surveillance Performance).

[8] Solution in Industrialisation Phase

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ATp Airport and TMA performance	**Deployment Scenario** **Traffic optimisation on single and multiple runway airports**
Phase B - #PJ.02-08-01	**Integrated runway sequence for full traffic optimisation on single and multiple runway airports**
AOP23	**Integrated runway sequence for full traffic optimization on single and multiple runway airports**

The efficient use of integrated arrival and departure planning requires the development of early and dynamic planning of arrival and departure sequences into the runway of an airport. Today limitations with static patterns, lack of predictability and high manual workload need to be improved. To reduce extensive queuing in the air and on ground for reduction of airline fuel consumption/cost, there is a need of trajectory based and early planning for improved operational efficiency.
The concept of Traffic Optimisation on single and multiple runway airports is applicable for all airport layouts that have dependencies between arrivals and departures. This includes runways operated in mixed mode as well as runway layouts with interdependencies between arrivals and departures.
The main goal for the Integrated RWY Sequence function is to establish 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.

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	-	-
Completion Rate 2022	n/a (New Objective)	ICAO ASBUs	RSEQ-B2/1	
Stakeholders	ANSPs, Airport Operators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: n/a

Benefits

Increased airport capacity. Both fuel efficiency as well as CO2/Flight Time Efficiency. Safety maintained while increasing capacity.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs/AOs have to:

1. Adapt the local systems so as to enhance the coupled AMAN-DMAN and to improve the synchronisation between arrivals and departures.
2. Adapt the ATC System to support integrated arrival/departure sequence functionalities

Note: The deployment actions should be addressed to air navigation service providers (ANSPs) as well as to airport operators (AOs). This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASp SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities.

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ATp Airport and TMA performance	**Deployment Scenario** **Traffic optimisation on single and multiple runway airports**
Phase B - #PJ.02-08-02	**Optimised use of runway configuration for multiple runway airports**
AOP24	**Optimised use of runway configuration for multiple runway airports**

This Implementation Objective focuses on the Runway Manager (RMAN), 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 Medium/Short term Planning Phase, the RMAN tool 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 Runway Management tool monitors departure, arrival and overall delay and punctuality, in addition to the capacity shortage proposing changes if necessary.
Since the demand is continuously evolving along time, the 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.

FOC Date	n/a (Initial Objective)	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	-	-
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs		
Stakeholders	ANSPs, Airport Operators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: n/a

Applicable Standards and Regulations: n/a

Benefits

Increased airport capacity. Both fuel efficiency as well as CO2/Flight Time Efficiency. Safety maintained while increasing capacity.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs/AOs have to:

1. Implement a Runway Demand and Capacity system and develop appropriate procedures.
2. Adapt the APP ATC System to support the display of integrated arrival/departure sequence information (ANSPs only!)

Note: The deployment actions should be addressed to air navigation service providers (ANSPs) as well as to airport operators (AOs). This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASp SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities.

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ATp Airport and TMA performance	**Deployment Scenario** **De-icing management tool**
Phase A - #116	**De-icing management tool**
AOP25	**De-icing management tool**

The objective is addressing a de-icing management tool to be used on airports with an Airport Collaborative Decision Making (A-CDM) implementation, during de-icing conditions. It aims at improving the predictability of aircraft de-icing operations by increasing 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 at best by predetermined estimates. The concept envisages that de-icing operations are no longer characterised by the A-CDM 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 de-icing process can therefore become predictable under certain weather conditions and treated as a regular procedure in normal operations.

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	17%	ICAO ASBUs	-	
Stakeholders	ANSPs, Airport Operators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: n/a

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Better use of existing airport capacity. Increased predictability and flexibility of airport operations (integration of airport operations with the network). More efficient airport operations

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

AOs have to implement a de-icing management tool having the functionalities detailed in the Technical Annex and integrated it with the A-CDM platform. Specific procedures for the use of the tool by the De-icing Coordinator and by the De-icing Agent will have to be defined and implemented.

ANSPs have to adapt the A-CDM platform to exchange information with the de-icing management tool so as to allow the tool to receive information from the A-CDM platform as well as to provide information to the platform.

Co-funded by the European Union

ATp Airport and TMA performance	**Deployment Scenario** **Traffic optimisation on single- and multiple-runway airports**
Phase B - #PJ.02-08-03	**Reduced separation based on local Runway Occupancy Time characterisation**
AOP26	**Reduced separation based on local Runway Occupancy Time (ROT) characterisation**

The Increased Runway Throughput based on local ROT characterization is a concept that intends to enable to the reduction the in-trail separation on final approach with the aim of increasing runway throughput by taking into account the Runway Occupancy Time (ROT) of lead traffic in an arrival pair. The most constraining factor for the reduction of the longitudinal separation is, beside wake turbulence minima when applicable, the need to maintain sufficient spacing compatible with ROT of the lead landing traffic; and therefore reduced surveillance separation could be enabled, based on individualised ROT characterisation or other applicable criteria, for the part of the traffic for which the ROT is compatible, while the other traffic part would remain spaced by larger spacing due to ROT.
The operational application can be based either per individual aircraft type (iROT) or per aircraft ROT-based category (ROCAT). The objective addresses the development of optimised runway occupancy minima through data analytics to determine runway occupancy time (statistical) values per aircraft type using historical data.

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	7%	ICAO ASBUs	-	
Stakeholders	ANSPs	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: n/a

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

A reduced spacing between aircraft has positive impact on the runway throughput. The higher the throughput, the higher the number of movements, leading to a positive impact on capacity.
When supported by a separation delivery tool, such as TBS-ORD, the implementation makes easier for controllers to identify separation infringement on final approach so the situation awareness is increased compared to the current way of work, which has a positive impact on safety.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to establish local ROT characterisation and determine corresponding ROCAT / iROT spacing scheme allowing an optimised RWY delivery function taking ROT into account. They will also have to Implement procedures for the use of the optimised ROCAT / iROT spacing scheme.

Co-funded by the European Union

ATp Airport and TMA performance	**Deployment Scenario** -
SOLUTION #	-
ATC07.1	**Arrival Management Tools**

Implement basic arrival manager (AMAN) tools to improve sequencing and metering of arrival aircraft in selected TMAs and airports.
AMAN interacts with several systems resulting in a 'planned' time for any flight. When several aircraft are predicted around the same time on the runway it plans a sequence with new 'required' times that need to be applied to create/maintain the sequence. AMAN also outputs the required time for the ATCO in the form of 'time to lose/time to gain', and the ATCO is then responsible for applying an appropriate method for the aircraft to comply with the sequence.

FOC Date	31/12/2019	Dependencies	-	
Estimated achievement	31/12/2024	CP1 AF & SDP Family	-	-
Completion Rate 2022	67%	ICAO ASBUs	RSEQ-B0/1	
Stakeholders	ANSPs	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: n/a

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Improved airport/TMA capacity and reduced delays. Optimised arrival sequencing produces a positive effect on fuel burn. Reduced holding and low level vectoring has a positive environmental effect in terms of noise and CO2 emissions. Safety is maintained or improved.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Implement initial basic arrival management tools;
2. Define, validate and implement ATC procedures for operational use of basic AMAN tools;
3. Adapt TMA organisation and ATC systems, where necessary, to accommodate the use of basic AMAN.

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ATp Airport and TMA performance	**Deployment Scenario** **Enhanced AMAN/DMAN integration**
Phase B - #54	**Flow-based integration of AMAN and DMAN**

ATC19	**AMAN / DMAN Integration**	**CP1**

Integrated Arrival and Departure management aims at increasing airport and TMA throughput, resilience and predictability by improved co-ordination between En-Route/Approach, local ATC and airports.
DMAN provides optimum departure sequence based on information provided by airport operator, airlines and ATC.
Similarly, AMAN calculates the optimum arrival flow to the airport. Integration of runway sequence, respecting AMAN and DMAN constraints, allows for optimum utilisation of runway.
Where this integration interferes with the 180 nautical miles (or shorter distance as indicated in objective ATC15.2) requirement for extended AMAN, the system has to be tuned to allow as large horizon as possible.

FOC Date	31/12/2027	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	AF1	1.2.1
Completion Rate 2022	6%	ICAO ASBUs	RSEQ-B2/1	
Stakeholders	ANSPs, Airport Operators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: Regulation (EU) No 2021/116 on the establishment of the Common Project One

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Contribution to predictability; increase in resilience. The coupling of AMAN with DMAN has been shown to save departure fuel and improve local air quality due to a reduction in the taxi-out time during peak traffic (up to 7% savings in taxi-out fuel).

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Couple AMAN and DMAN systems;
2. Establish Bilateral agreements between the stakeholders and airports involved for AMAN/DMAN operational procedures and data exchanges;
3. Upgrade CWP to enable display and management of the data coming from integrated AMAN/DMAN.

Airport Operators have to:

1. Upgrade systems to be able to receive, process and use the information coming from the integrated AMAN/DMAN system;
2. Establish Bilateral agreements between the stakeholders and airports involved for AMAN/DMAN operational procedures and data exchanges.

EUROPEAN PARTNERSHIP
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ATp Airport and TMA performance	**Deployment Scenario** **Point merge in complex TMA**
Phase B - #107	**Point Merge in complex TMA**
ATC26	**Point Merge in complex TMA**

Terminal Control (TC) Approach operations currently employ “Open-loop” techniques to sequence and space the arrival traffic. This entails the use of tactical vectors: heading, speed and vertical altitude intervention, to merge traffic onto the line of the Final Approach ILS (Instrument Landing System).
Point Merge is a method of merging arrival flows with existing technology including PBN. Under a Point Merge System, the aircraft are merged to a point using “Closed-loop” techniques. This technique allows controllers to sequence and merge arrivals without vectoring, while enabling continuous descent operations and maintaining runway throughput, even under high traffic.

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	43%	ICAO ASBUs	RSEQ-B0/3	
Stakeholders	ANSPs, Airspace Users	Operating Environment	Airport / En-Route / **TMA** / Network	

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations:

Benefits — Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Point Merge enables a significant reduction in ATC tactical interventions, hence in controller’s workload, R/T occupancy and communications task load leading to possible increases of the terminal airspace capacity
TMA safety levels were maintained at current day levels or improved through: a reduction of tactical vectoring; single leg design allowing descent-enabled management of traffic not adequately spaced in the horizontal plane; increased situational awareness. Point Merge offers both the path stretching capability required to build the sequence in dense terminal areas, and, once aircraft are directed to the merge point, the necessary predictability to support continuous descent operations. It also enables a better flow segregation – including departures, which may in turn facilitate Continuous Climb Operations

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to develop and publish Point Merge procedures. These procedures are expected to be published in the form of a PBN STAR or transition, and detailed in an official aeronautical publication (AIP) or a supporting information circular (AIC) by the concerned air navigation service provider. In principle, no new specific ground tool nor system is required, however some adaptations of the ATM systems might be required (e.g., simple visual markings on the controllers display, adaptation of the conflict detection systems and of the safety nets, etc.).

Airspace Users have to train flight-crews in Point Merge procedures. Training/briefing requirements for pilots are mainly driven by standard PBN implementation considerations, however, a few specific aspects might need to be addressed in certain cases.

EUROPEAN PARTNERSHIP
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ATp Airport and TMA performance	**Deployment Scenario** **Continuous descent operations (CDO)**
Phase A - #11	**Continuous descent operations (CDO)**
ENV01	**Continuous Descent Operations**

A continuous descent operation (CDO) is an aircraft operating technique, enabled by airspace design, procedure design and ATC clearances in which arriving aircraft descend without interruption, to the greatest possible extent, by employing minimum thrust to optimise fuel burn.
Many major airports now employ PBN procedures, which can enable both CDO and continuous climb operations (CCO). CDO does not adversely affect safety and capacity and will produce environmental and operational benefits including reductions to fuel burn, gaseous emissions and noise impact.
It is important that, to avoid misleading interpretations, monitoring and measuring of CDO execution is done using harmonised definitions, methodology and parameters. The methodology is detailed in the European CCO / CDO Action Plan, see https://www.eurocontrol.int/publication/european-cco-cdo-action-plan.

FOC Date	31/12/2023	Dependencies	-	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	-	-
Completion Rate 2022	52%	ICAO ASBUs	APTA-B0/4, APTA-B1/4	
Stakeholders	ANSPs, Airport Operators, Airspace Users	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: n/a

Benefits

Reduction of fuel burn (and consequently, atmospheric emissions) has been estimated to be 51kg per flight for those flying CDO over those flying non-CDO. In addition, studies have indicated that due to lower drag and thrust facilitated by CDO, over certain portions of the arrival profile, noise can be reduced by up to 5dB.
Reduction in fuel consumption by the flying of optimised profiles (no vertical containment required). If the CDO is flown as part of a PBN procedure, the predictability of the vertical profile will be enhanced for ATC. CDOs are also a proxy for Vertical Flight Efficiency (VFE) and should be monitored according to harmonised definitions and parameters in order to measure efficiency.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Coordinate activities and implement rules and ATC procedures for the application of CDO techniques in the TMA, whenever practicable;
2. Deploy performance-based airspace and arrival procedures that allow the aircraft to fly a continuous descent approach taking into account airspace and traffic complexity;
3. In cooperation with airports, monitor and measure CDO execution, where possible based upon a harmonised methodology and metrics.

Airport Operators have to, in cooperation with the ANSP, monitor and measure CDO execution, where possible based upon a harmonised methodology.

Airspace Users have to include CDO techniques in the aircrew training manual and support its implementation wherever possible.

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ATp Airport and TMA performance	**Deployment Scenario** -
SOLUTION #	-
ENV02	**Airport Collaborative Environmental Management**

Collaborative environmental management (CEM) consists in the establishment of formal working partnership arrangements between ANSP, airport and aircraft operators at individual airports to enable:

- the minimisation of noise and atmospheric emissions in particular CO2 and NOx (including fuel burn),
- introduction of new operational changes such as airspace design, different approach or departure procedures including CDO and PBN implementation, new airport infrastructure compliance with airport related legislation and environmental certification requirements, and
- the management of aircraft and airfield de-icing resulting from combined aircraft operations at the terminal airspace and ground.

These formal working arrangements will enable understanding and awareness of interdependencies and facilitate jointly agreed solutions for environmental improvements.

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	79%	ICAO ASBUs	-	
Stakeholders	ANSPs, Airport Operators, Airspace Users, EUROCONTROL	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations:

- Regulation (EU) 598/2014 on rules and procedures on noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC (as from 16/06/2016)
- EC Directive 2002/49/EC, on the assessment and management of environmental noise
- EC Directive 2008/50/EC, on ambient air quality and cleaner air
- ICAO Annex 16; Vol. I-Aircraft Noise & Vol. II-Aircraft engine emissions

Benefits 

Reduction of noise, fuel burn and CO. Contributing to cost savings for airlines and CO2 reductions for airports. Airports may see again in capacity if noise restrictions are lowered. Reduction of fuel use, noise, emissions and de-icing water pollution resulting from a structured collaborative approach that jointly identifies effective sustainable operational solutions for implementation and monitoring.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- EUROCONTROL Specification for Collaborative Environmental Management (CEM) –Edition 1.2.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs, Airport Operators and **Airspace Users** have to establish together working partnership arrangements to manage and control environmental impacts of air traffic procedures in and around the airport.

Airport Operators have to:

1. Ensure that appropriate and relevant performance information availability at Airports;
2. Ensure appropriate Airport policy and procedures and, if required, relevant infrastructures needed to manage and mitigate pollution due to de-icing activities.

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ATp Airport and TMA performance	**Deployment Scenario** -
SOLUTION #	-
ENV03	**Continuous Climb Operations**

A continuous climb operation (CCO) is an aircraft operating technique, enabled by airspace design, procedure design and ATC clearances in which departing aircraft climb without interruption, to the greatest possible extent, by employing optimum climb engine thrust at climb speeds until reaching the cruise flight level.
Many major airports now employ PBN procedures, which can enable both CDO and CCO. CCO does not adversely affect safety and capacity and will produce environmental and operational benefits including reductions to fuel burn, gaseous emissions and noise impact. It is important that monitoring and measuring of CDO execution is done using harmonised definitions, methodology and parameters to avoid misleading interpretations. The proposed methodology[9] (*) identified by the European TF on CCO/CDO is detailed at http://www.eurocontrol.int/articles/continuous-climb-anddescent-operations.

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	-	-
Completion Rate 2022	63%	ICAO ASBUs	APTA-B0/5, APTA-B1/5	
Stakeholders	ANSPs, Airport Operators, Airspace Users	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations:

- Regulation (EU) 598/2014 on rules and procedures on noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC (as from 16/06/2016);
- EC Directive 2002/49/EC, on the assessment and management of environmental noise;
- EC Directive 2008/50/EC, on ambient air quality and cleaner air.

Benefits Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security

Reduction of fuel burn, hence atmospheric emissions, is estimated to be 17kg per flight for those flying CCO over those flying non-CCO. In addition, studies have indicated that due to lower drag and thrust facilitated by CCO, over certain portions of the arrival profile, noise maybe reduced. Studies are currently ongoing to gauge such noise reductions.
CCOs contribute to reducing airlines operating costs including a reduction in fuel consumption by the flying of optimised profiles (no vertical containment required). If the CCO is flown as part of a PBN procedure, the predictability of the vertical profile will be enhanced for ATC. CCOs are also a proxy for Vertical Flight Efficiency (VFE) and should be monitored according to harmonised definitions and parameters in order to measure efficiency.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to implement rules and procedures for the application of CCO techniques. With airports, they have to monitor and measure CCO execution, where possible based upon a harmonised methodology and metrics;

Airport Operators have to, with the ANSP, monitor and measure CCO execution, where possible based upon a harmonised methodology and metrics;

Airspace Users have to include CCO techniques in the aircrew training manual.

