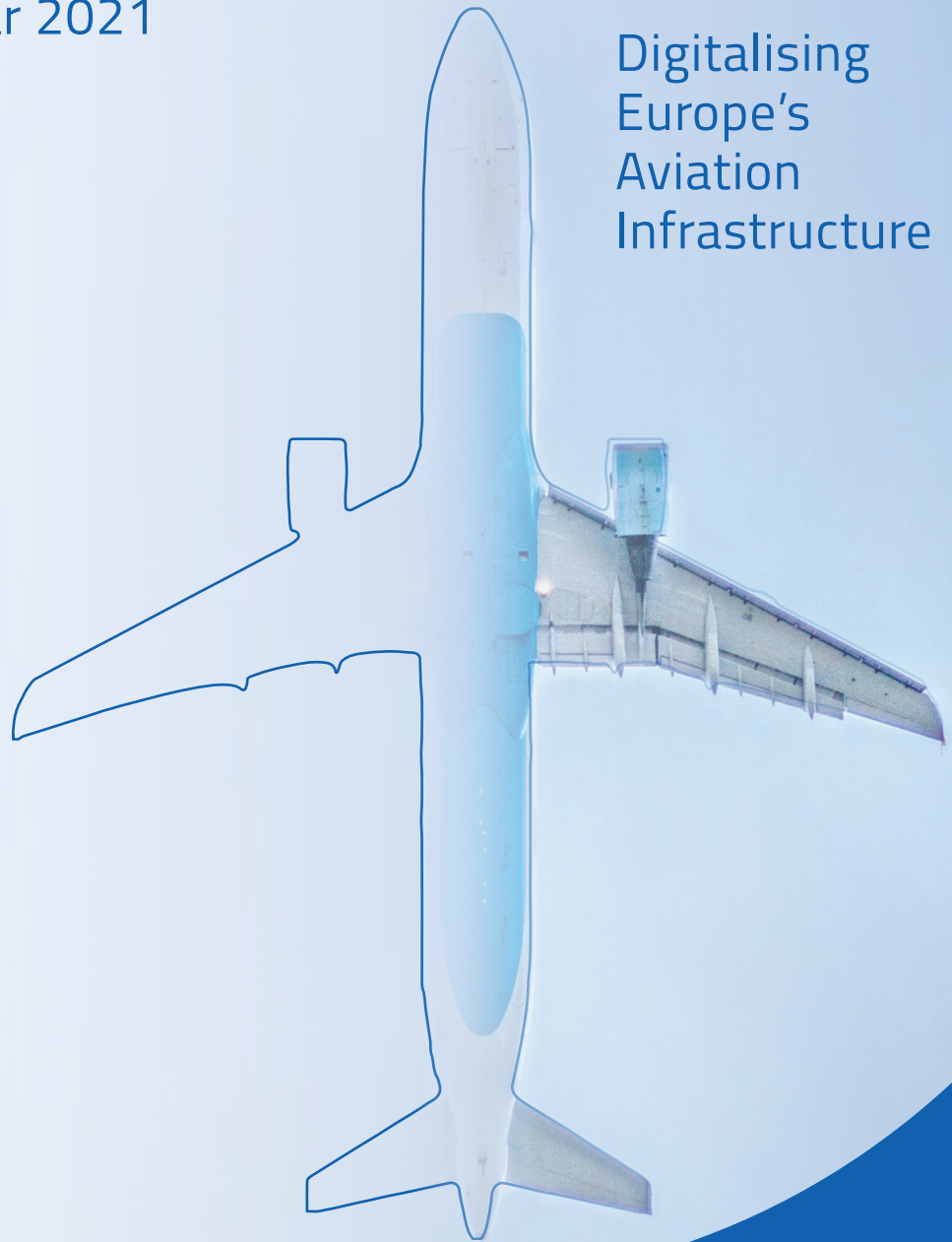
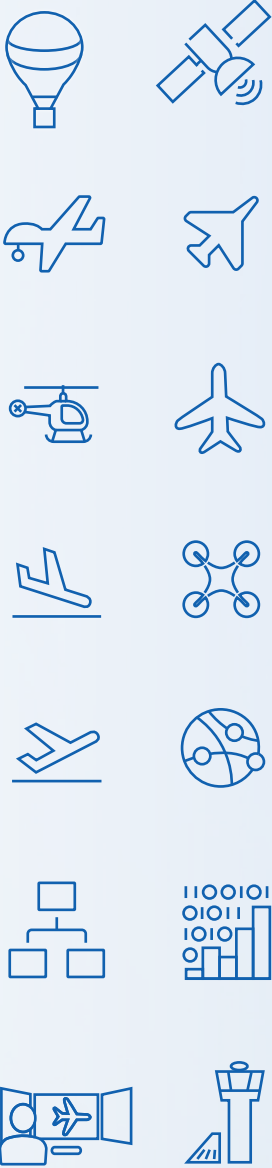


# EUROPEAN ATM MASTER PLAN

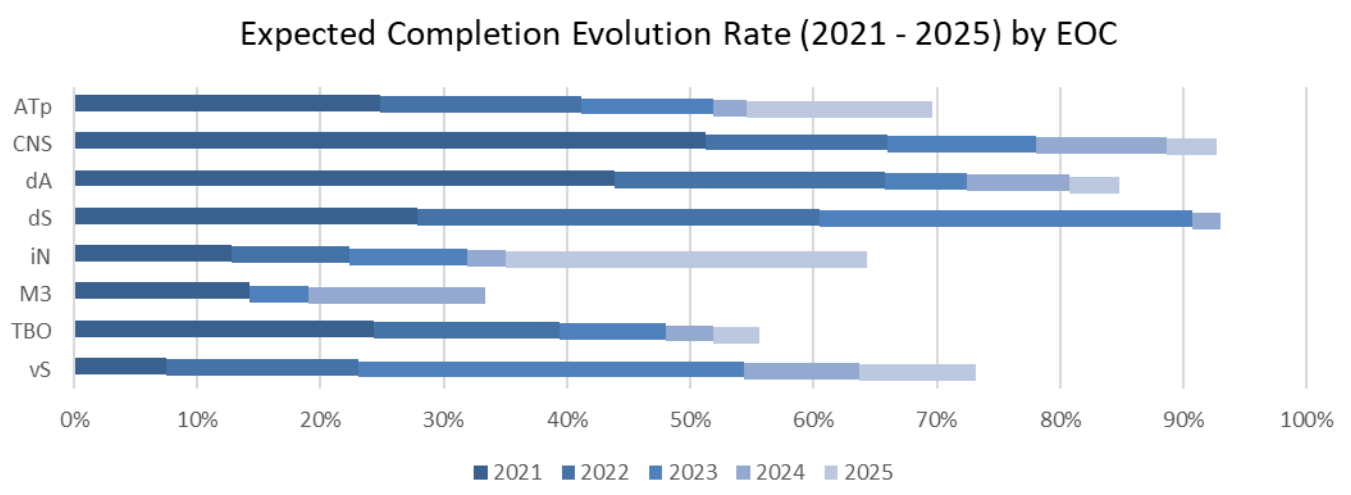
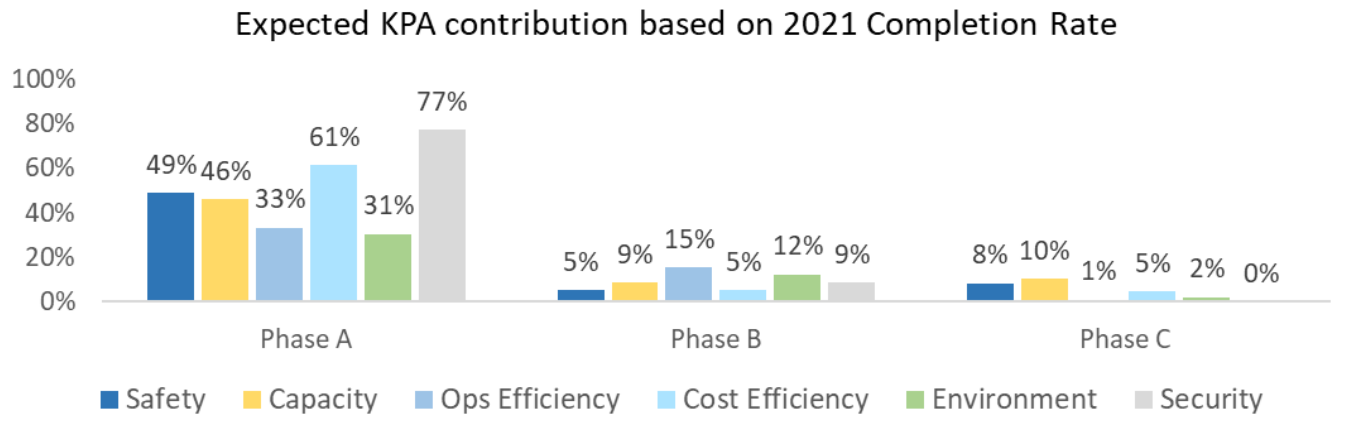
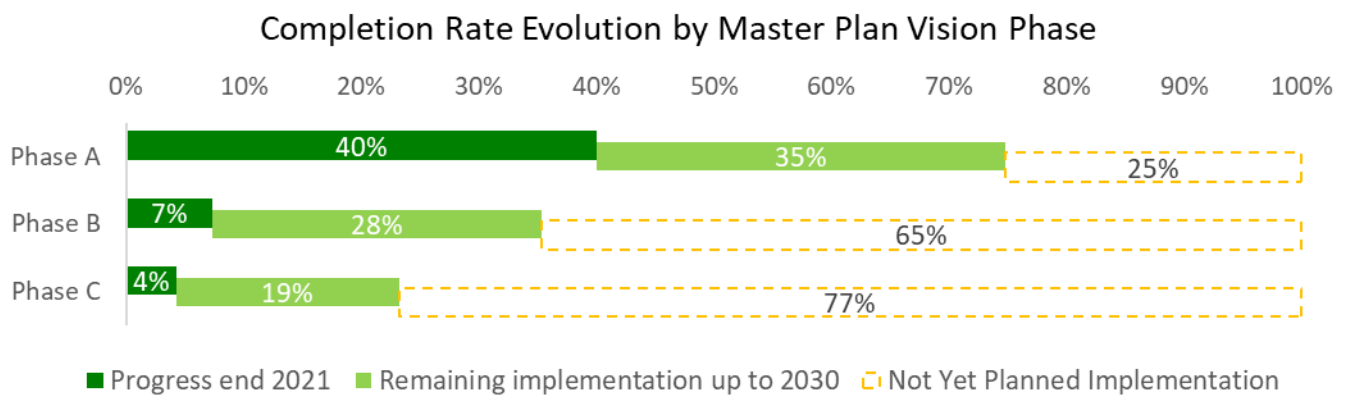
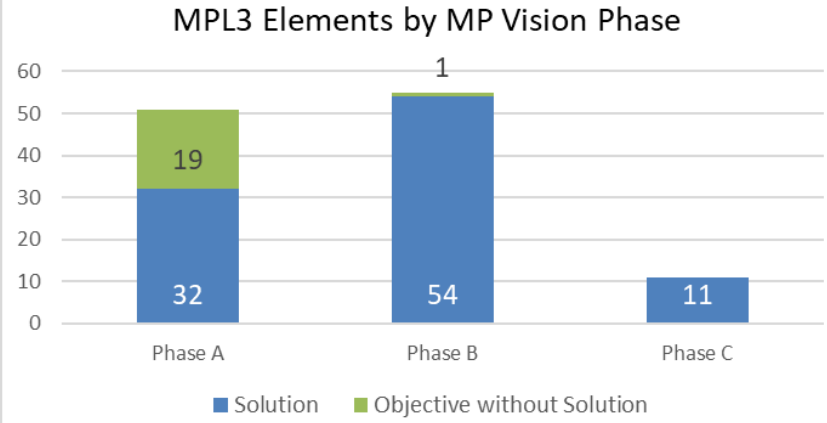
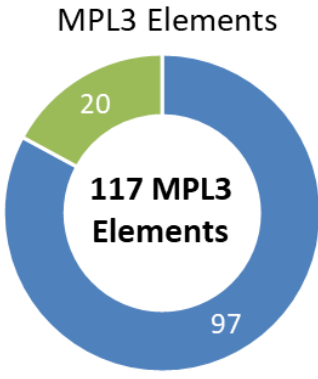
## Implementation view

### Progress report 2022

Reference year 2021



Digitalising  
Europe's  
Aviation  
Infrastructure



Source: Dataset 2021

## EXECUTIVE SUMMARY

The European ATM Master Plan is the main planning tool for setting the ATM priorities and ensuring that the SESAR Target Concept becomes a reality. The Master Plan is an evolving roadmap and the result of strong collaboration between all ATM stakeholders. As the technological pillar of the SES initiative, SESAR contributes to achieving the SES High-Level Goals and supports the SES regulatory framework.

The Master Plan Level 3 Progress Report reports the implementation progress of all Master Plan Level 3<sup>1</sup> elements of all LSSIP States on a given year, as per the information collected through the LSSIP Monitoring Cycle and the yearly-published LSSIP documents. Those elements are SESAR Solutions, new or improved operational procedures or technologies designed to meet the essential operational improvements of the European ATM Master Plan, and their related Implementation Objectives, detailing the implementation actions that Stakeholders need to undertake to implement a given Solution.

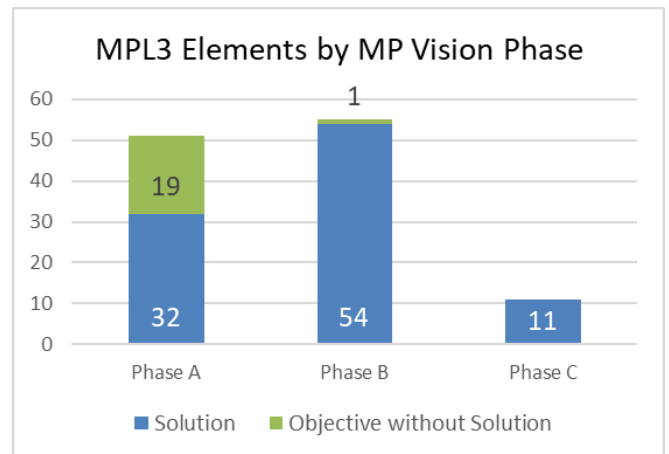
The 2022 edition of the Progress Report builds on the Master Plan Level 3 Implementation Plan 2021, reflecting the implementation status and plans as of 31 December 2021. In particular, the 2022 edition addresses the outcome of SESAR 1 as well as SESAR2020 Wave 1, as identified in Annex 3 “MPL3 Implementation Roadmap” of the MPL3 Implementation Plan 2021.

### THE MPL3 PROGRESS REPORT 2022 AND THE MASTER PLAN VISION PHASES

For the first time ever, the Report maps the evolution of the Master Plan implementation on the four progressive Phases of the SESAR vision, as defined in the 2020 edition of the Executive view of the Master Plan, for the delivery of a Digital European Sky:

- Phase A – Address known critical network performance deficiencies
- Phase B – Efficient services and infrastructure delivery
- Phase C – Defragmentation of European skies through virtualisation
- <sup>2</sup>Phase D – Digital European Sky.

As the Master Plan Level 3 is addressing short and medium implementation timeframes (5-7 years), the document addresses the first three phases, with a focus on the first two. Phase A groups the most mature elements with 32 SESAR Solutions in total, of which 21 covered by active Implementation Objectives. In addition, there are 19 Implementation Objectives that are not linked to a specific SESAR Solution, due to these pre-dating SESAR. Phase B also started to gather momentum, however with a lower commitment than in Phase A. Phase B, instead, features 54 SESAR Solutions, of which 20 covered by active Implementation Objectives. Of these, six have a “local” nature.



The completion rate evolution confirms this progressive nature of the Master Plan Vision Phases. The chart below provides the average completion rates of all Solutions and Implementation Objectives within each Phase. This number counts the States / Airports that finalised the implementation within the Applicability Area.

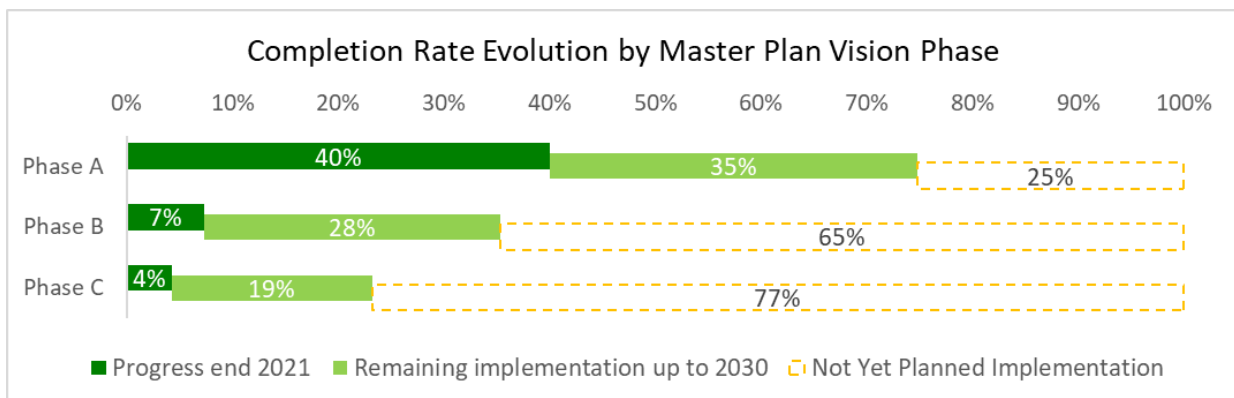


Figure 0-2 Completion rate evolution of the Master Plan Level 3 elements split by Master Plan Vision Phase

<sup>1</sup> 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.

<sup>2</sup> An explanation of the graphical elements of the Executive Summary is available in the “How to read the individual Synoptic View”

As expected, and taking into account the maturity of the elements within each Phase, Phase A not only shows the highest implementation rate to date, but it will also reach the highest completion rate by 2030. Due to being in their initial deployment phases, Phases B and C have a lower progress, as proven by the low completion rates achieved to date but also by the substantial amount of “Not Yet Planned” implementations, indicating a low appetite for deployment of the elements within these Phases.

The implementation pace identified above is also reflected in the expected contribution to the Key Performance Areas (KPA) listed in the Executive view of the Master Plan. The chart below integrates the expected contribution to the six KPAs of each individual SESAR Solution and Implementation Objective. It provides the average implementation progress of the elements contributing to each individual KPA, noting that most Solutions / Objectives address more than one KPA.

The expected KPA contributions come from the 2021 edition of the MPL3 Plan, which in turn relies on the information provided in the Solution Data Packs, or on the EUROCONTROL business cases and analysis, for the Implementation Objectives not linked to SESAR Solutions. As expected, taken into account the more advanced implementation status of its constitutive elements, the Phase A is the most advanced in all the six KPAs.

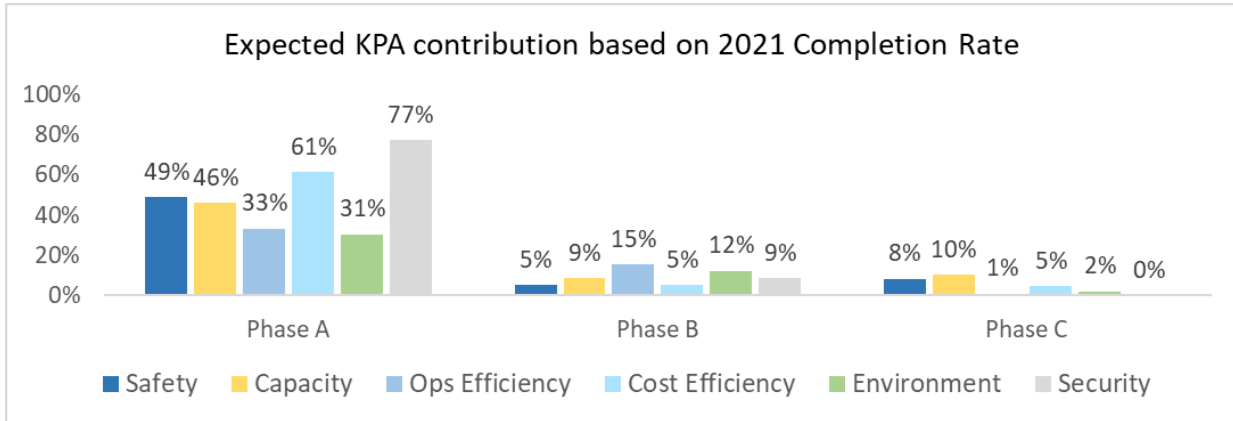


Figure 0-3 Expected KPA contribution to the Master Plan Vision Phases based on the 2021 Completion Rate

### KEY FINDINGS IN THE MPL3 PROGRESS REPORT 2022

Following this 2021 monitoring cycle, it is possible to highlight some key findings stemming from an analysis of SESAR Solutions and Implementation Objectives organised by Essential Operational Change<sup>3</sup> (EOC). First, it should be noted that during the reporting cycle, three Implementation Objectives have reached completion. They are COM10.1 – Migration from AFTN to AMHS (Basic service), FCM09 – Enhanced ATFM Slot swapping and INF10.22 – Flight Information Exchange – Trial Service. Overall, the charts below provide a consolidated view across the EOCs by aggregating the implementation progress to date as well as the plans by 2030 addressing the elements specified on the right-hand chart: Solutions (Committed and non-Committed) and Objectives that do not have links to any Solutions (pre-SESAR).

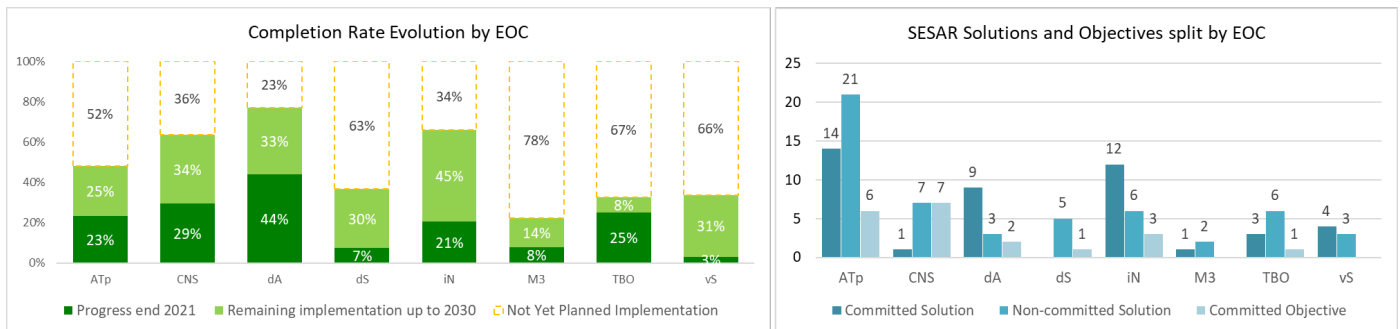


Figure 0-4 Completion rate evolution and MPL3 elements distribution by Essential Operational Change (EOC)

<sup>3</sup> Essential Operational Changes are essential game changers triggering structural evolutions of the European ATM, required to deliver the SESAR vision up to and including its Phase C.

**Fully Dynamic and Optimised Airspace (dA)** EOC is the most advanced in terms of implementation. This EOC mainly addresses Regulated and Committed MPL3 elements. In addition, it includes very mature elements, either achieved in past years, or approaching completion. The presence of Regulated Objectives, some having their Full Operational Capability (FOC) date in December 2022 justifies the higher progress achieved at the end of 2021, as well as the large portion of ongoing activities.

The implementation progress of the **ATM Interconnected Network (iN)** EOC closely follows the previous. 15 of its 21 MPL3 elements are either Regulated or Committed. The 22 Common Project 1 (CP1) Objectives, related to the implementation of SWIM-related services, represent a substantial percentage of the remaining implementation due by the end of 2025. These Objectives are also a major contributor to the “Not Yet Planned” section of the Completion Rate Evolution by EOC chart, as number of States in the applicability area have not established yet concrete implementation plans and for which the expected completion date at national level has not been provided.

The **CNS Infrastructure and Services (CNS)** EOC closely matches the overall progress of Interconnected Network, although with a lower contribution coming from active Implementation Objectives. This EOC features 8 Active Implementation Objectives, of which only 1 related to a SESAR Solution. The presence of mature elements, pre-dating SESAR, explains both the moderately advanced progress registered at the end of 2021 and the rate of current ongoing activities. The “Not Yet Planned” implementation comes, instead, almost entirely from the Orphan SESAR Solutions<sup>4</sup> included in this EOC. This is due to the low interest Stakeholders showed through the SESAR Solutions survey run during the 2021 LSSIP+ Monitoring Cycle.

Although featuring the highest number of MPL3 elements, both Solutions and Implementation Objectives not linked to any Solution, the **Airport and TMA Performance (ATp)** EOC slightly lags behind the top three performers. The great number of Orphan Solutions plays a significant role, counting for more than 50% of the elements in this EOC. The high percentage of “Not Yet Planned” implementation perfectly reflects this situation. On the other hand, the progress registered at the end of 2021 derives from some elements achieved in the past, but also from the Regulated and Committed Implementation Objectives with FOC dates relatively close in time, spanning between 2022 and 2025.

The four remaining EOCs, namely **Digital AIM and MET Services (dS)**, **Virtualisation of Service Provision (vS)**, **Trajectory Based Operations (TBO)**, and **Multimodal Mobility and Integration of all Airspace Users (M<sup>3</sup>)** show a less advanced progress towards implementation. Compared to the others, these four EOCs feature on one side a lower number of elements, on the other less mature Solutions that can contribute to the overall implementation. For example, TBO comprises only one Active pre-SESAR Objective and one “local” Solution and its progress is only merit of the three Objectives achieved prior to this monitoring cycle. dS features 6 elements, of which 1 pre-SESAR Objective and 5 Orphan Solutions which triggered very low interest from Stakeholders.

The expected KPA contribution to each EOC, based on the 2021 completion rate, confirms the considerations mentioned above. Expectations are to receive the greatest combined impact from dA, iN, CNS and ATp. Nonetheless, very few KPAs associated to these EOCs reach a shy 50% contribution. This is due to the low average completion rate of the underlying SESAR Solutions and pre-SESAR Implementation Objectives.

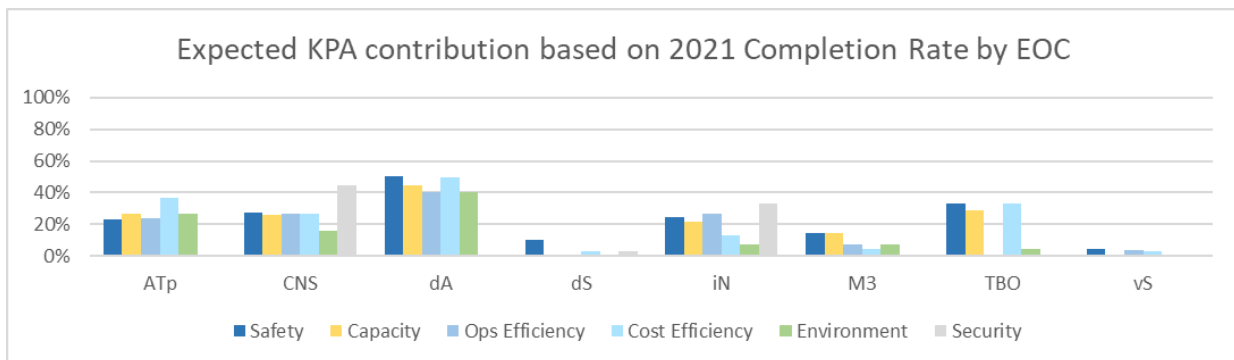


Figure 0-5 Expected KPA contribution, by EOC, based on 2021 Completion Rate

<sup>4</sup> An Orphan Solution is a SESAR Solution not supported by an Implementation Objective. It is monitored via a specific survey within the EUROCONTROL LSSIP+ process.

Finally, it is worth taking a glimpse at the expected completion evolution rate over the next four years. The chart features data coming from active Implementation Objectives and it shows how their implementation evolves over time based on the information reported by Stakeholders. In particular, looking at 2022, dA will experience a great spike in the progress rate with three achieved Objectives (AOM21.2 – Initial Free Route Airspace, ATC15.1 – Initial Extension of AMAN to En-route, ITY-FMTP – Flight Message Transfer Protocol). ATp follows with a slightly lower increase in progress, however with another three supposedly achieved Objectives (AOP04.1 – A-SMGCS Surveillance, AOP04.2 – A-SMGCS RMCA, ATC07.1 – Arrival Management Tools). During the same year, COM10.2 – Extended AMHS and COM12 - NewPENS should also pass the completion threshold.

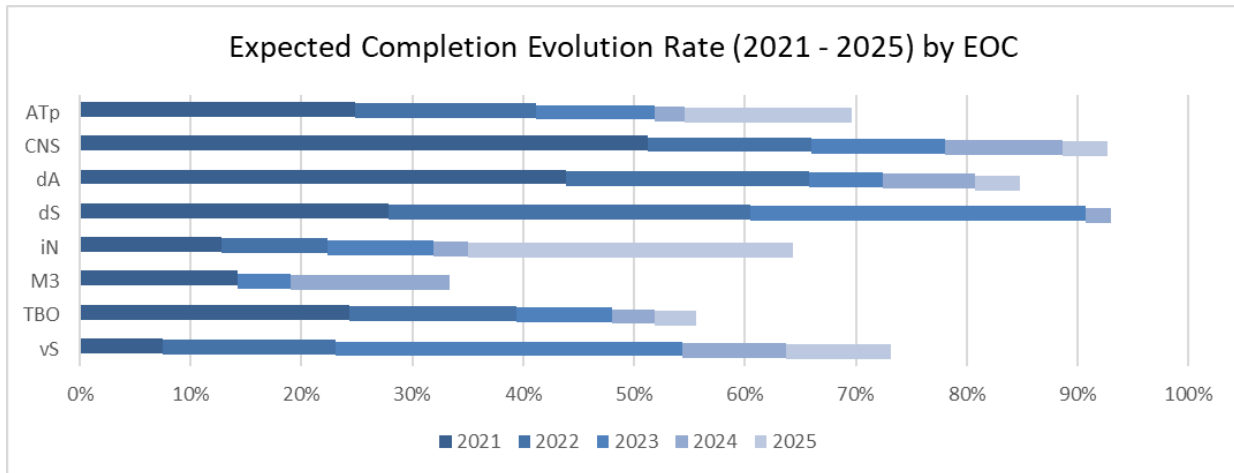


Figure 0-6 Expected completion evolution rate by EOC between 2021 and 2025

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# 1 INTRODUCTION

## 1.1 THE LEVEL 3 OF THE EUROPEAN ATM MASTER PLAN

The European ATM Master Plan (hereafter referred to as ‘the Master Plan’) is the main planning tool for setting the ATM priorities and ensuring that the SESAR Target Concept becomes a reality. The Master Plan is an evolving roadmap and the result of strong collaboration between all ATM stakeholders. As the technological pillar of the SES initiative, SESAR contributes to achieving the SES High-Level Goals and supports the SES regulatory framework.

The Master Plan details not only a high-level view of what needs to be done to deliver a high-performing ATM system, but also explains why and by when. It sets the framework for the development activities performed by the SESAR Joint Undertaking (SJU), also in the perspective of setting up a coordinated approach to deployment actions required by operational stakeholders to ensure overall consistency and alignment to a common implementation plan. This is done in accordance to the Deployment Programme of the SESAR Deployment Manager.

The Master Plan is structured in three levels available through the European ATM portal ([www.atmmasterplan.eu](http://www.atmmasterplan.eu)); the Level 3 “Implementation view” contains the Implementation Plan enriched with elements from the Implementation Report fed by elements coming from reporting processes, such as the LSSIP+ (Local Single Sky ImPlementation) as shown in Figure 2.

The Implementation Objectives constitute the backbone of the Level 3 and provide all civil and military implementing parties (ANSPs, Airport Operators, Airspace Users, MET Service Providers and Regulators) with a basis for short to medium term implementation planning. It also serves as a reference for States/National Supervisory Authorities (NSAs) to fulfil their roles regarding the supervision of safe and efficient provision of air navigation services as well as the timely implementation of SESAR.

Together Master Plan Level 3 Implementation Plan and Report based on LSSIP+ processes constitute the mechanism that enables the ECAC+ wide implementation monitoring and planning of the Master Plan.



Figure 1-1 Master Plan Level 3 Yearly Cycle

## 1.2 MASTER PLAN LEVEL 3 PROGRESS REPORT 2022

The structure of 2022 Master Plan Level 3 Report (reference year 2021) consists of:

- **Executive Summary** that highlights the most important findings of the report.
- **Synoptic View** is the view that provides an overview of implementation progress in 2021, per Essential Operational Change (EOC), and gives an outlook of future developments. This view also includes a set of aggregated elements related to the progress of implementation of the SESAR Solutions, validated by SESAR 1 as well as by SESAR2020 Wave1.
- **Deployment View** is the view that provides a detailed analysis of the implementation progress per Level 3 implementation objective, providing also an expected evolution as well as a list of relevant references showing the multiple interdependencies affecting each individual objective. The information is supplemented with a pie chart showing the implementation progress across the States/Airports, which have not yet finalised the deployment.
- **Annexes** provide support documents for easier reading and understanding of the report, mostly mappings between Master Plan elements as well as a summary of the terminology used in the document. It also provides, for the first time, a deeper insight into the implementation of extended AMAN across the ECAC+ States.

The main information sources for the production of this document are the LSSIP State reports, developed based on the provisions of the Master Plan Level 3 2021 Implementation Plan, reflecting the implementation status as well as the implementation plans on 31<sup>st</sup> December 2021.

The implementation progress in this report is assessed against the implementation dates set in the Master Plan Level 3 2021 Implementation Plan. These Full Operational Capability (FOC) dates represent the dates agreed by the ATM community and they indicate the date by which implementation of the concept or technology should be completed. This means that every implementation beyond the FOC dates set in the Level 3 objective, potentially results in missed performance benefits, both at local and Network level.

It should be however noted that the Level 3 of the Master Plan also takes into account local conditions. National stakeholders involved in this process can decide which technical concepts are the most promising for their own operating environment, with the exception of regulated and mandatory items included in the Level 3 (items based on existing Implementing Rules).

The Level 3 addresses the full scope of the Master Plan mature and deployable SESAR Solutions as Implementation Objectives, some of which relate to the CP1 and its Deployment Programme. The MP Level 3 Report aggregates the progress reported (in year-1) in LSSIP by 43 ECAC+ States (+MUAC), on every active Implementation Objective. This year, the LSSIP+ process started to be the only mean of data collection for the data used in this Report as well as of the SDP Monitoring View, produced by SDM. However, the MP Level 3 Report covers the entire ECAC+ geographical scope, including the non-EU States. Therefore, the aggregation of results on CP1-related implementation Objectives may provide a different, but complementary, view to the SDP Monitoring View.

Although delivered to SESAR Joint Undertaking, the target audience of this report is the whole ATM community. The report aims at a wide range of the ATM professionals, from technical experts to executives – assessing both very technical implementation issues at individual implementation objective level, but also provides more general, ECAC+ wide overview of progress.

## 2 SYNOPSIS VIEW

The long-term (2040) vision for the SESAR project aims to deliver a resilient and fully scalable ATM system, capable of handling growing air traffic made up of a diverse range of manned and unmanned air vehicles in all classes of airspace, in a safe, secure and sustainable manner.

It is enabled through effective sharing of information between air and ground actors, across the Network from a gate-to-gate perspective. This will be achieved along with the optimisation of the enabling technical infrastructure, making greater use of standardised and interoperable systems, with advanced automation ensuring a seamless, cost-efficient and performance-based service provision, allowing Europe to remain at the cutting edge of Air Traffic Management.

This long-term vision is expressed through the SESAR Target Concept and is supported through the implementation of a number of Essential Operational Changes (EOCs) – summarised on the right – and fully described in the Executive view of the European ATM Master Plan, edition 2020.

In order to maintain full coherence between the three Levels of the Master Plan, this Progress Report is structured based on the EOCs. Each Implementation Objective and SESAR Solution<sup>5</sup> included in this document belongs to an EOC as well as to one of the phases identified in the Executive view.

In order to provide a highly focused strategic outlook, all Objectives/Solutions within an EOC are grouped into a “Synoptic View” which summarises the evolution of the associated Objectives/Solutions in 2021 and it provides estimations for their future developments in the short-term.

### THE OVERALL PROGRESS OF IMPLEMENTATION OF SESAR SOLUTIONS

The Report provides a consolidated view on the progress of SESAR Solutions. The information shows the links between the Implementation Objectives and the functionally related SESAR Solutions, where applicable. This information is further refined up to the level of EOCs and Vision Phases.

Each EOC features the Solutions organised by Master Plan Vision Phase. A Solution linked to an Implementation Objective can be Regulated or Committed, hence abiding a specific Implementing Rule (e.g. CP1) and / or addressed in the ATM MP L3 as under implementation.

Orphan Solutions, instead, are non-committed Solutions. Stakeholders implement Orphan Solutions in a voluntary way without coordination at European level. These Solutions are not part of the ATM MPL3 as Implementation Objectives.

### The SESAR Essential Operational Changes:

#### CNS infrastructure and services

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.

#### ATM interconnected network

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.

#### Digital AIM and MET services

The future European ATM system relies on the full integration of airports as nodes into the network. This implies enhanced airport operations, ensuring a seamless process through collaborative decision-making, in normal conditions, and through the further development of collaborative recovery procedures in adverse conditions. In this context, this feature addresses the enhancement of runway throughput, integrated surface management, airport safety nets and total airport management.

#### U-space services

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.

#### Virtualisation of service provision

The ability to provide ATS from a remote location is relevant in all operating environments. In TMA, extended 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 tower concept supports several use cases that allow the provision of ATS from a remote tower centre (RTC), with a dynamic allocation of a number of physical aerodromes to remote tower modules.

#### Airport and TMA performance

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.

#### Fully dynamic and optimised airspace

This EOC includes further steps towards Trajectory Based Operations by enhancing free-route airspace (FRA) processes and system support. It will need to cover large-scale crossborder FRA. There is a need to ensure a smooth transition between FRA and highly structured airspace based on dynamic airspace configuration (DAC) principles.

<sup>5</sup> The Level 3 Implementation Report 2022 covers SESAR Solutions that were validated by SESAR 1 as well as by SESAR2020 Wave 1

The Solutions within the scope of this Report are listed in Annex 3 “MPL3 Plan Roadmap” of the MPL3 Plan 2021. The evolution of the committed Solutions (therefore related to implementation objectives) can be derived from the evolution of the objective themselves (see the individual Deployment Views in Part 3 of this Report).

The information on the non-committed Solutions has been collected with the help of a dedicated questionnaire included in the LSSIP+ process<sup>6</sup>, aiming to find out if a Solution has been implemented or if there are plans for implementation. 32 States responded to the questionnaire, however most of the States have not been able to provide information on all Solutions.

Overall, this Report covers 44 committed Solutions, covered by Regulations and/or MPL3 implementation objectives, and 53 non-committed Solutions, of which 20 SESAR 1 and 33 SESAR2020 Wave 1 Solutions. The chart on the right-hand side distributes these Solutions by EOC.

**Trajectory-based operations**

TBO is an overarching SESAR concept, based on a wide range of solutions that, when combined, help achieve the envisaged paradigm change. A trajectory is created and agreed for each flight representing the business needs of the airspace user and integrating ATM and airport constraints. This is the reference trajectory that the airspace user agrees to fly and that ANSPs and airports agree to facilitate.

**Multimodal mobility and integration of all airspace users**

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.

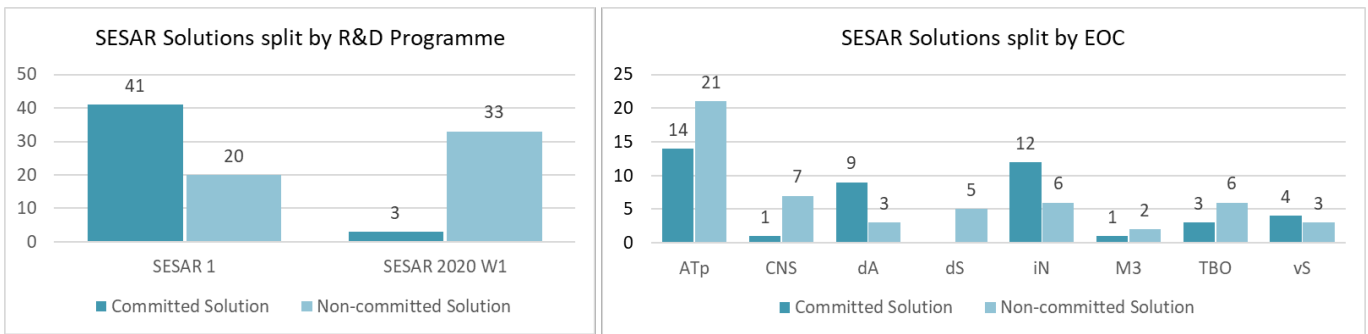


Figure 2-1 SESAR Solutions split by SESAR Timeline and EOC

The chart below provides the average completion rates of all Solutions and Implementation Objectives within each EOC. This number counts the States / Airports that finalised the implementation within the Applicability Area.

Due to the maturity of the elements within each Phase, Phase A shows the highest implementation rate to date and it will reach the highest completion rate by 2030. Due to being in their initial deployment phases, Phases B and C have a lower progress, as proven by the low completion rates achieved to date but also by the substantial amount of “Not Yet Planned” implementations, indicating a low appetite for deployment of the elements within these Phases.

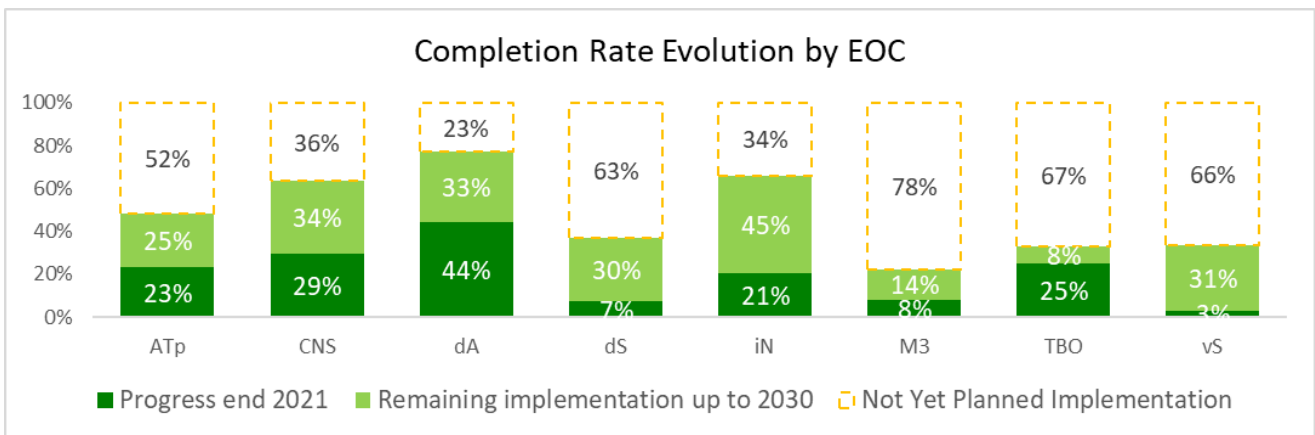










Figure 2-2 Aggregated Completion Rate Evolution by EOC

<sup>6</sup> While the overall scope of the Report is ECAC+, the questionnaire on “non-committed” Solutions has specifically addressed the 27 EU Member States, Norway, Switzerland, UK as well as Maastricht UAC. Several other States outside this scope (MK, UA, TR) have voluntarily provided implementation information.

## ALLOCATION OF IMPLEMENTATION OBJECTIVES PER EOC

EOC	Pre-SESAR	SESAR 1	SESAR 2020 W1
 <div style="border: 1px solid black; padding: 2px; font-size: 8px;">CNS infrastructure and services</div>	COM10.1, COM10.2 COM11.1, COM11.2 ITY-ACID, ITY-AGDL, ITY-AGVCS2	NAV10, NAV11 (#55) ATC21 (#114)	
 <div style="border: 1px solid black; padding: 2px; font-size: 8px;">ATM interconnected network</div>	AOM13.1 COM12 FCM03	AOP11.1, AOP11.2 FCM04.2, FCM06.1, FCM09, FCM10, FCM11.1, FCM11.2 INF10.2 to INF10.23 AOP17	
 <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Digital AIM and MET services</div>	INF07		
 <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Airport and TMA performance</div>	AOP04.2, AOP05 ATC07.1 SAF11 ENV02, ENV03	AOP04.1, AOP10, AOP12.1, AOP13, AOP15, AOP16, AOP18, AOP19 ATC19 ENV01 NAV03.1, NAV03.2	AOP 21 (PJ.02-01-04) AOP20 (PJ.02-01-06) AOP22 (PJ.02-03) AOP23 (PJ.02-08-01) AOP24 (PJ.02-08-02)
 <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Fully dynamic and optimised airspace</div>	ATC15.1 ITY-FMTP	AOM19.4, AOM19.5 AOM21.2 ATC12.1, ATC15.2, ATC18	AOM21.3
 <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Trajectory -based operations</div>	ATC02.8	ATC20, ATC22, ATC24, ATC25	ATC23
 <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Multimodal mobility and integration of all airspace users</div>		NAV12	
 <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Virtualisation of service provision</div>		AOP14	

## 2.1 HOW TO READ THE INDIVIDUAL SYNOPTIC VIEW

Each Synoptic View groups the elements of this Progress Report by Essential Operational Change (EOC) as identified in the Executive view of the European ATM Master Plan, edition 2020. Each View summarises the evolution of the Implementation Objectives and SESAR Solutions assigned to each respective EOC. The source of the information, including for all the graphical elements, is the data reported during the 2021 LSSIP+ cycle, reflecting the implementation status as of the 31st December 2021.

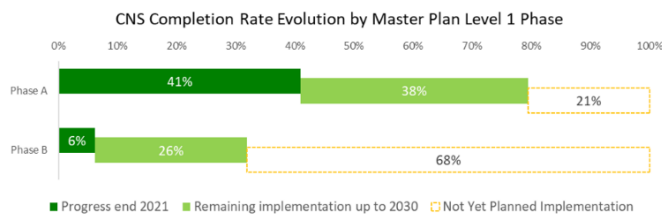
### Introduction to the EOC

CNS EOC in the MPL3 2021:

- ◆ 8 SESAR Solutions out of 96 of which:
  - 1 addressed by 1 Active Objective
  - 7 Orphans, 2 of which addressed by 2 Initial Objectives
- ◆ 7 Active Objectives not linked to any Solution

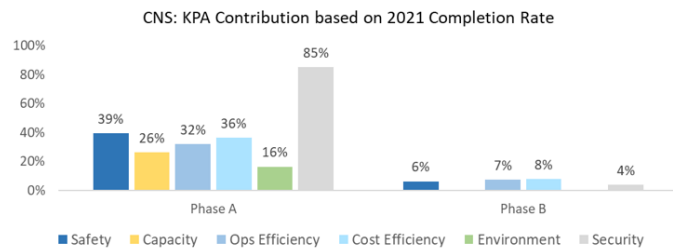
Changes in the area of CNS will be driven by a service-based and a performance-based approach. This will enable the decoupling of CNS service provision from ATS and ATM data services. This change will make the European ATM system more flexible and resilient, allowing scalability. Through a service-based 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. The performance-based approach will see a move from system/technology-based operations, where systems/technologies are prescribed, towards performance-based services, which specify the ambition to be achieved within a specific environment.

### Completion Rate Evolution by Master Plan Vision Phase



- Graphical designator of the EOC, in line with Executive view of the MPL1, complemented by the list of MPL3 elements belonging to that EOC.
- Synopsis of the EOC.

### Expected KPA contribution to the EOC based on the 2021 completion rate



- The chart shows:
- The 2021 completion rate, including SESAR Objectives achieved over previous monitoring cycles.
  - The expected completion rate to be achieved by 2030.
  - The remaining implementation, Not Yet Planned by Stakeholders.

### Implementation Objectives and Solutions by Master Plan Vision Phase

Phase A Objectives / Solutions	Phase B Objectives / Solutions
ITY-AGVCS2	#109
8.33 kHz A/G Voice Channel Spacing below FL195	Air Traffic Services datalink using SatCom Class B
COM11.2	#110
VolP in Airport/Terminal	ADS-B surveillance of aircraft in flight and on the surface
NAV10	#114 (ATC1)
RNP Approach Procedures to Instrument RWY	Composite Surveillance (ADS-B/WAM)
COM11.1	PJ.14-02-06
VolP in En-Route	AeroMACs integrated with ATN, Digital Voice and Multitalk
ITY-AGDL	PJ.14-03-04
Initial ATC air-ground data link services	RNP1 reversion based on DME/DME

- The table is split in columns, one for each Phase of the Strategic View of the Master Plan Level 1.
- Each column lists the Implementation Objectives and the Orphan SESAR Solutions in the EOC per Phase.

### Implementation Status at the end of 2021: Active Objectives

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
COM10.1	-	New Objective	MT	93% (93 pp)	31 Dec 2021
COM10.2	-	New Objective	EE, FI, MA, NL, SI	77% (77 pp)	31 Dec 2022
COM11.1	-	+7	AT, DK, HU, LT, ME, RS, ES	26% (17 pp)	31 Dec 2024
COM11.2	-	+4	DK, HU, ME, RS	22% (9 pp)	31 Dec 2024
ITY-ACID	-	0	BA, BG, (CZ, TR)	40% (0 pp)	31 Dec 2024
ITY-AGDL	-	+8	AZ, BG, DK, EE, FR, LV, MT, NL	64% (19 pp)	31 Mar 2023
ITY-AGVCS2	-	+3	DE, GR, SI, SE, (FI)	56% (7 pp)	31 Dec 2024
NAV10	#103	+5	FI, LT, ME, NO, RS	33% (12 pp)	25 Jan 2024

Legend: ■ Achieved ■ On Time ■ Planned delay ■ Late

The table summarises the progress of the Active Objectives over the 2021 monitoring cycle, and in particular:

- The Objective Code.
- The SESAR Solution, if any, linked to the Objective.
- The increase in the number of States/Airports that completed the Objective in 2021.
- The States/Airports that have completed the objective in 2021. The ones in red and between brackets, e.g. (CZ), reflect those that reverted their status from “Completed” to any other status, hence these are subtracted from the total number in the previous column.
- The Completion Rate in 2021 and the increase in percentage points (pp) vs 2020.
- The estimated completion date, coloured depending on the status of the Objective (Achieved, On time, Planned delay, Late) against the FOC date.

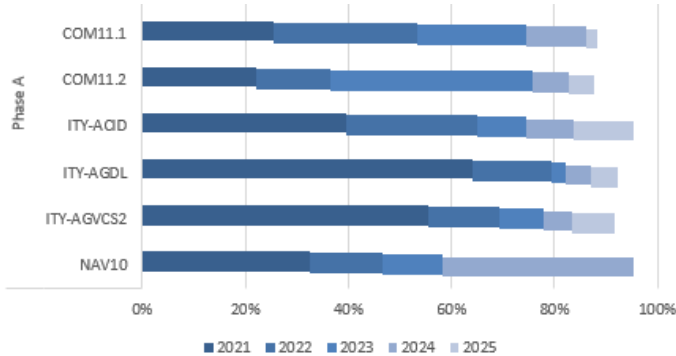
### Implementation Status at the end of 2021: Orphan SESAR Solutions and Initial Objectives

Solution Reference	Solution / Objective Title	Objective Code	# of States responding to the Questionnaire	Completion Rate in 2021	# of States "Ongoing" or "Planned"
#55	Precision Approach using GBAS CAT II/III based on GPS L1	NAV11	25	0%	5
#102	Aeronautical mobile airport communication system (AeroMACS)	-	28	0%	1
#109	Air Traffic Services datalink using SatCom Class B	OD-3	27	0%	2
#110	ADS-B surveillance of aircraft in flight and on the surface	-	35	20%	17
#114	Composite surveillance (ADS-B/WAM)	ATC21	28	4%	13
PJ.14-02-06	AeroMACS integrated with ATN, Digital Voice and Multilink	-	24	0%	0

The table displays the Orphans Solutions and the Solution linked to an Initial Objective. It relies on the data collected through the SESAR Solutions survey, and it shows:

- The Solution Reference code.
- The Solution / Objective title.
- The Objective Code, if applicable.
- The Number of States that responded to the survey.
- The Completion Rate in 2021, calculated against the number of applicable respondents.
- The number of States whose reported status is " Ongoing" or "Planned".

### Expected EOC Implementation Progress (2021 – 2025)



The horizontal bar chart:

- Indicates the expected completion rate evolution (percentage of States having completed the Objective within the applicability area) over the next four years for Active Implementation Objectives, grouped by MP Vision Phase.
- Is based on the plans reported in the LSSIP documents.

### Standardisation and Regulatory Needs

SESAR Solution	Solution title	MPL3 Objective	Standards and regulations				
			Available	Planned	To be planned	N/A	Missing info
#23	D-TAXI service for CPDLC application						√
#48	Virtual block control in low visibility procedures (LVPs)						√
#107	Point merge in complex terminal airspace						√
#108	Arrival Management (AMAN) and Point Merge						√
#116	De-icing management tool						√
#117	Reducing Landing Minima in Low Visibility Conditions using Enhanced Flight Vision Systems (EFVS)						√
PJ.02-01-04	Wake Turbulence Separations (for Arrivals) based on Static Aircraft Characteristics		√	√ - 2023/2027			
PJ.02-01-06	Wake Turbulence Separations (for Departures) based on Static Aircraft Characteristics		√	√ - 2023/2027			
PJ.02-03	Minimum-pair separations based on required surveillance performance (RSP)		√	√-2027			
PJ.02-08-01	Trajectory based Integrated Runway Sequence			√			
PJ.02-08-02	Runway Manager			√			
PJ.02-01-01	Optimised Runway Delivery on Final Approach		√	√ - 2023/2027			
PJ.02-01-02	Optimised Separation Delivery for Departure		√	√ - 2023/2027			
PJ.02-01-03	Weather-Dependent Reductions of Wake Turbulence Separations for Departures		√	√ - 2023/2027			
PJ.02-01-05	Weather-Dependent Reductions of Wake Turbulence Separations for Final Approach		√	√ - 2023/2027			
PJ.02-01-07	Wake Vortex Decay Enhancing Devices		√	√ - 2023/2027			
PJ.02-08-03	Increased Runway Throughput based on local ROT characterization (ROCAT)			√			
PJ.03a-04	Enhanced visual operations				√		
PJ.03b-05	Traffic alerts for pilots for airport operations		√	√			
PJ.15-02	E-AMAN Service						√

This table shows the latest information on standardisation and regulatory needs for the SESAR Solutions not linked to an active Objective. Standards and regulations are classified as follows:

- **Standard available** - The relevant / applicable standard or regulation has been published.
- **Standard planned** - A new standard / regulation or an update of an existing one has been already listed and it is identified in support of a SESAR Solution deployment. The activity still needs to be conducted and the planned date of publication defined.
- **Standard still to be planned** – The need for a new standard / regulation or for an update of an existing one has been identified, but this activity is not yet planned.
- **Not available (N/A)** - this status covers three cases:
  - The need for a new standard or regulation or for an update of an existing one has not been identified;
  - The analysis in R&D is still pending;
  - No standard or regulation is listed by the solution;
- **Missing info** - the information for a particular solution is not at all available in the “Yearly update of Standardisation and Regulatory Needs – edition April 2022” document. It is possible that the information exists in EATMA but the solutions were not included in the scope of the deliverable used to build this table.

## 2.2 CNS INFRASTRUCTURE AND SERVICES



CNS EOC in the MPL3 2021:

- ❖ 8 SESAR Solutions out of 97 of which:
  - 1 addressed by 1 Active Objective
  - 7 Orphans, 2 of which addressed by 2 Initial Objectives
- ❖ 7 Active Objectives not linked to any Solution

Changes in the area of CNS will be driven by a service-based 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. The performance-based approach will see a move from system/technology-based operations, where systems/technologies are prescribed, towards performance-based services, which specify the ambition to be achieved within a specific environment.

This EOC includes elements in both Phase A and B of the strategic view of the ATM Master Plan Level 1. It will expectedly reach a shy 80% completion for Phase A within 2030, whilst around 30% for Phase B. In terms of impacted Key Performance Areas, Phase A averaging a 40% completion across all six KPAs, versus a 4% for Phase B. This is due to the more mature elements included in the first group compared to the second.

The charts below show the completion evolution of the CNS Infrastructure and Services EOC and the expected KPA contribution based on the 2021 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

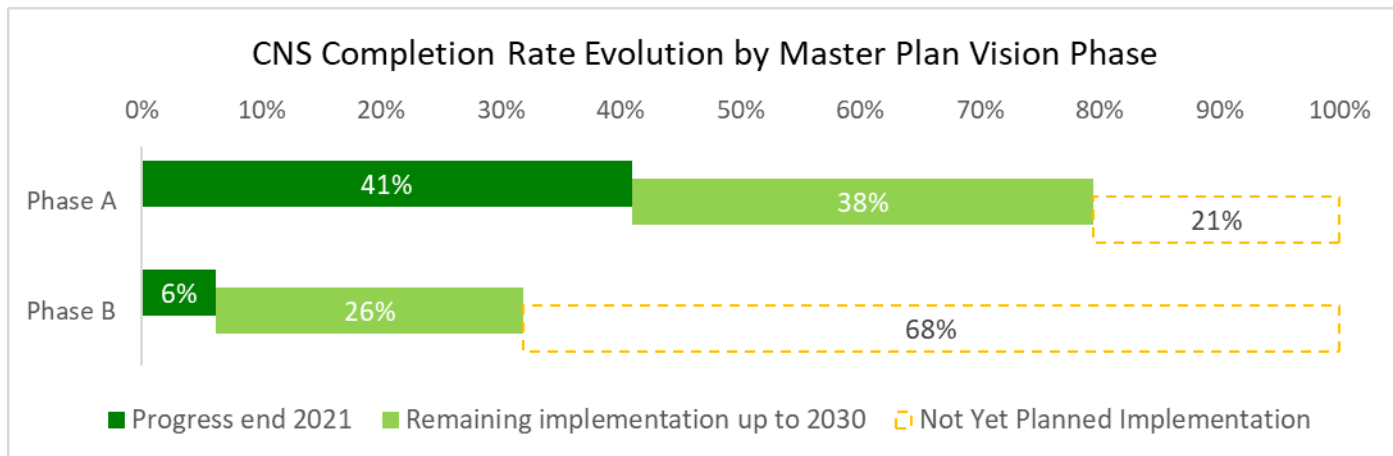


Figure 2-3 CNS completion rate evolution, split based on the MP Vision Phases

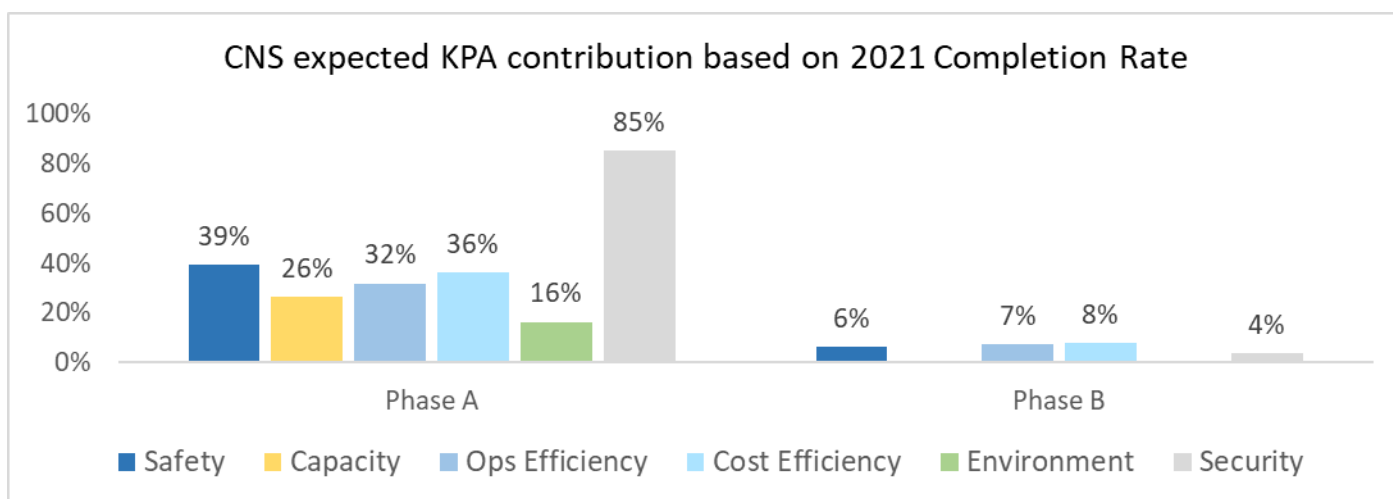


Figure 2-4 Expected KPA contribution to the CNS EOC based on the 2021 Completion Rate

The table below lists the Implementation Objectives and Orphan SESAR Solutions included in this EOC, split by MP Vision Phase.



Phase A Objectives / Solutions	Phase B Objectives / Solutions
<b>ITY-AGVCS2</b> 8.33 kHz A/G Voice Channel Spacing below FL195	<b>#109</b> Air Traffic Services datalink using SatCom Class B
<b>COM11.2</b> VoIP in Airport/Terminal	<b>#110</b> ADS-B surveillance of aircraft in flight and on the surface
<b>NAV10</b> RNP Approach Procedures to instrument RWY	<b>#114 (ATC21)</b> Composite Surveillance (ADS-B/WAM)
<b>COM11.1</b> VoIP in En-Route	<b>PJ.14-02-06</b> AeroMACs integrated with ATN, Digital Voice and Multilink
<b>ITY-AGDL</b> Initial ATC air-ground data link services	<b>PJ.14-03-04</b> RNP1 reversion based on DME/DME
<b>ITY-ACID</b> Aircraft identification	
<b>COM10.1</b> Migration from AFTN to AMHS (Basic service)	
<b>COM10.2</b> Extended AMHS	
<b>#55 (NAV11)</b> Precision Approach using GBAS CAT II/III based on GPS L1	
<b>#102</b> Aeronautical mobile airport communication system (AeroMACS)	

## Implementation Status at the end of 2021

The table below summarises the progress of the CNS-related Implementation Objectives over the 2021 monitoring cycle. In addition, the bullet points provide explanations on the data aggregation and related outcomes.