[9] *Note that at the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.*

ATp Airport and TMA performance	**Deployment Scenario** **Enhanced TMA using RNP-based operations**
Phase B - #62	**P-RNAV in a complex TMA**
NAV03.1	**RNAV1 in TMA Operations**

Performance-based navigation distinguishes between RNAV and RNP Specifications, both of which rely on area navigation techniques, which allow aircraft to operate on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these.
An RNAV 1 specification includes several requirements, one being a requirement for the lateral and longitudinal total system error (TSE) to be within +/- 1NM at least 95% of the flight time. Individual States, ANSPs, and airports will evaluate the business need for SID routes or STAR routes. Where providers of ATM/ANS have established SID or STAR, they shall implement those routes in accordance with the requirements of RNAV 1 or RNP1 specification, as applicable.

FOC Date	06/06/2030	Dependencies	-	
Estimated achievement	06/06/2030	CP1 AF & SDP Family	-	-
Completion Rate 2022	38%	ICAO ASBUs	APTA-B0/2	
Stakeholders	ANSPs, Airspace Users, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations:
Regulation (EU) 2018/1048 – PBN airspace usage requirements and operating procedures

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Emissions and noise nuisance reduced by use of optimal flight procedures and routings. Reduction in fuel burn through optimised routes and TMA procedures. Increased situational awareness and indirect benefit to both ATC and pilot through reduction of workload during RNAV operations.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- MASPS for Required Navigation Performance for Area Navigation ED-75E
- MASPS for RNP reversion using DME/DME positioning

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Develop an airspace concept based on RNAV 1 arrival and departure procedures and provide appropriate terrestrial navigation infrastructure to support RNAV 1 operations.
2. Develop and implement RNAV 1 SID and RNAV 1 STAR for the instrument RWY, as well as establish the transition plan for PBN in ANS provision.

Regulators have to verify the transition plan for PBN in ANS provision.

Airspace Users have to equip aircraft with systems approved for RNAV 1 operations.

*Note: PBN Regulation (EU) 2018/1048, **does not impose obligatory establishment** of SID or STAR (business decision on having SID or STAR is up to an individual stakeholder). However, the regulation does prescribe **obligatory set of specifications** to be complied with, **where a stakeholder had decided to establish** SID or STAR.*

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ATp Airport and TMA performance	**Deployment Scenario** **Enhanced TMA using RNP-based operations**
Phase A - #09	**Enhanced TMA ops with automatic RNP transition to ILS/GLS**
Phase B - #51	**Enhanced TMA operations with LPV procedures**
Phase B - PJ.14-03-04	**RNP1 reversion based on DME/DME**
NAV03.2	**RNP1 in TMA Operations**

Where ANSPs have established SID or STAR and where higher performance requirements than those of RNAV 1 are required in order to maintain air traffic capacity and safety in environments with high traffic density, traffic complexity or terrain features, they shall implement those routes in accordance with the requirements of the RNP 1 specification, including one or more of the following additional navigation functionalities:

a. operations along a vertical path and between two fixes and with the use of an 'AT' altitude constraint; an 'AT or ABOVE' altitude constraint; an 'AT or BELOW' altitude constraint; a 'WINDOW' constraint;
b. the radius to fix (RF) leg.

RNP 1 operations require on-board performance monitoring and alerting capability, and inputs from GNSS.

FOC Date	06/06/2030	Dependencies	**ATC12.1, ATC02.9, ATC02.8**	
Estimated achievement	Not available	CP1 AF & SDP Family	-	-
Completion Rate 2022	28%	ICAO ASBUs	APTA-B1/2	
Stakeholders	ANSPs, Airspace Users, Regulators	Operating Environment	Airport / En-Route / **TMA** / Network	

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: Regulation (EU) 2018/1048 – PBN IR

Benefits — Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Efficient and improved systemisation of SID/STARs based on RNP 1, particularly on curved paths using Radius to Fix functionality. Reduction in fuel burn through optimized TMA procedures. Increased situational awareness. reduction of workload during RNP operations. Emissions and noise nuisance reduced by use of optimal flight procedures and routings.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Performance-based Navigation (PBN) Manual ICAO Doc 9613 Edition 5.
- EASA regulatory material on PBN incorporating ICAO Doc 9613, EASA RMT0519
- MASPS for Required Navigation Performance for Area Navigation ED-75E
- MASPS for RNP reversion using DME/DME positioning
- RTCA DO-283() MOPS for Required Navigation Performance for Area Navigation
- EASA CS-ACNS, Issue 4 / 5 April 2022

European Standardisation RDP is available at https://www.eascg.eu

To support PBN operations based on DME, EUROCAE WG 107 is developing:

- Update of ED-57 Minimum Operational Performance Specification for Distance Measuring Equipment - Ground Equipment (to take credit for the actual performance of the latest generations of transponders)
- Minimum Aviation System Performance Standards for the DME infrastructure supporting PBN positioning.

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Develop an airspace concept based on designated RNP 1 arrival and departure procedures with Radius to Fix. Where necessary, provide appropriate navigation infrastructure to support RNP 1 operations required for GNSS reversion.
2. Develop and implement RNP1 SID and RNP1 STAR for the instrument RWY and establish the transition plan for PBN.

Regulators have to verify the transition plan for PBN in ANS provision.

Airspace Users have to equip aircraft with systems approved for RNP 1 with Radius to Fix (RF) operations.

*Note: **Establishment of** RNP1 SID or STAR is **not imposed as obligatory** requirement **by the PBN Regulation** (EU) 2018/1048 (business decision on having SID or STAR is up to an individual stakeholder). However, the **PBN** regulation does prescribe **obligatory set of specifications** to be complied with, **where a stakeholder had decided to establish** SID or STAR.*

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ATp Airport and TMA performance	**Deployment Scenario** **GLS CAT II operations using GBAS GAST-C**
Phase A - #119	**GLS CAT II operations using GBAS GAST-C**
NAV11.1	**Implement precision APCH procedures using GBAS CAT II based on GAST C**

In current ILS Cat II operations there is a need to protect the ILS critical and sensitive areas which result in restricted ground movements and extra spacing margins between aircraft in order to accommodate the longer runway occupancy times (ROT) through the need to protect the larger ILS sensitive area. At capacity constrained airports this may lead to flights being diverted or even cancelled. This objective proposes the use of GBAS which 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 low visibility conditions resulting in reduced spacing between arrival aircraft.

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	5%	ICAO ASBUs	NAVS-B1/1	
Stakeholders	ANSPs, Airspace Users, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU States except: Bulgaria, Croatia, Cyprus, Denmark, Estonia, France, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Portugal, Romania, Slovenia. Plus: Albania, Armenia, Bosnia and Herzegovina, Switzerland, Türkiye, Ukraine, United Kingdom

Applicable Standards and Regulations: n/a

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Safety improved in the segment of avoiding a scenario of false LOC or Glide beam capture. Reduction of runway occupancy times in low visibility conditions resulting in reduced spacing between arrival aircraft. Better operational efficiency as fewer flights will be cancelled or diverted. The GBAS station in the long term is much more cost efficient than the ILS in terms of less maintenance and flight inspection required. The environmental benefits come from the saving of jet fuel due to the resilience of the system in keeping its capacity even in Low Visibility Operations.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- MOPS For Global Navigation Satellite Ground Based Augmentation System Ground Equipment To Support Precision Approach and Landing, ED-114B, Change 1
- SARPS DFMC GBAS

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to Install and put into service GBAS GAST C CAT II ground equipment to support the precision approach procedures based on GBAS CAT II as well as to develop and publish GBAS CAT II precision approach procedures at instrument runways.

Regulators have to publish national regulatory material for GBAS CAT II procedures based on Airworthiness Approval and Operational Criteria for GBAS CAT II.

Airspace Users have to equip aircraft with systems approved for GBAS GAST C CAT II, get the airworthiness certification and the operational approval.

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ATp Airport and TMA performance	**Deployment Scenario** -
SOLUTION #	-
SAF11.1	**Improve Runway Safety by Preventing Runway Excursions**

Runway excursion risk is a complex combination of factors involving different aviation segments. To address the risk of runway excursions, an industry initiative produced the Global Action Plan for the Prevention of Runway Excursions (GAPPRE), published in 2021. GAPPRE was developed by an international working group and coordinated by the Flight Safety Foundation and EUROCONTROL. The plan was reviewed and validated by EASA, IATA, Civil Air Navigation Services Organisation (CANSO) and Airports Council International World.
GAPPRE contains 101 consensus based recommendations that define actions beyond regulatory compliance for regulators and ICAO, aircraft manufacturers, airports, ANSPs, aircraft operators and research organisations. Additionally, GAPPRE includes guidance and explanatory material that provides further context to the targeted audience in order to facilitate the implementation of the recommendations.

FOC Date	n/a (Local Objective)	Dependencies	-	
Estimated achievement	31/12/2030	CP1 AF & SDP Family	-	-
Completion Rate 2022	19%	ICAO ASBUs	-	
Stakeholders	ANSPs, Airport Operators, Airspace Users, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC+ States except: Maastricht UAC, Sweden

Applicable Standards and Regulations: n/a

Benefits

Significant safety improvement, through reduced risk of incidents and accidents on runways.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

Regulators have to determine, together with the local stakeholders, which of the recommendations of the Global Action Plan for the Prevention of Runway Excursions are relevant to the local circumstances, and ensure their implementation and monitoring.

ANSPs have to review and determine which of the recommendations of the Global Action Plan for the Prevention of Runway Excursion are relevant for the local circumstances and implement them accordingly.

Airport Operators have to review and determine which of the recommendations of the Global Action Plan for the Prevention of Runway Excursion are relevant for the local circumstances and implement them accordingly.

Airspace Users have to review and determine which of the recommendations of the Global Action Plan for the Prevention of Runway Excursion are relevant for the local circumstances and implement them accordingly.

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3.5 Fully Dynamic and Optimized Airspace Organisation

dA Fully dynamic and optimised airspace	**Deployment Scenario** **Airspace management and advanced FUA**	
Phase A - #31	**Variable profile military reserved areas and enhanced (further automated) civil-military collaboration**	
Phase A - #66	**Automated Support for Dynamic Sectorisation**	
AOM19.4	**Management of Pre-defined Airspace Configurations**	**CP1**

Implement an improved ASM solutions process, the management of pre-defined airspace configurations and the process and supporting tools for an improved ASM performance analysis. The ASM solutions process aims at delivering ASM options (e.g., predefined airspace scenarios) that can help alleviate capacity issues in the European airspace as well as improve flight efficiency assessing impact on capacity and ensuring synchronised availability of optimised airspace structures based on traffic demand. Pre-defined airspace configurations are based on coordinated and validated combinations of airspace structures and ATC dynamic sectorisation, to meet airspace needs in terms of capacity and/or flight efficiency.

FOC	31/12/2022	Dependencies	-	
Estimated achievement	31/12/2022	CP1 AF & SDP Family	AF3	3.1.2
Completion Rate 2022	Achieved	ICAO ASBUs	NOPS B1/6, FRTO B1/4	
Stakeholders	ANSPs, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All EU SES States. Plus: Albania, Bosnia and Herzegovina, Türkiye, Ukraine, United Kingdom

Applicable Standards and Regulations: Regulation (EC) 2150/2005 - Implementation and Application FUA.
Regulation (EU) No 2021/116 on the establishment of the Common Project One

Benefits Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security

Improved safety due to increased situational awareness of supervisors. Increased capacity due to better use of available resources, both human and airspace. Reduced saturation periods and flight delays. Improved operational efficiency. Reduced fuel burn and emissions. Increased cost efficiency.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to adapt ATM systems to and procedures to support the management of ASM solutions and predefined airspace configurations including sharing of the ASM solutions, pre-defined airspace configuration management (via B2B services).

Network Manager have to adapt NM systems and procedures to support the management of pre-defined airspace configurations, as well as implement tools to support ASM performance analysis.

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dA Fully dynamic and optimised airspace	**Deployment Scenario** **Airspace management and advanced FUA**	
Phase B - #31	**Variable profile military reserved areas and enhanced (further automated) civil-military collaboration**	
Phase A - #66	**Automated Support for Dynamic Sectorisation**	
AOM19.5	**ASM and A-FUA**	**CP1**

Airspace Management (ASM) and Advanced Flexible Use of Airspace (A-FUA) aim to provide most efficient airspace organisation and management in response to civil and military airspace users' requirements after completion of an enhanced CDM process among all concerned partners. ASM with A-FUA enable for dynamically managing airspace users' demands regardless of national boundaries. ASM procedures and processes facilitate a dynamic management of airspace structures, such as VPA, TRA and TSA. Local and NM systems will use and exchange coherent and updated aeronautical/airspace data, made available to airspace users. A rolling process in the pre-tactical and tactical phase will support the continuous exchange of ASM data among all concerned ATM partners. In alternative to deploying ASM support systems, States may fully rely on NM applications and system capabilities such as CIAM and its further developments and migration to NES. AU systems shall be interoperable with NM system to retrieve up-to-date airspace status information, to file and modify FPLs based on timely and accurate information. ATC systems shall correctly depict the activation and de-activation of configurable airspace reservations.

FOC	31/12/2022	Dependencies	-	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	AF3	3.1.1
Completion Rate 2022	77%	ICAO ASBUs	NOPS B1/5, NOPS B0/1, FRTO B1/3, FRTO B0/2	
Stakeholders	ANSPs, Airspace Users, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC+ States except: Armenia, Georgia, North Macedonia, Türkiye

Applicable Standards and Regulations: Regulation (EC) 2150/2005 - Implementation and Application FUA.
Regulation (EU) No 2021/116 on the establishment of the Common Project One

Benefits

Improved safety due to increased situational awareness of supervisors. Increased capacity due to better use of available resources, both human and airspace. Reduced saturation periods and flight delays. Improved operational efficiency. Reduced fuel burn and emissions.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to deploy automated ASM support systems or adopt the NM system for ASM capabilities. Implement procedures and processes for a full rolling ASM/ATFCM process. Adapt ASM systems to support a full rolling ASM/ATFCM process. Implement interoperability of ASM support systems with NM system, and between ASM support systems to facilitate cross border operations. Optimise planning and allocation of airspace booking. Implement procedures related to ASM level 3 (tactical) information exchange. Adapt ASM and ATC systems for automatic ASM data exchanges. Adapt ASM system to manage airspace data information aligned with centralised airspace data provided by NM system.

Network Manager have to adapt NM systems to support a full rolling ASM/ATFCM process. Implement procedures and processes for a full rolling ASM/ATFCM process. Improve ASM notification process. Provide a centralised airspace data information to support ASM process.

Airspace users have to adapt airspace users' systems for processing EAUP/EUUP information and RRP messages or enhanced utilisation of opportunity tool application.

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dA Fully dynamic and optimised airspace	**Deployment Scenario Free Route**	
Phase A - #32	**DCT FRA in cruise and vertically evolving in cross ACC/FIR**	
Phase A - #33	**FRA for flights in cruise and vertically evolving above a specified FL**	
Phase A - #66	**Automated Support for Dynamic Sectorisation**	
AOM21.2	**Initial Free Route Airspace**	**CP1**

Free route airspace (FRA) is a specified airspace within which users may freely plan a route between a defined entry point and a defined exit point, with the possibility to route via intermediate (published or unpublished) waypoints, without reference to the ATS route network, subject to airspace availability.
Within the CP1 the implementation of FRA is closely linked to the deployment of ASM procedures and advanced FUA.
The Initial FRA implementation may be achieved with some limitations, for example: laterally and vertically, during specific time periods.

FOC	31/12/2022	Dependencies	**ATC 12.1, ITY-COTR, ATC17, ATC02.8**	
Estimated achievement	31/12/2022	CP1 AF & SDP Family	AF3	3.2.1
Completion Rate 2022	Achieved	ICAO ASBUs	FRTO B1/1	
Stakeholders	ANSPs, Airspace Users NM	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: All ECAC States plus: Morocco

Applicable Standards and Regulations: Regulation (EU) 2019/123 – Implementation of ATM network functions repealing Regulation (EU) 677/2011. Regulation (EU) No 2021/116 on the establishment of the Common Project One

Benefits

Increased capacity through better airspace utilisation to and reduced controller workload. Reductions in emissions through use of optimal routes. Savings in route distances and fuel efficiency through increased use of preferred flight profiles. Although the main benefits impact the environment, FRA implementation has the ambition to at least maintain the current level of safety.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Identify the local FRA airspace in coordination with the Network and FAB partners and the update Route Availability Document (RAD) accordingly. Also, ANSP will update the local ATFCM procedures in cooperation with the network to take on board the FRA impact.
2. Implement system improvements to upgrade FDP and CWP to support Initial FRA, as required.
3. Implement procedures and processes in support of the local dimension. Publish FRA airspace in the AIP and charts, update letters of agreement, if necessary.
4. Update ASM and ATC procedures to take on board the Initial FRA impact.

Airspace users have to Adapt as necessary the flight Planning system and procedures to support free routing.

Network Manager have to adapt NM systems (IFPS and Airspace Management tools) and procedures to support Initial FRA, by updating European Airspace with the integration of the coordinated FRA definition and Route Availability Document (RAD) accordingly.

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dA Fully dynamic and optimised airspace	**Deployment Scenario Free Route**	
Phase A - #33 **Phase B - #PJ.06-01**	**FRA for flights in cruise and vertically evolving above a specified FL** **FRA in high and very high complexity environments**	
AOM21.3	**Enhanced Free Route Airspace Operations**	**CP1**

Enhanced Free route airspace (FRA) operations addresses the following three elements: Final FRA implementation, Cross-border FRA implementation, FRA connectivity with TMAs. Final FRA shall eliminate the structural limitations in terms of timing (night FRA, weekend FRA, seasonal FRA) and lateral and vertical limitations. Cross-border FRA shall be implemented with at least one adjacent State. One of the following must ensure FRA connectivity with TMAs: lowering the FRA vertical limit until the TMAs, linking appropriate arrival/departures points, defining FRA connecting routes, extending the existing standard arrival and departure routes, or connecting with the underlying fixed ATS routes via set of waypoints reflecting the typical climbing/descending profiles. Enhanced FRA shall be operated at least above FL 305.