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
COM10.1	-	New Objective	MT	93% (93 pp)	31 Dec 2021
COM10.2	-	New Objective	EE, FI, MA, NL, SI	77% (77 pp)	31 Dec 2022
COM11.1	-	+7	AT, DK, HU, LT, ME, RS, ES	26% (17 pp)	31 Dec 2024
COM11.2	-	+4	DK, HU, ME, RS	22% (9 pp)	31 Dec 2024
ITY-ACID	-	0	BA, BG, (CZ, TR)	40% (0 pp)	31 Dec 2024
ITY-AGDL	-	+8	AZ, BG, DK, EE, FR, LV, MT, NL	64% (19 pp)	31 Mar 2023
ITY-AGVCS2	-	+3	DE, GR, SI, SE, (FI)	56% (7 pp)	31 Dec 2024
NAV10	#103	+5	FI, LT, ME, NO, RS	33% (12 pp)	25 Jan 2024

Legend: ■ Achieved ■ On Time ■ Planned delay ■ Late

- The CNS-related implementation Objectives experienced a good increase in their completion rate. On average, without taking into account the new Objectives, there was an increase of roughly 11 percentage points.
- **COM10.1**, created from the split of the old COM10 into COM10.1 and COM10.2, reached the 80% threshold in 2021. Therefore, it is considered achieved with 93% completion.
- **COM10.2** and **NAV10** are expected to be implemented “On Time”: COM10.2, being at 77%, with a reasonable confidence, whilst NAV10 still has some progress to make, supported by an FOC date farther in time.
- **COM11.2** will likely be implemented beyond its FOC date, hence the “Planned delay” status. The progress increase in 2021 is quite relevant and will be even more in 2023, almost reaching the 80% threshold for completion.
- The other Objectives are “Late”, being the FOC date already passed. Out of those, **COM11.1** and **ITY-ACID** are still lagging behind in the implementation, with a couple of Countries re-opening the Objective this year. **ITY-AGDL** and **ITY-AGVCS2**, instead, are in a better place to reach completion by the current estimated achievement date.

The CNS EOC also encompasses seven SESAR Solutions, linked to an Initial Objective or not subject to any Objective (“Orphan Solutions”). The table below provides few insights on the implementation progress of those Solutions, building on the data collected through the SESAR Solutions survey during the 2021 LSSIP+ monitoring cycle.

Solution Reference	Solution / Objective Title	Objective Code	# of States responding to the Questionnaire	Completion Rate in 2021	# of States "Ongoing" or "Planned"
#55	Precision Approach using GBAS CAT II/III based on GPS L1	NAV11	25	0%	5
#102	Aeronautical mobile airport communication system (AeroMACS)	-	28	0%	1
#109	Air Traffic Services datalink using SatCom Class B	OD-3	27	0%	2
#110	ADS-B surveillance of aircraft in flight and on the surface	-	35	20%	17
#114	Composite Surveillance (ADS-B/WAM)	ATC21	28	4%	13
PJ.14-02-06	AeroMACs integrated with ATN, Digital Voice and Multilink	-	24	0%	0
PJ.14-03-04	RNP1 reversion based on DME/DME	-	27	7%	7

- Stakeholders showed the highest interest for Solutions **#110** ADS-B surveillance, **#114** ADS-B / WAM, and **PJ.14-03-04** RNP1 reversion based on DME/DME. For these Solutions, some Stakeholders also reported to have completed the implementation.
- Although without a concrete progress, Solutions **#55** Precision Approach using GBAS CAT II/III based on GPS L1, **#109** ATS datalink using SatCom Class B, and **#102** AeroMACS raised some interest in the implementation with few Stakeholders reporting an ongoing implementation or plans to implement.
- PJ.14-02-06** AeroMACs integrated with ATN, Digital Voice and Multilink raised no interest.

### Expected EOC Implementation Progress (2021 – 2025)

The CNS-related Implementation Objectives will further progress in their implementation over the next four years, as reported in the bar chart below. In this respect, it is important to highlight that some Objectives do not reach 100% completion due to some Stakeholders reporting yet no plans to implement.

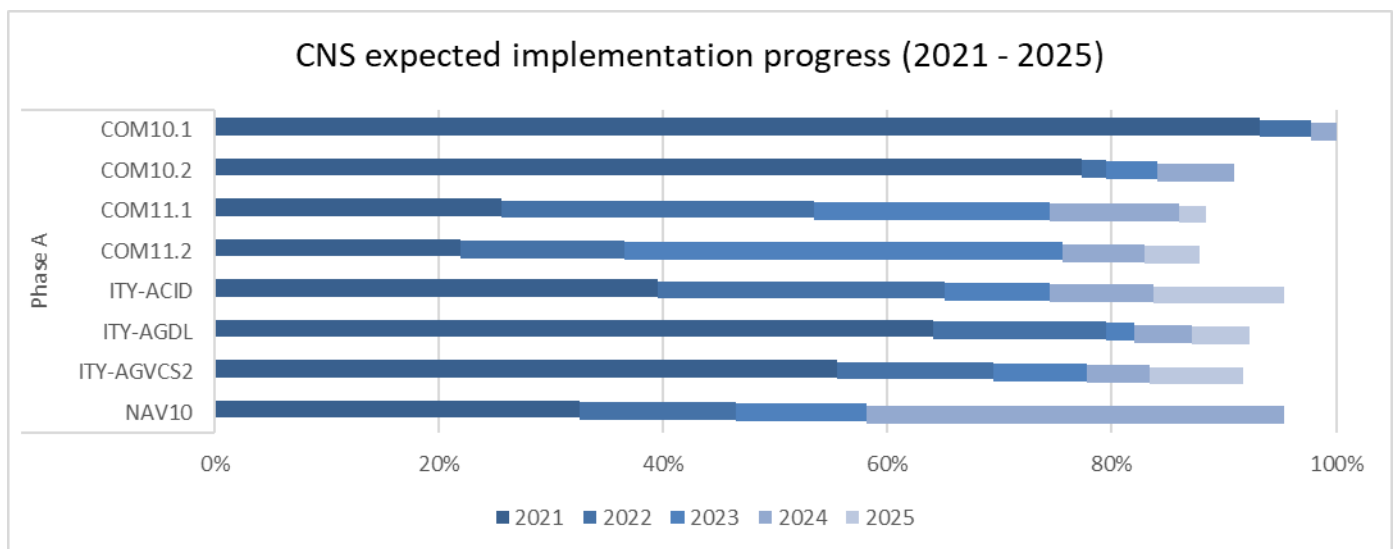


Figure 2-5 CNS expected implementation progress (2021 - 2025)

- In 2022, the expectation is to see an important evolution for **COM11.1** and **ITY-ACID**, reaching 53% and 65% progress.
- In 2023, **COM11.2** will greatly progress from 37% to 76%, based on what Stakeholders reported during the cycle.
- In 2024, **NAV10** will experience the greatest spike from 58% to 95%, due to its FOC date set for early January.

### Standardisation and Regulatory Needs

The nature of Initial Objectives and Orphans Solutions implies that they are still in a pre-deployment phase. The table below summarises their standardisation and regulatory needs.

SESAR Solution	Solution title	MPL3 Objective	Standards and regulations				
			Available	Planned	To be planned	N/A	Missing info
#55	Precision approaches using GBAS CAT II/III	NAV11	√	√ - 2022			
#102	Aeronautical mobile airport communication system (AeroMACS)						√
#109	Air Traffic Services datalink using SatCom Class B		√		√		
#110	ADS-B surveillance of aircraft in flight and on the surface		√	√ - 2021			
#114	Composite Surveillance ADS-B/WAM	ATC21					√
PJ.14-02-06	AeroMACs integrated with ATN, Digital Voice and Multilink						√
PJ.14-03-04	RNP-1 Reversion based on DME-DME		√	√ - 2021/2022			

### 2.3 ATM INTERCONNECTED NETWORK

**iN EOC in the MPL3 2021:**

- ❖ 18 SESAR Solutions out of 97 of which:
  - 12 addressed by 31 Active / Local Objectives
  - 6 Orphans
- ❖ 3 Active / Local Objectives not linked to any Solution

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.

This EOC includes elements in Phase A, B, and C of the strategic view of the ATM Master Plan Level 1. It will expectedly reach a 70% completion for Phase A within 2030, 60% for Phase B, and a 45% for Phase C. In terms of impacted Key Performance Areas, there is a significant progress for Phase A, with Safety, Operational Efficiency and Security having the highest rates. Phases B and C, instead, are less mature hence the lower progress with respect to the performance areas. It is key to highlight that both charts take into account SESAR Objectives achieved over previous monitoring cycles, namely FCM01 and FCM04.1.

The charts below show the completion evolution of the ATM Interconnected Network EOC and the expected KPA contribution based on the 2021 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

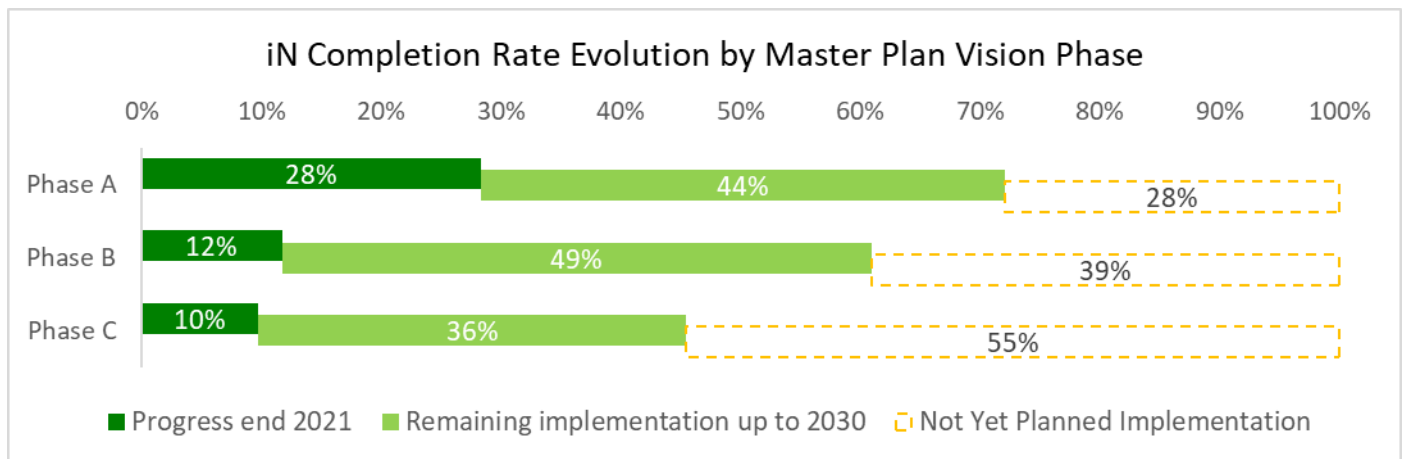


Figure 2-6 iN completion rate evolution, split based on the MP Vision Phases

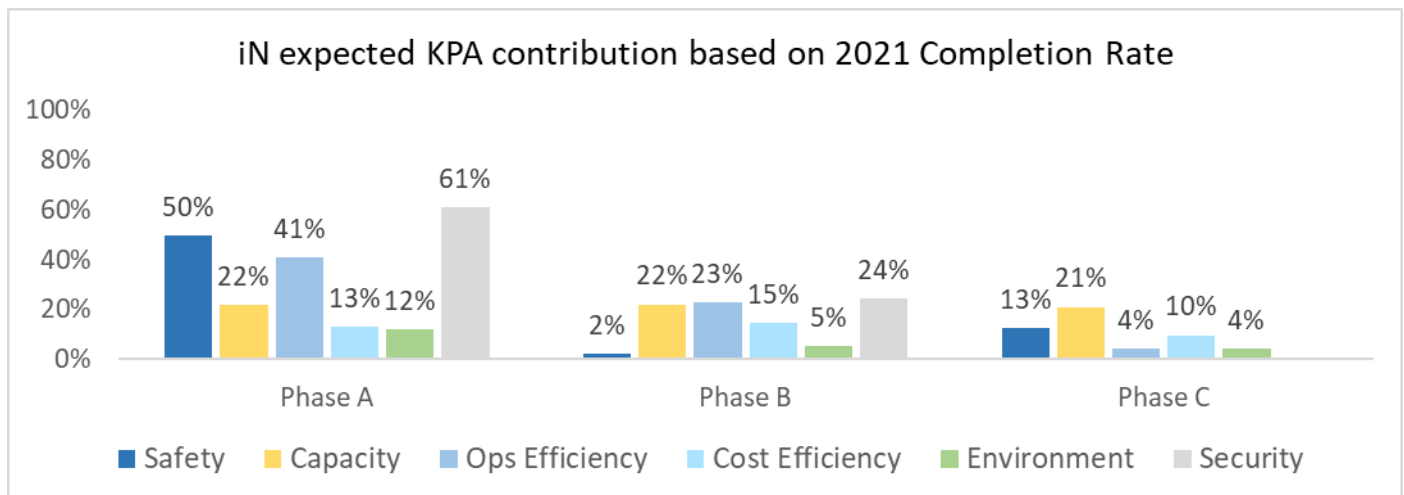


Figure 2-7 Expected KPA contribution to the iN EOC based on the 2021 Completion Rate

The table below lists the Implementation Objectives and Orphan SESAR Solutions included in this EOC, split by MP Vision Phase.

Phase A Objectives / Solutions	Phase B Objectives / Solutions	Phase C Objectives / Solutions
<b>AOM13.1</b> Harmonise OAT and GAT handling	<b>AOP11.1</b> Initial Airport Operations Plan	<b>PJ.09-03-02</b> AOP/NOP departure information integrated in eFPL



Phase A Objectives / Solutions	Phase B Objectives / Solutions	Phase C Objectives / Solutions
<b>AOP17</b> Provision/integration of DEP planning info to NMOC	<b>AOP11.2</b> Extended Airport Operations Plan	<b>PJ.15-01</b> Initial Sub-regional Demand Capacity Balancing Service
<b>FCM03</b> Collaborative flight planning	<b>COM12</b> NewPENS	
<b>FCM04.2</b> Enhanced Short Term ATFCM Measures	<b>FCM09</b> Enhanced ATFM Slot swap	
<b>FCM10</b> Interactive rolling NOP	<b>FCM11.1</b> Initial AOP/NOP Information Sharing	
<b>INF10.2</b> Stakeholders' SWIM PKI and cybersecurity	<b>FCM11.2</b> AOP/NOP integration	
<b>INF10.3</b> Aeronautical Information Exchange - Airspace structure service	<b>INF10.6</b> Aeronautical Information Exchange - Digital NOTAM service	
<b>INF10.4</b> Aeronautical Information Exchange - Airspace availability service	<b>INF10.7</b> Aeronautical Information Exchange - Aerodrome Mapping information exchange service	
<b>INF10.5</b> Aeronautical Information Exchange - Airspace Reservation (ARES) service	<b>INF10.8</b> Aeronautical Information Exchange - Aeronautical Information Features service	
<b>INF10.13</b> Cooperative Network Information Exchange - ATFCM Tactical Updates Service	<b>INF10.9</b> Meteorological Information Exchange - Volcanic ash mass concentration information service	
<b>INF10.14</b> Cooperative Network Information Exchange - Flight Management Service	<b>INF10.10</b> Meteorological Information Exchange - Aerodrome Meteorological information Service	
<b>INF10.15</b> Cooperative Network Information Exchange - Measures Service	<b>INF10.11</b> Meteorological Information Exchange - En-Route and Approach Meteorological information service	
<b>INF10.16</b> Cooperative Network Information Exchange - Short Term ATFCM Measures services	<b>INF10.12</b> Meteorological Information Exchange - Network Manager Meteorological Information	
<b>INF10.17</b> Cooperative Network Information Exchange - Counts service	<b>FCM06.1</b> Traffic Complexity Assessment	
<b>INF10.18</b> Flight Information Exchange (Yellow Profile) – Filing Service	<b>#67</b> AOC data increasing trajectory prediction accuracy	
<b>INF10.19</b> Flight Information Exchange (Yellow Profile) – Flight Data Request Service	<b>PJ.17-01</b> SWIM T1 purple profile for A/G advisory information sharing	
<b>INF10.20</b> Flight Information Exchange (Yellow Profile) – Notification Service	<b>PJ.18-02b</b> Flight Object Interoperability	
<b>INF10.21</b> Flight Information Exchange (Yellow Profile) – Data Publication Service		
<b>INF10.22</b> Flight Information Exchange (Yellow Profile) – Trial Service		
<b>INF10.23</b> Flight Information Exchange (Yellow Profile) – Extended AMAN SWIM Service		
<b>#57</b> UDPP Departure		

## Implementation Status at the end of 2021

The table below summarises the progress of the iN-related Implementation Objectives over the 2021 monitoring cycle. In addition, the bullet points provide explanations on the data aggregation and related outcomes.

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
AOM13.1	-	+2	AT, BA	61% (8 pp)	31 Dec 2022
AOP11.1	#21	New Objective	EGLL, EHAM, EFHK	10% (10 pp)	31 Dec 2023
AOP11.2	#21	New Objective	-	0% (0 pp)	Not Available
AOP17	#61	+4	EBLG, LGKO, LEBB, LEZL	19 (4)	Not Applicable
COM12	-	+4	AL, BG, MT, ME, RS, (NL)	73% (8 pp)	31 Dec 2022
FCM03	-	-1	AT, MAS, (ME, LT, RS)	52% (-3 pp)	31 Dec 2023
FCM04.2	#17	-2	(BA, FR)	16% (-2 pp)	31 Dec 2024
FCM06.1	#19	New Objective	MAS, MT, PL	21% (21 pp)	31 Jul 2024
FCM09	#56	n/a	-	100%	31 Dec 2021
FCM10	#18, #20	New Objective	-	10% (10 pp)	Not Available
FCM11.1	#20, #21	New Objective	-	0% (0 pp)	31 Dec 2023
FCM11.2	#18, #20, #21	New Objective	-	0% (0 pp)	Not Available
INF10.2	#46	New Objective	-	0% (0 pp)	31 Dec 2025
INF10.3	#46	New Objective	FR, DE, IT, LT, MAS, PT, SK	45% (45 pp)	31 Dec 2025
INF10.4	#46	New Objective	FR, DE, IT, LT, PT, SK	38% (38 pp)	31 Dec 2025
INF10.5	#46	New Objective	-	0% (0 pp)	Not Available
INF10.6	#34, #46	New Objective	-	0% (0 pp)	Not Available
INF10.7	#34, #46	New Objective	-	0% (0 pp)	Not Available
INF10.8	#34, #46	New Objective	-	0% (0 pp)	Not Available
INF10.9	#34, #35, #46	New Objective	-	0% (0 pp)	Not Available
INF10.10	#34, #35, #46	New Objective	-	0% (0 pp)	Not Available
INF10.11	#34, #35, #46	New Objective	-	0% (0 pp)	Not Available
INF10.12	#34, #35, #46	New Objective	-	0% (0 pp)	Not Available
INF10.13	#46	New Objective	MAS	10% (10 pp)	Not Available
INF10.14	#46	New Objective	-	4% (4 pp)	Not Available

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
INF10.15	#46	New Objective	DE, MAS	16% (16 pp)	Not Available
INF10.16	#46	New Objective	MAS	5% (5 pp)	Not Available
INF10.17	#46	New Objective	MAS, ES	21% (21 pp)	Not Available
INF10.18	#46	New Objective	-	-	31 Dec 2025
INF10.19	#46	New Objective	-	0% (0 pp)	Not Available
INF10.20	#46	New Objective	-	0% (0 pp)	Not Available
INF10.21	#46	New Objective	-	0% (0 pp)	Not Available
INF10.22	#46	New Objective	-	100%	31 Dec 2021
INF10.23	#46	New Objective	FR	7% (7 pp)	Not Available

Legend:  Achieved  On Time  Planned delay  Late

- For most of the Objectives within the EOC an estimated achievement date cannot be deducted yet therefore, a progress status is not yet available. This is caused by the fact that for most of the SWIM related Objectives there are States in the applicability area which have not established yet concrete implementation plans so an expected completion date at national level has not been provided.
- Objective **AOM13.1** is "Late", as the FOC date already passed, however, the current planning indicates that the implementation will be achieved in 2022.
- FCM03**, **FCM04.2** and **FCM06.1** indicate a "Planned delay" as the implementation is expected to be achieved 12 to 24 months after the FOC dates, with a substantial progress expected in 2022.
- Seven Objectives, all but one being new Objectives created in 2021, are expected to be implemented "On time" that is, within the FOC date. Among the seven, Objective **COM12** has the highest completion rate and is planned to be achieved in 2022.
- FCM09** and **INF10.22** have been completed in 2021 are now in operational use in the applicability area. It is to be noted that both Objectives are driven by and with NM as their core.

The iN EOC also encompasses six SESAR Solutions not subject to any Objective ("Orphan Solutions"). The table below provides few insights on the implementation progress of those Solutions, building on the data collected through the SESAR Solutions survey during the 2021 LSSIP+ monitoring cycle.

Solution Reference	Solution / Objective Title	Objective Code	# of States responding to the Questionnaire	Completion Rate in 2021	# of States "Ongoing" or "Planned"
#57	UDPP Departure	-	26	8%	10
#67	AOC data increasing trajectory prediction accuracy	-	24	4%	2
PJ.09-03-02	AOP/NOP departure information integrated in eFPL	-	24	4%	9
PJ.15-01	Initial Sub-regional Demand Capacity Balancing Service	-	25	4%	0
PJ.17-01	SWIM TI purple profile for A/G advisory information sharing	-	26	0%	2
PJ.18-02b	Flight Object Interoperability	-	19	0%	2

- Solutions #57 and PJ.09.03.02 seem to trigger most of the interest for deployment.
- The other Solutions within the EOC show substantial lower interest with not more than three States reporting implementation plans or completion.
- The high completion rate of some of the Solutions should be put in the context of their very limited applicability area.

### Expected EOC Implementation Progress (2021 – 2025)

The iN-related Implementation Objectives will further progress in their implementation over the next four years, as reported in the bar chart below. In this respect, it is important to highlight that some Objectives do not reach 100% completion due to some Stakeholders reporting yet no plans to implement.

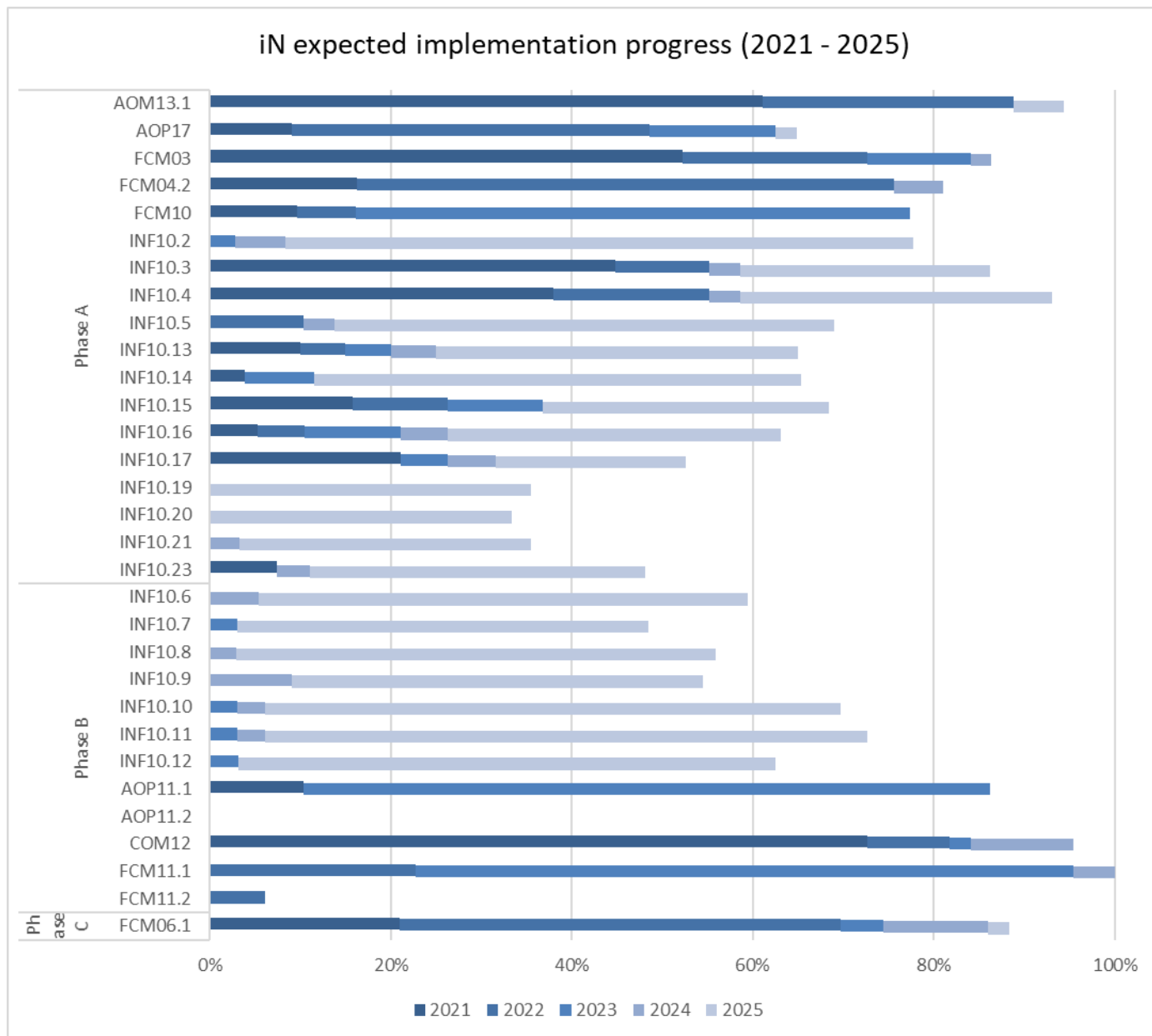


Figure 2-8 iN expected implementation progress (2021 - 2025)

- Substantial progress (increase of more than 20 percentage points) is expected in 2022 for several Objectives within the EOC (**AOM13.1**, **AOP11.1**, **FCM03**, **FCM04.2**, **FCM06.1** and **FCM11.1**).
- Amongst the above, **AOP11.1** and **FCM04.2** are expected to record an increase of 76 respectively 60 percentage points.
- As the EOC contains many new Objective, in particular related to SWIM (INF10.x), many States have not yet established implementation plans for most of these Objectives therefore for the time being the progress by 2025 will be quite limited. It is expected that as more and more implementation plans will be put in place, a more reliable expected evolution will be available in future editions of the Report.



### Standardisation and Regulatory Needs

The nature of Initial Objectives and Orphans Solutions implies that they are still in a pre-deployment phase. The table below summarises their standardisation and regulatory needs.

SESAR Solution	Solution title	MPL3 Objective	Standards and regulations				
			Available	Planned	To be planned	N/A	Missing info
#57	User-driven prioritisation process (UDPP) departure						√
#67	AOC data increasing trajectory prediction accuracy						√
PJ.09-03-02	Collaborative network management functions		√		√		
PJ.15-01	Sub-regional Demand Capacity Balancing Service						√
PJ.17-01	SWIM TI purple profile for air/ground advisory information sharing			√-2027			

## 2.4 DIGITAL AIM AND MET SERVICES

Digital  
AIM and MET  
services

**dS EOC in the MPL3 2021:**

- ❖ 5 SESAR Solutions out of 97 of which:
  - 5 Orphans
- ❖ 1 Active / Local Objectives not linked to any Solution

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.

This EOC includes elements in both Phase A and B of the strategic view of the ATM Master Plan Level 1. It will expectedly reach beyond 90% completion rate for Phase A within 2030, whilst only 25% for Phase B considering the high portion of lacking plans. In terms of impacted Key Performance Areas, a modest contribution to Safety comes from INF07, whilst there is a low progress for the other relevant KPAs in Phase B.

The charts below show the completion evolution of the Digital AIM and MET Services EOC and the expected KPA contribution based on the 2021 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

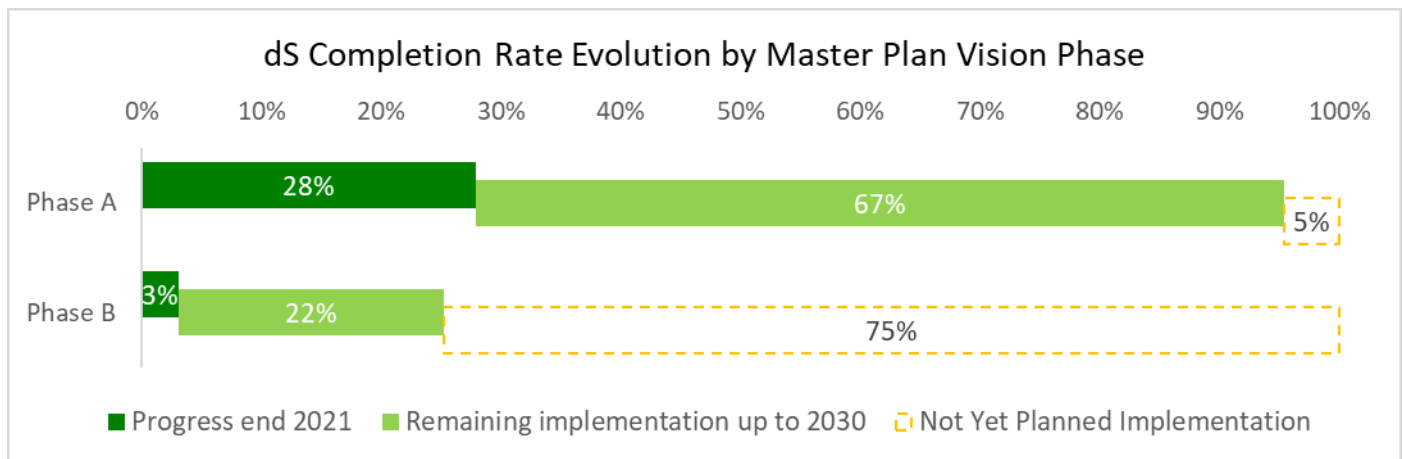


Figure 2-9 dS completion rate evolution, split based on the MP Vision Phases

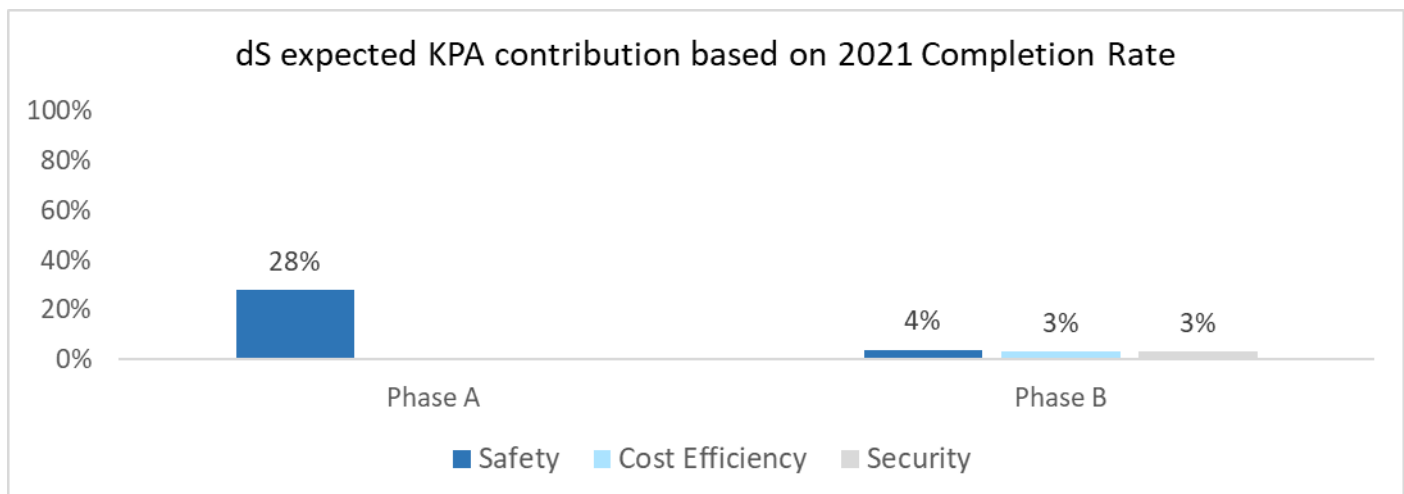


Figure 2-10 Expected KPA contribution to the dS EOC based on the 2021 Completion Rate

The table below lists the Implementation Objectives and Orphan SESAR Solutions included in this EOC, split by MP Vision Phase.