FOC	31/12/2025	Dependencies	-	
Estimated achievement	31/12/2025	CP1 AF & SDP Family	AF3	3.2.2
Completion Rate 2022	68%	ICAO ASBUs	FRTO-B2/3	
Stakeholders	ANSPs, Airspace Users NM	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: All ECAC States except: Türkiye. Plus: Morocco

Applicable Standards and Regulations: Regulation (EU) 2019/123 – Implementation of ATM network functions repealing Regulation (EU) 677/2011. Regulation (EU) No 2021/116 on the establishment of the Common Project One

Benefits

Increased airspace capacity. Improved operational efficiency. Optimised flight trajectories. Reduced fuel burn and emissions. Safety maintained.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Identify the local FRA airspace supporting Final FRA, Cross-border and TMA connectivity in coordination with the Network Manager and neighbouring States, and update the RAD accordingly.
2. Update local ATFCM procedures in cooperation with the network to take on board the Final FRA, Cross-border and TMA connectivity impact.
3. If needed, upgrade ATC systems and/or deploy the ATC functions deemed appropriate to support Initial FRA plus additional functions might be considered for cross-border FRA and FRA connectivity with TMA such as:
   COP management for FRA supporting Cross Border COP handling; Tactical Controller Tool (TCT), managing the Cross-Border clearances; Multi-Sector Planner/Extended ATC Planner (MSP/EAP) function.
4. Describe and publish the Final FRA, Cross border FRA and TMA connectivity airspace in the AIP and the charts. Update the Letters of Agreement if necessary. Update the ASM and ATC procedures to take on board the impact of Final FRA, Cross border FRA and TMA connectivity.

Airspace users have to Adapt as necessary the flight Planning system and procedures to support Cross-border FRA and FRA connectivity with TMAs.

Network Manager have to adapt NM systems (IFPS and Airspace Management tools) and procedures to support Cross-border FRA and FRA connectivity with TMAs, by updating European Airspace with the integration of the coordinated Final FRA, Cross border FRA and TMA connectivity definition, and updating RAD accordingly.

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dA Fully dynamic and optimised airspace	**Deployment Scenario** **Sector team operations - en-route air traffic organiser** **MTCD and conformance monitoring tool**
Phase A - #27 **Phase A - #104**	**Enhanced tactical conflict detection & resolution (CD&R) services and conformance monitoring tools for en-route** **Sector team operations - en-route air traffic organise**
ATC12.1	**MONA, TCT and MTCD**

The implementation of free route airspace (FRA) needs to be supported by conflict detection tools (CDT), resolution support information and conformance monitoring. The term 'conflict detection tool' is used to generally indicate the trajectory based medium conflict detection tool (MTCD – an automated decision-support tool that detects conflicts between aircraft trajectories up to 20 minutes in advance) or/and tactical controller tool (TCT - an automated tool that allows the tactical controller (radar/executive) to detect and resolve conflicts up to 8 minutes in advance). TCT is not a replacement of MTCD. The decision to implement either one or both tools is left to each ANSP depending on local conditions.

FOC	31/12/2021	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	56%	ICAO ASBUs	FRTO B0/4, FRTO B1/5	
Stakeholders	ANSPs	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: All ECAC+ States, except Luxembourg

Applicable Standards and Regulations: n/a

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Reduction of tactical controller workload, and better sector team productivity, compared to the conventional systems without automated support will open potential for capacity up to 15% in comparison to a baseline case without a detection tool (MTCD and/or TCT). Early and systematic conflict detection and conformance monitoring enabled by ground based automated tools will reduce the need for tactical interventions; conformance monitoring reduces the risk of the impact of controllers and pilots errors. Possibility to maintain high level of safety with an increase in capacity due to a reduction of controller workload per aircraft.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Deploy the MTCD between aircraft; between aircraft and reserved airspace or area (such as Holding stack area), upon activation or de-activation; Including posting detection to the sector responsible for acting on it;
2. Deploy the resolution support function which includes conflict probe and passive conflict resolution assistant (e.g., presentation of context traffic) in support of MTCD
3. Deploy the Tactical Controller Tool (TCT) to support: Detection conflicts between state vector trajectories(extended STCA); Detection conflicts between state vector trajectories and tactical trajectories; Detection conflicts between tactical trajectories;
4. Deploy MONA functions: Lateral deviation; Longitudinal deviation; Vertical deviation; CFL deviation; Aircraft Derived Data (ADD) deviations;
5. Adapt the operational procedures and working methods accordingly.

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dA Fully dynamic and optimised airspace	**Deployment Scenario** -
SOLUTION #	-
ATC15.1	**Initial extension of AMAN to En-route**

Implement, in en-route operations in selected ACCs, information exchange mechanisms, tools and procedures in support of basic AMAN operations in adjacent ACCs and/or subjacent TMAs (including, where relevant, support for AMAN operations involving airports located in adjacent ATSUs). Arrival management requires the capability for an accepting unit to pass to the transferring unit information on the time that a flight is required to lose or gain to optimise the approach sequence. The system integrates information from arrival management systems operating to a limited distance around the TMA to provide a consistent arrival sequence.

FOC	31/12/2019	Dependencies	**ATC07.1**	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	68%	ICAO ASBUs	-	
Stakeholders	ANSPs	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: All EU SES States except: Bulgaria, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Slovenia. Plus: Bosnia and Herzegovina, Morocco, Serbia, Türkiye, United Kingdom

Applicable Standards and Regulations: OLDI Specification 5.0. OLDI Guidance Material 1.1.

Benefits

Improved airport/TMA capacity. Reduction in holding and in low-level vectoring, by applying delay management at an early stage of flight, has a positive environmental effect in terms of noise and CO2 emissions. Moreover, it reduces delay and has a positive effect on fuel burn. Reduction of low-level holding operations and low-level tactical vectoring. Safety is maintained or improved.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Implement, in selected ATC systems, the necessary functionality and information exchanges to support the use of AMAN information in En-Route sectors requiring data exchange generated from AMAN systems and operations in adjacent/subjacent TMAs;
2. Define, validate and implement the necessary ATC procedures.

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dA Fully dynamic and optimised airspace	**Deployment Scenario** **AMAN extended to en-route airspace**
Phase A - #05	**Extended arrival management (AMAN) horizon**

ATC15.2	**Arrival Management Extended to En-route Airspace**	**CP1**

This Implementation Objective addresses the implementation of extended arrival management by the en-route ATS units feeding the traffic to the busiest airports in Europe. The Arrival Manager extended to en-route airspace requires an extension of AMAN advisories up to a minimum of 180 nautical miles from the arrival airport. Shorter horizon distance shall be considered when, due to the geographical location of the arrival airport, the extension of the AMAN horizon does not provide additional performance benefits. Traffic sequencing/metering should be conducted in the en-route before top-of-descent, to improve predictability and smooth the flow of traffic. Extending the AMAN horizon may affect the airspace design, and it is therefore essential that all stakeholders, including military authorities are consulted. Arrival sequencing may be anticipated during en-route and early descent phases.
The objective supplements the existing ATC15.1, which considers the AMAN extension to a limited distance around the TMA.

FOC	31/12/2024	Dependencies	**ATC07.1**	
Estimated achievement	31/12/2024	CP1 AF & SDP Family	AF1	1.1.1
Completion Rate 2022	21%	ICAO ASBUs	RSEQ B1/1, NOPS B1/8	
Stakeholders	ANSPs, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: See list of airports in MP Level 3 Implementation Plan - Annexes

Applicable Standards and Regulations: Regulation (EU) 2021/116 on the establishment of the Common Project One

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Optimal use of TMA capacity. Improved arrival flow. Delays are resolved by reducing speed in early phases of arrivals leading to reduction of holding and vectoring, which has a positive environmental impact in terms of fuel savings. Safety is maintained or improved.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Upgrade ATC systems to support extended AMAN in En-route sectors (including data exchange, data processing and information display at the ATCO working positions in support the handling of AMAN constrains). ATM systems need to be upgraded in order to be able to generate, communicate, receive and display AMA OLDI messages or the extended AMAN data exchanges via SWIM service;
2. Define and implement the needed ATC procedures to support the extended AMAN functionality;
3. Establish bilateral agreements between the ATS units involved for extended AMAN operational procedures and data exchanges, as well as between the concerned ATS unit and NM.

Network Manager has to:

1. Adapt NM systems for the reception and presentation of extended AMAN data, processing extended AMAN data in NM system, provision of network information, development of Network Impact Assessment Tool to include extended AMAN requirements;
2. Establish bilateral agreements;
3. Define and implement the required ATFCM procedures to support the extended AMAN functionality.

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dA Fully dynamic and optimised airspace	**Deployment Scenario Multi-sector Planning**
Phase A - #63 **Phase A - #118**	**Multi-sector planning** **Basic EAP (Extended ATC Planning) function**
ATC18	**Multi Sector Planning En-Route – 1P2T**

The multi-sector planner (MSP) defines a new organisation of controller team(s) and new operating procedures to enable the planning controller to provide support to several tactical controllers operating in different adjacent en-route or TMA sectors.
This Implementation Objective proposes a structure whereby, in en-route sectors, a single planner controller (P) is planning and organising the traffic flows for two tactical controllers (T), each of whom is controlling a different sector (1P-2T configuration). There is no need for exit/entry coordination with the airspace volume of multi-sector planner. However, the coordination capability with adjacent planner/multi-planner should remain.
This concept is intended for operation with suitably configured flight data processing components, flexible allocation of ATC roles and volumes and multi-sector planning.

FOC	n/a (Local decision)	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	20%	ICAO ASBUs	FRTO B1/6	
Stakeholders	ANSPs	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: All EU SES States except: Bulgaria, Croatia, Denmark, Estonia, France, Latvia, Luxembourg, Malta, Netherlands, Portugal, Slovak Republic, Slovenia. Plus: Albania, Israel, Moldova, North Macedonia, Türkiye, United Kingdom

Applicable Standards and Regulations: n/a

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

The workload reduction might be translated in marginal capacity gains. Slight increase in the number of direct routes facilitate by the fact that adjacent sectors share the same planner controller.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Ensure ATM system support to permit a single planner role associated to two adjacent tactical roles;
2. Develop multi-sector planning procedures and working methods for en-route sectors;
3. Train air traffic controllers to multi sector planning.

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dA Fully dynamic and optimised airspace	**Deployment Scenario** -
SOLUTION #	**-**
ITY-FMTP	**Common flight message transfer protocol**

This objective describes the requirements for the application of a flight message transfer protocol (FMTP) for information exchanges between flight data processing systems for the purpose of notification, coordination and transfer of flights between air traffic control units and for the purposes of civil-military coordination.
It is derived from Regulation (EC) No 633/2007 (including the transitional arrangements of Reg. (EU) No 283/2011) and is implemented according to Reg. (EC) No 1032/2006.

FOC	31/12/2014	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	80%	ICAO ASBUs	-	
Stakeholders	ANSPs, Military	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: All ECAC+ States

Applicable Standards and Regulations:
Regulation (EC) 633/2007 laying down requirements for the application of a flight message transfer protocol (FMTP).
Regulation (EU) 283/2011 amending Regulation (EC) 633/2007
EUROCONTROL - SPEC 100 - Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol (FMTP) - Edition 2.0 - OJ 2007/C 188/03 / 06/2007

Benefits

More cost efficient as X.25 maintenance costs are increasing while TCP/IP costs are lower.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to upgrade and put into service communication systems to support information exchange via FMTP between FDPS(s) for the purpose of notification, coordination and transfer of the flights between ATC units;

Military Authorities have to upgrade and put into service communication systems to support information exchange via FMTP between FDPS(s) for the purpose of notification, coordination, transfer of the flights and civil-military coordination between ATS units and controlling military units.

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dA Fully dynamic and optimised airspace	**Deployment Scenario** -
SOLUTION #	-
SAF10.1	**Implement measures to reduce the risk to aircraft operations caused by airspace infringements**

Involved aviation stakeholders should implement measures to reduce the risk to aircraft operations caused by airspace infringements. Airspace infringement occurrences include unauthorised penetration of controlled airspace (ICAO classes A to D), such as danger areas, restricted areas, prohibited areas and temporary segregated/reserved areas by all types of traffic and Aerodrome Traffic Zones.

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	9%	ICAO ASBUs	-	
Stakeholders	ANSPs, AISPs, Airspace Users, Regulators	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: All ECAC+ States

Applicable Standards and Regulations: n/a

Benefits — Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

Reduction of a major key risk to aircraft operations and reduction of the risk of accident/serious incident. Reduction in controller workload caused by airspace infringements. Improved Air traffic Flow. Reduced fuel burn caused by arrivals delay or hold. Reduction in extra fuel burn and noise caused by flights' deviation from arrival route, delays or holdings.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

Regulators have to determine which of the recommendations of the European Action Plan for Airspace Infringement Risk Reduction are relevant to the National circumstances.

ANSPs have to implement the relevant recommendations of the European Action Plan for Airspace Infringement Risk Reduction as decided by the Regulator.

AISPs have to implement the relevant recommendations of the European Action Plan for Airspace Infringement Risk Reduction as decided by the Regulator.

Airspace Users have to assess relevant safety recommendations from the European Action Plan for Airspace Infringement Risk Reduction for their relevance against the local conditions and specific context and implement the selected recommendations.

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3.6 Trajectory Based Operations

TBO Trajectory -based operations	**Deployment Scenario** -
SOLUTION #	-
ATC02.8	**Ground based safety nets**

This objective covers the implementation of the following ground-based safety nets:

- Area proximity warning (APW) warns the controller when an aircraft is, or is predicted to be, flying into a volume of notified airspace (e.g., controlled airspace; danger, prohibited or restricted areas). APW has been identified as an optional supporting system requirement for the implementation of free route airspace (FRA) in the CP1 Regulation (EU) 2021/116.
- Minimum safe altitude warning (MSAW) warns the controller about the risk of controlled flight into terrain by generating an alert of proximity to terrain or obstacles.
- Approach path monitor (APM) warns the controller about the risk of controlled flight into terrain accidents by generating an alert of proximity to terrain or obstacles during final approach.

FOC	31/12/2021	Dependencies	-	
Estimated achievement	31/12/2023	CP1 AF & SDP Family	-	-
Completion Rate 2022	71%	ICAO ASBUs	SNET-B0/2, SNET-B0/3, SNET-B0/4	
Stakeholders	ANSPs	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: All ECAC+ States except: Bosnia and Herzegovina, Netherlands

Applicable Standards and Regulations:
Only for APW: Regulation (EU) No 2021/116 on the establishment of the Common Project One

Benefits Capacity; Operational efficiency; Cost efficiency; **Safety**; Environment; Security

Major safety improvement through the systematic presentation of:

- Imminent and actual unauthorized penetrations into airspace volumes to controllers ahead of their occurrence, as provided by APW;
- Possible infringements of minimum safe altitude to controllers ahead of their occurrence, as provided by MSAW;
- Deviations from the glide path to controllers, as provided by APM.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to put into service ground-based systems and associated procedures supporting:

1. The APW function. The implementation of APW is recommended for both en-route and terminal airspace;
2. The MSAW function;
3. The APM function.

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TBO Trajectory -based operations	**Deployment Scenario Enhanced Safety Nets**
Phase B - #69	**Enhanced STCA with down-linked parameters**
ATC20	**Enhanced STCA with DAPs via Mode S EHS**

STCA (Short Term Conflict Alert) is a ground system designed and deployed as last Safety Net against the risk of collisions between aircraft due to separation loss. Enhanced STCA can be used both in En-Route and TMA radar environments to improve prediction of potential conflicts and reduce false alert rate. The difficulty of STCA development lies with the need to avoid a high false alert rate versus the need of ensure that all risk of collision always triggers a timely warning.
This objective addresses the enhancement of the STCA safety net with selected flight level (SFL) information down-linked from the suitably equipped aircraft via the Mode-S EHS protocol. Enhancing the STCA with the information downlinked from the aircraft will improve the warning times, decrease the rate of nuisance alerts and maintain or improve the rate of genuine alerts.

FOC	n/a (Local decision)	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	43%	ICAO ASBUs	SNET B1/1	
Stakeholders	ANSPs, Regulators	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: All EU+ States except: Bosnia and Herzegovina, Bulgaria, Estonia, France, Georgia, Greece, Latvia, Malta, Slovak Republic, Sweden. Plus: Israel, Türkiye, United Kingdom

Applicable Standards and Regulations:
Regulation (EU) No 2020/587 amending Regulation (EU) No 1206/2011 (ACID) and Regulation (EU) No 1207/2011 (SPI)

Benefits Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security

A comparative analysis of STCA enhanced with the SFL DAP against conventional STCA showed that the use of the SFL DAP improves warning times, decreases the rate of nuisance alerts and maintains or increases the rate of genuine alerts.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- EUROCONTROL Specification for European Mode S Station (EMS).

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to put into service ground-based systems and associated procedures supporting:

1. Deploy an enhanced STCA function with the use of Selected Flight Level downlinked parameter;
2. Develop and implement ATC procedures related to the availability for display and use of SFL in the STCA functionality.

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TBO Trajectory -based operations	**Deployment Scenario** **Initial Trajectory Information Sharing (i4D)**
Phase B - #115	**Extended projected profile (EPP) availability on the ground**[10]

ATC22	**Initial Air-Ground Trajectory Information Sharing (Airborne Domain)**	**CP1**

Trajectory information shall be enhanced by using air-ground trajectory exchange. The preliminary steps for the deployment of Initial Trajectory Information Sharing consists of the downlink of Extended Projected Profile (EPP) data from the aircraft and processing of this data by the ATC systems and NM systems.
Aircraft operators shall equip aircraft intending to operating aircraft above FL285 (with an individual certificate of airworthiness first issued on or after [3]1st December 2027) with ADS-C/EPP compliant avionics that down-link trajectory information using ADS-C Extended Projected Profile (EPP) as part of the ATS B2 services. The trajectory data will be automatically downlinked from the airborne system in accordance with the contract terms and will be used by the ground system.

FOC	31/12/2027	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	AF6	6.1.1
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs	-	
Stakeholders	Airspace Users	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: n/a

Applicable Standards and Regulations:
Regulation (EU) 2021/116 on the establishment of the Common Project One

Benefits

Increased ground situational awareness.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

Airspace Users have to:

1. Ensure the procurement of the ADS-C/EPP functionality and compliance according to ATS B2 services for aircraft intending to operate as GAT above FL285;
2. Ensure the preparation of training material with regard to the new system and procedures and perform flight crew training for the operational use of the new system;
3. Check the availability of the new functionality during the aircraft acceptance/delivery process, as well as the availability of the corresponding operational approval from its supervisory authority if an operational approval is required.

[7] Solution in Industrialisation Phase

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TBO Trajectory -based operations	**Deployment Scenario** **Initial Trajectory Information Sharing (i4D)**	
Phase B - #115 **Phase B - #PJ.18-06b1**	**Extended projected profile (EPP) availability on the ground**[11] **NM trajectory Performance Improvement**[12]	
ATC23	**Initial Air-Ground Trajectory Information Sharing (Ground Domain)**	**CP1**

Trajectory information shall be enhanced by using air-ground trajectory exchange. The preliminary steps for the deployment of Initial Trajectory Information Sharing consists of the downlink of Extended Projected Profile (EPP) data from the aircraft and processing of this data by the ATC systems.
The ground systems will enable controllers to display the downlinked route on the Controller Working Position. It will be automatically cross-checked whether the downlinked route is consistent with what the expected trajectory on the ground. In case of inconsistency, controllers will receive a warning.

FOC	31/12/2027	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	AF6	6.1.2
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs	-	
Stakeholders	ANSPs	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: n/a

Applicable Standards and Regulations:
Regulation (EU) 2021/116 on the establishment of the Common Project One

Benefits

Increased ground situational awareness.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Ensure that ANSP Systems requirements for receiving, processing and displaying ADS-C/EPP data to provide warnings to the ATCO in case of discrepancies between the downlinked trajectory and the ground system trajectory are defined;
2. Ensure integration of ANSP Systems with ADS-C/EPP data processing and displaying.

[11] Solution in Industrialisation Phase
[12] Solution not yet validated

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TBO Trajectory -based operations	**Deployment Scenario** **Initial Trajectory Information Sharing (i4D)**			
Phase B - #PJ.18-06b1	**NM Profile Improvement using ADS-C[13]**			
ATC24	**Network Manager Trajectory Information Enhancement**			**CP1**
The NM Trajectory information could be enhanced by using Extended Projected Profile (EPP) data. Pending further validations, NM system could be capable of receiving and processing EPP data. For increasing the accuracy of NM systems trajectory prediction, some EPP elements might be used for the tactical trajectory update in the flight post departure phase. The displaying of EPP and the EPP warning are not needed for NM, as they are pure ATC functions.				
FOC	31/12/2027	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	AF6	6.2.1
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs	-	
Stakeholders	NM	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: n/a

Applicable Standards and Regulations:
Regulation (EU) 2021/116 on the establishment of the Common Project One

Benefits

Increased ground situational awareness.

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

Network Manager has to upgrade the NM systems in line with the validation results (if the validation is successfully performed).

[13] Solution not yet validated

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TBO Trajectory -based operations	**Deployment Scenario** **Initial Trajectory Information Sharing (i4D)**	
Phase B - #115	**Extended projected profile (EPP) availability on the ground**[14]	
ATC25	**Initial Trajectory Information Sharing ground distribution**	**CP1**

Trajectory information data coming from airborne systems is distributed on the ground to ATS units and NM in order to minimise the air-ground data transmissions.
The trajectory data shall be processed and displayed to the controllers in a harmonised way as set out in Objective ATC23.

FOC	31/12/2027	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	AF6	6.3.1
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs	-	
Stakeholders	ANSPs, NM	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: n/a

Applicable Standards and Regulations:
Regulation (EU) 2021/116 on the establishment of the Common Project One

Benefits

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.easca.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Ensure that ground distribution architecture is defined to meet the required performance levels as defined in the applicable standards;
2. Deploy, test and prepare the ground architecture throughout Europe;
3. Connect the ATS systems to the ground distribution infrastructure in order to receive and process ADS-C/EPP information, ensuring a harmonised ground data distribution.

Network Manager has to:

1. Define ground distribution architecture to meet the required performance levels as defined in the applicable standards;
2. Deploy, test and prepare the ground architecture throughout Europe;
3. Upgrade NM system for the reception of EPP data. The received EPP data might be used for the update of portion of NM's end-to-end trajectory.

[14] Solution in Industrialisation Phase

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3.7 Multimodal Mobility and Integration of all Airspace Users

M3 Multimodal mobility and integration of all airspace users	**Deployment Scenario** **Optimised low-level IFR routes for rotorcraft**
Phase B - #113	**Optimised low-level IFR routes for rotorcraft**
NAV12	**ATS IFR Routes for Rotorcraft Operations**

This implementation objective consists in the implementation of ATS routes for rotorcraft operations, SID and STAR for rotorcraft, and low-level IFR routes (LLR) based on GNSS technology. Where ANSPs have established ATS routes, SID or STAR for rotorcraft operations, they shall implement those routes in accordance with the requirements of the RNP 0.3, or RNP 1, or RNAV 1 specifications. In that case, they are entitled to decide which of those three requirements they comply with.
This objective supports connectivity between the airports included into the TMA airspace and better approach procedures thanks to the implementation of "Standard PinS - Point In Space" procedures concept.

FOC Date	06/06/2030	Dependencies	**NAV03.1, NAV03.2**	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	18%	ICAO ASBUs	APTA B0/6	
Stakeholders	ANSPs, Airspace Users, Regulators	Operating Environment	Airport / En-Route / TMA / Network	

Applicability Area: All EU+ States except: Bulgaria, Croatia, Czech Republic, France, Georgia, Germany, Hungary, Latvia, Lithuania, Maastricht UAC, Malta, Montenegro, Netherlands, North Macedonia, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden. Plus: Türkiye

Applicable Standards and Regulations: Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning PBN.

Benefits 

Capacity improved through the potential to enable an increase of passenger throughput at medium and large airports, by removing IFR rotorcraft from active runways. Operational efficiency and environment improved through reduced track mileage, resulting in less fuel consumption and associated CO2 emissions and enhanced transition from the en-route phase to the approach phase to the Final Approach and Take off Area-FATO (and vice versa). More direct routing in dense terminal airspace (obstacle-rich or noise-sensitive terminal environment).

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- Nil.

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to:

1. Besides implementing of low-level IFR routes (LLR) for rotorcraft operations, look into the needs to implement RNP0.3, RNP01 or RNAV1 SID and STAR per instrument RWY for rotorcraft operations. As well as ATS routes for rotorcrafts.
2. Establish the transition plan for PBN in ANS provision.

Regulators have to verify the transition plan for PBN in ANS provision.

Airspace Users have to equip aircraft with systems approved for RNP and/or RNAV operations.

*Note: PBN Regulation (EU) 2018/1048, **does not impose obligatory establishment** of ATS routes, SID or STAR for rotorcraft operations. However, the regulation does **prescribe obligatory set of specifications** to be complied with, **where a stakeholder had decided to establish** ATS routes, SID or STAR for rotorcraft operations.*

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3.8 VIRTUALISATION OF SERVICE PROVISION

VS Virtualisation of service provision	**Deployment Scenario** **Single remote TWR for medium traffic volumes** **Remotely provided ATS for contingency situations at ADs**
Phase B - #12	**Single remote TWR operations for medium traffic volumes**
Phase B - #13	**Remotely provided TWR services for contingency at ADs**
Phase B - #52	**Remote TWR for two low density aerodromes**
Phase B - #71	**ATC and AFIS at single low density AD from a remote CWP**
AOP14.1	**Remote Tower Services**

The remote tower concept enables the provision of air traffic control services (ATS) and aerodrome flight information services (AFIS) at aerodromes where such services are either currently unavailable, or where it is difficult or too expensive to implement and staff a conventional manned facility.
This Objective proposes to provide remote ATC services and AFIS for one aerodrome handling low to medium traffic volumes or two low-density aerodromes. The basic configuration, not including augmentation features, is considered suitable for ATC and AFIS provision at low-density airfields. However, the level and flexibility of service provision can be enhanced with augmentation technology, e.g., an ATC surveillance display, surveillance and visual tracking, infra-red cameras etc. This Objective also covers the application of the remote tower concept as a contingency solution in facility known as Remote Contingency Tower (RCT).

FOC Date	n/a (Local decision)	Dependencies	-	
Estimated achievement	Not Available	CP1 AF & SDP Family	-	-
Completion Rate 2022	26%	ICAO ASBUs	RATS B1/1	
Stakeholders	ANSPs, Airport Operators, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: Low to medium complexity aerodromes, subject to local needs

Applicable Standards and Regulations: ED Decision 2015/014/R adopting Guidance Material on the implementation of the remote tower concept for single mode of operation. EASA's Guidance Material on the implementation of the remote tower concept for single mode of operation. ED Decision 2015/015/R - Requirements on Air Traffic Controller licensing regarding remote tower operations

Benefits Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security

Improve the uniformity of service provision at low to medium density and remote aerodromes and increase the availability of the service. Cost benefits of RCT due to customer retention and reduced economic loss during contingency events. Cost reduction for ATS by optimisation of ATCOs. Remote ATS facilities will be cheaper to maintain, able to operate for longer periods and enable lower staffing costs. It will also significantly reduce the requirement to maintain tower buildings and infrastructure

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- MASPS for Remote Tower optical systems, ED-240A Change 1, EUROCAE
- MASPS for Remote Tower optical systems, ED-240B, EUROCAE
- EASA, Technical requirements for Remote TWR Operations, RMT.0624, EASA

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)

ANSPs have to define and implement system improvements. This will allow to display to ATCO/AFISO in the Remote Tower Centre an "out of the window like" (OTW) image of the airport and its vicinity and to increase ATCO/AFISO situational awareness. In addition, all the tools and facilities available to a tower controller will also need to be remotely controlled, including, inter alia, ground-ground and ground-air communications, traffic light controls and aerodrome lighting controls;

ANSPs and **Airport Operators** have to ensure that all procedures and processes applicable for the remote tower concept are updated to the chosen operating scenario for remote tower aerodrome

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Virtualisation of service provision	**Deployment Scenario** **Remotely provided ATS for multiple aerodromes**
Phase B - #PJ.05-02	**Multiple Remote Tower Module**[15]
AOP14.2	**Multiple Remote Tower Module**

The Remote Tower concept is changing the provision of Air Traffic Services (ATS) in a way that it is more service tailored, dynamically positioned and available when and where needed, enabled by digital solutions replacing the physical presence of controllers and control towers at aerodromes.
This Objective aims for increased cost efficiency by allowing ATCO to maintain situational awareness and provide air traffic services for 2 or 3 airports simultaneously.

FOC Date	n/a (Initial Objective)	Dependencies	-	
Estimated achievement	Not Applicable	CP1 AF & SDP Family	-	-
Completion Rate 2022	n/a (Initial Objective)	ICAO ASBUs	RATS-B1/1	
Stakeholders	ANSPs, Regulators	Operating Environment	Airport	En-Route
			TMA	Network

Applicability Area: n/a

Applicable Standards and Regulations: None

Benefits

Reduced costs by a reduction of ATCOs of up to 25% compared to Single Remote Tower

Industrialisation and Standardisation Activities (see Technical Annex for more details)

The applicable new/modified standards, specifications, guidelines and regulations that are planned/ongoing, as specified in European Standardisation Rolling Development Plan (RDP) version 16 of 25/10/2021, are the following:

- MASPS for Remote Tower optical systems ED-240B

European Standardisation RDP is available at https://www.eascg.eu

Main deployment actions by Stakeholders (see Technical Annex for more details)
It is assumed that a Single Remote Tower is the baseline and it is therefore already in place.

Regulatory Authorities have to amend and/or further evolve the existing regulatory framework if/as deemed necessary

ANSPs have to implement one (or several) Multiple Remote Tower Module(s) that include a planning tool to present traffic and tasks further ahead for the aerodromes (up to three) the ATCO has control of as well as Advanced VCS (Voice Com System). Local procedures might change with the introduction of the remote provision of ATS for multiple aerodromes as implementation will require the harmonisation of procedures and systems allowing dynamic allocation of airports to MRTMs.

[15] Solution in Industrialisation Phase

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OD-05	Virtual centre concept, CWP and service interface definition

1. What

Virtualisation of service provision makes the most efficient use of ATM data processing resources, but it can only deliver value if it is accessed as a service irrespective of its geographical location. The virtualisation is also an essential element to decouple the current ANS provision from the supporting infrastructure. It should allow for reduction in the number of deployment locations for new infrastructure related implementations.

The ability to provide ATS from a remote location is relevant in all operating environments (e.g., Remote TWR in airports), however this outline description focuses on En-Route and TMA environment. The Virtual centre (VC) concept provides an operating environment in which different ATSU, either within the same ANSP or across different ANSPs, will appear as a single unit and will be subject to operational and technical interoperability. It includes development of the ATSU architecture, from a service-oriented approach, with a focus on the technical services and common interfaces.

VC concept allows a geographical sector to be managed from any ATCU subject to the availability of services crucial for the provision of ATC, namely, CNS, MET, AIS and all FPL data. The main enablers of VC are:

- a standardised/common CWP for the controllers based on standardised “plug-in” applications;
- ATM data/information service providers operating on standardised systems;
- Common standardised interfaces between CWP and data/information providers.

Increased automation and virtualisation hold the potential to effectively balance capacity and demand while ensuring higher levels of resilience. With the delivery of services irrespective of the physical infrastructure or the geographical location, the de-fragmentation of European skies can be realized through virtualisation.

2. Who, When and Where

Stakeholders impacted		ANSPs, Regulators	
Operating environments		En-route and TMA	
Geographical scope		ECAC	
Timescales		IOC=2024 FOC=2027	
Systems impacted	**Airborne**	N	Nil
	Ground	Y	CWP HMI; RDP, FDP, VCS to transition to SOA Interface to ATM data/information provider
Synchronisation		Interoperability between ATCU CWP and data/information providers	

3. Links and dependencies

SESAR Key Features	E–I - Enhanced Aviation Infrastructure
Essential Operational Changes	Virtualisation of service provision
PCP	None
SESAR Solutions	PJ.16-03 Work station, service interface definition & virtual centre concept
OI Steps / *Enablers*	Not available yet.
DP Families	None
MP Level 3 dependencies	The following implementation objectives need to be implemented in support to the VC: INF08.1, INF08.2, COM12, COM11.1, ITY-COTR, ATC17.
ICAO ASBUs	None
Network Strategy Plan	None
EPAS	None
EASCG RDP	None

4. Standardisation & regulatory aspects

Applicable legislation	In case of cross border virtualisation between different states, common ATCO Licensing scheme.	
	Ref.	Develop and publish the following standards: - Common controllers CWP; - ATM data/information service providers ; - Interfaces between CWP and data/information providers;

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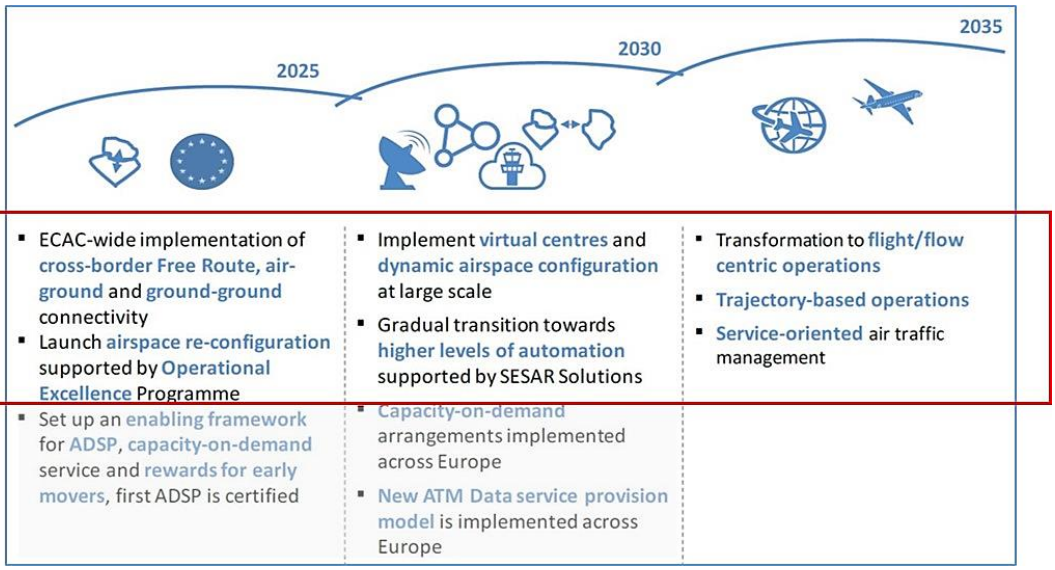
4 AIRSPACE ARCHITECTURE STUDY TRANSITION PLAN IN MPL3

4.1 SCOPE OF TRANSITION STRATEGY FOR AAS

The Airspace Architecture Study proposes a progressive transition strategy towards the Single European Airspace System, while building on known best practices and quick wins, as well as existing initiatives such as SESAR.