Phase A Objectives / Solutions	Phase B Objectives / Solutions
<b>INF07</b> Electronic Terrain and Obstacle Data (e-TOD)	<b>PJ.15-10</b> Aeronautical data service
	<b>PJ.15-11</b> Aeronautical digital map service
	<b>PJ.18-04a</b> Aeronautical Dataset service
	<b>PJ.18-04b-01</b> Enhanced Ground Weather Management System (GWMS) as local 4DWxCube
	<b>PJ.18-04b-02</b> Cb-global capability and service

### Implementation Status at the end of 2021

The table below summarises the progress of the dS-related Implementation Objectives over the 2021 monitoring cycle. In addition, the bullet points provide explanations on the data aggregation and related outcomes.

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
INF07	-	+1	MK	28% (2 pp)	31 Dec 2023

Legend: ■ Achieved ■ On Time ■ Planned delay ■ Late

- Implementation of Objective **INF07** is “Late” while the progress of the Completion Rate remains modest, in line with the evolutions of the previous years.
- The main implementation difficulty is the need for the involvement of multiple stakeholders, under an overarching “National TOD Policy”, representing the cornerstone activity for the eTOD implementation. From this perspective, the progresses are encouraging, as more than half of the States (59%) within the applicability area have managed to setup such a National policy.

The dS EOC also encompasses five SESAR Solutions, not subject to any Objective (“Orphan Solutions”). The table below provides few insights on the implementation progress of those Solutions, building on the data collected through the SESAR Solutions survey during the 2021 LSSIP+ monitoring cycle.

Solution Reference	Solution / Objective Title	Objective Code	# of States responding to the Questionnaire	Completion Rate in 2021	# of States "Ongoing" or "Planned"
PJ.15-10	Aeronautical data service	-	27	4%	8
PJ.15-11	Aeronautical digital map service	-	27	0%	6
PJ.18-04a	Aeronautical Dataset service	-	28	0%	13
PJ.18-04b-01	Enhanced Ground Weather Management System (GWMS) as local 4DWxCube	-	25	8%	2
PJ.18-04b-02	Cb-global capability and service	-	25	4%	1

- The interest in **PJ.18-04a** is the highest, the solution being somehow an outlier within the EOC, with 13 States reporting plans for implementation
- For the remaining ones, the interest as well as the completion rate from a Pan-European perspective is quite limited.

### Expected EOC Implementation Progress (2021 – 2025)

The dS-related Implementation Objective will further progress in its implementation over the next four years, as reported in the bar chart below. In this respect, it is important to highlight that the Objective does not reach 100% completion due to some Stakeholders reporting yet no plans to implement.

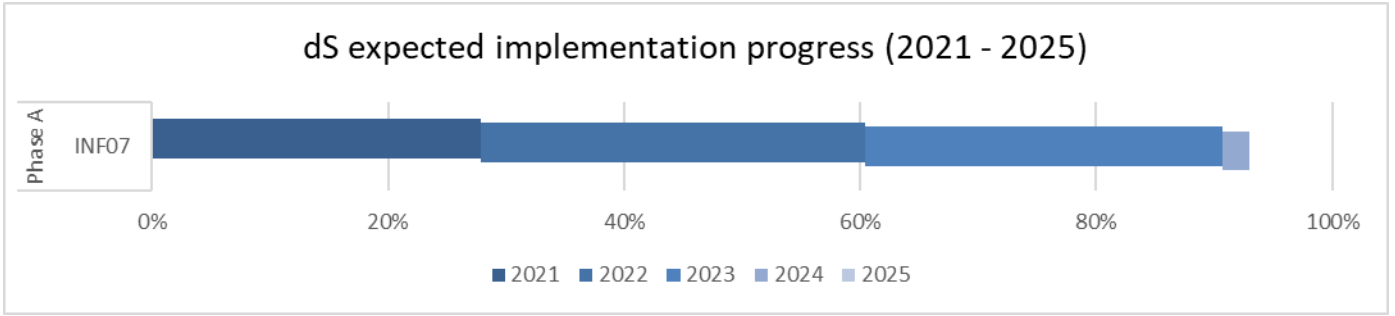


Figure 2-11 dS expected implementation progress (2021 - 2025)

- The next two years are expected to bring a substantial increase in the completion rate (32 percentage points in 2022, followed by 31 percentage points in 2023), giving hope that the Objective will be achieved by the end of 2023.

### Standardisation and Regulatory Needs

The nature of Initial Objectives and Orphans Solutions implies that they are still in a pre-deployment phase. The table below summarises their standardisation and regulatory needs.

SESAR Solution	Solution title	MPL3 Objective	Standards and regulations				
			Available	Planned	To be planned	N/A	Missing info
PJ.15-10	Static aeronautical data service						√
PJ.15-11	Aeronautical digital map service						√
PJ.18-04a	Aeronautical information management (AIM) information			√			
PJ.18-04b-01	Meteorological (MET) information-GWMS					√	
PJ.18-04b-02	Meteorological information (MET) services-Cb-global					√	

## 2.5 AIRPORT AND TMA PERFORMANCE



ATp EOC in the MPL3 2021:

- ❖ 35 SESAR Solutions out of 97 of which:
  - 14 addressed by 12 Active / Local Objectives
  - 21 Orphans, 5 of which addressed by 5 Initial Objectives
- ❖ 6 Active / Local Objectives not linked to any Solution

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. This EOC 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.

This EOC includes elements in Phase A, B, and C of the strategic view of the ATM Master Plan Level 1. It will expectedly reach above 60% completion for Phase A within 2030, whilst around 20% for Phases B and C. In terms of impacted Key Performance Areas, the elements in Phase A made a significant progress with an average of 47%. Phase B lags behind with a lower impact of around 10%. Phase C only includes one Solutions, hence the 4% progress on Cost Efficiency. It is key to highlight that both charts take into account SESAR Objectives achieved over previous monitoring cycles, namely AOP01.2, AOP03, AOP08, AOP09.

The charts below show the completion evolution of the Airport and TMA performance EOC and the expected KPA contribution based on the 2021 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

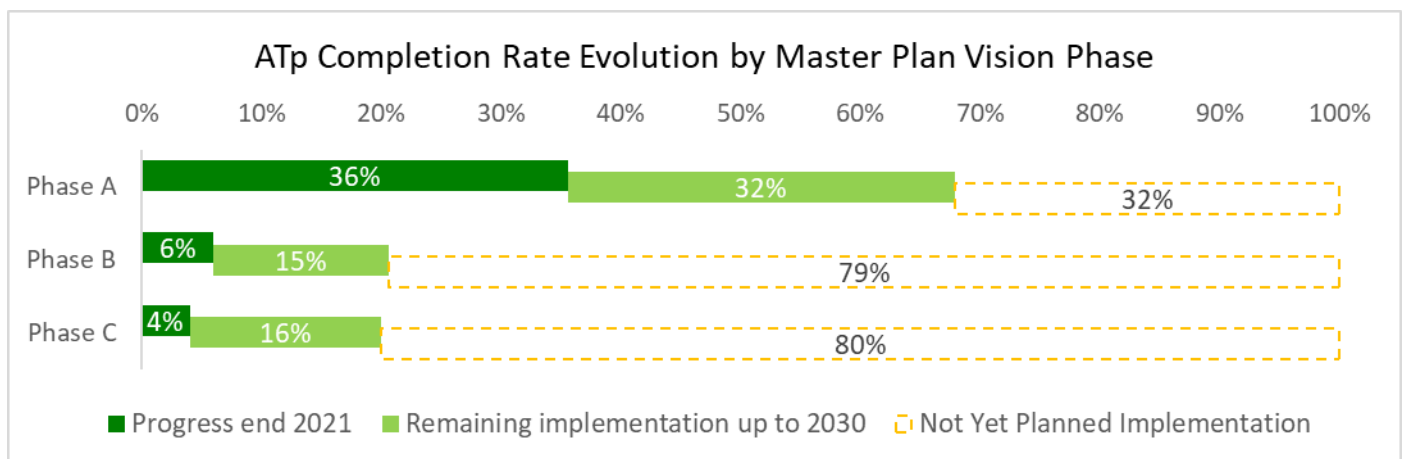


Figure 2-12 ATp completion rate evolution, split based on the MP Vision Phases

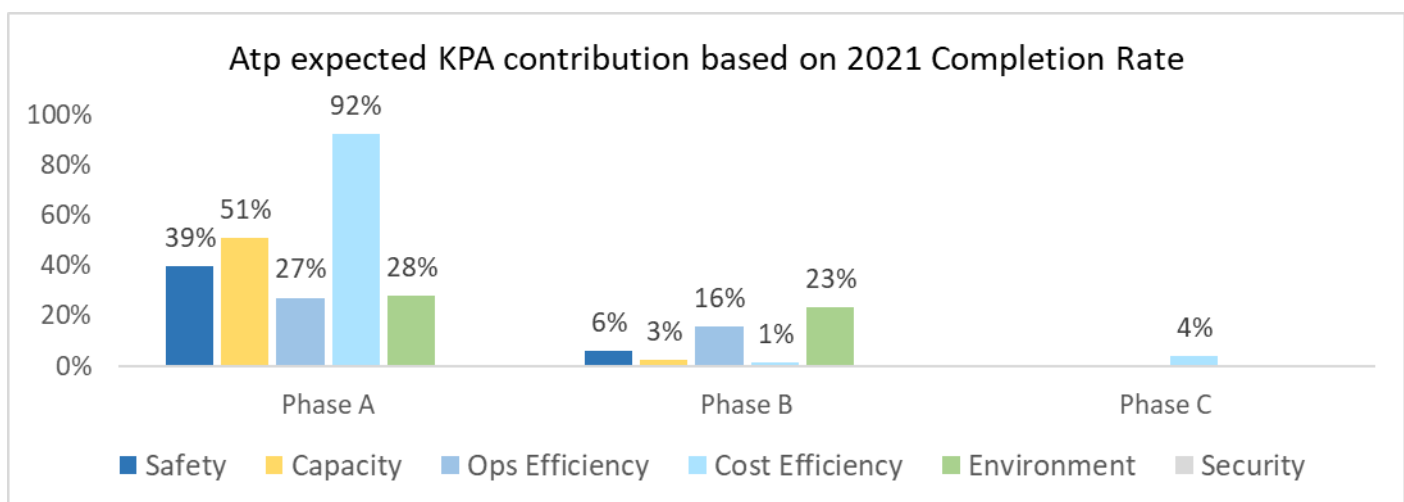


Figure 2-13 Expected KPA contribution to the ATp EOC based on the 2021 Completion Rate

The table below lists the Implementation Objectives and Orphan SESAR Solutions included in this EOC, split by MP Vision Phase.

Phase A Objectives / Solutions	Phase B Objectives / Solutions	Phase C Objectives / Solutions
<b>AOP04.1</b> A-SMGCS Surveillance (former Level 1)	<b>ATC19</b> AMAN/DMAN integration	<b>PJ.15-02</b> E-AMAN service
<b>AOP04.2</b> A-SMGCS RMCA (former Level 2)	<b>NAV03.1</b> RNAV1 in TMA Operations	
<b>AOP05</b> Airport CDM	<b>NAV03.2</b> RNP1 in TMA Operations	
<b>AOP10</b> Time Based Separation	<b>#107</b> Point Merge in complex TMA	
<b>AOP12.1</b> Airport Safety Nets	<b>PJ.02-01-01</b> Optimised Runway Delivery on Final Approach	
<b>AOP13</b> Automated Assistance to ATCO for Surface planning and routing	<b>PJ.02-01-02</b> Optimised Separation Delivery for Departure	
<b>AOP15</b> Safety Nets for Vehicle Drivers	<b>PJ.02-01-03</b> Weather-Dependent Reductions of WTS for Departures	
<b>AOP16</b> Guidance assistance through AGL	<b>PJ.02-01-04 (AOP21)</b> Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)	
<b>AOP18</b> Runway Status Lights (RWSL)	<b>PJ.02-01-05</b> Weather-Dependent Reductions of Wake Turbulence Separations for Final Approach	
<b>AOP19</b> Departure Management Synchronised with Pre-departure sequencing	<b>PJ.02-01-06 (AOP20)</b> Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)	
<b>ATC07.1</b> AMAN Tools and Procedures	<b>PJ.02-01-07</b> Wake Decay Enhancing Devices	
<b>ENV01</b> Continuous Descent Operations	<b>PJ.02-03 (AOP22)</b> Minimum pair separations based on RSP	
<b>ENV02</b> Airport Collaborative Env. Management	<b>PJ.02-08-01 (AOP23)</b> Integrated runway sequence for full traffic optimization on single and multiple runway airports	
<b>ENV03</b> Continuous Climb Operations	<b>PJ.02-08-02 (AOP24)</b> Optimised use of runway configuration for multiple runway airports	
<b>SAF11</b> Improve RWY safety by preventing RWY excursions	<b>PJ.02-08-03</b> Reduced separation based on local Runway Occupancy Time characterisation	
<b>#23</b> D-TAXI service for CPDLC application	<b>PJ.03a-04</b> Enhanced Visual Operations	
<b>#26</b> Manual Taxi Routing Function	<b>PJ.03b-05</b> Traffic alerts for pilots for airport operations	
<b>#48</b> Virtual Block Control in LVPs		
<b>#108</b> AMAN and Point Merge		
<b>#116</b> De-icing Management Tool		
<b>#117</b> Reducing Landing Minima in Low Visibility Conditions using Enhanced Flight Vision Systems (EFVS)		

## Implementation Status at the end of 2021

The table below summarises the progress of the ATp-related Implementation Objectives over the 2021 monitoring cycle. In addition, the bullet points provide explanations on the data aggregation and related outcomes.

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
AOP04.1	#70	+1	LPPT	75% (1 pp)	31 Dec 2022
AOP04.2	-	+3	EDDB, LEBL, LEPA	65% (9 pp)	31 Dec 2022
AOP05	-	+3	EDDH, EDDS, EVRA	60% (3 pp)	31 Dec 2024
AOP10	#64	0	-	7% (2 pp)	Not Available
AOP12.1	#02	New Objective	UBBB, LKPR, LTFM	9% (9 pp)	31 Dec 2025
AOP13	#22, #53	0	-	0 (0 pp)	Not Available
AOP15	#04	0	-	1 (0)	Not Applicable
AOP16	#47	0	-	0 (0)	Not Applicable
AOP18	#01	0	-	1 (0)	Not Applicable
AOP19	#53, #106	New Objective	-	20% (20 pp)	31 Jul 2025
ATC07.1	-	0	-	69% (0 pp)	31 Dec 2022
ATC19	#54	0	-	6% (6 pp)	Not Available
ENV01	#11	+8	EFHK, EGKK, ELLX, EVRA, LFML, LFPO, LTAI, LTBA	51% (15 pp)	31 Dec 2023
ENV02	-	+3	EBCI, EBLG, EDDB	49 (3)	Not Applicable
ENV03	-	+3	EVRA, EPWA, UKBB	57 (3)	Not Applicable
NAV03.1	#62	+3	FI, LV, NO	38% (7 pp)	06 Jun 2030
NAV03.2	#09, #51	+4	CH, DK, IE, NO, RS, (SK)	24% (12 pp)	Not Available
SAF11	-	0	-	74% (-2 pp)	31 Dec 2022

Legend:  Achieved  On Time  Planned delay  Late

- Four of the Objectives within the EOC are “Late” as they have missed their FOC date (**AOP04.1**, **AOP05**, **ATC07.1** and **SAF11**). However it should be noted that the applicability area of these Objectives has constantly grown over the years as more and more Airports/States have joined the implementation efforts. Otherwise, taking into account the original applicability area, from the creation of these Objectives, they would have already reached the completion threshold.
- For half of the Objectives, as estimated achievement status cannot be provided, either because there are still Airports/States which have not yet put in place implementation plans (“Not available”) or because the Objectives are of “Local” nature therefore they do not have an FOC date against which, the completion progress is measured.
- Among the new Objectives created in 2021, one (**AOP19**) is already expected to be late, due to a limited number (two) of Airports within the regulated applicability area (EKCH and EHAM), which foresee the implementation after the FOC date. Still, 80% of the implementers within the applicability area plan to finalise the implementation within the FOC date.
- For the remaining Objectives (**AOP04.2**, **AOP12.1**, **ENV01** and **NAV03.1**) the reported progress show that they are “On time” and it is therefore expected that they will be achieved within the FOC date.

The ATp EOC also encompasses twenty-one SESAR Solutions, linked to an Initial Objective or not subject to any Objective (“Orphan Solutions”). The table below provides few insights on the implementation progress of those Solutions, building on the data collected through the SESAR Solutions survey during the 2021 LSSIP+ monitoring cycle.

Solution Reference	Solution / Objective Title	Objective Code	# of States responding to the Questionnaire	Completion Rate in 2021	# of States "Ongoing" or "Planned"
#23	D-TAXI service for CPDLC application	-	25	0%	1
#26	Manual Taxi Routing Function	-	16	0%	0
#48	Virtual Block Control in LVPs	-	23	0%	0
#107	Point Merge in complex TMA	-	24	25%	1
#108	AMAN and Point Merge	-	20	20%	1
#116	De-icing Management Tool	-	27	30%	3
#117	Reducing Landing Minima in Low Visibility Conditions using Enhanced Flight Vision Systems (EFVS)	-	21	0%	0
PJ.02-01-01	Optimised Runway Delivery on Final Approach	-	23	4%	4
PJ.02-01-02	Optimised Separation Delivery for Departure	-	24	0%	2
PJ.02-01-03	Weather-Dependent Reductions of WTS for Departures	-	23	0%	0
PJ.02-01-04	Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)	AOP21	23	0%	4
PJ.02-01-05	Weather-Dependent Reductions of Wake Turbulence Separations for Final Approach	-	24	0%	4
PJ.02-01-06	Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)	AOP20	23	0%	1
PJ.02-01-07	Wake Decay Enhancing Devices	-	23	0%	0
PJ.02-03	Minimum pair separations based on RSP	AOP22	25	0%	1
PJ.02-08-01	Integrated runway sequence for full traffic optimization on single and multiple runway airports	AOP23	24	0%	3
PJ.02-08-02	Optimised use of runway configuration for multiple runway airports	AOP24	20	0%	2
PJ.02-08-03	Reduced separation based on local Runway Occupancy Time characterisation	-	23	4%	3
PJ.03a-04	Enhanced Visual Operations	-	21	0%	0
PJ.03b-05	Traffic alerts for pilots for airport operations	-	19	0%	0
PJ.15-02	E-AMAN service	-	25	4%	4

- With the exception of Solution #116 on a “De-icing Management Tool” all the other Solutions within the EOC have quite a limited appeal, with not more than 5 stakeholders indicating an interest in implementation.



- Among the 21 Solutions, for 7 of them there is no implementation interest reported by any of respondents to the survey.
- For the Solutions addressing Point Merge functionalities (#107 and #108), the high completion rate shall be put in the context of the relatively limited applicability area (6 and 4 implementing stakeholders).

### Expected EOC Implementation Progress (2021 – 2025)

The ATp-related Implementation Objectives will further progress in their implementation over the next four years, as reported in the bar chart below. In this respect, it is important to highlight that some Objectives do not reach 100% completion due to some Stakeholders reporting yet no plans to implement.

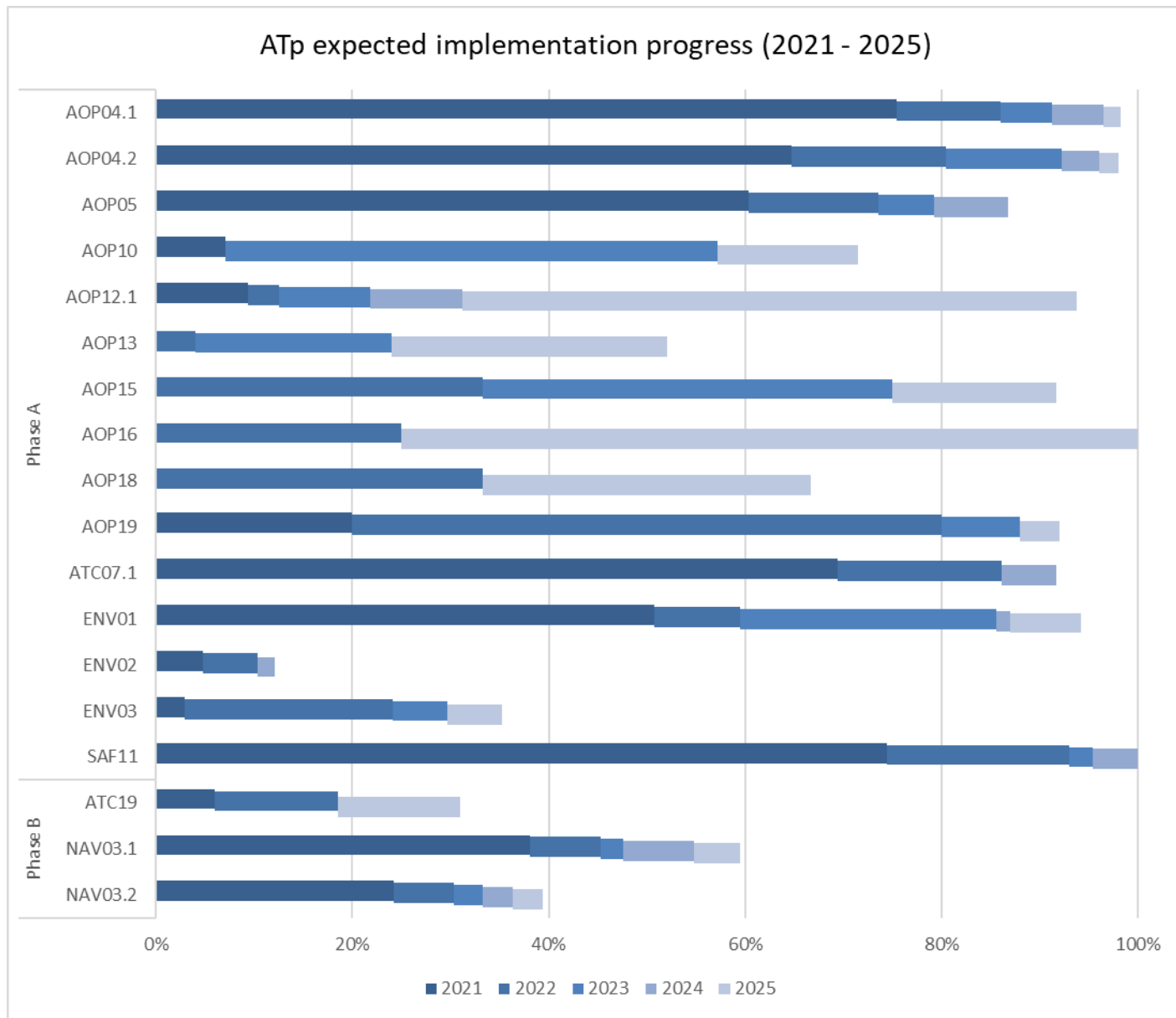


Figure 2-14 ATp expected implementation progress (2021 - 2025)

- The expected progress in 2022 is quite uneven across the EOC, going from Objectives for which no progress is expected during the year (AOP10) up to an expected increase of 60 percentage points (AOP19)
- Overall, at EOC level, the expected increase of the completion rate in 2022 is around 14 percentage points.
- Four Objectives (AOP04.1, AOP04.2, ATC07.1 and SAF11) are planned to be achieved during the next 2022 reporting cycle, overall eight Objectives expected to be achieved by the end of 2025. This number does not include the “local” Objectives for which an achievement date cannot be derived due to the constant changes in their applicability areas.
- It is expected that as more and more implementation plans will be put in place, the planned completion rates will see an increase in the next reporting cycles.

### Standardisation and Regulatory Needs

The nature of Initial Objectives and Orphans Solutions implies that they are still in a pre-deployment phase. The table below summarises their standardisation and regulatory needs.

SESAR Solution	Solution title	MPL3 Objective	Standards and regulations				
			Available	Planned	To be planned	N/A	Missing info
#23	D-TAXI service for CPDLC application						√
#48	Virtual block control in low visibility procedures (LVPs)						√
#107	Point merge in complex terminal airspace						√
#108	Arrival Management (AMAN) and Point Merge						√
#116	De-icing management tool						√
#117	Reducing Landing Minima in Low Visibility Conditions using Enhanced Flight Vision Systems (EFVS)						√
PJ.02-01-04	Wake Turbulence Separations (for Arrivals) based on Static Aircraft Characteristics		√	√ - 2023/2027			
PJ.02-01-06	Wake Turbulence Separations (for Departures) based on Static Aircraft Characteristics		√	√ - 2023/2027			
PJ.02-03	Minimum-pair separations based on required surveillance performance (RSP)		√	√-2027			
PJ.02-08-01	Trajectory based Integrated Runway Sequence			√			
Pj.02-08-02	Runway Manager			√			
PJ.02-01-01	Optimised Runway Delivery on Final Approach		√	√ - 2023/2027			
PJ.02-01-02	Optimised Separation Delivery for Departure		√	√ - 2023/2027			
PJ.02-01-03	Weather-Dependent Reductions of Wake Turbulence Separations for Departures		√	√ - 2023/2027			
PJ.02-01-05	Weather-Dependent Reductions of Wake Turbulence Separations for Final Approach		√	√ - 2023/2027			
PJ.02-01-07	Wake Vortex Decay Enhancing Devices		√	√ - 2023/2027			
PJ.02-08-03	Increased Runway Throughput based on local ROT characterization (ROCAT)			√			
PJ.03a-04	Enhanced visual operations				√		
PJ.03b-05	Traffic alerts for pilots for airport operations		√	√			
PJ.15-02	E-AMAN Service						√

## 2.6 FULLY DYNAMIC AND OPTIMISED AIRSPACE ORGANISATION

Fully dynamic and optimised airspace

**dA EOC in the MPL3 2021:**

- ❖ 12 SESAR Solutions out of 97 of which:
  - 9 addressed by 7 Active / Local Objectives
  - 3 Orphans
- ❖ 2 Active Objectives not linked to any Solution

This Essential Operational Change 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 and there is a need to ensure a smooth transition between FRA and highly structured airspace based on dynamic airspace configuration (DAC) principles.

FRA will allow user-preferred routing, supported by collaborative decision-making processes, and the Network Manager will play a central role in facilitating the coordination of stakeholders through its network management functions. The dynamic airspace concept delivers an optimised and coordinated organisation of airspace activations and reservations, able to support optimised traffic flows in a free-route environment, as well as other uses of airspace (e.g. military). It will also require the development of new ATS working methods supported by automation and new tools.

This EOC includes elements in Phase A and B of the strategic view of the ATM Master Plan Level 1. It will expectedly reach 90% completion for Phase A within 2030, whilst 50% for Phase B. In terms of impacted Key Performance Areas, Phase A averages a progress beyond 50%. Phase B, instead, shows a lower progress due to the lower completion rate of its Objectives and Solutions. It is key to highlight that both charts take into account SESAR Objectives achieved over previous monitoring cycles, namely AOM20 and AOM21.1.

The charts below show the completion evolution of the Fully Dynamic and Optimised Airspace EOC and the expected KPA contribution based on the 2021 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

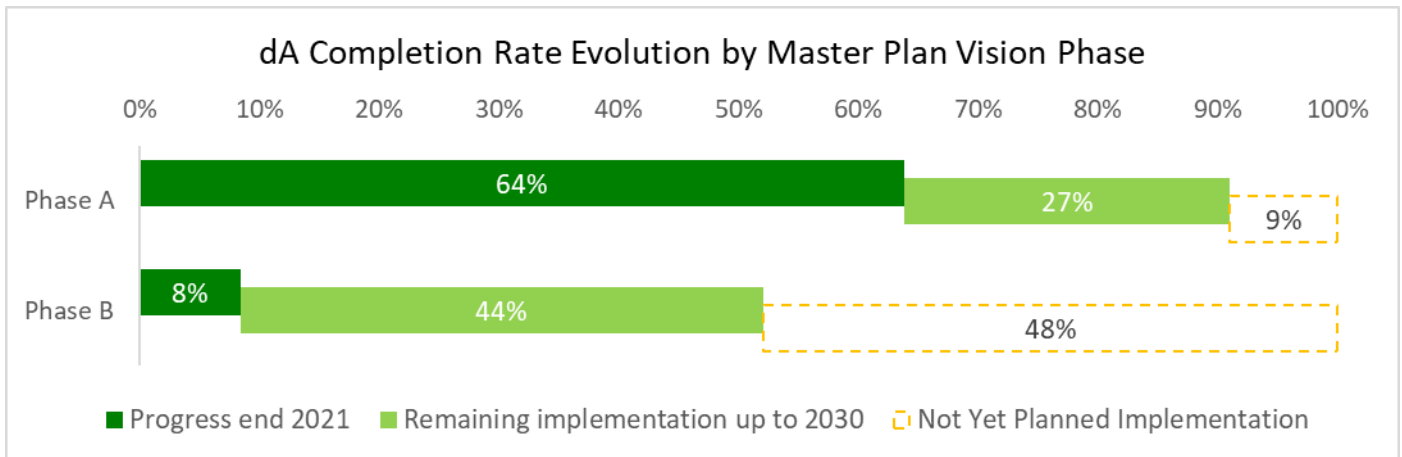


Figure 2-15 dA completion rate evolution, split based on the MP Vision Phases

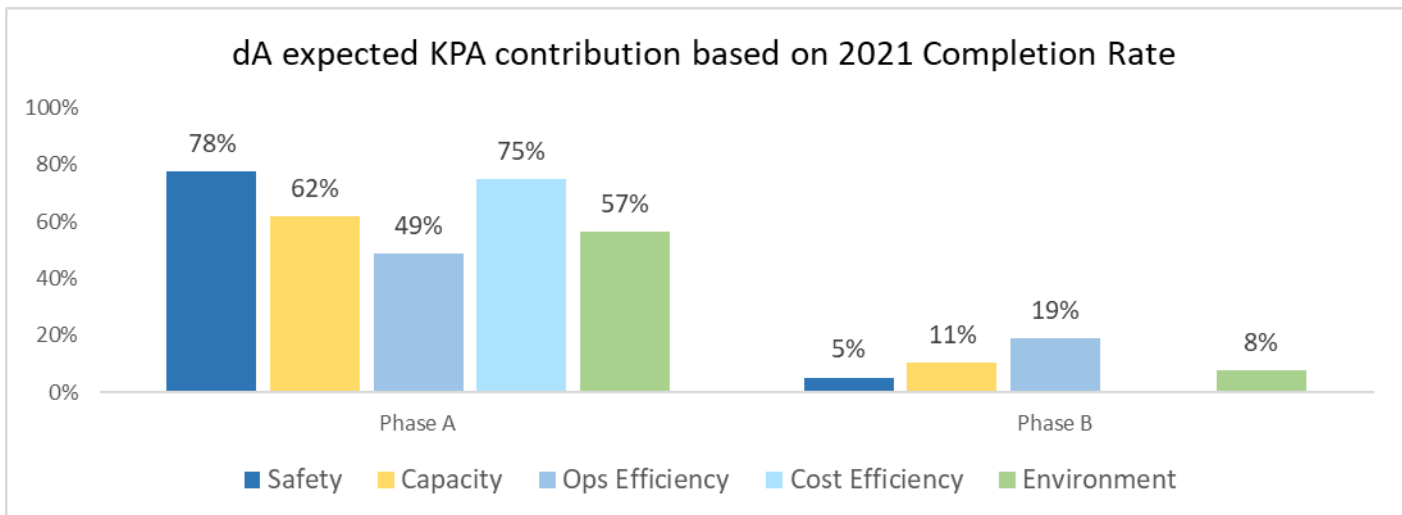


Figure 2-16 Expected KPA contribution to the dA EOC based on the 2021 Completion Rate

The table below lists the Implementation Objectives and Orphan SESAR Solutions included in this EOC, split by MP Vision Phase.