Full implementation of AAS elements should be achieved via a progressive transition strategy in three 5 year-periods.

AAS focuses on the subset of seven (7) milestones representing the technical and operational requirements for the full implementation of AAS. They require the stakeholders to adopt new standards and procedures; investments in new technologies and new services, including availability of cross-FIR ATM data services to enable the virtual de-fragmentation, as well as adaptations to the current ATM service delivery model where necessary.



Conditions for success

The following conditions need to exist to catalyse an evolution of the service provision landscape in support of this transition:

1. Capacity-on-demand service - ensures the continuity of ATC provision despite disruptions by enabling a temporary delegation of ATC provision to an alternate provider with spare capacity.
   Topics with potential regulatory changes to facilitate implementation: Oversight, responsibility/liability, Interoperability, ATCO Licensing, Pricing / charging.
2. ATM data service provision - requires common ATM data service provision supporting several ATS providers simultaneously. Allows for ANSPs more specialised in one or more services, while possibly covering geographical areas that go beyond individual FIR boundaries.
   Topics with potential regulatory changes to facilitate implementation: Certification, oversight and enforcement, Common Requirements for certification, Alliance building, Competition rules, Interoperability and data access, Pricing/charging, Liability.
3. Targeted incentives for early movers - offered for the stakeholders that implement recommended operational improvements or that shift towards innovative delivery models to initiate the transition.
   Topics with potential regulatory changes to facilitate implementation: modulation of charges, Best Equipped Best Served "BEBS".

These conditions actually are the three (3) milestones that are not addressed by the Plan. They are the framework for the regulatory requirements and service delivery models which the European Commission will address in parallel.

4.2 AAS PERSPECTIVE IN THE PLAN

There are a number of already existing MPL3 Implementation Objectives supporting planning and monitoring of the implementation of AAS elements that enable achievement of AAS milestones.

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MPL3 Plan implementation objectives cover short to medium term, thus largely corresponding to first AAS transition phase by the year 2025.

The elements found in the second (2030) and third (2035) phase of the transition, that do not qualify for the implementation objective or outline description, are expected to be delivered by SESAR 2020 Wave 2 which started in January 2020. They are shown in the tables for completeness of the information.

The table for each AAS TP transition phase identifies the following:

a) the milestones and the elements supporting each AAS milestone *(identification, designators and numbering of the milestones and elements is established for the purpose of L3 Plan document specifically)* ,
b) MPL3 Implementation Objective or Outline Description covering the supporting element of the milestone.
c) SESAR Solution contributing to the supporting element of the milestone (SESAR1, Wave 1 and Wave 2).

It must be noted that, in line with the evolution of the MPL3 Plan, Milestone 1.2 is now covered by Implementation Objectives ATC22 to ATC25, replacing OD-1 “Extended Projected Profile (EPP) availability on the ground using ADS-C”; and Milestone 1.6 is now addressed by AOM21.3, replacing OD-2 “FRA ensuring connectivity with TMA”.

Transition Phase 1 by 2025

AAS Milestone	Element supporting the milestone	SESAR Solution	MPL3 Plan 2023
1. ECAC-wide cross-border FRA, A/G and G/G connectivity			
1.1.	Air-ground data exchange - CPDLC	Nil	ITY-AGDL
1.2.	Air-ground data exchange – EPP/ADS-C	#115 SESAR 1	ATC22
			ATC23
			ATC25
1.3.	G/G connectivity	#05 SESAR1	ATC15.2
		Nil	COM11.1
			ITY-FMTP
1.4.	eFPL based on ICAO FF-ICE supporting SBT transition to RBT	PJ.18-02c SESAR 2020 Wave 1	Nil
1.5.	G/G Connectivity-SWIM Yellow	#46 SESAR 1	INF10.2 to INF10.23
1.6.	FRA cross-border above FL310	#66 SESAR 1 #33 SESAR 1 PJ.06-01 SESAR 2020 Wave 1	AOM21.3
1.7.	FRA cross-border below FL310	#66 SESAR 1 #33 SESAR 1 PJ.06-01 SESAR 2020 Wave 1	AOM21.3
1.8.	Advanced FUA and ASM Tools, Real time airspace data, Full Rolling ASM/AFTCM	#31 SESAR 1	AOM19.4
			AOM19.5
1.9.	Implement Target Times (SAM, API)	#18 SESAR 1	FCM10
			FCM11.2
1.10.	Automated support for dynamic sectorisation	#66 SESAR 1	AOM21.2
			AOM19.4
			AOM19.5
1.11.	Occupancy counts and Traffic monitoring volumes exchanges (STAM)	#17 SESAR 1	FCM04.2
		#20 SESAR 1	FCM10

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AAS Milestone	Element supporting the milestone	SESAR Solution	MPL3 Plan 2023
1.12.	Network related data exchanges with operational stakeholders (AOP/NOP interfaces, Aeronautical data, flight plan data, network data)		FCM11.1 FCM11.2
1.13.	Data exchange to support traffic complexity	#19 SESAR 1	FCM06.1
1.14.	Collaborative Flight Planning (CPR, FSA, AFP)	Nil	FCM01 FCM03
1.15.	Enhanced tactical conflict detection & resolution (CD&R) services and conformance monitoring tools for en-route	#27 SESAR 1	ATC12.1
1.16.	Air traffic services (ATS) datalink using iris precursor	#109 SESAR 1	COM13
1.17.	Cooperative surveillance ADS-B / WAM	#114 SESAR 1	ATC21
2.	**Airspace re-configuration & operational excellence programme**		
2.1.	EU-wide airspace re-configuration programme to define and implement an optimal cross-FIR and flow-centric redesign of airspace sectors.	Nil	N/A refer to NOP & ERNIP
2.2.	EU-wide operational excellence programme to achieve operational harmonisation aligning on ATC capacity and ways of working to best practices.	Nil	N/A refer to NOP & ERNIP

Transition Phase 2 from 2025-2030

AAS Milestone	Element supporting the milestone	SESAR Solution	MPL3 Plan 2023
4.	**Implement virtual centre and dynamic airspace management on a large scale**		
4.1.	Dynamic airspace configurations (DA–) - Prerequisites	#44 SESAR 2020 Wave 2	Nil
4.2.	DAC- flexible sectorisation boundaries dynamically modified based on demand	#44 SESAR 2020 Wave 2	Nil
4.3.	Collaborative control and multi sector planner (MSP) in en-route	#70 SESAR 2020 Wave 2	ATC18
4.4.	Delegation of airspace amongst ATSUs based on traffic / organisation needs (either static , dynamic or on contingency)	#93 SESAR 2020 Wave 2	Nil
4.5.	Work station, service interface definition & virtual centre concept	PJ.16-03 SESAR 2020 Wave 1	OD-5 VC CWP
5.	**Gradual move to higher levels of automation supported by the implementation of SESAR Solutions**		
5.1.	Higher levels of automation in ATC to support full TBO	Nil	ATC12.1 ATC18 AOM21.2-ASP02
5.2.	Enhanced network traffic prediction and shared complexity representation	#45 SESAR 2020 Wave 2	Nil
5.3.	Next generation AMAN for 4D environment	#1 SESAR 2020 Wave 2	Nil
5.4.	Digital integrated network management and ATC planning (INAP)	#48 SESAR 2020 Wave 2	Nil
5.5.	Improved ground trajectory predictions enabling future automation tools	#53 SESAR 2020 Wave 2	Nil
5.6.	RBT revision supported by datalink and increased automation	#57 SESAR 2020 Wave 2	Nil
5.7.	HMI interaction modes for ATC centre	#96 SESAR 2020 Wave 2	Nil
5.8.	Improved vertical profiles through enhanced vertical clearances	f SESAR 2020 Wave 2	Nil
5.9.	Higher levels of automation supporting sectorless ATCO work	Nil	Nil

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Transition Phase 3 from 2030-2035

AAS Milestone	Element supporting the milestone	SESAR Solution	MPL3 Plan 2023
8. **Transformation to flight centric operations where applicable**			
8.1.	Flight-centric ATC and improved distribution of separation responsibility in ATC	#73 SESAR 2020 Wave 2	Nil
9. Trajectory-based operations			
9.1.	Flight object interoperability and SWIM Blue profile	PJ.18-02b SESAR 2020 Wave 1	Nil
9.2.	Dynamic E-TMA for advanced CDO/CCO and improved arrival and departure operations	#08 SESAR 2020 Wave 2	Nil
9.3.	Enhanced integration of AU trajectory definition and network management processes	#38 SESAR 2020 Wave 2	Nil
9.4.	Trajectory prediction service	#88 SESAR 2020 Wave 2	Nil
9.5.	Mission trajectories management with integrated dynamic mobile areas type 1 and type 2	#40 SESAR 2020 Wave 2	Nil
9.6.	RBT revision supported by datalink and increased automation	#57 SESAR 2020 Wave 2	Nil
10. Service-oriented ATM			
10.1.	De-couple ATS provision, ATM data services, integration services and geographically fixed services.	Nil	Nil

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ANNEXES

ANNEX 1 – THE TERMINOLOGY USED IN THE MASTER PLAN LEVEL 3 IMPLEMENTATION PLAN

This Annex provides a summary of the terminology and designators used across the Master Plan Level 3 (MPL3) Implementation Plan.

The **Essential Operational Changes** (EOCs) defined in the MPL1 set out the structure of the MPL3 Plan 2023.

The main sections of the Plan feature this graphical designator, in line with the EOCs introduced in the Level 1 of the European ATM Master Plan Edition 2020.

The MPL3 Plan refers to the following **Stakeholder Group** designators:

ASP	Air Navigation Service Providers (Civil & Military)	**AGY**	EUROCONTROL Agency (non-Network Manager)
APO	Airport Operators	**INT**	International Organisations and Regional Bodies
REG	State Authorities	**IND**	Aeronautics Industry
USE	Airspace Users	**MET**	Meteorological Service Providers
AIS	Aeronautical Information Service Providers	**NM**	EUROCONTROL Network Manager

The **Key Performance Areas** (KPAs) used in this document reflect those defined in Chapter 3 "Performance View" of the Level 1 of the European ATM Master Plan Edition 2020.

The **Implementation Objective** (OI) designators consist of the acronym of the designated ATM area of work and a serial number.

AOM = Airspace Organisation and Management	**FCM** = Flow and Capacity Management
AOP = Airport Operations	**INF** = Information Management
ATC = Air Traffic Control	**ITY** = Interoperability
COM = Communications	**NAV** = Navigation
ENV = Environment	**SAF** = Safety Management

The Implementation Objectives set out the operational, technical and institutional improvements that contribute to meet the performance requirements for the key performance areas. They also reflect the outcomes of the Planning and Architecture level (Level 2) when it comes to the integration of operationally and technically mature operational changes, supported by common agreement for their inclusion in the plan and, where applicable, their deployment. It is the case for Objectives derived from existing (EU) Regulations in ATM, such as the Common Project One (CP1).

Implementation Objectives feature **Stakeholder Lines of Action** (SLoAs) of ANSPs, National Regulators, Airport Operators, Military Authorities, Airspace Users that address the deployment and operational aspects of the functionalities described in the IO.

Outline Descriptions (ODs) are developed as a working tool to achieve expert-level consensus on the technical and operational content of the targeted implementations, their timescales and the main set of Stakeholder Lines of Action (SLoAs) which would guide the implementers through the implementation phase. ODs can be considered as embryonic Implementation Objectives and allow the experts to investigate different implementing options, while respecting the overall technical requirements expressed in the SESAR Solution.

An Implementation Objective can feature one of the following statuses:

- **Active**, fully ready for implementation and monitored in LSSIP;
- **Initial**, including elements that still require validation / commitment, therefore not yet monitored through the LSSIP+ mechanism.

The Implementation Objectives present a categorisation from a decision-making point of view:

- **Regulated**, where there is a law act (usually an EU IR) binding the concerned stakeholders to implement a specified functionality by a predefined date and within a predefined applicability area;

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- **Committed**, in case stakeholders engaged through the EUROCONTROL Provisional Council to implement a functionality by an agreed date within an agreed applicability area in a coordinated manner, while there is no law act regulating these two elements.
- **Local**, when there is no commonly agreed pan-European implementation plan and Stakeholders decide whether to implement a functionality or not.

The above-mentioned classification is without prejudice to the existing SES regulatory framework in ATM (e.g., common requirements, safety, conformity assessment, etc.). Any implementation including purely local ones has to be performed taking fully into account the entire regulatory framework.

An Implementation Objective may have one of the following **Applicability Area(s)** defined as follows:

- **ECAC**, States members of the European Civil Aviation Conference + Maastricht UAC.
- **ECAC+**, ECAC States + EUROCONTROL Comprehensive Agreement States, i.e., Israel and Morocco.
- **EU+**, European Union Member States (including Maastricht UAC) + European Common Aviation Area Agreement (ECAA) States. i.e., Albania, Bosnia and Herzegovina, North Macedonia, Georgia, Montenegro, Serbia and Moldova, Norway, and Switzerland.
- **EU SES**, European Union Member States (including Maastricht UAC) + Norway and Switzerland, who signed the contractual commitment with EU to implement the SES legislation.
- **EU**, 27 Member States of the European Union.
- **30 CP1 Airports,** as identified in the CP1 Regulation: Vienna, Brussels, Prague, Berlin Brandenburg, Düsseldorf, Frankfurt am Main, Hamburg, Munich, Stuttgart, Copenhagen, Barcelona, Madrid Barajas, Málaga Costa del Sol, Palma de Mallorca, Helsinki, Lyon, Nice, Paris Charles de Gaulle, Paris Orly, Athens, Dublin, Milan Linate, Milan Malpensa, Rome Fiumicino, Amsterdam Schiphol, Warsaw, Lisbon, Stockholm Arlanda, Geneva, Zurich Kloten.

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ANNEX 2 – RELEVANT MAPPINGS OF MPL3 PLAN 2023

Mapping of the L3 implementation Objectives to corresponding SESAR Essential Operational Changes, SESAR Solutions, SESAR Deployment Programme Families, ICAO ASBU, EASA EPAS, the Network Strategy Plan, the Airspace Architecture Study Transition Plan (AAS TP) Milestones and the SESAR Key Features.

CNS infrastructure and services

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/ *Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
ATC21 – Composite surveillance ADS-B/WAM	#114	-	*CTE-S06, CTE-S05, CTE-S03a, CTE-S03b, CTE-S04a*	ASUR-B0/1 ASUR-B0/2	RMT.0679 RMT.0519	SO8/3 SO8/4	AM-1.17	EAI
COM10.2 – Extended AMHS	-	-	CTE-C06c	COMI-B0/7	-	SO7/4	-	EAI
COM11.1 – Voice over Internet Protocol (VoIP) in En-Route	-	-	*CTE-C05a* *CTE-C05b*	COMI-B2/1	-	SO8/4	AM-1.3	EAI
COM11.2 – Voice over Internet Protocol (VoIP) in Airport/Terminal	-	-	*CTE-C05a* *CTE-C05b*	COMI-B2/1	-	SO8/4	-	EAI
COM13 – Air Traffic Services (ATS) datalink using SatCom Class B	#109	-	POI-0018-COM	COMI-B1/3	-	-	AM-1.16	EAI
ITY-ACID – Aircraft identification	-	-	*GSURV-0101*	-	-	SO8/2	-	EAI
ITY-AGDL – Initial ATC air-ground data link services	-	-	AUO-0301	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	-	-	*CTE-C01a*	-	-	SO8/1	-	EAI
NAV10 – RNP Approach Procedures to instrument RWY	#103	-	AOM-0602 AOM-0604 CTE-N06a CTE-N06b	APTA-B0/1 APTA-B1/1 NAVS-B0/2	RMT.0445 RMT.0643	SO6/5	-	AATS
NAV11.2 – Implement precision approach procedures using GBAS CAT II/III based on GPS L1 and/or GALILEO E1	#55	-	AO-0505-A	NAVS-B1/1	RMT.0682	-	-	HPAO

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Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOM13.1 – Harmonise OAT and GAT handling	-	-	AOM-0301 AOM-0303	-	-	SO6/2	-	OANS
AOP11.1 – Initial Airport Operations Plan	#21	2.2.1	AO-0801-A	ACDM-B1/1	-	SO6/2	-	HPAO
AOP11.2 – Extended Airport Operations Plan	#21	2.2.2	AO-0801-A, AO-0802-A, AO-0803, DCB-0310	ACDM-B1/1	-	SO5/2	-	HPAO
AOP17 – Provision/integration of DPI to NMOC	#61	-	DCB-0304	NOPS-B0/4	-	-	-	HPAO
COM12 – NewPENS	-	-	*CTE-C06b*	COMI-B1/1	-	SO2/3, SO2/4, SO8/3, SO8/4	-	EAI
FCM03 – Collaborative flight planning	-	-	IS-0102	NOPS-B0/2	-	SO4/3	AM-1.14	OANS
FCM04.2 – Enhanced Short Term ATFCM Measures	#17	4.1.1	DCB-0308	NOPS-B1/1	-	SO4/5	AM-1.11	OANS
FCM06.1 – Automated Support for Traffic Complexity Assessment and Flight Planning interfaces	#19 PJ.18-02c	4.3.1	CM-0101 CM-0103-A IS-0102	NOPS-B0/2 NOPS-B1/4	-	SO4/3 SO4/5	AM-1.13	OANS
FCM10 – Interactive rolling NOP	#18 #20	4.2.1	DCB-0102 DCB-0208	NOPS-B1/2 NOPS-B1/9	-	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	DCB-0103-A AO-0801-A	NOPS-B0/4	-	SO4/4, SO4/5, SO5/2	AM-1.12	OANS
FCM11.2 – AOP/NOP integration	#18 #20 #21	4.4.1	AO-0801–A, AO-0802–A, AO-0803, DCB-0310, DCB-0103-A, DCB-0208	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	IS-0901-A	SWIM-B2/3	RMT.0720	SO2/4	AM-1.5	EAI

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Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
INF10.3 – Aeronautical Information Exchange - Airspace structure service	#46	5.3.1	IS-0901-A	-	-	SO2/4	AM-1.5	EAI
INF10.4 – Aeronautical Information Exchange - Airspace availability service	#46	5.3.1	IS-0901-A	-	-	SO2/4	AM-1.5	EAI
INF10.5 – Aeronautical Information Exchange - Airspace Reservation (ARES) service	#46	5.3.1	IS-0901-A	-	-	SO2/4	AM-1.5	EAI
INF10.6 – Aeronautical Information Exchange - Digital NOTAM service	#34 #46	5.3.1	IS-0901-A IS-0205	-	-	SO2/4	AM-1.5	EAI
INF10.7 – Aeronautical Information Exchange - Aerodrome Mapping information exchange service	#34 #46	5.3.1	IS-0901-A IS-0205	-	-	SO2/4	AM-1.5	EAI
INF10.8 – Aeronautical Information Exchange - Aeronautical Information Features service	#34 #46	5.3.1	IS-0901-A IS-0205	-	-	SO2/4	AM-1.5	EAI
INF10.9 – Meteorological Information Exchange - Volcanic ash concentration service	#34 #35 #46	5.4.1	IS-0901-A IS-0205 MET-0101	-	-	SO2/4	AM-1.5	EAI
INF10.10 – Meteorological Information Exchange - Aerodrome Meteorological information Service	#34 #35 #46	5.4.1	IS-0901-A IS-0205 MET-0101	-	-	SO2/4	AM-1.5	EAI
INF10.11 – Meteorological Information Exchange - En-Route and Approach Meteorological information service	#34 #35 #46	5.4.1	IS-0901-A IS-0205 MET-0101	-	-	SO2/4	AM-1.5	EAI
INF10.12 – Meteorological Information Exchange - Network Manager Meteorological Information	#34 #35 #46	5.4.1	IS-0901-A IS-0205 MET-0101	-	-	SO2/4	AM-1.5	EAI

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Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
INF10.13 – Cooperative Network Information Exchange - ATFCM Tactical Updates Service	#46	5.5.1	IS-0901-A	-	-	SO2/4	AM-1.5	EAI
INF10.14 – Cooperative Network Information Exchange - Flight Management Service	#46	5.5.1	IS-0901-A	-	-	SO2/4 SO5/2	AM-1.5	EAI
INF10.15 – Cooperative Network Information Exchange - Measures Service	#46	5.5.1	IS-0901-A	-	-	SO2/4 SO4/5	AM-1.5	EAI
INF10.16 – Cooperative Network Information Exchange - Short Term ATFCM Measures services	#46	5.5.1	IS-0901-A	-	-	SO2/4 SO4/5	AM-1.5	EAI
INF10.17 – Cooperative Network Information Exchange - Counts service	#46	5.5.1	IS-0901-A	-	-	SO2/4	AM-1.5	EAI
INF10.18 – Flight Information Exchange -Filing Service	#46	5.6.1	AUO-0207	FICE-B2/2	-	SO2/4	AM-1.5	EAI
INF10.19 – Flight Information Exchange - Flight Data Request Service	#46	5.6.1	AUO-0207	FICE-B2/4	-	SO2/4	AM-1.5	EAI
INF10.20 – Flight Information Exchange - Notification Service	#46	5.6.1	AUO-0207	FICE-B2/5	-	SO2/4	AM-1.5	EAI
INF10.21 – Flight Information Exchange - Publication Service	#46	5.6.1	AUO-0207	FICE-B2/6	-	SO2/4	AM-1.5	EAI
INF10.22 – Flight Information Exchange - Trial Service	#46	5.6.1	AUO-0219	FICE-B2/3	-	SO2/4	AM-1.5	EAI
INF10.23 – Flight Information Exchange - Extended AMAN SWIM Service	#46	5.6.1	AUO-0207	DAIM-B2/1 SWIM-B3/1	-	SO2/4	AM-1.5	EAI

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dS Digital AIM and MET services

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
INF07 – Electronic Terrain and Obstacle Data (e-TOD)	-	-	*AIMS-16*	DAIM-B1/3 DAIM-B1/4	RMT.0703 RMT.0722	SO2/5	-	EAI
INF11.1 – Enhanced Ground Weather Management System (GWMS) as local 4DWxCube	PJ.18-04b-01	-	POI-0044-MET	-	-	-	-	EAI
INF11.2 – Cb-global capability and service	PJ.18-04b-02	-	POI-0048-MET	-	-	-	-	EAI

ATp Airport and TMA performance

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOP04.1 – A-SMGCS Surveillance Service (former ICAO Level 1)	#70 #110	-	AO-0201 AO-0201-A POI-0071-SUR	SURF-B0/2	MST.0029	SO6/6	-	HPAO
AOP04.2 – A-SMGCS RMCA (former ICAO Level 2)	-	-	AO-0102	SURF-B0/3	MST.0029	SO6/6	-	HPAO
AOP05 – Airport CDM	-	-	AO-0501, AO-0601, AO-0602, AO-0603, TS-0201	ACDM-B0/1 ACDM-B0/2 NOPS-B0/4	-	SO6/4	-	HPAO
AOP10 – Time Based Separation	#64	-	AO-0303	WAKE-B2/7	-	SO6/5	-	HPAO
AOP12.1 – Airport Safety Nets	#02	2.3.1	AO-0104-A	SURF-B1/3	MST.0029	SP6/6	-	HPAO
AOP13 – Automated assistance to Controller for Surface Movement planning and routing	#22 #53	-	AO-0205 TS-0202	SURF-B1/4	MST.0029	SO6/6	-	HPAO

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Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOP15 – Safety Nets for vehicle drivers	#04	-	AO-0105 AO-0204	SURF-B2/2	MST.0029	-	-	HPAO
AOP16 – Guidance assistance through airfield lighting	#47	-	AO-0222-A	SURF-B1/1	MST.0029	-	-	HPAO
AOP18 – Runway Status Lights	#01	-	AO-0209	SURF-B2/2, SURF-B2/3-	MST.0029	-	-	HPAO
AOP19 – Departure Management Synchronised with Pre-departure sequencing	#53 #106	2.1.1	AO-0602 TS-0201	RSEQ-B0/2	-	-	-	HPAO
AOP20 – Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)	PJ.02-01-06	-	AO-0323	-	RMT.0476	-	-	HPAO
AOP21 – Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)	PJ.02-01-04	-	AO-0306	WAKE-B3/3	RMT.0476	-	-	HPAO
AOP22 – Minimum pair separations based on SRP	PJ.02-03	-	AO-0309	-	-	-	-	HPAO
AOP23 – Integrated runway sequence for full traffic optimization on single and multiple runway airports	PJ.02-08-01	-	TS-0301	RSEQ-B2/1	-	-	-	HPAO
AOP24 – Optimised use of runway configuration for multiple runway airports	PJ.02-08-02	-	TS-0313	-	-	-	-	HPAO
AOP25 – De-icing Management Tool	#116	-	POI-0070-AO	-	-	-	-	HPAO

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Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOP26 – Reduced separation based on local Runway Occupancy Time (ROT) characterisation	PJ.02-08-03	-	AO-0337	-	-	-	-	HPAO
ATC07.1 – Arrival management tools	-	-	TS-0102	RSEQ-B0/1	-	SO4/1	-	AATS
ATC19 – Enhanced AMAN-DMAN integration	#54	1.2.1	TS-0308	RSEQ-B2/1	-	SO6/5 SO4/1	-	EAI
ATC26 – Point Merge in complex TMA	#107	-	AOM-0601	RSEQ-B0/3	-	-	-	AATS
ENV01 – Continuous Descent Operations	#11	-	AOM-0701 AOM-0702-A	APTA-B0/4 APTA-B1/4	-	SO6/5	-	AATS
ENV02 – Airport Collaborative Environmental Management	-	-	AO-0703, AO-0705, AO-0706	-	-	-	-	HPAO
ENV03 – Continuous Climb Operations	-	-	AOM-0703	APTA-B0/5 APTA-B1/5	-	SO6/5	-	AATS
NAV03.1 – RNAV1 in TMA Operations	#62	-	AOM-0601 *CTE-N08*	APTA-B0/2	RMT.0445	SO6/5	-	AATS
NAV03.2 – RNP1 in TMA Operations	#09 #51 PJ.14-03-04	-	AOM-0603 AOM-0605 POI-0032-NAV	APTA-B1/2	RMT.0445	SO6/5	-	AATS
NAV11.1 – GLS CAT II operations using GBAS GAST-C	#119	-	AO-0506	NAVS-B1/1	RMT.0682 RMT.379	-	-	HPAO
SAF11.1 – Improve runway safety by preventing runway excursions	-	-	-	-	-	-	-	HPAO

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Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOM19.4 – Management of Pre-defined Airspace Configurations	#31 #66	3.1.2	AOM-0202-A AOM-0206-A CM-0102-A	FRTO-B1/4, NOPS-B1/6	-	SO3/2 SO3/3	AM-1.10 AM-1.8-	OANS
AOM19.5 – ASM and A-FUA	#31 #66	3.1.1	AOM-0202 AOM-0202-A AOM-0206-A	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	AOM-0501 AOM-0505 CM-0102-A	FRTO-B1/1	-	SO3/1 SO3/4	AM-1.10 AM-5.1	AATS
AOM21.3 – Enhanced Free Route Airspace Operations	#33 PJ.06-01	3.2.2	AOM-0501 AOM-0505	FRTO-B2/3	-	SO3/1 SO3/4	AM-1.6 AM-1.7	AATS
ATC12.1 – MONA, TCT and MTCD	#27 #104	-	CM-0202, CM-0203, CM-0205, CM-0207-A	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	-	-	TS-0305	-	-	SO4/1	-	AATS
ATC15.2 – Arrival Management Extended to En-route Airspace	#05	1.1.1	TS-0305-A	RSEQ-B1/1 NOPS-B1/8	-	SO4/1	AM-1.3	AATS
ATC18 – Multi Sector Planning En-route – 1P2T	#63 #118	-	CM-0301	FRTO-B1/6	-	SO4/1	AM-4.3 AM-5.1	AATS
ITY-FMTP – Apply a common flight message transfer protocol (FMTP)	-	-	*CTE-C06*	-	-	SO8/3	AM-1.3	EAI
SAF10.1 – Implement measures to reduce the risk to aircraft operations caused by airspace infringements	-	-	-	-	SI.2025	-	-	AATS

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TBO Trajectory -based operations

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
ATC02.8 – Ground based safety nets	-	-	CM-0801	SNET-B0/2 SNET-B0/3 SNET-B0/4	-	SO4/1	-	AATS
ATC20 – Enhanced STCA with DAP via Mode S EHS	#69	-	CM-0807-A	SNET-B1/1	MST.0030	SO7/2	-	AATS
ATC22 – Initial Air-Ground Trajectory Information Sharing (Airborne Domain)	#115	6.1.1	IS-0303-A	-	RMT.0682	SO4/5	AM-1.2	EAI
ATC23 – Initial Air-Ground Trajectory Information Sharing (Ground Domain)	#115 PJ.18-06b1	6.1.2	IS-0303-A	-	RMT.0682	SO4/5	AM-1.2	EAI
ATC24 – Network Manager Trajectory Information Enhancement	PJ.18-06b1	6.2.1	POI-0011-IS POI-0013-IS	-	RMT.0682	SO4/5	-	EAI
ATC25 – Initial Trajectory Information Sharing ground distribution	#115	6.3.1	IS-0303-A	-	MST.0031		AM-1.2	EAI

M3 Multimodal mobility and integration of all airspace users

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
NAV12 – ATS IFR Routes for Rotorcraft Operations	#113	-	AOM-0810	APTA-B0/6	MST.0031	SO6/5	-	AATS

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U-space services

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
-	-	-	-	-	-	-	-	-

Virtualisation of service provision

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOP14.1 – Remote Tower Services	#12 #13 #52 #71	-	SDM-0201 SDM-0204 SDM-0205	RATS-B1/1	RMT.0624	SO6/5	-	HPAO
AOP14.2 – Multiple Remote Tower Module	PJ.05-02	-	SDM-0207	RATS-B1/1	RMT.0624	SO6/5	-	HPAO

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ANNEX 3 – APPLICABILITY TO AIRPORTS

Several Implementation Objectives are applicable to specific European airports. For the Objectives related to the CP1, the Applicability Area includes the list defined in the Regulation. However, being the scope of airport Objectives substantially broader than the CP1, some airports have committed to implement even if not explicitly targeted by the Implementing Rule.

The following table consolidates the Applicability Area for all the airport Objectives listed in the Implementation Plan.

Legend:
"Y" The Objective is Applicable to that Airport
CP1 Objectives linked to a CP1 Sub-Functionality

CP1 Airports

State	Airport	ICAO Code	AOP04.1	AOP04.2[16]	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
AT	Vienna	LOWW	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BE	Brussels	EBBR	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
CH	Geneva	LSGG	Y	Y	Y			Y				Y			Y		Y
CH	Zurich	LSZH	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CZ	Prague	LKPR	Y	Y	Y			Y	Y			Y	Y		Y		Y
DE	Berlin Brandenburg	EDDB	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DE	Düsseldorf	EDDL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DE	Frankfurt Main	EDDF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y

[16] Objective AOP12.1 includes the scope of AOP04.2 for the 18 CP1 Airports: Vienna, Brussels, Berlin Brandenburg, Düsseldorf, Frankfurt Main, Munich, Copenhagen, Barcelona, Madrid Barajas, Palma de Mallorca, Nice, Paris CDG, Paris ORY, Dublin, Milan Malpensa, Rome Fiumicino, Amsterdam Schiphol, and Stockholm Arlanda. The status for these airports is therefore Not Applicable in Objective AOP04.2.

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State	Airport	ICAO Code	AOP04.1	AOP04.2[16]	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
DE	Hamburg	EDDH			Y		Y	Y			Y				Y		Y
DE	Munich	EDDM	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
DE	Stuttgart	EDDS			Y		Y	Y			Y				Y		Y
DK	Copenhagen	EKCH	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
ES	Barcelona	LEBL	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
ES	Madrid Barajas	LEMD	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
ES	Málaga Costa del Sol	LEMG						Y									Y
ES	Palma de Mallorca	LEPA	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
FI	Helsinki	EFHK	Y	Y	Y		Y	Y				Y	Y		Y		Y
FR	Lyon	LFLL	Y	Y	Y			Y							Y		Y
FR	Nice	LFMN	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y
FR	Paris, Charles de Gaulle	LFPG	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y
FR	Paris, Orly	LFPO	Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y
GR	Athens	LGAV	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y		Y
IE	Dublin	EIDW	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IT	Milan Linate	LIML	Y		Y			Y									Y
IT	Milan Malpensa	LIMC	Y		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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State	Airport	ICAO Code	AOP04.1	AOP04.2[16]	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
IT	Rome Fiumicino	LIRF	Y		Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
NL	Amsterdam Schiphol	EHAM	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
PL	Warsaw	EPWA	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y		Y
PT	Lisbon	LPPT	Y	Y	Y		Y	Y				Y			Y		Y
SE	Stockholm Arlanda	ESSA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y

Non-CP1 Airports

State	Airport	ICAO Code	AOP04.1	AOP04.2	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
AL	Tirana	LATI			Y	Y											
AM	Yerevan	UDYZ													Y		
AZ	Baku	UBBB	Y	Y							Y	Y		Y	Y		
BA	Sarajevo	LQSA			Y										Y		
BE	Charleroi	EBCI													Y		
BE	Liege	EBLG													Y		
BG	Sofia	LBSF	Y														
CY	Larnaca	LCLK	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

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State	Airport	ICAO Code	AOP04.1	AOP04.2	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
DE	Cologne Bonn	EDDK													Y		
DE	Hannover	EDDV													Y		
DE	Nurnberg	EDDN													Y		
EE	Tallinn	EETN	Y	Y	Y										Y		
FR	Marseille	LFML	Y	Y											Y		
FR	Toulouse	LFBO	Y	Y											Y		
GE	Tbilisi	UGTB													Y		
GR	Kerkira	LGKR			Y												
GR	Rhodes	LGRP			Y												
GR	Thessaloniki	LGTS	Y	Y	Y												
HR	Zagreb	LDZA	Y	Y	Y	Y	Y								Y		
HU	Budapest	LHBP	Y	Y	Y				Y	Y					Y		
IL	Tel Aviv / Ben Gurion	LLBG	Y	Y	Y		Y	Y							Y		
IT	Venezia	LIPZ	Y		Y										Y		
LT	Vilnius	EYVI	Y	Y	Y										Y		
LU	Luxembourg	ELLX	Y	Y		Y			Y						Y		
LV	Riga	EVRA	Y	Y	Y							Y			Y		
MA	Casablanca	GMMN	Y	Y	Y				Y			Y	Y		Y		

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State	Airport	ICAO Code	AOP04.1	AOP04.2	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
MA	Marrakesh	GMMX	Y		Y										Y		
MD	Chișinău	LUKK	Y	Y		Y			Y						Y		
ME	Podgorica	LYPG															
MK	Skopje	LWSK													Y		
MT	Luqa	LMML													Y		
NO	Oslo Gardermoen	ENGM	Y	Y	Y			Y	Y	Y	Y	Y	Y	Y	Y		Y
RO	Bucharest	LROP	Y	Y								Y			Y		
RS	Belgrade	LYBE	Y	Y							Y	Y	Y	Y	Y		
SE	Göteborg	ESGG													Y		
SE	Malmö Sturup	ESMS													Y		
SE	Umea	ESNU													Y		
SI	Ljubljana	LJLJ															
SK	Bratislava	LZIB															
TR	Ankara	LTAC	Y	Y													
TR	Antalya	LTAI	Y	Y	Y										Y		
TR	Istanbul Airport	LTFM	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
UA	Kyiv Boryspil	UKBB	Y	Y	Y							Y			Y		
UK	Birmingham	EGBB	Y	Y											Y		

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State	Airport	ICAO Code	AOP04.1	AOP04.2	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
UK	Bristol	EGGD													Y		
UK	Edinburgh	EGPH	Y	Y	Y										Y		
UK	Glasgow	EGPF													Y		
UK	London Gatwick	EGKK	Y	Y	Y	Y	Y		Y	Y		Y			Y		
UK	London Heathrow	EGLL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
UK	London Luton	EGGW			Y										Y		
UK	London Stansted	EGSS	Y	Y	Y		Y		Y	Y		Y			Y		
UK	Manchester	EGCC	Y	Y	Y	Y	Y		Y	Y		Y			Y		
UK	Newcastle	EGNT													Y		
UK	Nottingham East Midlands	EGNX													Y		

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ANNEX 4 – MPL3 IMPLEMENTATION ROADMAP

Annex 4 shows the implementation roadmap of Solutions and related Implementation Objectives in industrialisation and implementation phases included in the L3 Plan 2023. Those Solutions not yet linked to an Objective are reported in a separate section of this Annex, as their implementation roadmap is not yet defined.