Phase A Objectives / Solutions	Phase B Objectives / Solutions
<b>AOM21.2</b> Initial Free Route Airspace	<b>AOM19.4</b> Management of Pre-defined Airspace Configurations
<b>AOM21.3</b> Enhanced Free Route Airspace Operations	<b>AOM19.5</b> ASM and A-FUA
<b>ATC12.1</b> MONA, TCT and MTC D	<b>ATC18</b> Multi Sector Planning En-route 1P2T
<b>ATC15.1</b> Information Exchange with en-route in Support of AMAN	<b>#10</b> Optimised Route Network using Advanced RNP
<b>ATC15.2</b> Arrival Management Extended to En-route Airspace	<b>PJ.10-01a1</b> High Productivity Controller Team Organisation in En-Route (1PC – 2ECs)
<b>ITY-FMTP</b> Common flight message transfer protocol (FMTP)	
<b>#118</b> Basic EAP (Extended ATC Planning) function	

### Implementation Status at the end of 2021

The table below summarises the progress of the dA-related Implementation Objectives over the 2021 monitoring cycle. In addition, the bullet points provide explanations on the data aggregation and related outcomes.

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
AOM19.4	#31, #66	+4	FR, DE, IT, LT, UK, (BA)	26% (11 pp)	31 Dec 2024
AOM19.5	#31, #66	New Objective	BA, LT, LU	11% (11 pp)	31 Dec 2026
AOM21.2	#32, #33, #66	+4	CZ, FR, DE, MT	82% (10 pp)	31 Dec 2022
AOM21.3	PJ.06-01	New Objective	AL, BG, HR, HU, IE, MK, SK	57% (57 pp)	31 Dec 2025
ATC12.1	#27 #104	-2	LT, (ME, RS, TK)	49% (-4 pp)	31 Dec 2023
ATC15.1	-	0	-	64% (-5 pp)	31 Dec 2022
ATC15.2	#05	+1	LOWW	23% (-4 pp)	31 Dec 2024
ATC18	#63	0	-	6 (0)	Not Applicable
ITY-FMTP	-	+1	MT	82% (2 pp)	31 Dec 2022

Legend: ■ Achieved ■ On Time ■ Planned delay ■ Late

- Three Objectives (**ATC12.1**, **ATC15.1** and **ITY-FMTP**) within the EOC are “Late” as the FOC has already passed. Two of them (**ATC15.1** and **ITY-FMTP**) are expected to be achieved in 2022.
- It should be noted that Objective **ITY-FMTP** has passed the achievement threshold (80% completion in the applicability area) but as there are still States in the regulated applicability area which have not yet finalised implementation, the Objective is not yet considered as achieved.
- For two Objectives (**AOM19.4** and **AOM19.5**) there is already a “Planned delay” as the implementation is expected to be achieved between 24 and 48 months beyond the FOC date. However, both objectives are expected to see a substantial increase in the completion rate during 2022.
- The remaining non-Local Objectives (**AOM21.2**, **AOM21.3** and **ATC15.2**) are considered “On time” as they are planned to be achieved within their FOC dates.
- Similarly with **ITY-FMTP**, Objective **AOM21.2** has passed the achievement threshold (80% completion in the applicability area) but as there are still States in the regulated applicability area which have not yet finalised implementation, the Objective is not yet considered as achieved. This gap is going to be closed in 2022.

The dA EOC also encompasses three SESAR Solutions, not subject to any Objective (“Orphan Solutions”). The table below provides few insights on the implementation progress of those Solutions, building on the data collected through the SESAR Solutions survey during the 2021 LSSIP+ monitoring cycle.

Solution Reference	Solution / Objective Title	Objective Code	# of States responding to the Questionnaire	Completion Rate in 2021	# of States "Ongoing" or "Planned"
#10	Optimised Route Network using Advanced RNP	-	22	5%	2
#118	Basic EAP (Extended ATC Planning) function	-	28	18%	4
PJ.10-01a1	High Productivity Controller Team Organisation in En-Route (1PC–2ECs)	-	24	0%	3

- There are few “Orphan Solutions” within the EOC, none of them showing a particular interest from the implementing stakeholders.
- Still amongst them, Solution #118 on “Basic Extended ATC Planning function” shows a higher interest in terms of deployment plans as well as completion rate, compared with the other 2 Solutions which are part of the EOC.

### Expected EOC Implementation Progress (2021 – 2025)

The dA-related Implementation Objectives will further progress in their implementation over the next four years, as reported in the bar chart below. In this respect, it is important to highlight that some Objectives do not reach 100% completion due to some Stakeholders reporting yet no plans to implement.

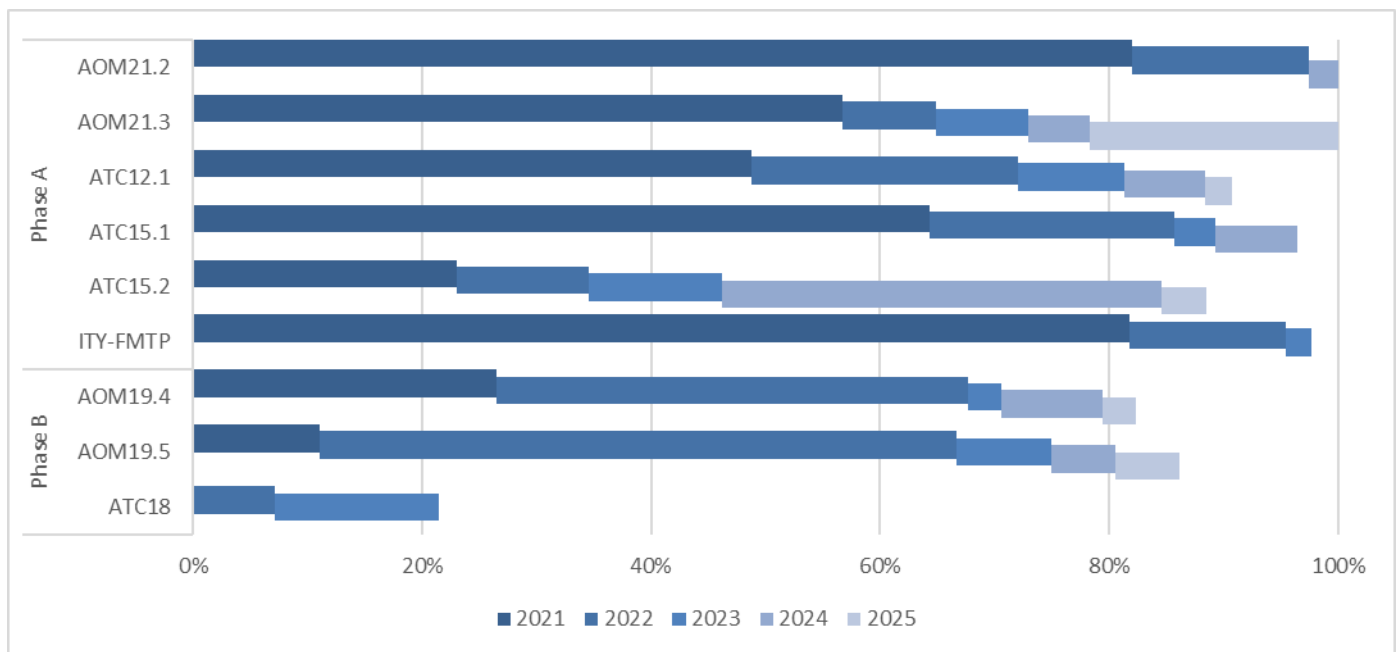


Figure 2-17 dA expected implementation progress (2021 - 2025)

- For two Objectives (**AOM19.4** and **AOM19.5**), a substantial spike in the completion rate is expected in 2022 (42, respectively 56 percentage points increase).
- **AOM21.2** and **ITY-FMTP** Objectives will see the completion of the implementation in the regulated applicability area States that are not yet ready, allowing the achievement of the Objectives.
- **ATC12.1** and **ATC15.1** Objectives also expect a hefty increase in their completion rates (more than 20 percentage points for both of them), which will allow **ATC15.2** to also reach achieved status.
- With regard the “Local” Objective **ATC18**, the implementation is planned to continue at a quite slow pace (1 new completion every year in 2022 and 2023) followed by no new deployments expected between 2023 and 2026. Implementation is planned to resume from 2027 so as to reach operational use in 14 States (from the current 6) by the end of 2030.

### Standardisation and Regulatory Needs

The nature of Initial Objectives and Orphans Solutions implies that they are still in a pre-deployment phase. The table below summarises their standardisation and regulatory needs.

SESAR Solution	Solution title	MPL3 Objective	Standards and regulations				
			Available	Planned	To be planned	N/A	Missing info
#10	Optimised route network using advanced required navigation performance (RNP)						√
#118	Basic EAP (Extended ATC Planning) function						√
PJ.10-01a1	High Productivity Controller Team Organisation in En-Route (including eTMA) (1PC – 2ECs)					√	

## 2.7 TRAJECTORY BASED OPERATIONS



TBO EOC in the MPL3 2021:

- ❖ 9 SESAR Solutions out of 97 of which:
  - 1 addressed by 1 Local Objective
  - 8 Orphans, 2 of which addressed by 4 Initial Objectives
- ❖ 1 Active Objective not linked to any Solution

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 fallback procedures.

This EOC includes elements in Phase A, B, and C of the strategic view of the ATM Master Plan Level 1. It will expectedly reach a 50% completion for Phase A within 2030, 11% for Phases B and C. In terms of impacted Key Performance Areas, there is a general little progress. The greater impact on Safety stems from ATC02.8, more progressed compared to the other elements included in this EOC. It is key to highlight that both charts take into account SESAR Objectives achieved over previous monitoring cycles, namely ATC02.2, ATC02.9, ATC16.

The charts below show the completion evolution of the Trajectory-Based Operations EOC and the expected KPA contribution based on the 2021 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

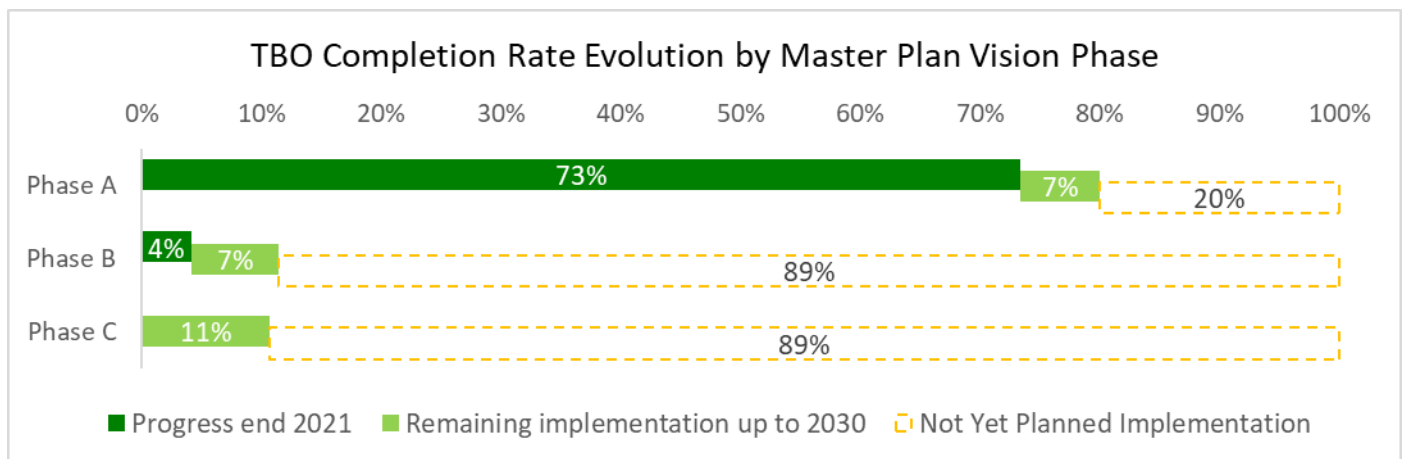


Figure 2-18 TBO completion rate evolution, split based on the MP Vision Phases

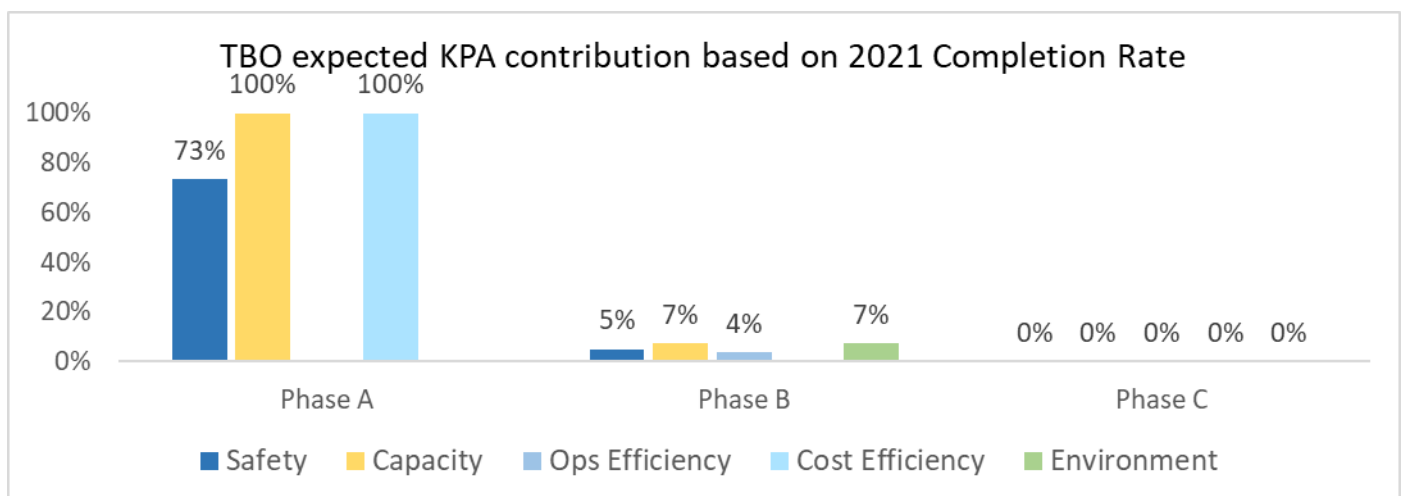


Figure 2-19 Expected KPA contribution to the TBO EOC based on the 2021 Completion Rate

The table below lists the Implementation Objectives and Orphan SESAR Solutions included in this EOC, split by MP Vision Phase.

Phase A Objectives / Solutions	Phase B Objectives / Solutions	Phase C Objectives / Solutions
<b>ATC02.8</b> Ground based safety nets	<b>ATC20</b> Enhanced STCA with DAPs via Mode S EHS	<b>PJ.07-01-01</b> Reactive Flight Delay Criticality Indicator
<b>#101</b> Extended hybrid surveillance	<b>#06</b> Controlled Time of Arrival (CTA) in Medium density / medium complexity environment	<b>PJ.10-02a1</b> Integrated tactical and medium CDT&R services and Conformance Monitoring tools for En-Route and TMA
	<b>#08</b> Arrival Management into Multiple Airports	
	<b>#100</b> ACAS Ground Monitoring and Presentation system	
	<b>#115 (ATC22, ATC23, ATC25)</b> Initial Air-Ground Trajectory Information Sharing (Airborne Domain)	
	<b>PJ.18-06b1 (ATC23, ATC24)</b> Network Manager Trajectory Information Enhancement	

### Implementation Status at the end of 2021

The table below summarises the progress of the TBO-related Implementation Objectives over the 2021 monitoring cycle. In addition, the bullet points provide explanations on the data aggregation and related outcomes.

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
ATC02.8	-	+5	AZ, CH, HR, LT, SE	67% (14 pp)	31 Dec 2022
ATC20	#69	+1	DK	12 (1)	Not Applicable

Legend: ■ Achieved ■ On Time ■ Planned delay ■ Late

- While technically the Objective **ATC02.8** is “Late” as the FOC date has passed, two (MSAW and APW) out of the three functionalities addressed by the Objective (MSAW, APW and APW) are well advanced and have already reached the implementation threshold of 80%.
- MSAW is already implemented by 83% of the States in the applicability area while APW has reached 92% completion rate.
- The “Local” Objective **ATC20** has already been implemented by 12 States out of the 31 in its Applicability Area.

The TBO EOC also encompasses eight SESAR Solutions, linked to an Initial Objective or not subject to any Objective (“Orphan Solutions”). The table below provides few insights on the implementation progress of those Solutions, building on the data collected through the SESAR Solutions survey during the 2021 LSSIP+ monitoring cycle.

Solution Reference	Solution / Objective Title	Objective Code	# of States responding to the Questionnaire	Completion Rate in 2021	# of States "Ongoing" or "Planned"
#06	Controlled Time of Arrival (CTA) in Medium density / medium complexity environment	-	26	4%	3
#08	Arrival Management into Multiple Airports	-	19	11%	1
#100	ACAS Ground Monitoring and Presentation system	-	25	16%	1
#101	Extended hybrid surveillance	-	23	0%	0
#115	Initial Air-Ground Trajectory Information Sharing (Airborne Domain)	ATC22, ATC23, ATC25	n/a	n/a	n/a



Solution Reference	Solution / Objective Title	Objective Code	# of States responding to the Questionnaire	Completion Rate in 2021	# of States "Ongoing" or "Planned"
PJ.07-01-01	Reactive Flight Delay Criticality Indicator	-	20	0%	0
PJ.10-02a1	Integrated tactical and medium CDT&R services and Conformance Monitoring tools for En-Route and TMA	-	25	0%	5
PJ.18-06b1	Network Manager Trajectory Information Enhancement	ATC23, ATC24	n/a	n/a	n/a

- The interest for the deployment of the “Orphan solutions” within the EOC is even, with an average of 4 implementing stakeholders reporting deployment plans or completion. Still there are two outliers (**#101** and **PJ.07.01.01**).
- For two other Solutions (**#115** and **PJ.18.06b1**), it was not possible to collect deployment information within the timeframe for the development of this Report.
- The high completion rate of some of the Solutions (**#08**, **#100**) should be put in the context of their very limited applicability area.

### Expected EOC Implementation Progress (2021 – 2025)

The TBO-related Implementation Objectives will further progress in their implementation over the next four years, as reported in the bar chart below. In this respect, it is important to highlight that some Objectives do not reach 100% completion due to some Stakeholders reporting yet no plans to implement.

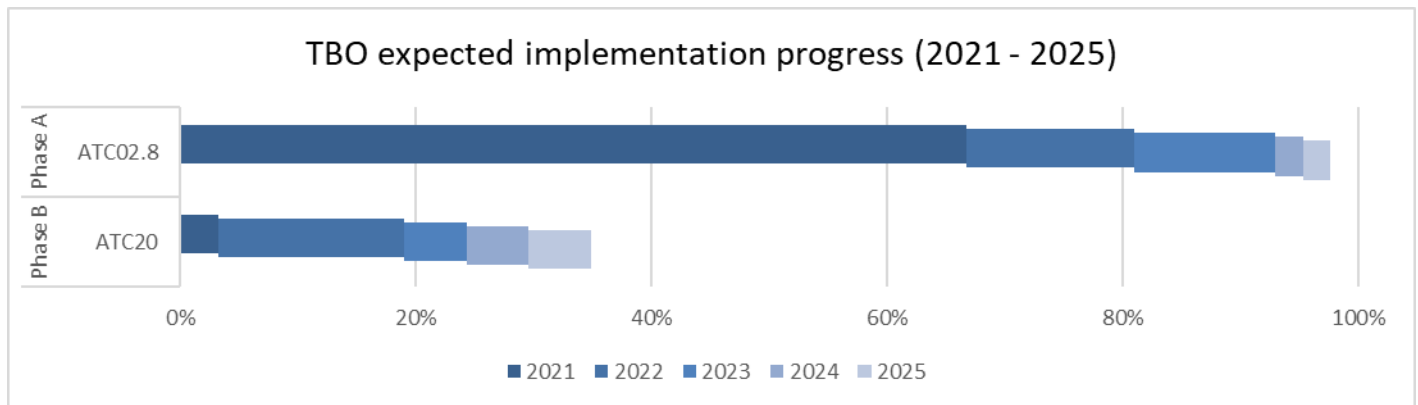


Figure 2-20 TBO expected implementation progress (2021 - 2025)

- With the incoming increase in the completion rate expected in 2022 (14 percentage points), the Objective **ATC02.8** will reach a completion rate of 81%, right above the threshold allowing to consider the Objective as achieved.
- After a slight increase (3 new locations will complete the deployment in 2022) the implementation of the “Local” Objective **ATC20** is expected to continue at a quite constant pace (1 new completion every year between 2023 and 2025) aiming at a total of 18 locations in 2027. However the progress rate of the Objective and its overall expected completion is impacted by the still large number of States (13) which report not having yet any implementation plans.

## Standardisation and Regulatory Needs

The nature of Initial Objectives and Orphans Solutions implies that they are still in a pre-deployment phase. The table below summarises their standardisation and regulatory needs.

SESAR Solution	Solution title	MPL3 Objective	Standards and regulations				
			Available	Planned	To be planned	N/A	Missing info
#06	Controlled time of arrival (CTA) in medium-density/medium-complexity environments						√
#08	Arrival management into multiple airports						√
#100	ACAS ground monitoring and presentation system						√
#101	Extended hybrid surveillance						√
PJ.07-01-01	AU Processes for Trajectory Definition					√	
PJ.10-02a1	Integrated tactical and medium Conflict Detection & Resolution (CD&R) services and Conformance Monitoring tools for En-Route and TMA		√	√	√		
PJ.18-02c	eFPL supporting SBT transition to RBT		√		√		

## 2.8 MULTIMODAL MOBILITY AND INTEGRATION OF ALL AIRSPACE USERS



M<sup>3</sup> EOC in the MPL3 2021:

- ❖ 3 SESAR Solutions out of 97 of which:
  - 1 addressed by 1 Active Objective
  - 2 Orphans

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 and in TMAs, is a priority.

This EOC includes elements in Phases B and C of the strategic view of the ATM Master Plan Level 1. The expected completion rate is low for both Phases, 25% for Phase B, and 15% for Phase C. The remaining portion is not yet planned according to the Stakeholders. In terms of impacted Key Performance Areas, there is little progress for both Phases, due to the expected benefits and / or the maturity of the elements included in the EOC.

The charts below show the completion evolution of the Multimodal Mobility and integration of all Airspace Users EOC and the expected KPA contribution based on the 2021 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

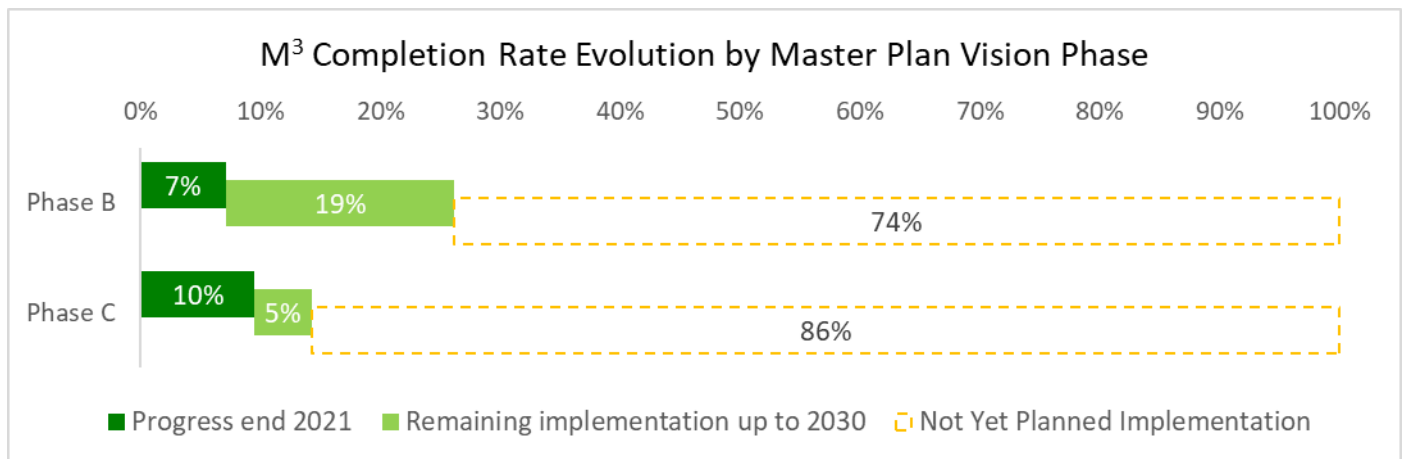


Figure 2-21 M<sup>3</sup> completion rate evolution, split based on the MP Vision Phases

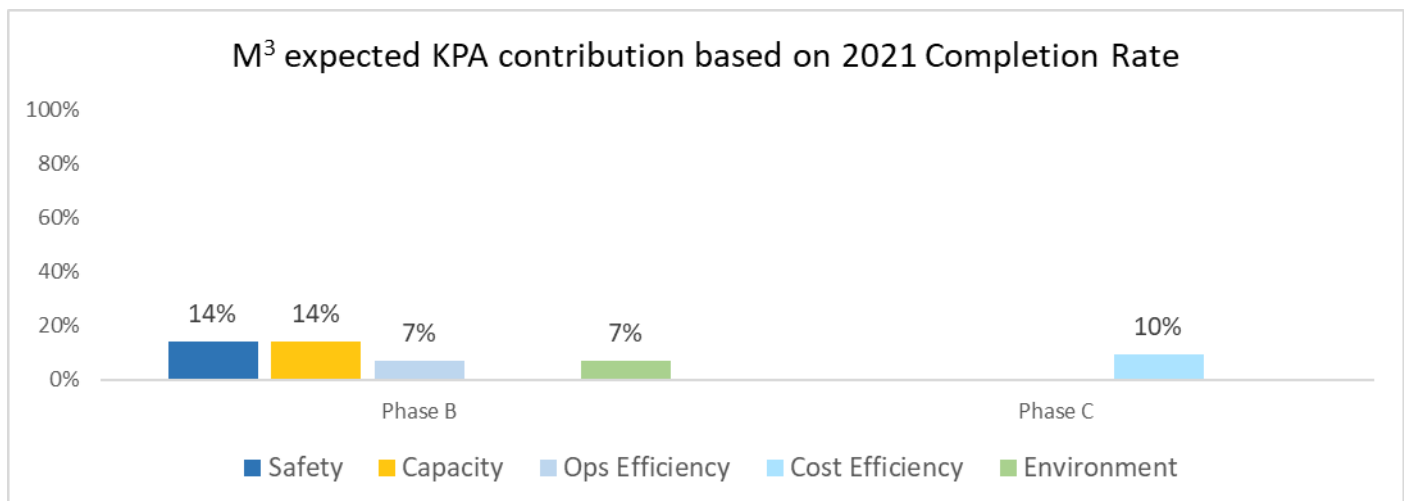


Figure 2-22 Expected KPA contribution to the M<sup>3</sup> EOC based on the 2021 Completion Rate

The table below lists the Implementation Objectives and Orphan SESAR Solutions included in this EOC, split by MP Vision Phase.

Phase B Objectives / Solutions	Phase C Objectives / Solutions
<b>NAV12</b> ATS IFR Routes for Rotorcraft Operations	<b>PJ.02-05</b> Independent Rotorcraft operations at the airports

Phase B Objectives / Solutions	Phase C Objectives / Solutions
<b>PJ.01-06</b> Enhanced Rotorcraft operations in the TMA	

### Implementation Status at the end of 2021

The table below summarises the progress of the M<sup>3</sup>-related Implementation Objectives over the 2021 monitoring cycle. In addition, the bullet points provide explanations on the data aggregation and related outcomes.

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
NAV12	#113	+1	EE	14% (5 pp)	Not Available

Legend: ■ Achieved ■ On Time ■ Planned delay ■ Late

- The Objective raises a limited interest, with half of the States within scope of the data collection considering it as “Not Applicable” due to the lack of business/operational needs. Even among the States which consider the Objective of potential relevance, more than half (11 out of 21 States) do not have yet concrete implementation plans.
- For the time being, only three States have reported completion of the Objective while 5 others are actively deploying it.
- Due to the still high number of States reporting “Not yet planned”, it is not yet possible to predict an achievement date.

The M<sup>3</sup> EOC also encompasses two SESAR Solutions, not subject to any Objective (“Orphan Solutions”). The table below provides few insights on the implementation progress of those Solutions, building on the data collected through the SESAR Solutions survey during the 2021 LSSIP+ monitoring cycle.

Solution Reference	Solution / Objective Title	Objective Code	# of States responding to the Questionnaire	Completion Rate in 2021	# of States "Ongoing" or "Planned"
PJ.01-06	Enhanced Rotorcraft operations in the TMA	-	21	0%	1
PJ.02-05	Independent Rotorcraft operations at the airports	-	21	10%	1

- Similarly, with the Implementation Objective within the EOC, the interest in the Solution is very limited mostly because of the lack of business/operational justification.
- The completion rate of Solution PJ.02-05 should be put in the context of its very limited applicability area.

### Expected EOC Implementation Progress (2021 – 2025)

The M<sup>3</sup>-related Implementation Objective will further progress in their implementation over the next four years, as reported in the bar chart below. In this respect, it is important to highlight that the Objective does not reach 100% completion due to the many Stakeholders reporting yet no plans to implement.

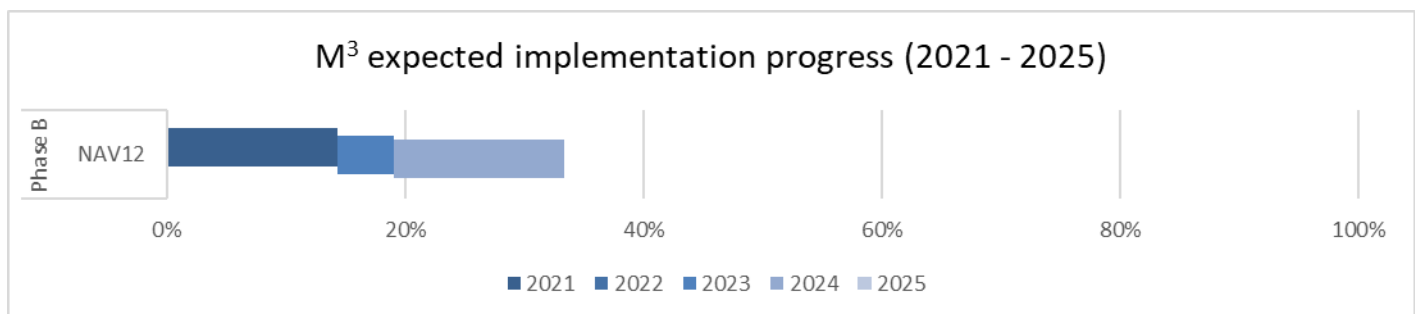


Figure 2-23 M<sup>3</sup> expected implementation progress (2021 - 2025)

- The high number of States reporting not having implementation plans yet heavily impact the prognosis for the further evolution of the completion rate. The completion rate is expected to grow slowly over the next years (no completions expected in 2022) and will only reach one third of the States in the applicability area by end of 2024.