Legend:

Decision Type	R	Regulated
	C	Committed
	L	Local
Reported Progress	%	Progress as stated in the MPL3 Report 2023 (Reference Year 2022)

Achievement date is prior or equal to the FOC | Achievement date is after the FOC date | Objective achieved

Solutions and Implementation Objectives in Implementation Phase with implementation roadmap

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ←	2023	2024	2025	2026	2027	2028	2029	2030
ATp	#70 #110	Enhanced Ground Controller Situation Awareness in all Weather Conditions ADS-B surveillance of aircraft in flight and on the surface	AOP04.1	A-SMGCS Surveillance Service (former ICAO Level 1)	-	C	31 Dec 2020	74%								
ATp	Nil	Nil	AOP04.2	A-SMGCS RMCA (former ICAO Level 2)	-	C	31 Dec 2025	69%								
ATp	Nil	Nil	AOP05	Airport CDM	-	C	31 Dec 2020	57%								
ATp	#64	Time Based Separation	AOP10	Time Based Separation	-	C	31 Dec 2023	5%								
ATp	#02	Airport Safety Nets for controllers: conformance monitoring alerts and detection of conflicting ATC clearances	AOP12.1	Airport Safety Nets	2.3.1	R	31 Dec 2025	6%								
ATp	#22 #53	Automated Assistance to Controller for Surface Movement Planning and Routing Pre-Departure Sequencing supported by Route Planning	AOP13	Automated Assistance to ATCO for Surface planning and routing	-	C	31 Dec 2025	4%								
ATp	#04	Enhanced Traffic Situational Awareness and Airport Safety Nets for the vehicle drivers	AOP15	Safety Nets for Vehicle Drivers	-	L	Open	Based on local decision								
ATp	#47	Guidance Assistance through Airfield Ground Lighting	AOP16	Guidance assistance through AGL	-	L	Open	Based on local decision								

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EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data)
								← 2023 2024 2025 2026 2027 2028 2029 2030
ATp	#01	Runway Status Lights	AOP18	Runway Status Lights (RWSL)	-	L	Open	Based on local decision
ATp	#53 #106	Pre-Departure Sequencing supported by Route Planning DMAN Baseline for integrated AMAN DMAN	AOP19	Departure Management Synchronised with Pre-departure sequencing	2.1.1	R	31 Dec 2022	62%
ATp	PJ.02-01-06	Wake Turbulence Separations (for Departures) based on Static Aircraft Characteristics	AOP20	Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.
ATp	PJ.02-01-04	Wake Turbulence Separations (for Arrivals) based on Static Aircraft Characteristics	AOP21	Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)	-	L	Open	Based on local decision
ATp	PJ.02-08-01	Integrated Runway Sequence for full traffic Optimization on Single and Multiple Runway Airports	AOP23	Integrated runway sequence for full traffic optimization on single and multiple runway airports	-	L	Open	Based on local decision
ATp	PJ.02-08-02	Optimised use of runway configuration for multiple runway airports	AOP24	Optimised use of runway configuration for multiple runway airports	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.
ATp	#116	De-icing Management Tool	AOP25	De-icing Management Tool	-	L	Open	Based on local decision
ATp	PJ.02-08-03	Reduced separation based on local Runway Occupancy Time characterisation	AOP26	Reduced separation based on local Runway Occupancy Time characterisation	-	L	Open	Based on local decision
ATp	#54	Flow based Integration of Arrival and Departure Management	ATC19	AMAN/DMAN integration	1.2.1	R	31 Dec 2027	6%
ATp	#107	Point Merge in complex TMA	ATC26	Point Merge in complex TMA	-	L	Open	Based on local decision
ATp	#11	Continuous Descent Operations (CDO)	ENV01	Continuous Descent Operations	-	C	31 Dec 2023	52%
ATp	Nil	Nil	ATC07.1	AMAN Tools and Procedures	-	C	31 Dec 2019	67%
ATp	Nil	Nil	ENV02	Airport Collaborative Env. Management	-	L	Open	Based on local decision
ATp	Nil	Nil	ENV03	Continuous Climb Operations	-	L	Open	Based on local decision
ATp	#62	P-RNAV in a complex TMA	NAV03.1	RNAV1 in TMA Operations	-	R	06 Jun 2030	38%

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EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ←	2023	2024	2025	2026	2027	2028	2029	2030
ATp	#09 #51 PJ.14-03-04	Enhanced terminal operations with automatic RNP transition to ILS/GLS Enhanced terminal operations with LPV procedures RNP1 reversion based on DME/DME	NAV03.2	RNP1 in TMA Operations	-	R	06 Jun 2030	28%								
ATp	#119	GLS CAT II operations using GBAS GAST-C	NAV11.1	GLS CAT II operations using GBAS GAST-C	-	L	Open	Based on local decision								
ATp	Nil	Nil	SAF11.1	Improve RWY safety by preventing RWY excursions	-	L	Open	Based on local decision								

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ←	2023	2024	2025	2026	2027	2028	2029	2030
CNS	Nil	Nil	COM10.2	Extended AMHS	-	C	31 Dec 2024	77%								
CNS	Nil	Nil	COM11.1	VoIP in En-Route	-	C	31 Dec 2021	33%								
CNS	Nil	Nil	COM11.2	VoIP in Airport/Terminal	-	C	31 Dec 2023	22%								
CNS	#109	Air Traffic Services datalink using SatCom Class B	COM13	Air Traffic Services datalink using SatCom Class B	-	L	Open	Based on local decision								
CNS	Nil	Nil	ITY-ACID	Aircraft identification	-	R	02 Jan 2020	37%								
CNS	Nil	Nil	ITY-AGDL	Initial ATC air-ground data link services	-	R	05 Feb 2020	65%								
CNS	Nil	Nil	ITY-AGVCS2	8.33 kHz A/G Voice Channel Spacing below FL195	-	R	31 Dec 2020	66%								
CNS	#103	LPV approaches using SBAS as alternative to ILS CAT I	NAV10	RNP Approach Procedures to instrument RWY	-	R	25 Jan 2024	35%								

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ←	2023	2024	2025	2026	2027	2028	2029	2030
dA	#31 #66	Variable profile military reserved areas and enhanced (further automated) civil-military collaboration Automated Support for Dynamic Sectorisation	AOM19.5	ASM and A-FUA	3.1.1	R	31 Dec 2022	77%								

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EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ← 2023 2024 2025 2026 2027 2028 2029 2030
dA	#33 PJ.06-01	Free Route through Free Routing for Flights both in cruise and vertically evolving above a specified Flight Level Optimized traffic management to enable Free Routing in high and very high complexity cross border environments	AOM21.3	Enhanced Free Route Airspace Operations	3.2.2	R	31 Dec 2025	68%
dA	#27 #104	MTCD and conformance monitoring tools Sector Team Operations - En-route Air Traffic Organiser	ATC12.1	MONA, TCT and MTCD	-	C	31 Dec 2021	56%
dA	Nil	Nil	ATC15.1	Information Exchange with en-route in Support of AMAN	-	C	31 Dec 2019	68%
dA	#05	Extended Arrival Management (AMAN) horizon	ATC15.2	Arrival Management Extended to En-route Airspace	1.1.1	R	31 Dec 2024	21%
dA	#63	Multi Sector Planning	ATC18	Multi Sector Planning En-route 1P2T	-	L	Open	Based on local decision
dA	Nil	Nil	ITY-FMTP	Common flight message transfer protocol (FMTP)	-	R	31 Dec 2014	80%
dA	Nil	Nil	SAF10.1	Implement measures to reduce the risk to aircraft operations caused by airspace infringements	-	L	Open	Based on local decision

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ← 2023 2024 2025 2026 2027 2028 2029 2030
dS	Nil	Nil	INF07	Electronic Terrain and Obstacle Data (e-TOD)	-	C	31 Dec 2018	28%
dS	PJ.18-04b-01	Enhanced Ground Weather Management System (GWMS) as local 4DWxCube	INF11.1	Enhanced Ground Weather Management System (GWMS) as local 4DWxCube	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.
dS	PJ.18-04b-02	Cb-global capability and service	INF11.2	Cb-global capability and service	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ← 2023 2024 2025 2026 2027 2028 2029 2030
iN	Nil	Nil	AOM13.1	Harmonise OAT and GAT handling	-	C	31 Dec 2018	67%
iN	#21	Airport Operations Plan and AOP-NOP Seamless Integration	AOP11.1	Initial Airport Operations Plan	2.2.1	R	31 Dec 2023	16%
iN	#21	Airport Operations Plan and AOP-NOP Seamless Integration	AOP11.2	Extended Airport Operations Plan	2.2.2	R	31 Dec 2027	0%
iN	#61	CWP Airport - Low Cost and Simple Departure Data Entry Panel	AOP17	Provision/integration of DEP planning info to NMOC	-	L	Open	Based on local decision

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EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data)
								← 2023 2024 2025 2026 2027 2028 2029 2030
iN	Nil	Nil	COM12	NewPENS	-	C	31 Dec 2024	73%
iN	Nil	Nil	FCM03	Collaborative flight planning	-	C	31 Dec 2022	55%
iN	#17	Advanced Short-Term ATFCM Measures (STAM)	FCM04.2	Enhanced Short Term ATFCM Measures	4.1.1	R	31 Dec 2022	65%
iN	#19 PJ.18-02c	Automated support for Traffic Complexity Detection and Resolution eFPL distribution to ATC	FCM06.1	Traffic Complexity Assessment	4.3.1	R	31 Dec 2022	44%
iN	#18 #20	CTOT and TTA Collaborative NOP for Step 1	FCM10	Interactive rolling NOP	4.2.1	R	31 Dec 2023	23%
iN	#20 #21	Collaborative NOP for Step 1 Airport Operations Plan and AOP-NOP Seamless Integration	FCM11.1	Initial AOP/NOP Information Sharing	4.2.2	R	31 Dec 2023	0%
iN	#18 #20 #21	CTOT and TTA Collaborative NOP for Step 1 Airport Operations Plan and AOP-NOP Seamless Integration	FCM11.2	AOP/NOP integration	4.4.1	R	31 Dec 2027	0%
iN	#46	SWIM Yellow Profile	INF10.2	Stakeholders' SWIM PKI and cybersecurity	5.2.1	R	31 Dec 2025	0%
iN	#46	SWIM Yellow Profile	INF10.3	Aeronautical Information Exchange - Airspace structure service	5.3.1	R	31 Dec 2025	47%
iN	#46	SWIM Yellow Profile	INF10.4	Aeronautical Information Exchange - Airspace availability service	5.3.1	R	31 Dec 2025	42%
iN	#46	SWIM Yellow Profile	INF10.5	Aeronautical Information Exchange - Airspace Reservation (ARES) service	5.3.1	R	31 Dec 2025	0%
iN	#34 #46	Digital Integrated Briefing SWIM Yellow Profile	INF10.6	Aeronautical Information Exchange - Digital NOTAM service	5.3.1	R	31 Dec 2025	0%
iN	#34 #46	Digital Integrated Briefing SWIM Yellow Profile	INF10.7	Aeronautical Information Exchange - Aerodrome Mapping information exchange service	5.3.1	R	31 Dec 2025	0%
iN	#34 #46	Digital Integrated Briefing SWIM Yellow Profile	INF10.8	Aeronautical Information Exchange - Aeronautical Information Features service	5.3.1	R	31 Dec 2025	0%
iN	#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.9	Meteorological Information Exchange - Volcanic ash mass concentration information service	5.4.1	R	31 Dec 2025	0%
iN	#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.10	Meteorological Information Exchange - Aerodrome Meteorological information Service	5.4.1	R	31 Dec 2025	0%

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EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data)								
								←	2023	2024	2025	2026	2027	2028	2029	2030
iN	#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.11	Meteorological Information Exchange - En-Route and Approach Meteorological information service	5.4.1	R	31 Dec 2025	0%								
iN	#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.12	Meteorological Information Exchange - Network Manager Meteorological Information	5.4.1	R	31 Dec 2025	0%								
iN	#46	SWIM Yellow Profile	INF10.13	Cooperative Network Information Exchange - ATFCM Tactical Updates Service	5.5.1	R	31 Dec 2025	14%								
iN	#46	SWIM Yellow Profile	INF10.14	Cooperative Network Information Exchange - Flight Management Service	5.5.1	R	31 Dec 2025	8%								
iN	#46	SWIM Yellow Profile	INF10.15	Cooperative Network Information Exchange - Measures Service	5.5.1	R	31 Dec 2025	19%								
iN	#46	SWIM Yellow Profile	INF10.16	Cooperative Network Information Exchange - Short Term ATFCM Measures services	5.5.1	R	31 Dec 2025	10%								
iN	#46	SWIM Yellow Profile	INF10.17	Cooperative Network Information Exchange - Counts service	5.5.1	R	31 Dec 2025	32%								
iN	#46	SWIM Yellow Profile	INF10.18	Flight Information Exchange (Yellow Profile) – Filing Service	5.6.1	R	31 Dec 2025	100% (NM only)								
iN	#46	SWIM Yellow Profile	INF10.19	Flight Information Exchange (Yellow Profile) – Flight Data Request Service	5.6.1	R	31 Dec 2025	0%								
iN	#46	SWIM Yellow Profile	INF10.20	Flight Information Exchange (Yellow Profile) – Notification Service	5.6.1	R	31 Dec 2025	0%								
iN	#46	SWIM Yellow Profile	INF10.21	Flight Information Exchange (Yellow Profile) – Data Publication Service	5.6.1	R	31 Dec 2025	0%								
iN	#46	SWIM Yellow Profile	INF10.23	Flight Information Exchange (Yellow Profile) – Extended AMAN SWIM Service	5.6.1	R	31 Dec 2025	0%								

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data)								
								←	2023	2024	2025	2026	2027	2028	2029	2030
M3	#113	Optimised low-level instrument flight rules (IFR) routes for rotorcraft	NAV12	ATS IFR Routes for Rotorcraft Operations	-	R	06 Jun 2030	18%								

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ←	2023	2024	2025	2026	2027	2028	2029	2030
TBO	Nil	Nil	ATC02.8	Ground based safety nets	-	C	31 Dec 2021	71%								
TBO	#69	Enhanced STCA with down-linked parameters	ATC20	Enhanced STCA with DAPs via Mode S EHS	-	L	Open	Based on local decision								

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ←	2023	2024	2025	2026	2027	2028	2029	2030
vS	#12 #13 #52 #71	Single Remote Tower operations for medium traffic volumes Remotely Provided Air Traffic Service for Contingency Situations at Aerodromes Remote Tower for two low density aerodromes ATC and AFIS service in a single low density aerodrome from a remote CWP	AOP14.1	Remote Tower Services	-	L	Open	Based on local decision								

Solutions and Implementation Objectives in Industrialisation Phase (no roadmap yet)

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ←	2023	2024	2025	2026	2027	2028	2029	2030
ATp	PJ.02-03	Minimum-Pair separations based on RSP	AOP22	Minimum pair separations based on RSP	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.								
CNS	#114	Cooperative Surveillance ADS-B / WAM	ATC21	Composite Surveillance (ADS-B/WAM)	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.								
CNS	#55	Precision approaches using GBAS CATII/III	NAV11.2	Implement precision approach procedures using GBAS CAT II/III based on GPS L1 and/or GALILEO E1	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.								
TBO	#115	Extended Projected Profile (EPP) availability on ground	ATC22	Initial Air-Ground Trajectory Information Sharing (Airborne Domain)	6.1.1	R	31 Dec 2027	Initial objective, not monitored in LSSIP yet.								
TBO	#115 PJ.18-06b1	Extended Projected Profile (EPP) availability on ground NM Profile Improvement using ADS-C	ATC23	Initial Air-Ground Trajectory Information Sharing (Ground Domain)	6.1.2	R	31 Dec 2027	Initial objective, not monitored in LSSIP yet.								
TBO	PJ.18-06b1	NM Profile Improvement using ADS-C	ATC24	Network Manager Trajectory Information Enhancement	6.2.1	R	31 Dec 2027	Initial objective, not monitored in LSSIP yet.								
TBO	#115	Extended Projected Profile (EPP) availability on ground	ATC25	Initial Trajectory Information Sharing ground distribution	6.3.1	R	31 Dec 2027	Initial objective, not monitored in LSSIP yet.								
vS	PJ.05-02	Multiple remote tower module	AOP14.2	Multiple Remote Tower Module	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.								

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Solutions without Implementation Objectives in Implementation Phase (no roadmap yet)

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ←	2023	2024	2025	2026	2027	2028	2029	2030
ATp	#108	AMAN and Point Merge	Nil	Nil	-	No decision	-	No objective yet								
ATp	#48	Virtual Block Control in LVPs	Nil	Nil	-	No decision	-	No objective yet								
ATp	PJ.02-01-01	Optimised Runway Delivery on Final Approach	Nil	Nil	-	No decision	-	No objective yet								
ATp	PJ.02-01-02	Optimised Separation Delivery for Departure	Nil	Nil	-	No decision	-	No objective yet								
ATp	PJ.02-01-03	Weather-Dependent Reductions of Wake Turbulence Separations for Departures	Nil	Nil	-	No decision	-	No objective yet								
ATp	PJ.02-01-05	Weather-Dependent Reductions of Wake Turbulence Separations for Final Approach	Nil	Nil	-	No decision	-	No objective yet								
ATp	PJ.02-01-07	Wake Decay Enhancing Devices	Nil	Nil	-	No decision	-	No objective yet								
ATp	PJ.15-02	E-AMAN service	Nil	Nil	-	No decision	-	No objective yet								
ATp	PJ.25-01	Collaborative Decision Making (CDM) between airports, TMAs and ACCs for Overlapping AMANs	Nil	Nil	-	No decision	-	No objective yet								
ATp	PJ.25-02	Target Time of Arrival (TTA) management for seamless integration of out-of-area arrival flights	Nil	Nil	-	No decision	-	No objective yet								

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ←	2023	2024	2025	2026	2027	2028	2029	2030
CNS	#102	Aeronautical mobile airport communication system (AeroMACS)	Nil	Nil	-	No decision	-	No objective yet								
CNS	PJ.11-A1	ACAS Xa European acceptability framework	Nil	Nil	-	No decision	-	No objective yet								

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data) ←	2023	2024	2025	2026	2027	2028	2029	2030
dA	#10	Optimised Route Network using Advanced RNP	Nil	Nil	-	No decision	-	No objective yet								

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EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data)								
								←	2023	2024	2025	2026	2027	2028	2029	2030
dA	#118	Basic EAP (Extended ATC Planning) function	Nil	Nil	-	No decision	-	No objective yet								
dA	PJ.10-01a1	High Productivity Controller Team Organisation in En-Route (1PC –2ECs)	Nil	Nil	-	No decision	-	No objective yet								

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data)								
								←	2023	2024	2025	2026	2027	2028	2029	2030
dS	PJ.15-10	Aeronautical data service	Nil	Nil	-	No decision	-	No objective yet								
dS	PJ.15-11	Aeronautical digital map service	Nil	Nil	-	No decision	-	No objective yet								
dS	PJ.18-04a	Aeronautical Dataset service	Nil	Nil	-	No decision	-	No objective yet								

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data)								
								←	2023	2024	2025	2026	2027	2028	2029	2030
iN	#37	Extended Flight Plan	Nil	Nil	-	No decision	-	No objective yet								
iN	#57	UDPP Departure	Nil	Nil	-	No decision	-	No objective yet								
iN	#67	AOC data increasing trajectory prediction accuracy	Nil	Nil	-	No decision	-	No objective yet								
iN	PJ.15-01	Initial Sub-regional Demand Capacity Balancing Service	Nil	Nil	-	No decision	-	No objective yet								

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EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data)								
								←	2023	2024	2025	2026	2027	2028	2029	2030
TBO	#06	Controlled Time of Arrival (CTA) in Medium density / medium complexity environment	Nil	Nil	-	No decision	-	No objective yet								
TBO	#08	Arrival Management into Multiple Airports	Nil	Nil	-	No decision	-	No objective yet								
TBO	#100	ACAS Ground Monitoring and Presentation system	Nil	Nil	-	No decision	-	No objective yet								
TBO	#101	Extended hybrid surveillance	Nil	Nil	-	No decision	-	No objective yet								
TBO	#105	Enhanced airborne collision avoidance system (ACAS)	Nil	Nil	-	No decision	-	No objective yet								
TBO	PJ.07-01-01	Reactive Flight Delay Criticality Indicator	Nil	Nil	-	No decision	-	No objective yet								
TBO	PJ.10-02a1	Integrated tactical and medium Conflict Detection & Resolution (CD&R) services and Conformance Monitoring tools for En-Route and TMA	Nil	Nil	-	No decision	-	No objective yet								

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data)								
								←	2023	2024	2025	2026	2027	2028	2029	2030
vS	PJ.16-04-01	Multi-Touch Input at the Controller Working Position	Nil	Nil	-	No decision	-	No objective yet								
vS	PJ.16-03	Enabling rationalisation of infrastructure using virtual centre based technology	OD-5	VC concept, CWP and service interface	-	No decision	-	No objective yet								

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Achieved Solutions and related Implementation Objectives

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2022 LSSIP data)
								← 2023 2024 2025 2026 2027 2028 2029 2030
CNS	Nil	Nil	COM10.1	Migration from AFTN to AMHS (Basic service)	-	C	31 Dec 2018	Achieved in 2021
dA	#31 #66	Variable profile military reserved areas and enhanced (further automated) civil-military collaboration Automated Support for Dynamic Sectorisation	AOM19.4	Management of Pre-defined Airspace Configurations	3.1.2	R	31 Dec 2022	Achieved in 2022
dA	#32 #33 #66	Free Route through the use of Direct Routing Free Route through Free Routing for Flights both in cruise and vertically evolving above a specified Flight Level Automated Support for Dynamic Sectorisation	AOM21.2	Initial Free Route Airspace	3.2.1	R	31 Dec 2022	Achieved in 2022
dA	#65	User Preferred Routing	AOM21.1	Direct Routing	-	R	31 Dec 2017	Achieved in 2017
iN	#46	SWIM Yellow Profile	INF10.22	Flight Information Exchange (Yellow Profile) – Trial Service	5.6.1	R	31 Dec 2025	Achieved in 2021
iN	#56	Enhanced ATFM Slot Swapping	FCM09	Enhanced ATFM Slot swap	-	C	31 Dec 2021	Achieved in 2021
TBO	#60	Enhanced short-term conflict alert (STCA) for terminal manoeuvring areas (TMAs)	ATC02.9	Enhanced Short Term Conflict Alert (STCA) for TMAs	-	R	31 Dec 2020	Achieved in 2020

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ANNEX 5 – ACRONYMS AND ABBREVIATIONS

A

AAS	Airspace and Architecture Study
ACARS	Aircraft Communication Addressing and Reporting System
ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
A-CDM	Airport Collaborative Decision Making
ACH	ATC Flight Plan Change
ACID	Aircraft Identification
ACL	ATC Clearance
ACM	ATC Communication Management
AD	Aerodrome
ADD	Aircraft Derived Data
ADEXP	ATC Data Exchange Presentation
ADS-B	Automatic Dependent Surveillance Broadcast
ADS-C	Automatic Dependent Surveillance Contract
AF	ATM Functionality
AFIS	Aerodrome Flight Information Service
AFISO	Aerodrome Flight Information Service Officer
AFP	ATC Flight Plan
AFTN	Aeronautical Fixed Telecommunications Network
A-FUA	Advanced Flexible Use of Airspace
AG	Air-Ground
AGL	Airfield Ground Lighting
AGY	EUROCONTROL Agency
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
AIS	Aeronautical Information Service
AISP	Aeronautical Information Service Provider
AIXM	Aeronautical Information Exchange Model
AMAN	Arrival Manager
AMC	Acceptable Means of Compliance
AMC	ATS Messaging Management Centre
AMHS	ATS Message Handling Service
ANS	Air Navigation Service
ANSP	Air Navigation Service Provider
AO	Airport Operator
AOM	Airspace Organisation and Management
AOP	Airport Operations Plan
API	Arrival Planning Information
APL	ATC Flight Plan
APM	Approach Path Monitor
APO	Airport Operations
APP	Approach
APW	Airborne Proximity Warning
ARES	Airspace Reservation
ASBU	Aviation System Block Upgrade
ASM	Airspace Management
A-SMCGS	Advanced Surface Movement Control and Guidance System
ASP	Air Navigation Service Providers
ATC	Air Traffic Control
ATFCM	Air Traffic Flow and Capacity Management
ATFM	Air Traffic Flow Management
ATCO	Air Traffic Control Officer
ATCU	Air Traffic Control Unit
ATM	Air Traffic Management
ATN	Aeronautical Telecommunication Network
ATp	Airport and TMA Performance
ATS	Air Traffic Services
ATSMHS	ATS Message Handling System
ATSU	Air Traffic Services Unit
AU	Airspace User
AUP	Airspace Use Plan

B

B2B	Business to Business

C

CA	Certificate Authority
CAT	Category
CATC	Conflicting ATC Clearances
CCO	Continuous Climb Operations
CDM	Collaborative Decision Making
CDO	Continuous Descent Operations
CD&R	Conflict Detection & Resolution
CEM	Collaborative Environmental Management
CFIT	Controlled Flight Into Terrain
CIAM	Collaboration Interface for Airspace Management
CIDIN	Common ICAO Data Interchange Network
CMAC	Conformance Monitoring Alerts for Controllers
CNL	Flight Plan Cancellation Message
CNS	Communications, Navigation and Surveillance
CO2	Carbon Dioxide
COM	Communications
COP	Changeover Point
COTS	Connection-mode Transport Service
CP1	Common Project 1
CPDLC	Controller Pilot Data Link Communications
CTOT	Calculated Take-Off Time
CWP	Controller's Working Position

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D

dA	Fully Dynamic and Optimised Airspace Organisation
DAC	Dynamic Airspace Configuration
DAP	Downloaded Aircraft Parameter
DBS	Distance Based Separation
DCT	Direct Routing
DEP	Departure
DFMC	Dual Frequency/Multi-Constellation
DLIC	Data Link Initiation Capability
DLS	Data Link Services
DMAN	Departure Manager
DME	Distance Measuring Equipment
DP	Deployment Programme
DPI	Departure Planning Information
dS	Digital AIM and MET Services
DS	Deployment Scenario

E

EACP	European Common Aviation PKI
EAD	European Aeronautical Database
E-AMAN	Extended Arrival Management
EAPPRE	European Action Plan on the Prevention of Runway Excursion
EASA	European Aviation Safety Agency
EATMN	European Air Traffic Management Network
EAUP	European Airspace Use Plan
EC	European Commission
ECAA	European Common Aviation Area
ECAC	European Civil Aviation Conference
ECI	Electronic Clearance Input
eFPL	Extended Flight Plan
EFS	Electronic Flight Strip
EGPWS	Enhanced Ground Proximity Warning System
EHL	Runway Entrance Lights
EHS	Enhanced Surveillance
ELDT	Estimated Landing Time
ENV	Environment
EOBT	Estimated Off-Block Time
EOC	Essential Operational Change
EPAS	European Plan for Aviation Safety
EPP	Extended Projected Profile
ETFMS	Enhanced Tactical Flow Management System
eTOD	Electronic Terrain and Obstacle Data
ETSI	European Telecommunications Standards Institute
EU	European Union
EUROCAE	European Organisation for Civil Aviation Equipment
EUUP	European Updated Airspace Use Plan
EXOT	Estimated Taxi-Out Time

F

FAB	Functional Airspace Block
FATO	Final Approach and Take-Off Areas
FDP	Flight Data Processing
FDPS	Flight Data Processing System
FF-ICE	Flight & Flow Information for a Collaborative Environment
FIR	Flight Information Region
FIXM	Flight Information Exchange Model
FL	Flight Level
FLDT	Forecasted Landing Time
FMTP	Flight Message Transfer Protocol
FO	Flight Object
FOC	Flight Operations Centre
FOC	Full Operational Capability
FP	Flight Plan
FPL	Filed Flight Plan
FRA	Free Route Airspace
FTOT	Forecasted Take Off Time
FUA	Flexible Use of Airspace
FUM	Flight Update Message

G

GANP	ICAO Global Air Navigation Plan
GAT	General Air Traffic
GBAS	Ground Based Augmentation System
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GUFI	Global Unique Flight Identifier

H

HMI	Human Machine Interface

I

i4D	Initial Trajectory Information Sharing
iAOP	Initial Airport Operations Plan
ICAO	International Civil Aviation Organisation
IFPS	Initial Flight Plan Processing System
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IND	Aeronautics Industry
INF	Information Management

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INT	International Organisations and Regional Bodies
IOs	Implementation Objectives
IP	Internet Protocol
IR	Implementing Rule
ITY	Interoperability

J

JU	Joint undertaking

K

kg	Kilogram
KHz	Kilohertz
KPA	Key Performance Area
KPI	Key Performance Indicator

L

LNAV	Lateral Navigation
LLR	Low Level IFR Route
LOC	Localization
LOF	Logon Forward
LSSIP	Local Single Sky ImPlementation
LVP	Low Visibility Procedures
L1	Level 1
L2	Level 2
L3	Level 3

M

MAS	Manual Assumption of Communication (message)
MASPS	Minimum Aviation System Performance Standard
MCDM	Measure Collaborative Decision Making
MET	Meteorology
MHz	Megahertz
MIL	Military Authorities
MLAT	Multilateration
MP L3	Master Plan Level 3
MoC	Memorandum of Cooperation
Mode S	SSR Selective Interrogation Mode
MONA	Monitoring Aids
MOPS	Minimum Operational Performance Standards
MoU	Memorandum of Understanding
MRS	Minimum Radar Separation
MSAW	Minimum Safe Altitude Warning
MSP	Multi-Sector Planner
MTCD	Medium Term Conflict Detection
MUAC	Maastricht Upper Area Control (Centre)
MWO	MET Watch Office
M3	Multimodal Mobility and integration of all airspace users

N

N/A	Not applicable
NAN	Next Authority Notified
NAV	Navigation
NES	n-CONECT Eco System
NM	Network Manager
NMOC	Network Manager Operations Centre
NOP	Network Operations Plan
NOTAM	Notice to Airmen
NOx	Nitrogen Oxides
NPA	Non Precision Approach
NSA	National Supervisory Authority

O

OAT	Operational Air Traffic
ODs	Outline Descriptions
OI	Operational improvements
ORD	Optimised Runway Delivery

P

PA	Precision Approach
PANS-OPS	Procedures for Air Navigation Services Aircraft Operations
PBN	Performance Based Navigation
PCP	Pilot Common Project
PENS	Pan-European Network Service
PinS	Points in Space
PKI	Public Key Infrastructure
POC	Point of Contact

R

RAD	Route Availability Document
RBT	Reference Business Trajectory
RCT	Remote Contingency Tower
RDP	Rolling Development Plan
REG	National Regulatory Authorities/NSAs
RF	Radio Frequency
RF	Radius to Fix
RMAN	Runway Manager
RMCA	Runway Monitoring and Conflict Alerting
RMT	Rulemaking Task
RNAV	Area Navigation
RNP	Required Navigation Performance
RP3	Third Reference Period

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RSP	Required Surveillance Performance
RWSL	Runway Status Lights
RWY	Runway

S

SAF	Safety
SARPS	Standards and Recommended Practices
SBAS	Satellite Based Augmentation System
SBT	Shared Business Trajectory
SD	Service Description
SDM	SESAR Deployment Manager
SDP	SESAR Deployment Program
SDPS	Surveillance Data Processing System
SES	Single European Sky
SESAR	Single European Sky ATM Research
SFL	Selected Flight Level
SID	Standard Instrumental Departure
SJU	SESAR Joint Undertaking
SLoA	Stakeholder Line(s) of Action
SNET	Safety Nets
SOL	SESAR Solution
SPI	Surveillance Performance and Interoperability
S-PWS-D	Static Pair-Wise Separation for Departures
SSR	Secondary Surveillance Radar
STAM	Short-Term ATFCM Measures
STAR	Standard Terminal Arrival Route
STCA	Short Term Conflict Alert
SUR	Surveillance
SVS	Synthetic Vision System
SWIM	System-Wide Information Management

T

TBD	To Be Determined
TBO	Time-Based Operations
TBS	Time-Based Separation
TCAS	Traffic Alert and Collision Avoidance System
TCP/IP	Transmission Control Protocol / Internet Protocol
TCT	Tactical Controller Tool
TF	Task Force
THL	Take-off Hold Lights
TI	Technical Infrastructure
TLDT	Target Landing Time
TOBT	Target Off-Block Time
TOD	Terrain and Obstacle Data
TMA	Terminal Control Area
TRA	Temporary Restricted Area
TSA	Temporary Segregated Area
TSE	Total System Error
TT	Target Time
TTA	Target Time of Arrival
TTOT	Target Take Off Time
TWR	Tower Control Unit
TWY	Taxiway

U

UDPP	User-Driven Prioritisation Process
USE	Airspace Users
U-S	U-Space Services
UUP	Updated Airspace Use Plan

V

VAAC	Volcanic Ash Advisory Centre
VCS	Voice Communications System
VDL	VHF Digital Link
VFE	Vertical Flight Efficiency
VFR	Visual Flight Rules
VHF	Very High Frequency
VNAV	Vertical Navigation
VoIP	Voice over Internet Protocol
VPA	Variable Profile Area
vS	Virtualisation of Service Provision

W

WAM	Wide Area Multilateration
WAFC	World Area Forecast Centre
WBS	Wake Turbulence Separation
WTC	Wake Turbulence Separation

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