## Standardisation and Regulatory Needs

The nature of Initial Objectives and Orphans Solutions implies that they are still in a pre-deployment phase. The table below summarises their standardisation and regulatory needs.

SESAR Solution	Solution title	MPL3 Objective	Standards and regulations				
			Available	Planned	To be planned	N/A	Missing info
PJ.02-05	Independent rotorcraft operations at the airports		√	√-2021			
PJ.01-06	Enhanced rotorcraft operations and GA operations in the TMA		√	√-2021			

## 2.9 VIRTUALISATION OF SERVICE PROVISION

Virtualisation  
of service  
provision

vS EOC in the MPL3 2021:

- ❖ 7 SESAR Solutions out of 97 of which:
  - 4 addressed by 1 Local Objective
  - 3 Orphans

The ability to provide ATS from a remote location is relevant in all operating environments: airport, TMA, extended TMA (E-TMA) or en route. In TMA, extended 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, aeronautical information services (AIS) and all data related to the flight plan. In airport environments, the remote tower concept supports several use cases that allow the provision of ATS from a Remote Tower Centre (RTC), with a dynamic allocation of a number of physical aerodromes to remote tower modules. It offers new alternatives for the provision of tower-related ATS and in some cases reduces ANS costs. The integration of approach services to these airports through a remote virtual centre is also possible.

This EOC includes elements in Phases B and C of the strategic view of the ATM Master Plan Level 1. The expected completion rate exceeds 50% for Phase B, whilst it reaches 15% for Phase C. In terms of impacted Key Performance Areas, there is little progress for both Phases, due to the local nature and / or the maturity of the elements included in the EOC.

The charts below show the completion evolution of the Virtualisation of Service provision EOC and the expected KPA contribution based on the 2021 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

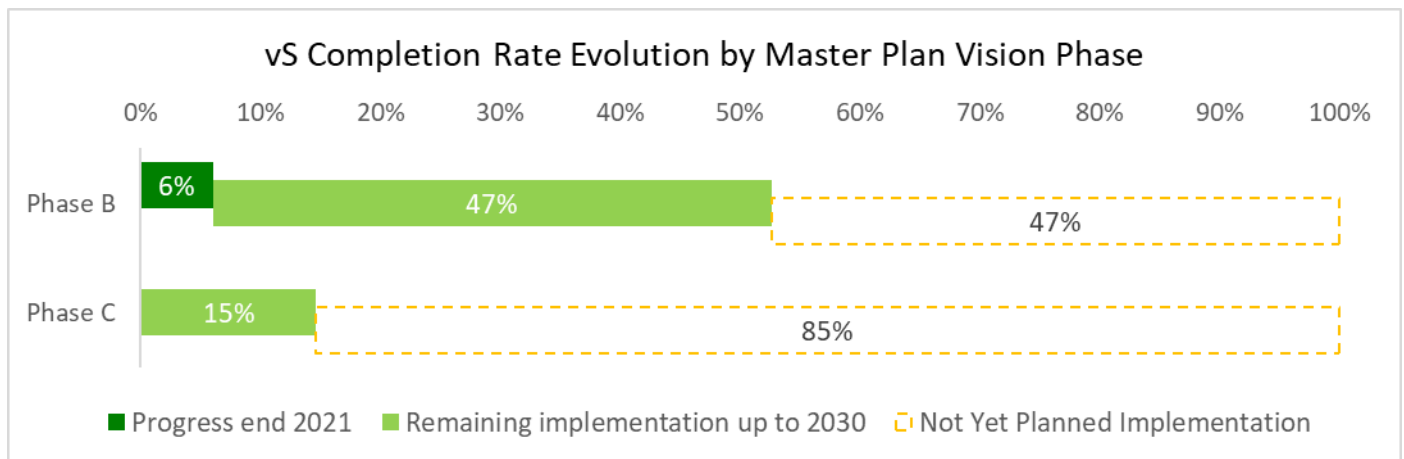


Figure 2-24 vS completion rate evolution, split based on the MP Vision Phases

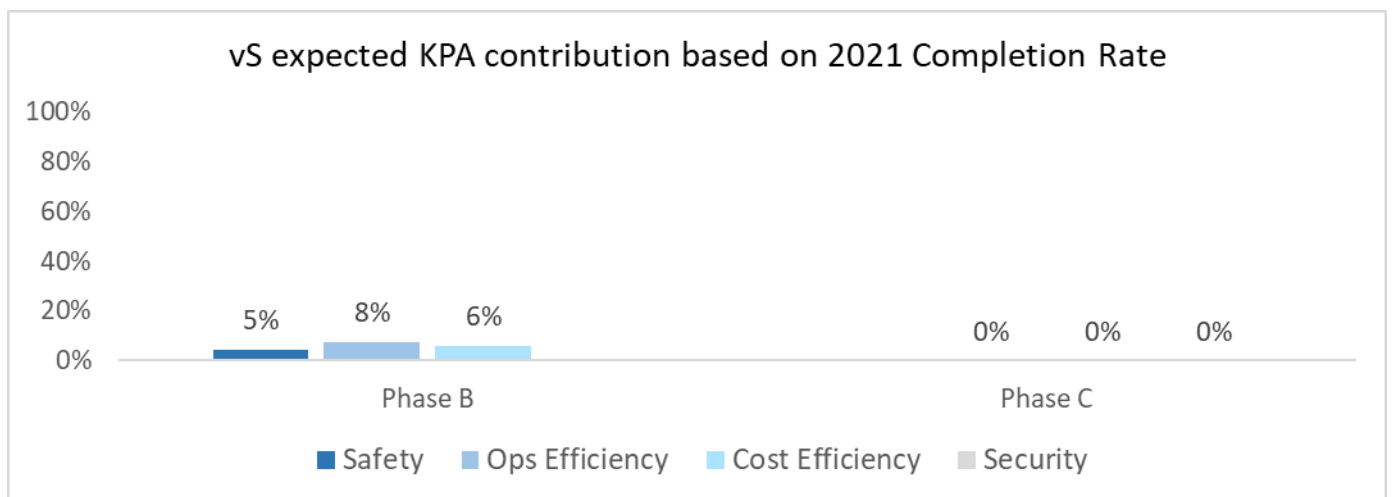


Figure 2-25 Expected KPA contribution to the vS EOC based on the 2021 Completion Rate

The table below lists the Implementation Objectives and Orphan SESAR Solutions included in this EOC, split by MP Vision Phase.

Phase B Objectives / Solutions	Phase C Objectives / Solutions
<b>AOP14</b> Remote Tower Services	<b>PJ.16-03</b> Enabling rationalisation of infrastructure using virtual centre based technology
<b>PJ.05-02</b> Multiple remote tower module	<b>PJ.16-04-01</b> Multi-Touch Input at the Controller Working Position

## Implementation Status at the end of 2021

The table below summarises the progress of the vS-related Implementation Objectives over the 2021 monitoring cycle. In addition, the bullet points provide explanations on the data aggregation and related outcomes.

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
AOP14	#12, #13, #52, #71	+3	ESNQ, ESNZ, EGLC	8 (3)	Not Applicable

Legend: ■ Achieved ■ On Time ■ Planned delay ■ Late

- AOP14 is a “Local” Objective, so it does not have neither a predefined FOC date nor a progress status. However, there is clear increase in the interest aroused by this functionality as the number of locations where remote tower services are provided or expected to be provided increased from 23 to 29 during the reporting cycle.
- Three new locations have started remote tower operations in 2021.

The vS EOC also encompasses three SESAR Solutions, not subject to any Objective (“Orphan Solutions”). The table below provides few insights on the implementation progress of those Solutions, building on the data collected through the SESAR Solutions survey during the 2021 LSSIP+ monitoring cycle.

Solution Reference	Solution / Objective Title	Objective Code	# of States responding to the Questionnaire	Completion Rate in 2021	# of States "Ongoing" or "Planned"
PJ.05-02	Multiple remote tower module	-	22	5%	4
PJ.16-03	Enabling rationalisation of infrastructure using virtual centre based technology	OD-5	21	0%	3
PJ.16-04-01	Multi-Touch Input at the Controller Working Position	-	20	0%	3

- Within the EOC, the focus is on the deployment of the Implementation Objective in order to pave the way for the introduction of more complex features or for operations in more demanding environments, as envisaged by **PJ.05.02**.
- For the remaining Solutions part of the EOC, the interest is still mitigated.

## Expected EOC Implementation Progress (2021 – 2025)

The vS-related Implementation Objective will further progress in its implementation over the next four years, as reported in the bar chart below. In this respect, it is important to highlight that the Objective does not reach 100% completion due to some Stakeholders reporting yet no plans to implement.

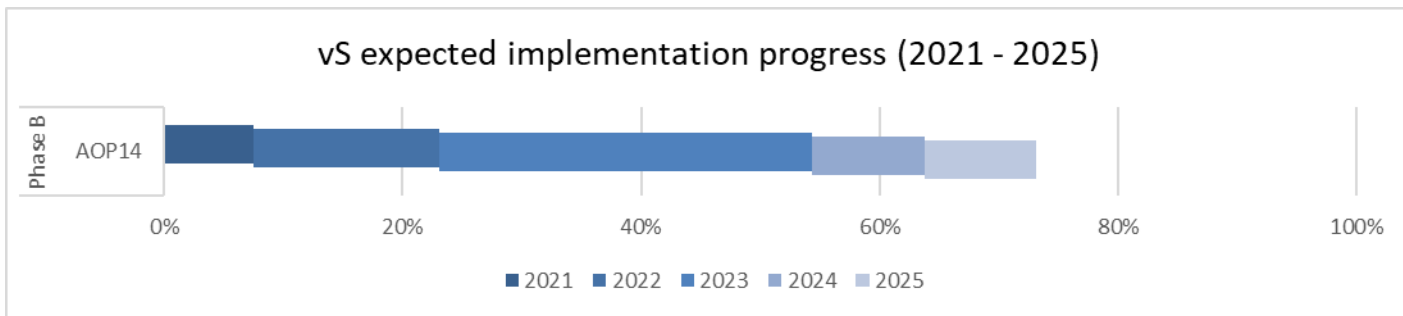


Figure 2-26 vS expected implementation progress (2021 - 2025)

- Implementation of the remote tower functionality is expected to continue at an increased pace (5 new locations in 2022, followed by 10 new ones in 2023).
- Overall 29 locations are planned to operate remote towers by the end of 2025. It is also expected that among the 8 States reporting interest in deployment but not firm plans, some will proceed with implementation actions.

### Standardisation and Regulatory Needs

The nature of Initial Objectives and Orphans Solutions implies that they are still in a pre-deployment phase. The table below summarises their standardisation and regulatory needs.

SESAR Solution	Solution title	MPL3 Objective	Standards and regulations				
			Available	Planned	To be planned	N/A	Missing info
PJ.05-02	Multiple remote tower module			√			
PJ.16-03	Enabling rationalisation of infrastructure using virtual centre based technology			√-2024			



### 3 DEPLOYMENT VIEW

The Deployment View Chapter is organised by Essential Operational Change (EOC), in line with the entire document. Each DV is a one-pager and it provides the details of the status of implementation of an Active Implementation Objective as of 31 December 2021, thanks to the data collected through the 2021 LSSIP+ Monitoring Cycle.

This 2022 edition of the MPL3 Progress Report includes a total number of 74 Active Implementations Objectives, as mentioned in the 2021 edition of the MPL3 Implementation Plan. 45 Objectives are Regulated, 20 Committed, and 9 Local. Out of these:

- 3 were Achieved in 2021
- 16 are On Time
- 7 are under implementation, with a Planned Delay
- 14 will be implemented Late against their FOC date
- 25 for which the status is Not Available, i.e. it is not possible to estimate the status due to the high number of “Not Yet Planned” status reported by Stakeholders

The 9 “Local” Objectives do not have a status assigned, due to their nature. This is the reason why the pie chart on the right-hand side is short of 9 Implementation Objectives.

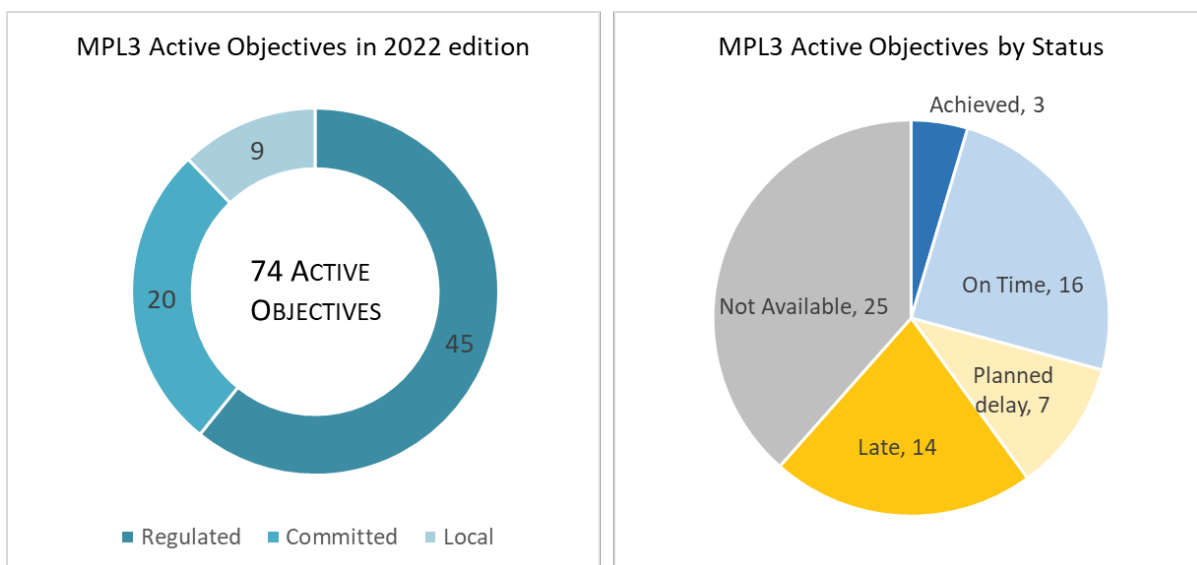


Figure 3-1 MPL3 Active Implementation Objectives in 2022 edition, split by Status

#### 3.1 HOW TO READ THE DEPLOYMENT VIEW ASSESSMENTS?

**EOC Graphical designator** – In line with Executive view of the MPL1.

**SESAR Solution** –The link to the functionally related SESAR Solution, if any.

**Objective Code and Title** – The designator and the title of each Implementation Objective assessment.

**Stakeholders** – Stakeholders included in this field are all those who are included in the implementation objective and having a dedicated SLoAs to complete.




**FOC** – Full Operational Capability date as defined in the MP L3 2021 Implementation Plan. The FOC date is defined as the date by which full operational capability should be achieved by all stakeholders. Note that this is not applicable to the “Local” Objectives, which do not have an associated FOC date.

**Estimated achievement** – The date represents the year when the Implementation Objective reaches 100% completion in the Applicability Area for the regulated Objectives, or 80% completion for the others. For very recent Implementation Objectives, still in early planning phase, the estimation of a reliable achievement date is not possible. When this happens, the “Status” (see below) may not be presented.

**Status** – It provides an assessment of the Objective’s expected achievement against its FOC date, based on the reported information.

Status	Progress assessment
On Time	Implementation progress is on time. No delays expected.
Planned delay	The estimated achievement date is beyond the FOC date. Stakeholders already envisage delays in implementation. FOC date is still in the future, some corrective measures can still be taken to achieve the objective in line with its FOC date.
Late	The estimated achievement date is beyond the FOC date and the FOC date is in the past.
Achieved	Objective has fulfilled the achievement criteria (80% completion in the applicability area). For some objectives (CP1/SES/ICAO ASBU-related), the objective may be monitored until 100% achievement.

**Expected benefits** – Graphical identification (icons of the Key Performance Areas) of the expected benefits brought by implementation, based on the information provided in the MP L3 2021 Implementation Plan.

	Capacity		Operational Efficiency		Cost Efficiency
	Safety		Environment		Security

**OI Steps / Enablers** – The link between Operational Improvement steps / Enablers and the relevant Implementation Objective.

**CP1 AF & SDP Family** – The relationship between Implementation Objective and CP1 ATM Functionality and SDP Family. If the link exists, there is full alignment between the Objective and the related contents of the SESAR Deployment Programme (SDP).

**ICAO ASBU** – The link between the Implementation Objective and ICAO ASBU.

**Completion Rate evolution (%)** – The graphs shows the past (if applicable) and the expected evolution of the Implementation Objective completion rate within the Applicability Area. The scale of each graph is adapted to each particular case to show the estimation when objective reaches 100% or 80% completion. If States do not provide an estimated achievement date (e.g. no defined plans for implementation), the completion threshold is not reached, hence the estimated achievement is not yet available.

**Progress of non-completed Countries / Airports** – The pie chart shows the distribution of the implementation progress among States / Airports that have not yet completed the implementation. The computation is based on the progress percentage reported by Stakeholders via the LSSIP+ process.

**Map** – The map highlights the progress of implementation at State, Airport, Stakeholder or SLoA level (as relevant) and it reflects the progress status reported through 2021 LSSIP+ monitoring cycle. Each map also features a donut chart splitting the number of Applicable States / Airports by progress status. The map's colour coding and related definition is below:

Progress status	Definition
Completed	The development / improvement defined in the SLoA is fulfilled according to the MP L3 Plan Finalisation Criteria. An Objective is marked completed if all SLoAs are completed.
Ongoing	Stakeholders kicked-off the implementation, but activities are still ongoing. The planned implementation date can be within or beyond the FOC date.
Planned	Stakeholders planned relevant activities, with an approved and committed budget, within or beyond the FOC date.
Not yet Planned	<ol style="list-style-type: none"> <li>The Stakeholder has not yet defined a project management/implementation plan for the Objective.</li> <li>The Stakeholder is in the scoping phase, hence developing a feasibility study including a cost benefit analysis etc. Final decision is still pending.</li> </ol>
Not Applicable	<ol style="list-style-type: none"> <li>The Stakeholder is not part of the MP L3 Plan 'Applicability Area'; or</li> <li>The Stakeholder is part of the MP L3 Plan 'Applicability Area', however: <ul style="list-style-type: none"> <li>The Stakeholder does not provide the required service for this; or</li> <li>The Stakeholder implementation is not justified particularly in terms of operational needs; or</li> <li>The Stakeholder is implementing alternative solutions.</li> </ul> </li> </ol>
Missing Data	Lack of data from a Stakeholder makes it impossible to define a Progress status

## LIST OF MASTER PLAN LEVEL 3 IMPLEMENTATION OBJECTIVES IN ALPHABETICAL ORDER

Objective	Title	Solution	Page #
<b>AOM13.1</b>	Harmonise OAT and GAT handling	-	60
<b>AOM19.4</b>	Management of Pre-defined Airspace Configurations	#31 #66	113
<b>AOM19.5</b>	ASM and A-FUA	#31 #66	114
<b>AOM21.2</b>	Initial Free Route Airspace	#32 #33 #66	115
<b>AOM21.3</b>	Enhanced Free Route Airspace Operations	#33 PJ.06-01	116
<b>AOP04.1</b>	A-SMGCS Surveillance Service (former ICAO Level 1)	#70 #110	95
<b>AOP04.2</b>	A-SMGCS RMCA (former ICAO Level 2)	-	96
<b>AOP05</b>	Airport CDM	-	97
<b>AOP10</b>	Time Based Separation	#64	98
<b>AOP11.1</b>	Initial Airport Operations Plan	#21	61
<b>AOP11.2</b>	Extended Airport Operations Plan	#21	62
<b>AOP12.1</b>	Airport Safety Nets	#02	99
<b>AOP13</b>	Automated Assistance to ATCO for Surface planning and routing	#22 #53	100
<b>AOP14</b>	Remote Tower Services	#12 #13 #52 #71	125
<b>AOP15</b>	Safety Nets for Vehicle Drivers	#04	101
<b>AOP16</b>	Guidance assistance through AGL	#47	102
<b>AOP17</b>	Provision/integration of DEP planning info to NMOC	#61	63
<b>AOP18</b>	Runway Status Lights (RWSL)	#01	103
<b>AOP19</b>	Departure Management Synchronised with Pre-departure sequencing	#53 #106	104
<b>ATC02.8</b>	Ground based safety nets	-	122
<b>ATC07.1</b>	AMAN Tools and Procedures	-	105
<b>ATC12.1</b>	MONA, TCT and MTCD	#27 #104 PJ.10-02a1	117
<b>ATC15.1</b>	Information Exchange with en-route in Support of AMAN	-	118
<b>ATC15.2</b>	Arrival Management Extended to En-route Airspace	#05	119
<b>ATC18</b>	Multi Sector Planning En-route 1P2T	#63 #118 PJ.10-01a1	120
<b>ATC19</b>	AMAN/DMAN integration	#54	106
<b>ATC20</b>	Enhanced STCA with DAPs via Mode S EHS	#69	123
<b>COM10.1</b>	Basic AMHS	-	52
<b>COM10.2</b>	Extended AMHS	-	53
<b>COM11.1</b>	VoIP in En-Route	-	54
<b>COM11.2</b>	VoIP in Airport/Terminal	-	55
<b>COM12</b>	NewPENS	-	64
<b>ENV01</b>	Continuous Descent Operations	#11	107
<b>ENV02</b>	Airport Collaborative Environmental Management	-	108
<b>ENV03</b>	Continuous Climb Operations	-	109
<b>FCM03</b>	Collaborative flight planning	-	65
<b>FCM04.2</b>	Enhanced Short Term ATFCM Measures	#17	66
<b>FCM06.1</b>	Traffic Complexity Assessment	#19 PJ.18-02c	67
<b>FCM09</b>	Enhanced ATFM Slot swap	#56	68
<b>FCM10</b>	Interactive rolling NOP	#18 #20	69
<b>FCM11.1</b>	Initial AOP/NOP Information Sharing	#20 #21	70

Objective	Title	Solution	Page #
<b>FCM11.2</b>	AOP/NOP integration	#18 #20 #21	71
<b>INF07</b>	Electronic Terrain and Obstacle Data (e-TOD)	-	9
<b>INF10.2</b>	Stakeholders' SWIM PKI and cybersecurity	#46	72
<b>INF10.3</b>	Aeronautical Information Exchange - Airspace structure service	#46	73
<b>INF10.4</b>	Aeronautical Information Exchange - Airspace availability service	#46	74
<b>INF10.5</b>	Aeronautical Information Exchange - Airspace Reservation (ARES) service	#46	75
<b>INF10.6</b>	Aeronautical Information Exchange - Digital NOTAM service	#34 #46	76
<b>INF10.7</b>	Aeronautical Information Exchange - Aerodrome Mapping information exchange service	#34 #46	77
<b>INF10.8</b>	Aeronautical Information Exchange - Aeronautical Information Features service	#34 #46	78
<b>INF10.9</b>	Meteorological Information Exchange - Volcanic ash mass concentration information service	#34 #35 #46	79
<b>INF10.10</b>	Meteorological Information Exchange - Aerodrome Meteorological information Service	#34 #35 #46	80
<b>INF10.11</b>	Meteorological Information Exchange - En-Route and Approach Meteorological information service	#34 #35 #46	81
<b>INF10.12</b>	Meteorological Information Exchange - Network Manager Meteorological Information	#34 #35 #46	82
<b>INF10.13</b>	Cooperative Network Information Exchange - ATFCM Tactical Updates Service	#46	83
<b>INF10.14</b>	Cooperative Network Information Exchange - Flight Management Service	#46	84
<b>INF10.15</b>	Cooperative Network Information Exchange - Measures Service	#46	85
<b>INF10.16</b>	Cooperative Network Information Exchange - Short Term ATFCM Measures services	#46	86
<b>INF10.17</b>	Cooperative Network Information Exchange - Counts service	#46	87
<b>INF10.18</b>	Flight Information Exchange (Yellow Profile) – Filing Service	#46	88
<b>INF10.19</b>	Flight Information Exchange (Yellow Profile) – Flight Data Request Service	#46	89
<b>INF10.20</b>	Flight Information Exchange (Yellow Profile) – Notification Service	#46	90
<b>INF10.21</b>	Flight Information Exchange (Yellow Profile) – Data Publication Service	#46	91
<b>INF10.22</b>	Flight Information Exchange (Yellow Profile) – Trial Service	#46	92
<b>INF10.23</b>	Flight Information Exchange (Yellow Profile) – Extended AMAN SWIM Service	#46	93
<b>ITY-ACID</b>	Aircraft identification	-	56
<b>ITY-AGDL</b>	Initial ATC air-ground data link services	-	57
<b>ITY-AGVCS2</b>	8.33 kHz A/G Voice Channel Spacing below FL195	-	58
<b>ITY-FMTP</b>	Common flight message transfer protocol (FMTP)	-	121
<b>NAV03.1</b>	RNAV1 in TMA Operations	#62	110
<b>NAV03.2</b>	RNP1 in TMA Operations	#09 #51	111
<b>NAV10</b>	RNP Approach Procedures to instrument RWY	#103	59
<b>NAV12</b>	ATS IFR Routes for Rotorcraft Operations	#113	124
<b>SAF11</b>	Improve RWY safety by preventing RWY excursions	-	112

### 3.2 CNS INFRASTRUCTURE AND SERVICES

		<h2>SESAR Solution – Nil</h2>																		
<b>COM10.1 Migration from AFTN to AMHS (Basic service)</b>																				
<b>Stakeholders</b>	ANSPs EUROCONTROL Industry	<b>Expected Benefits</b>	Capacity	Operational efficiency	Cost efficiency															
			Safety	Environment	Security															
<b>FOC</b>	31/12/2018	<b>OI Steps / Enablers</b>	CTE-C06c																	
<b>Estimated achievement</b>	31/12/2021	<b>CP1 AF &amp; SDP Family</b>	-	-																
<b>Status</b>	<b>Achieved</b>	<b>ICAO ASBU</b>	COMI-B0/7																	
<b>Completion Rate Evolution (%)</b>			<b>Progress among non-Completed Countries</b>																	
New objective, with no historical data. It is achieved, with <b>completion rate of 93%</b> .			The only State which has not started yet the implementation is North Macedonia, planning the implementation by May 2024.																	
<b>Status of implementation</b>																				
		<table border="1"> <thead> <tr> <th colspan="3">Overlaps</th> </tr> <tr> <th>Code</th> <th>Full name</th> <th>Progress</th> </tr> </thead> <tbody> <tr> <td>LU</td> <td>Luxembourg</td> <td><span style="color: green;">■</span></td> </tr> <tr> <td>MAS</td> <td>Maastricht UAC</td> <td><span style="color: green;">■</span></td> </tr> <tr> <td>MT</td> <td>Malta</td> <td><span style="color: green;">■</span></td> </tr> </tbody> </table>				Overlaps			Code	Full name	Progress	LU	Luxembourg	<span style="color: green;">■</span>	MAS	Maastricht UAC	<span style="color: green;">■</span>	MT	Malta	<span style="color: green;">■</span>
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<span style="color: blue;">■</span> Planned	<span style="color: white;">■</span> Missing Data																			
<ul style="list-style-type: none"> <li>Objective COM10.1 (Basic AMHS) has been split from an old objective COM10 that included both Basic and Extended AMHS. The objective is achieved, given the completion rate of 93%.</li> <li>The only remaining civil ANSP to implement basic AMHS is M-NAV (MK), with planned implementation date of 31/05/2024.</li> <li>In IT and FR, the implementation is still pending by military stakeholders. All activities should be finished by end 2022.</li> <li>Extended AMHS functionalities are covered by objective COM10.2.</li> </ul>																				

		<h2>SESAR Solution – Nil</h2>																	
<b>COM10.2 Extended AMHS</b>																			
<b>Stakeholders</b>	ANSPs EUROCONTROL Industry	<b>Expected Benefits</b>	Capacity Operational efficiency Cost efficiency	Safety Environment Security															
<b>FOC</b>	31/12/2024	<b>OI Steps / Enablers</b>	CTE-C06c																
<b>Estimated achievement</b>	31/12/2022	<b>CP1 AF &amp; SDP Family</b>	-	-															
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBU</b>	COMI-B0/7																
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>																	
New objective, with no historical data. During its first reporting cycle, the Objective achieved a <b>77% progress</b> .		Only few States have not finalised implementation. The low level of progress is mostly due to the States which have not reported implementation plans yet.																	
<b>Status of implementation</b>																			
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<ul style="list-style-type: none"> <li>• COM10.2 (Extended AMHS) has been split from an old objective COM10 that included both Basic and Extended AMHS.</li> <li>• The objective is nearly achieved, with a completion rate of 77% by the end of 2021.</li> <li>• Five States declared completion during 2021: NL, MA, SI, FI and EE.</li> <li>• In most remaining States, existing AMHS systems already support some extended functionalities, with full migration still ongoing.</li> <li>• AZ, TR, CY and MT have not yet planned the implementation of Extended AMHS;</li> <li>• IE and MK intend to implement AMHS by the FOC date (2024).</li> </ul>																			

	<h2>SESAR Solution – Nil</h2>																
<h3>COM11.1 Voice over Internet Protocol (VoIP) in En-Route</h3>																	
<b>Stakeholders</b>	ANSPs	<b>Expected Benefits</b>															
<b>FOC</b>	31/12/2021	<b>OI Steps / Enablers</b>	CTE-C05a, CTE-C05b														
<b>Estimated achievement</b>	31/12/2024	<b>CP1 AF &amp; SDP Family</b>	-														
<b>Status</b>	<b>Late</b>	<b>ICAO ASBU</b>	COMI-B2/1														
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>															
Seven States finalized the implementation during 2021, corresponding to an increase in completion of 17 percentage points compared to 2020, i.e. <b>26% progress</b> .		In most of the remaining States, the progress achieved so far is greater than 50%, giving a strong confidence in positive outlook for the next few years.															
<h3>Status of implementation</h3> <table border="1" data-bbox="143 1590 574 1792"> <thead> <tr> <th colspan="2">Legend</th> </tr> </thead> <tbody> <tr> <td><span style="color: green;">■</span></td> <td>Completed</td> </tr> <tr> <td><span style="color: orange;">■</span></td> <td>Not Yet Planned</td> </tr> <tr> <td><span style="color: lightgreen;">■</span></td> <td>Ongoing</td> </tr> <tr> <td><span style="color: lightblue;">■</span></td> <td>Planned</td> </tr> <tr> <td><span style="color: grey;">■</span></td> <td>Not Applicable</td> </tr> <tr> <td><span style="color: white;">■</span></td> <td>Missing Data</td> </tr> </tbody> </table>		Legend		<span style="color: green;">■</span>	Completed	<span style="color: orange;">■</span>	Not Yet Planned	<span style="color: lightgreen;">■</span>	Ongoing	<span style="color: lightblue;">■</span>	Planned	<span style="color: grey;">■</span>	Not Applicable	<span style="color: white;">■</span>	Missing Data		
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<span style="color: white;">■</span>	Missing Data																
<ul style="list-style-type: none"> <li>• VoIP in en-route environment recorded a strong progress in 2021, with 7 more States declaring completion of the objective.</li> <li>• Despite rather low completion rate achieved so far (26%), the procurement process and technical installation of the new VCS systems has already been finalized in a number of centres.</li> <li>• Significant progress is expected during 2022, with 12 more States expected to finalize implementation according to currently reported plans.</li> <li>• In some cases, full implementation is dependent on the capability of neighbouring centres, while in other the implementation is pending by military.</li> <li>• A number of States indicate delays due to financial constraints caused by COVID-19 pandemic (IL, UK, RO, BA, SI).</li> </ul>																	

	<h2>SESAR Solution – Nil</h2>																																			
<h3>COM11.2 Voice over Internet Protocol (VoIP) in Airport/Terminal</h3>																																				
<b>Stakeholders</b>	ANSPs	<b>Expected Benefits</b>																																		
<b>FOC</b>	31/12/2023	<b>OI Steps / Enablers</b>	CTE-C05a, CTE-C05b																																	
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<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>																																		
Four more States have finalized the implementation during 2021, corresponding to an increase in completion of 9 percentage points vs 2020, i.e. <b>22% progress</b> .		Progress is somehow equally spread. However, more than half of the States report a progress above 50%																																		
<h3>Status of implementation</h3> <p><b>41 Applicable States</b></p> <table border="1"> <thead> <tr> <th>Legend</th> <th>Count</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Completed</td> <td>28</td> <td>68%</td> </tr> <tr> <td>Ongoing</td> <td>9</td> <td>22%</td> </tr> <tr> <td>Planned</td> <td>3</td> <td>7%</td> </tr> <tr> <td>Not Yet Planned</td> <td>1</td> <td>2%</td> </tr> <tr> <td>Not Applicable</td> <td>-</td> <td>-</td> </tr> <tr> <td>Missing Data</td> <td>-</td> <td>-</td> </tr> </tbody> </table>		Legend	Count	Percentage	Completed	28	68%	Ongoing	9	22%	Planned	3	7%	Not Yet Planned	1	2%	Not Applicable	-	-	Missing Data	-	-	<table border="1"> <thead> <tr> <th>Code</th> <th>Full name</th> <th>Progress</th> </tr> </thead> <tbody> <tr> <td>LU</td> <td>Luxembourg</td> <td>Completed</td> </tr> <tr> <td>MAS</td> <td>Maastricht UAC</td> <td>Ongoing</td> </tr> <tr> <td>MT</td> <td>Malta</td> <td>Planned</td> </tr> </tbody> </table>		Code	Full name	Progress	LU	Luxembourg	Completed	MAS	Maastricht UAC	Ongoing	MT	Malta	Planned
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<ul style="list-style-type: none"> <li>Implementation of VoIP in airport/TMA environment has a steady progress over the years, reaching 22% of completion rate by the end of 2021;</li> <li>The objective is reported at State level, however the implementation has already been finalized at a number of airports within the ECAC area;</li> <li>According to currently reported plans, the most notable progress is expected during 2023, while the objective is expected to be achieved in 2024;</li> <li>Implementation is still not yet planned in 3 States (PT, BA and AZ).</li> </ul>																																				



		<b>SESAR Solution – Nil</b>		
<b>ITY-ACID</b>		<b>Aircraft identification</b>		
<b>Stakeholders</b>	ANSPs Airspace Users	<b>Expected Benefits</b>	Capacity Operational efficiency Cost efficiency	Safety Environment Security
<b>FOC</b>	02/01/2020	<b>OI Steps / Enablers</b>	GSURV-0101	
<b>Estimated achievement</b>	31/12/2024	<b>CP1 AF &amp; SDP Family</b>	-	-
<b>Status</b>	<b>Late</b>	<b>ICAO ASBU</b>	-	
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>		
<p><b>Progress</b> has not evolved, stagnating at <b>40%</b>. 17 States reported completion, while 11 are expected to implement in 2022.</p>		<p>The majority of Countries is above 75% progress rate, whilst only 1 has not yet started the implementation.</p>		

### Status of implementation

**43 Applicable States**

Legend	Count	Percentage
Completed	17	40%
Ongoing	25	58%
Planned	1	2%

Code	Full name	Progress
MAS	Maastricht UAC	Completed
MT	Malta	Ongoing
LU	Luxembourg	Ongoing

- Implementation continued, in particular with regard the deployment at lower flight levels and around smaller airports.
- In the en-route environment it can be considered that the enabling technical capability has been deployed everywhere in the applicability area (There are still gaps in some TMAs/CTRs).
- Several States claiming compliance with the objective have not yet declared to the NM the airspace where downlinked aircraft identification is used. In some instances, these States have the full technical capability; however, not being part of a contiguous area, declaring the airspace to NM would have a detrimental effect on the Network.
- Only 6 States (AT, BE, HU, HR, RO, SI) are fully compliant with all the applicable requirements: capability to use the downlinked aircraft ID for all IFR/GAT traffic and the use of the conspicuity code (many others are close to completion).
- Full (100%) compliance across the entire applicability area will not happen before 2026.

	<h2 style="text-align: center;">SESAR Solution – Nil</h2>																										
<b>ITY-AGDL Initial ATC Air-Ground Data Link Services</b>																											
<b>Stakeholders</b>	ANSPs Airspace Users Industry Military Regulators	<b>Expected Benefits</b>																									
<b>FOC</b>	05/02/2018	<b>OI Steps / Enablers</b>	AUO-0301																								
<b>Estimated achievement</b>	31/03/2023	<b>CP1 AF &amp; SDP Family</b>	-                      -																								
<b>Status</b>	<b>Late</b>	<b>ICAO ASBU</b>	COMI-B0/4, COMI-B1/2																								
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Progress was good in 2021 with eight additional States having completed the Objective in 2021, reaching an <b>overall progress of 64%</b> .		Half of the States which have not finalised implementation show a progress below 25%, in particular because of those which do not have yet implementation plans.																									
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	<h2>SESAR Solution – Nil</h2>																										
<h3>ITY-AGVCS2 Implement AGVCS below FL195</h3>																											
<b>Stakeholders</b>	ANSPs Airport Operators Airspace Users Military, NM Regulators	<b>Expected Benefits</b>																									
<b>FOC</b>	Radio equipment: 12/2017 Freq. converted: 12/2018 State Aircraft: 12/2020	<b>OI Steps / Enablers</b>	CTE-C01a																								
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<ul style="list-style-type: none"> <li>• Roughly 2/3 of all assignments (EU+CH, NO, UK) are already 8.33 kHz confirming the annual increase (out of a grand total of 9166 assignments, 6413 assignments were 8.33 kHz in 2021 vs. 6259 in 2020 and 5700 in 2019). Some 1500 assignments are planned to be converted to 8.33 kHz by 2025/2026 with a very limited number planned for 2027.</li> <li>• The (temporary) exemptions are mostly justified by the deferred conversion of aerodrome assignments or of those used by the military stakeholders and are due to the high number of non-equipped aircraft, in particular GA and State aircraft.</li> <li>• It is recommended that all States, and in particular the European Civil Aviation Area States, participate in the activities of the 8.33 VCS Implementation Support Group which has a central role in the coordination of 8.33 kHz implementation.</li> </ul>																											

	<h2>Solution #103 Approach Procedures with Vertical Guidance</h2>								
<b>NAV10 RNP Approach Procedures to instrument RWY</b>									
<b>Stakeholders</b>	ANSPs Airspace Users Regulators	<b>Expected Benefits</b>							
<b>FOC</b>	25/01/2024	<b>OI Steps / Enablers</b>	AOM-0602, AOM-0604, CTE-N06a, CTE-N06b						
<b>Estimated achievement</b>	25/01/2024	<b>CP1 AF &amp; SDP Family</b>	-						
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBUs</b>	NAVS-B0/2, APTA-B0/1, APTA-B1/1						
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>							
The <b>completion rate</b> increased by more than 10 percentage points vs 2020, reaching <b>33%</b> in 2021. Stakeholders will fully deploy NAV 10 by December 2030, late vis-à-vis the FOC date.		22 out of 29 States which have not completed yet the objective, achieved a progress greater than 50%, with 13 with a progress above 75%.							
<h3>Status of implementation</h3> <div style="margin-top: 10px;"> <p><b>Legend</b></p> <table border="0"> <tr> <td><span style="color: green;">■</span> Completed</td> <td><span style="color: orange;">■</span> Not Yet Planned</td> </tr> <tr> <td><span style="color: lightgreen;">■</span> Ongoing</td> <td><span style="color: gray;">■</span> Not Applicable</td> </tr> <tr> <td><span style="color: blue;">■</span> Planned</td> <td><span style="color: white;">■</span> Missing Data</td> </tr> </table> </div>		<span style="color: green;">■</span> Completed	<span style="color: orange;">■</span> Not Yet Planned	<span style="color: lightgreen;">■</span> Ongoing	<span style="color: gray;">■</span> Not Applicable	<span style="color: blue;">■</span> Planned	<span style="color: white;">■</span> Missing Data		
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<ul style="list-style-type: none"> <li>• 14 States have already completed the implementation. FI, LT, NO, RS, and SK achieved the Objective during 2021.</li> <li>• Compared to 2020, all States are now in the process of implementing RNP Approach Procedures at LPV minima, LNAV/VNAV minima, and LNAV minima, with major airports already having published the procedures in the national AIP.</li> <li>• The majority of the States will fulfil the Objective requirements by December 2024, with only two going beyond that date.</li> <li>• It is essential to highlight that the full EGNOS Service area coverage of the entire ECAC airspace, including all EU states, is a necessary pre-requisite for the full deployment of this objective.</li> </ul>									

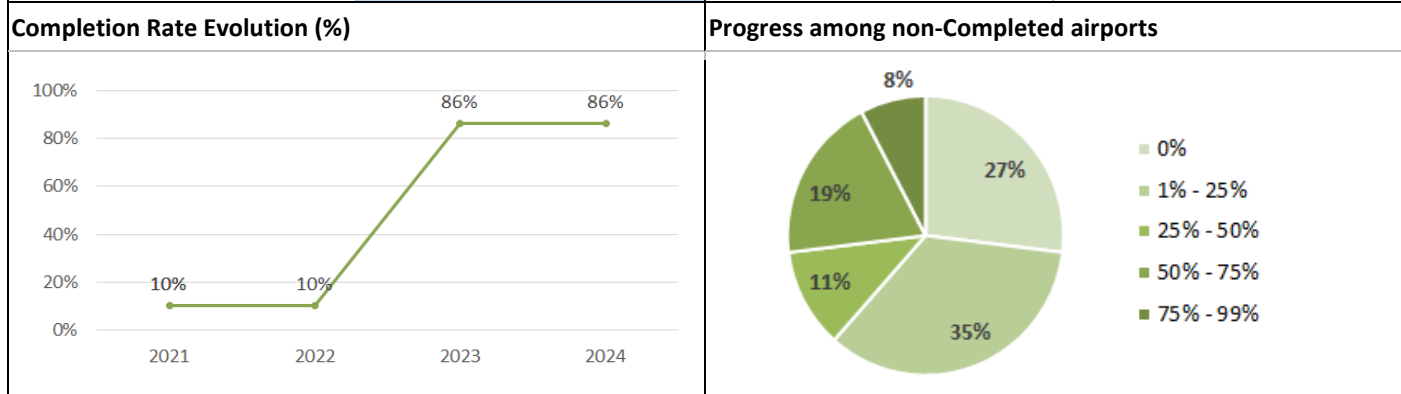
### 3.3 ATM INTERCONNECTED NETWORK

	ATM interconnected network	<b>SESAR Solution – Nil</b>									
<b>AOM13.1 Harmonise OAT and GAT handling</b>											
<b>Stakeholders</b>	ANSPs Military Regulators	<b>Expected Benefits</b>	Capacity	Operational efficiency	Cost efficiency						
			Safety	Environment	Security						
<b>FOC</b>	31/12/2018	<b>OI Steps / Enablers</b>	AOM-0301, AOM-0303								
<b>Estimated achievement</b>	31/12/2022	<b>CP1 AF &amp; SDP Family</b>	-	-							
<b>Status</b>	<b>Late</b>	<b>ICAO ASBU</b>	-								
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>									
AT and BA finalized the implementation in 2021, increasing the <b>completion rate to 61%</b> . Some States moved from Not Yet Planned to Not Applicable, affecting the progress as well.		The progress so far is greater than 50% in most of the remaining States, indicating to achieve the implementation by the end of 2022.									
<div style="text-align: center;"> <b>Status of implementation</b> </div> <div style="margin-top: 10px;"> <b>Legend</b> <table border="0" style="width: 100%;"> <tr> <td><span style="color: green;">■</span> Completed</td> <td><span style="color: orange;">■</span> Not Yet Planned</td> </tr> <tr> <td><span style="color: lightgreen;">■</span> Ongoing</td> <td><span style="color: gray;">■</span> Not Applicable</td> </tr> <tr> <td><span style="color: lightblue;">■</span> Planned</td> <td><span style="border: 1px solid gray; display: inline-block; width: 10px; height: 10px;"></span> Missing Data</td> </tr> </table> </div>		<span style="color: green;">■</span> Completed	<span style="color: orange;">■</span> Not Yet Planned	<span style="color: lightgreen;">■</span> Ongoing	<span style="color: gray;">■</span> Not Applicable	<span style="color: lightblue;">■</span> Planned	<span style="border: 1px solid gray; display: inline-block; width: 10px; height: 10px;"></span> Missing Data				
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<ul style="list-style-type: none"> <li>• Due to the slow progress, the estimated achievement is expected now for 2022. In general, States did not give clear indication for the delay (except EE due to training delays).</li> <li>• Some States still mention legislative issues as part of non-progress</li> <li>• Significant progress is expected during first half of 2022, with another 10 States planning to finalize implementation within next cycle. This would result then in the achievement of the objective by the end of 2022.</li> </ul>											

**IN** ATM interconnected network **Solution #21 AOP and AOP-NOP seamless integration**

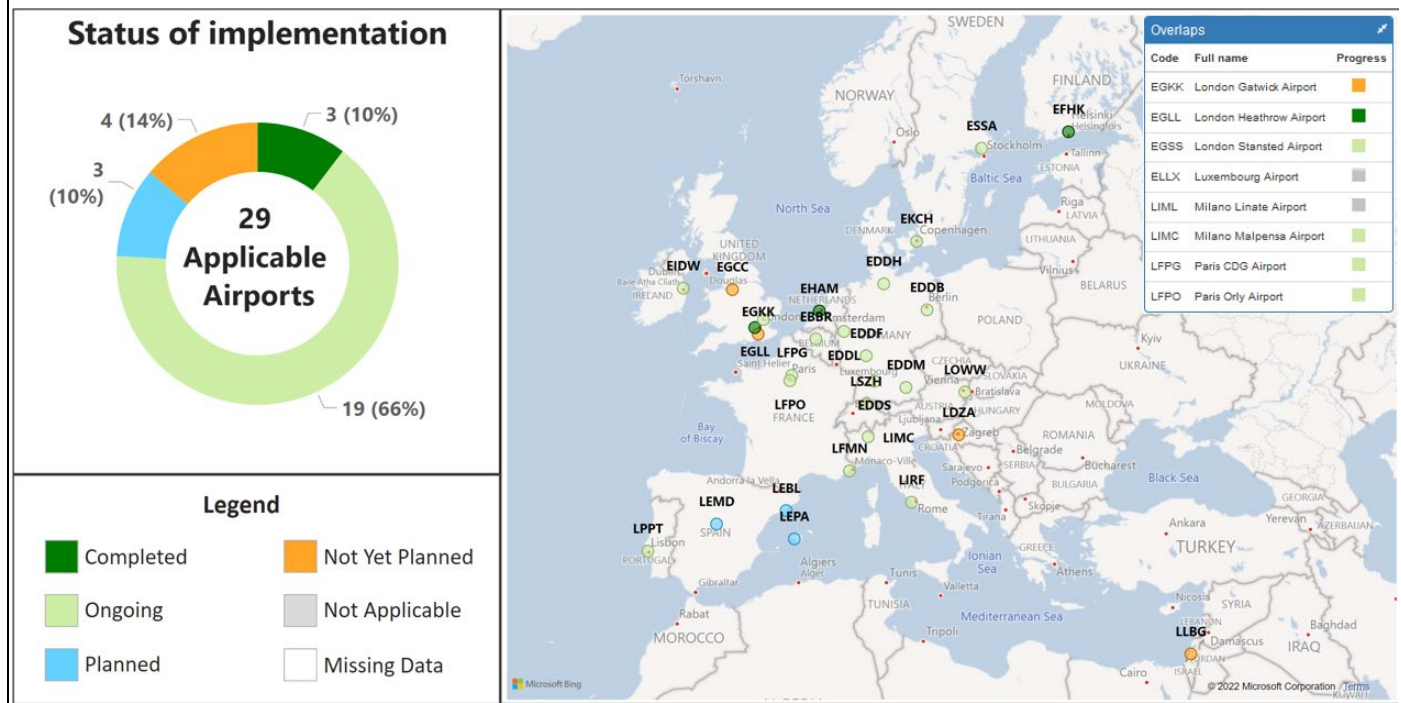
**AOP11.1 Initial Airport Operations Plan**

<b>Stakeholders</b>	ANSPs Airport Operators	<b>Expected Benefits</b>	Capacity	Operational efficiency	Cost efficiency
			Safety	Environment	Security
<b>FOC</b>	31/12/2023	<b>OI Steps / Enablers</b>	AO-0801-A		
<b>Estimated achievement</b>	31/12/2023	<b>CP1 AF &amp; SDP Family</b>	AF2	2.2.1	
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBU</b>	ACDM-B1/1		



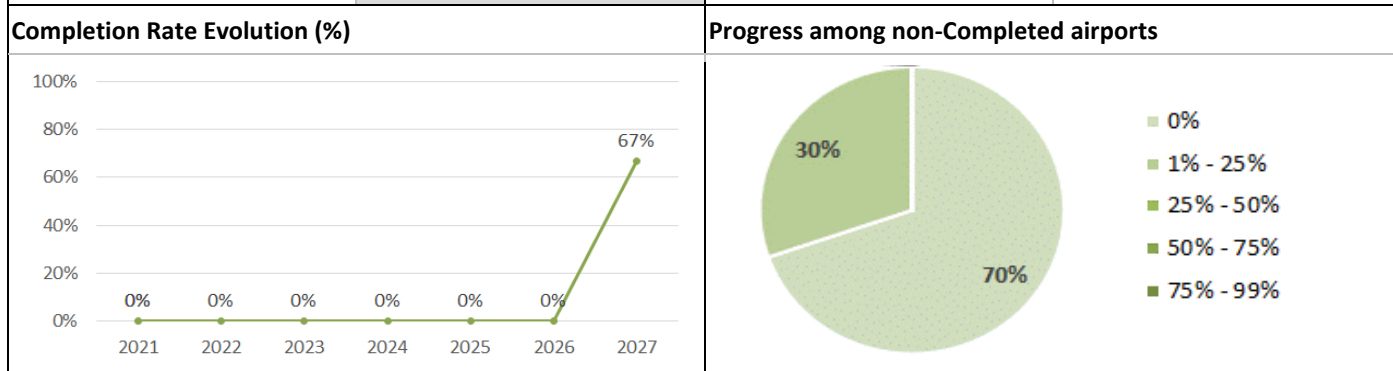
As the objective was substantially changed, a reliable evolution will be available only after the next cycle. This year, 3 Airports completed the Objective, reaching a **10% progress**.

At the end of 2021, the majority of airports with status “Ongoing” report implementation below 50%



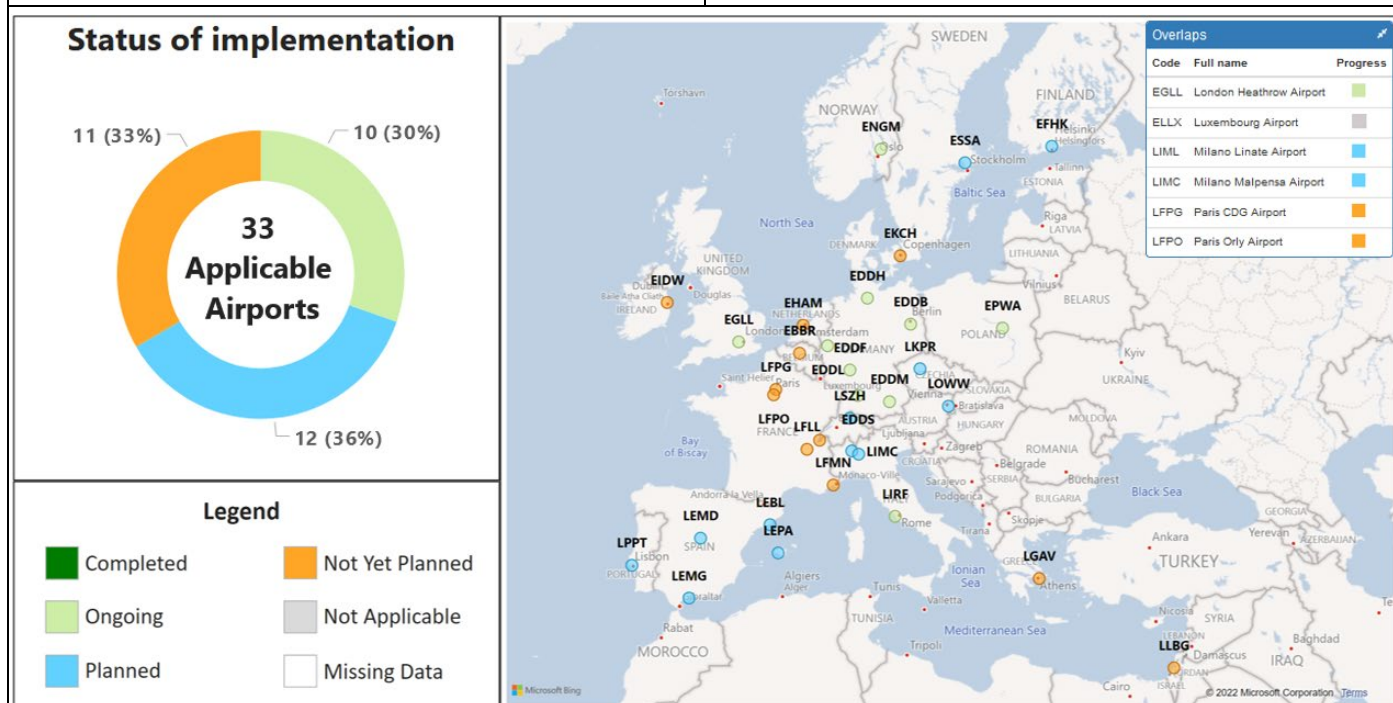
- The Airport Operational Plan Objective was substantially changed and divided into Initial AOP (iAOP) and Extended AOP.
- The focus of AOP11.1 is on the Initial AOP, the short-term planning and the execution phase, and gives a better view on status of the data and data quality.
- EGKK, EHAM and EFHK reported the Objective as “Completed” during this reporting cycle.
- The majority of the Airports report ‘Ongoing’ with an expected implementation date by FOC date.

	<h2>Solution #21 AOP and AOP-NOP seamless integration</h2>		
	<h3>AOP11.2 Extended Airport Operations Plan</h3>		
<b>Stakeholders</b> ANSPs Airport Operators	<b>Expected Benefits</b>		Capacity Operational efficiency Cost efficiency Safety Environment Security
<b>FOC</b>	31/12/2027	<b>OI Steps / Enablers</b>	AO-0801-A, AO-0802-A, AO-0803, DCB-0310
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF2   2.2.2
<b>Status</b>	Not Available	<b>ICAO ASBU</b>	ACDM-B1/1



An evolution view will become available after next cycle. It will highly depend on the progress of implementation of the initial AOP. As of today, no Airports completed the Objective.

23 airports (70%) have not achieved any progress, whilst the other 10 (30%) are "Ongoing" with a small progress, up to 3%.



- This objective reports on the extended part of the AOP, and it increases the scope of the common and collaborative agreed rolling plan used by all involved Stakeholders.
- The progress on this objective is depending on the progress of the initial AOP.
- Many airports do not have an implementation plan yet, and those airports with a plan, report a very early stage of implementation (less than 5%) and mainly limited to only one of the elements covering the extended AOP.

	ATM interconnected network	<h2>Solution #61 CWP airport – Low cost simple DEP entry panel</h2>			
<h3>AOP17 Provision/integration of departure planning Information to NMO</h3>					
<b>Stakeholders</b>	ANSPs NM	<b>Expected Benefits</b>	Capacity	Operational efficiency	Cost efficiency
<b>FOC</b>	Open (Local Objective)	<b>OI Steps / Enablers</b>	DCB-0304		
<b>Estimated achievement</b>	Not Applicable	<b>CP1 AF &amp; SDP Family</b>	-	-	
<b>Status</b>	<b>Not Applicable</b>	<b>ICAO ASBU</b>	NOPS-B0/4		
<b>Completion Evolution</b>		<b>Progress among non-Completed Airports</b>			
Four additional airports completed the implementation during 2021: Seville, Bilbao Airport, Liege Airport, and Kos Airport, reaching a total of <b>19 Airports</b> having <b>implemented</b> AOP17.		In most (15) of the remaining airports (25) in the applicability area, the progress achieved so far is greater than 40%, giving a strong confidence for these to be implemented by 2022.			
<h3>Status of implementation</h3>					
<p><b>Legend</b></p> <ul style="list-style-type: none"> <li>Completed</li> <li>Ongoing</li> <li>Planned</li> <li>Not Yet Planned</li> <li>Not Applicable</li> <li>Missing Data</li> </ul>					
<ul style="list-style-type: none"> <li>• 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.</li> <li>• It should be noted that AOP17 should be considered as “not applicable” for the airports that already deployed A-CDM or intend to deploy A-CDM in the near future, which explains the large number of airports in the applicability area that reported this objective as “Not Applicable” (11).</li> <li>• This year, Luxembourg changed his status from Not Yet Planned to Not applicable.</li> </ul>					



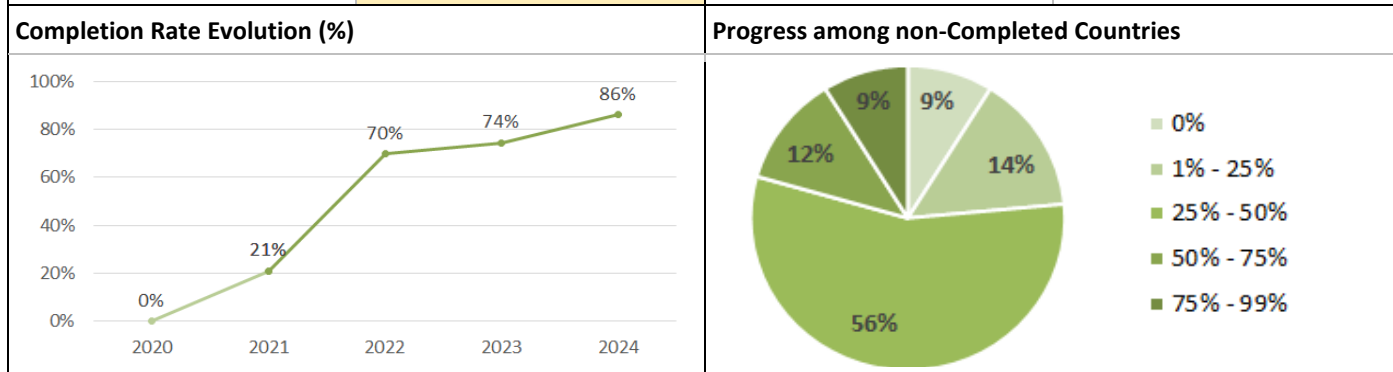
iN	ATM interconnected network	<b>SESAR Solution – Nil</b>				
<b>COM12</b>		<b>New Pan-European Network Service (NewPENS)</b>				
<b>Stakeholders</b>	ANSPs Airport Operators Airspace Users NM	<b>Expected Benefits</b>		Capacity	Operational efficiency	Cost efficiency
		Safety	Environment	Security		
<b>FOC</b>	31/12/2024	<b>OI Steps / Enablers</b>		CTE-C06b		
<b>Estimated achievement</b>	31/12/2022	<b>CP1 AF &amp; SDP Family</b>		-	-	
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBU</b>		COMI-B1/1		
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>				
<p><b>Completion rate</b> increased by 8 percentage points vs 2020, reaching <b>73%</b> at the end of 2021. All States (except those not having plans yet) are expected to complete COM12 by the FOC.</p>		<p>The majority of States are above 40% progress rate, with only two States still not having any plans for implementation.</p>				
<p><b>Status of implementation</b></p>						
<p><b>Legend</b></p> <ul style="list-style-type: none"> <li>Completed</li> <li>Ongoing</li> <li>Planned</li> <li>Not Yet Planned</li> <li>Not Applicable</li> <li>Missing Data</li> </ul>						
<ul style="list-style-type: none"> <li>• NewPENS Common Procurement Agreement has been signed in 2018, leading to a major boost in implementation.</li> <li>• The objective is expected to be achieved (reaching 80% of completion) in the next reporting cycle.</li> <li>• NewPENS connectivity infrastructure has been installed and put into service in 85% of the States.</li> <li>• Ongoing activities are mainly related to the NewPENS implementation at airports, as well as migration of more services to NewPENS.</li> <li>• In the vast majority of States, the migration to NewPENS at airports is not considered beneficial at this point.</li> <li>• Two States have not yet planned the implementation (MD and AM).</li> </ul>						

iN	ATM interconnected network	<b>SESAR Solution – Nil</b>				
<b>FCM03 Collaborative Flight Planning</b>						
<b>Stakeholders</b>	ANSPs NM	<b>Expected Benefits</b>		Capacity	Operational efficiency	Cost efficiency
			Safety	Environment	Security	
<b>FOC</b>	31/12/2022	<b>OI Steps / Enablers</b>		IS-0102		
<b>Estimated achievement</b>	31/12/2023	<b>CP1 AF &amp; SDP Family</b>		-	-	
<b>Status</b>	<b>Planned delay</b>	<b>ICAO ASBU</b>		NOPS-B0/2		
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>				
<p>Two States finalised implementation in 2021 (AT and MUAC) but three States (RS, ME, LT) reverted from “Completed” to “Ongoing”, hence the decrease to <b>52%</b> in the <b>completion rate</b>.</p>		<p>More than half of the States in the applicability area have an implementation progress above 75%.</p>				
<p><b>Status of implementation</b></p>						
<p><b>Legend</b></p> <ul style="list-style-type: none"> <li>Completed</li> <li>Ongoing</li> <li>Planned</li> <li>Not Yet Planned</li> <li>Not Applicable</li> <li>Missing Data</li> </ul>						
<ul style="list-style-type: none"> <li>• Implementation continues to stagnate, with virtually no progress over the last years.</li> <li>• Reversion from “Completed” to “Ongoing” was caused by the deployment of a new system, not compliant yet, or by deactivation of the automatic generation of the AFP messages.</li> <li>• The automatic generation of AFP messages for missing flight plans has a better progress (69%) than the overall objective.</li> <li>• Some of the States reporting completion have not yet finalised the testing with the NM for all their ACCs so are not fully compliant.</li> </ul>						

	ATM interconnected network	<b>Solution #17 Advanced short-term ATFCM measures (STAMs)</b>			
<b>FCM04.2</b>		<b>Enhanced Short Term ATFCM Measures</b>			
<b>Stakeholders</b>	ANSPs Airspace Users NM	<b>Expected Benefits</b>	Capacity	Operational efficiency	Cost efficiency
			Safety	Environment	Security
<b>FOC</b>	31/12/2022	<b>OI Steps / Enablers</b>	DCB-0308		
<b>Estimated achievement</b>	31/12/2024	<b>CP1 AF &amp; SDP Family</b>	AF4	4.1.1	
<b>Status</b>	<b>Planned delay</b>	<b>ICAO ASBU</b>	NOPS-B1/1		
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>			
FCM04.2 experienced substantial changes in 2021 due to the alignment with the CP1 Regulation. For this reason, the <b>completion rate</b> dropped to <b>16%</b> . A significant increase is expected in 2022, in line with the CP1 target date for EU States.		10 out of 17 States reported a progress between 2% and 20%. The remaining “Ongoing” States reported a higher progress with a peak of 85%. The rest has 0% progress, half with plans and half without.			
<b>Status of implementation</b>  <b>Legend</b> Completed (Green), Ongoing (Light Green), Planned (Blue), Not Yet Planned (Orange), Not Applicable (Grey), Missing Data (White)					
<ul style="list-style-type: none"> <li>• Considering the FOC/target date is end of 2022, the current completion rate raises concerns over timely deployment.</li> <li>• The vast majority of ANSPs intends to use the NM STAM tool, which already allows applying some measures (e.g. MCP).</li> <li>• Only 8 ANSPs + MUAC have implemented or intend to develop their own local STAM tool.</li> <li>• The interest to deploy outside EU (+CH, NO, MUAC) is rather low. UK completed the implementation and BH has plans.</li> <li>• Significant progress is expected during 2022 when the new NM STAM tool becomes available, in line with the FOC date.</li> <li>• According to the current plans, SI and NO intend to implement this objective in 2024.</li> <li>• Some States (NL, AL) indicate possible budget constraints due to the COVID-19 pandemic.</li> </ul>					

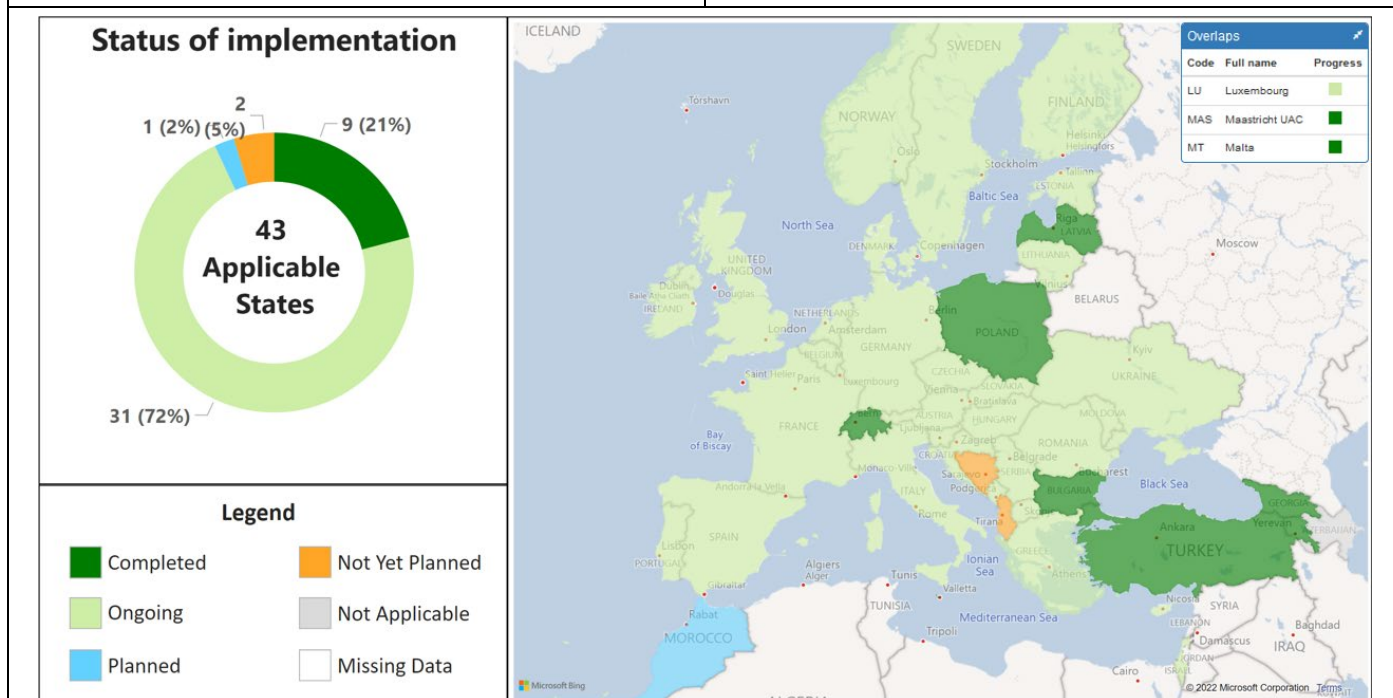
	ATM interconnected network	<b>Solution #19 Automated support for Traffic Complexity Detection and Resolution</b> <b>Solution #37 Extended Flight Plan</b> <b>Solution #PJ.18-02c eFPL distribution to ATC</b>
	<b>FCM06.1 Automated Support for Traffic Complexity Assessment and Flight Planning interfaces</b>	

<b>Stakeholders</b>	ANSPs NM	<b>Expected Benefits</b>	Capacity Operational efficiency Cost efficiency Safety Environment Security
<b>FOC</b>	31/12/2022	<b>OI Steps / Enablers</b>	CM-0101, CM-0103-A, IS-0102
<b>Estimated achievement</b>	31/07/2024	<b>CP1 AF &amp; SDP Family</b>	AF4   4.3.1
<b>Status</b>	<b>Planned delay</b>	<b>ICAO ASBU</b>	NOPS-B0/2, NOPS-B1/4



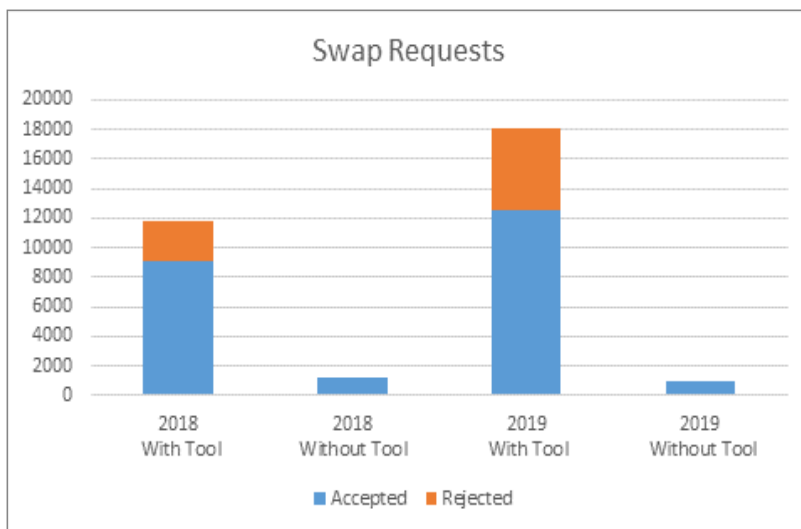
FCM06.1 replaced FCM06. Its current progress (including States which have completed FCM06 in previous cycles) is 21%. Significant increase is expected during 2022.

More than 70% of the applicable States is well underway towards implementation, with a progress ranging between 19% and 95%. 2 States still do not have plans.



- Apart from traffic complexity tools, the objective now also includes the provision of AFP messages and processing of APL and ACH messages in order to improve traffic predictability.
- SE, PL and MT completed the implementation during 2021.
- For many ANSPs (including those reporting the objective as completed), traffic load monitoring is considered sufficient for the local needs, given low traffic levels and associated complexity. Some of the ATFCM tools currently in development or use in ANSPs to assess traffic complexity are SALTO (FR), CRYSTAL (CH), IMPACT (ES) and tCAT (BG).
- COVID-19 negatively affected traffic figures and financial situation, causing delays for several ANSPs.

ATM interconnected network	<h2>Solution #56 Enhanced ATFM Slot swapping</h2>		
	<b>FCM09</b>	<b>Enhanced ATFM Slot swapping</b>	
<b>Stakeholders</b> Airspace Users NM	<b>Expected Benefits</b>		Capacity Operational efficiency Cost efficiency Safety Environment Security
<b>FOC</b>	31/12/2021	<b>OI Steps / Enablers</b>	AUO-0101-A
<b>Estimated achievement</b>	31/12/2021	<b>CP1 AF &amp; SDP Family</b>	-
<b>Status</b>	Achieved	<b>ICAO ASBU</b>	NOPS-B1/7
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>	
Not Applicable Objective only relevant for the NM and Airspace Users		Not Applicable Objective only relevant for the NM and Airspace Users	



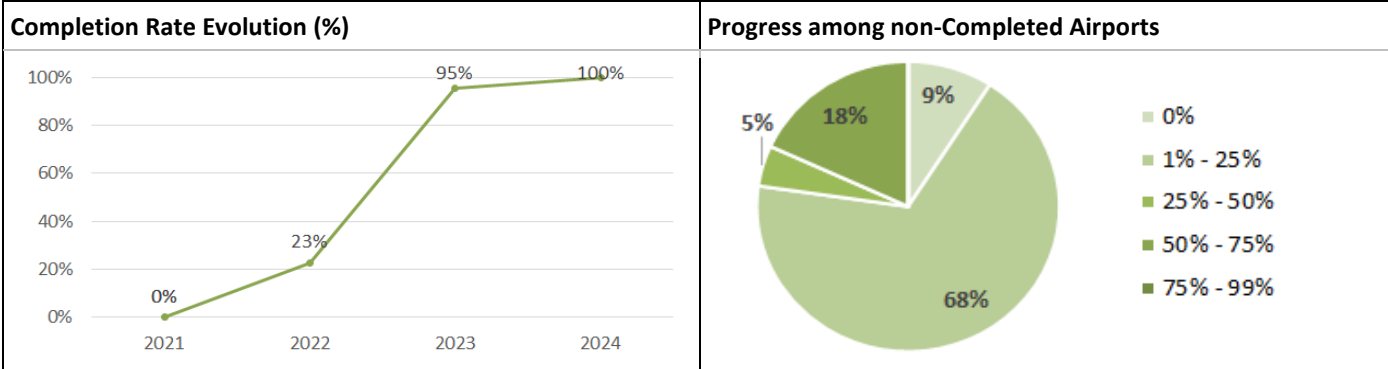
- This objective involves the NM and the Airspace Users during ATFM constrained situations - in practice slot swapping facilitates the Airspace User to balance the priorities of flights subject to the same ATFM regulation.
- The ATFM tactical phase facility offered by the NMOC was integrated into the NM system to provide airlines and airline groups with better visibility to identify slot-swap candidates; and an easier HMI and a B2B interface to request these to NMOC.
- This basic objective can be considered as finalised by NM, while AUs and more particular CFSPs need to adapt their systems and operating procedures for its full implementation. It is therefore recommended to consider the objective as “Achieved”.
- NM has deployed the multi-swap capability procedures, but multi-swap automation is considered outside of the scope of FCM09.
- Advanced functionalities concerning NM automated responses and automated multi-swap capabilities are in the pipeline and are mostly related to improvements of NM B2B services and interfaces between ETFMS IDAP and E-help desk. Further automation on AU and CFSPs side will be recommended in due course.

iN	ATM interconnected network	<b>Solution #18 CTOT and TTA</b> <b>Solution #20 Collaborative NOP for step 1</b>																																				
<b>FCM10 Interactive rolling NOP</b>																																						
<b>Stakeholders</b>	ANSPs Airspace Users NM	<b>Expected Benefits</b>	Capacity	Operational efficiency	Cost efficiency																																	
			Safety	Environment	Security																																	
<b>FOC</b>	31/12/2023	<b>OI Steps / Enablers</b>	DCB-0102, DCB-0208																																			
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF4	4.2.1																																		
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBU</b>	NOPS-B1/2, NOPS-B1/9																																			
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Being a new objective, the <b>completion rate</b> is low ( <b>10%</b> ) but expected to increase by 2023. The “Not Yet Planned” States negatively affect the estimated completion rate evolution.		The vast majority of States belong to the lowest quartile due to the “Planned” and “Not Yet Planned” reported statuses as well as to the States being in early deployment phases																																				
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<ul style="list-style-type: none"> <li>• CHMI variants and the NOP portal will remain the main source for Network situation awareness. Some applications like RAD and CAL are already available via the NES (n-CONNECT Eco System) platform and the remaining applications (flight, flow and airspace data) will be migrated to NES in the coming period.</li> <li>• Ops stakeholders need to develop local procedures for the usage of CHMI and NOP portal (in most cases already done) and align them with the migration of the NM applications to NES.</li> <li>• Airspace Users need to develop procedures and processes to communicate to the pilots the Target Time information received via SAM/SRM messages.</li> <li>• ANSPs need to adapt the systems, processes and procedures to communicate the Target Time information to ATCOs.</li> </ul>																																						

	ATM interconnected network	<b>Solution #20 Collaborative NOP for Step 1</b> <b>Solution #21 AOP and AOP-NOP seamless integration</b>
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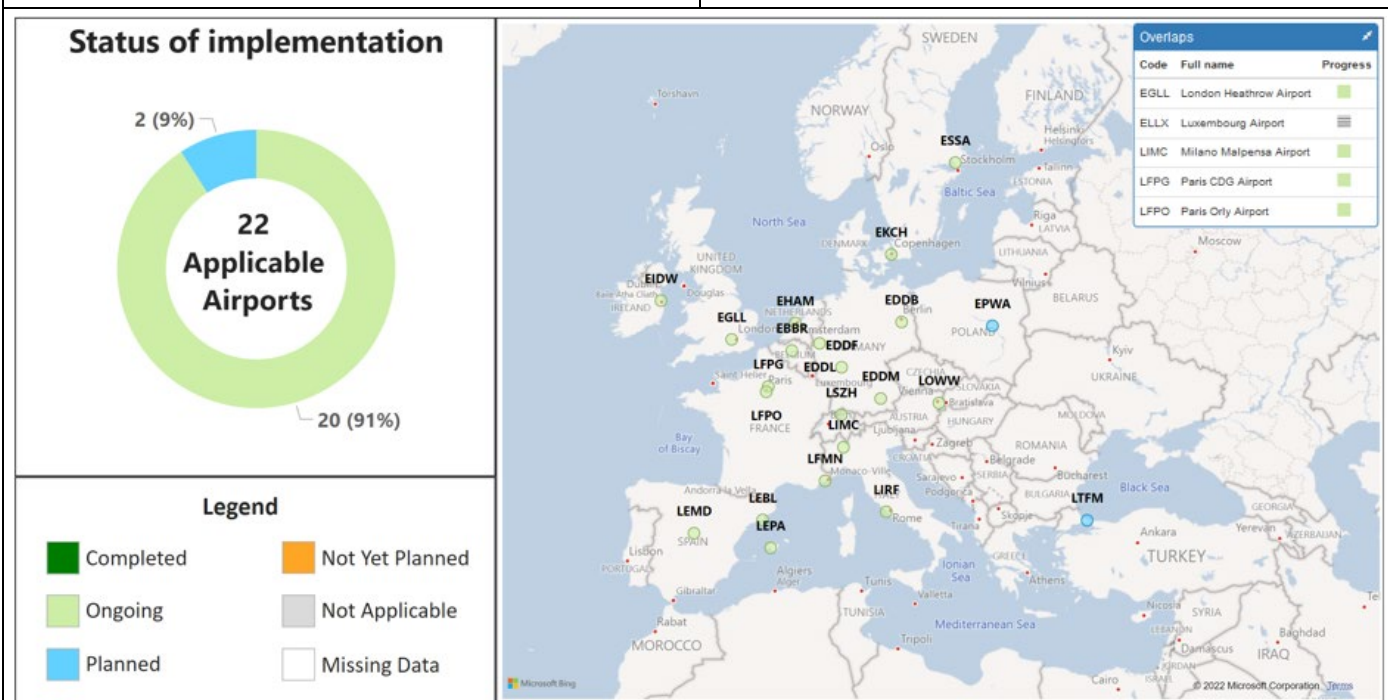
<b>FCM11.1</b>	<b>Initial AOP/NOP Information Sharing</b>		
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<b>Stakeholders</b>	ANSPs Airport Operators NM	<b>Expected Benefits</b>	Capacity Operational efficiency Cost efficiency Safety Environment Security
<b>FOC</b>	31/12/2023	<b>OI Steps / Enablers</b>	DCB-0103-A, AO-0801-A, AO-0802-A, AO-0803, DCB-0310
<b>Estimated achievement</b>	31/12/2023	<b>CP1 AF &amp; SDP Family</b>	AF4   4.2.2
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBU</b>	NOPS-B0/4



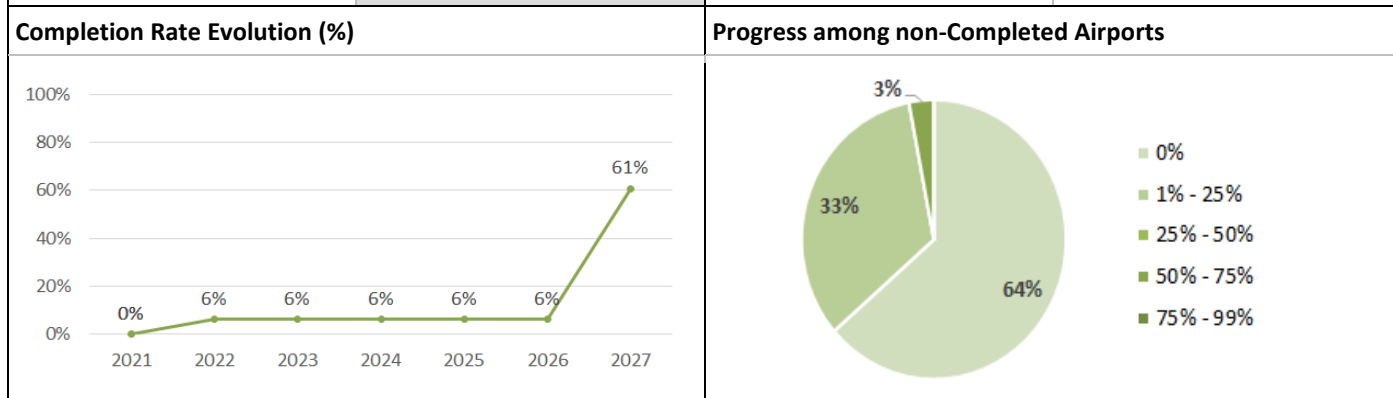
The **completion rate** is **0%**, being FCM11.1 a new objective under the CP1 Regulation. All applicable Airports, but one, reported to complete the Objective by the FOC date.

Four Airports are reporting more than 50% of progress, whereas the vast majority is still at earlier stages of the implementation, with less than 25%.

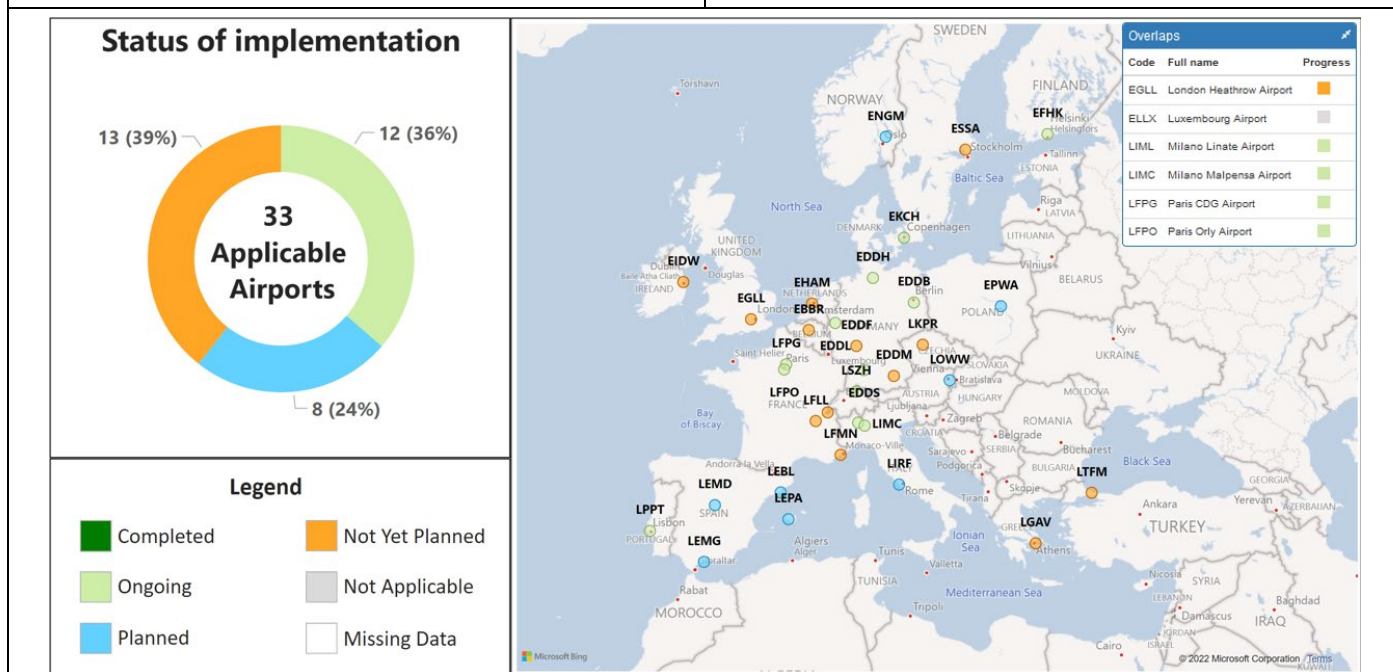


- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to 19 Airports across the EU States + CH. Three more additional airports are also implementing Initial AOP/NOP Information Sharing.
- All states within the Applicability Area reported “Ongoing” and initiated the implementation for this objective.
- It has to be highlighted that within the four Airports reporting more than 50% of progress, there are the three French CP1 Airports (LFMN, LFPG and LFPO) and the Danish one (EKCH).
- ANSPs reported a slightly better progress compared to the Airport Operators.
- Many airports reported already good progress in systems requirements definition and data validation for P-DPI and G-API.

ATM interconnected network	<b>Solution #18 CTOT and TTA</b> <b>Solution #20 Collaborative NOP for Step 1</b> <b>Solution #21 AOP and AOP-NOP seamless integration</b>		
	<b>FCM11.2 AOP/NOP integration</b>		
<b>Stakeholders</b>	ANSPs Airport Operators NM	<b>Expected Benefits</b>	Capacity Operational efficiency Cost efficiency Safety Environment Security
<b>FOC</b>	31/12/2027	<b>OI Steps / Enablers</b>	AO-0801-A, AO-0802-A, AO-0803, DCB-0103-A, DCB-0310, DCB-0208
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF4   4.4.1
<b>Status</b>	Not Available	<b>ICAO ASBU</b>	NOPS-B1/3



The reported **progress** is **0%**, due to FCM11.2 being a new CP1 objective. All States that started the implementation reported to be completing the objective by the FOC date. One Airport reported more than 50% of progress, whereas the vast majority is still at earlier stages of the implementation, with less than 10%.



- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to 30 Airports across the EU States + CH. Three additional airports are also implementing AOP/NOP integration.
- Two thirds of the Airports either planned or initiated the implementation committing to implement it by the FOC date.
- One third of the Airports does not have plans for the implementation despite being on the list of Applicable Airports.
- The average progress of implementation is at 4% among all the Airports reporting within the Applicability Area. This low figure is perfectly understandable taking into account the FOC for this objective.



ATM interconnected network	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b>		
	<b>INF10.2 Stakeholders' SWIM PKI and cybersecurity</b>		
<b>Stakeholders</b>	ANSPs, Airport Operators, Airspace Users, MET Service Providers, NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A
<b>Estimated achievement</b>	31/12/2025	<b>CP1 AF &amp; SDP Family</b>	AF5   5.2.1
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBUs</b>	SWIM-B2/3
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>	
The Objective has <b>0% progress</b> so far as it a new CP1 Objective in its first year of monitoring. Nonetheless, the majority of States will implement by its FOC date, Dec 2025.		The majority of States reported a progress between 1% and roughly 30%. 42% have not yet started the implementation: 9 Countries with plans whilst 6 with no plans yet.	

### Status of implementation

**36 Applicable States**

- Completed: 0 (0%)
- Ongoing: 22 (61%)
- Planned: 8 (22%)
- Not Yet Planned: 6 (17%)

- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- It is worth highlighting that Stakeholders have the option to implement the Objective by using the European Common Aviation PKI (EACP) to generate certificates or to develop their own PKI.
- No States have yet completed the implementation.
- 22 States reported to be underway with the implementation: 5 will be using the European Common Aviation PKI (EACP) and 17 their own PKI certificate.
- 8 States have plans to implement whilst 6 do not yet, despite 3 of them being included in the CP1 applicable Countries.
- The States that are not in the Applicability Area do not belong to the list of CP1 Countries.

ATM interconnected network	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b>		
	<b>INF10.3 Aeronautical Information Exchange – Airspace structure service</b>		
Stakeholders	ANSPs NM	Expected Benefits	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
FOC	31/12/2025	OI Steps / Enablers	IS-0901-A
Estimated achievement	31/12/2025	CP1 AF & SDP Family	AF5   5.3.1
Status	On Time	ICAO ASBUs	-
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>	

The Objective has **45% progress** so far, although it is a new CP1 Objective in its first year of monitoring. All States will complete the implementation by its FOC date, i.e. December 2025.

Roughly, a bit more than half of the Objectives is progressing towards completion, with the majority between 50% and 75% completion. 7 States are at 0%.

### Status of implementation

**29 Applicable States**

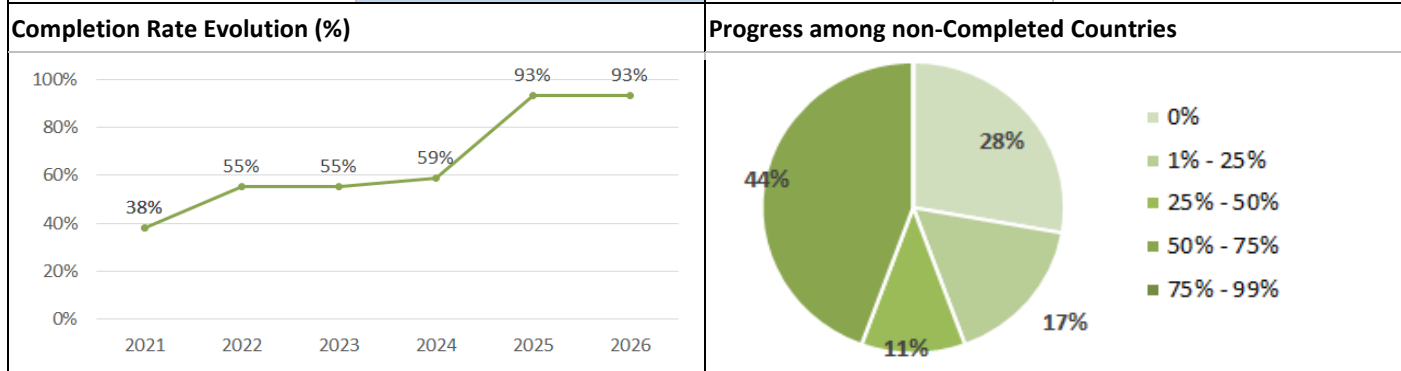
Status	Count	Percentage
Completed	13	45%
Ongoing	9	31%
Planned	3	10%
Not Yet Planned	4	14%

- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- 13 States already use the Airspace Structure Service via B2B with the NM.
- 9 States reported to be underway with the implementation, the majority planning to have LARA operational by 2025.
- 3 States have plans to implement, whilst the remaining 4 do not have plans although keeping the FOC date as a target.
- LU is the only CP1 State that declared this Objective as Not Applicable.

**IN** ATM interconnected network **Solution #46 Initial system-wide information management (SWIM) technology solution**

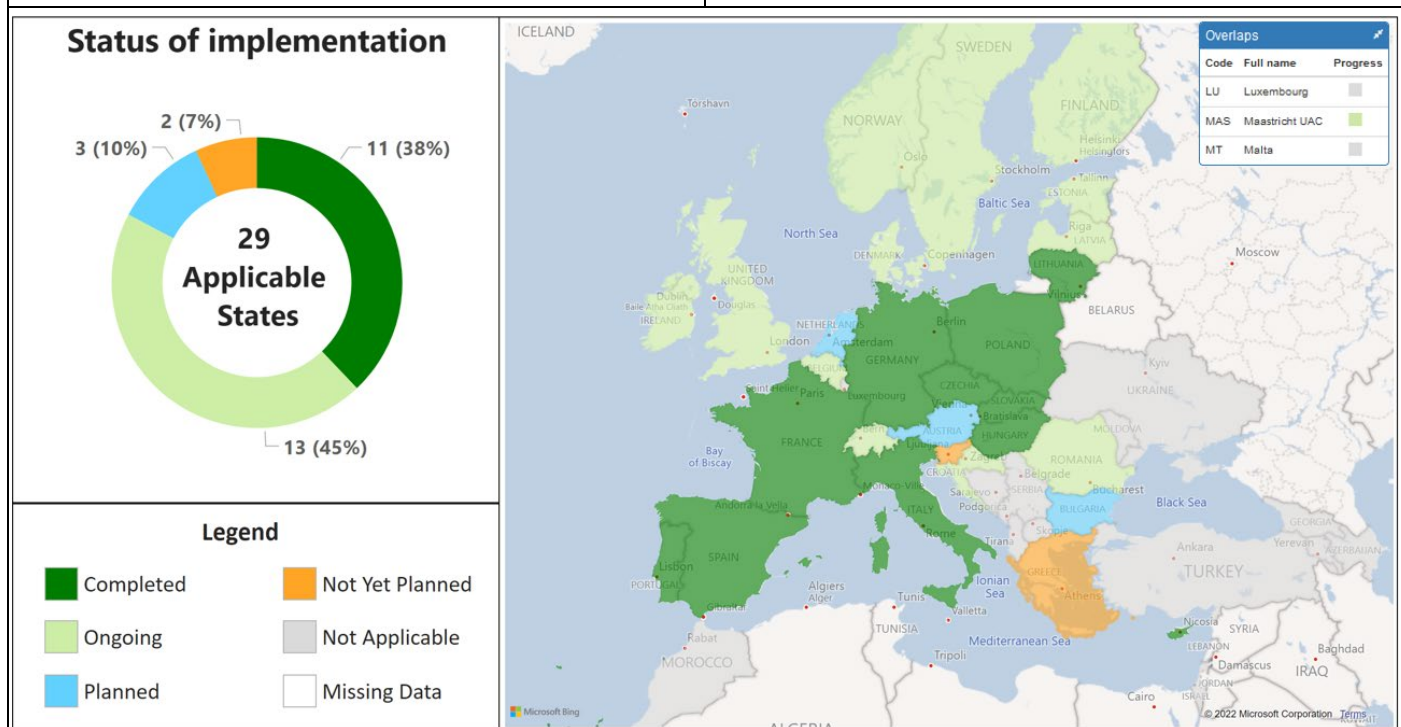
**INF10.4 Aeronautical Information Exchange – Airspace Availability Service**

<b>Stakeholders</b>	ANSPs Airspace Users NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.	
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A	
<b>Estimated achievement</b>	31/12/2025	<b>CP1 AF &amp; SDP Family</b>	AF5	5.3.1
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBUs</b>	-	



The Objective achieved **38% progress** so far, although it is a new CP1 Objective in its first year of monitoring. All States will complete the implementation by its FOC date, i.e. Dec 2025.

Almost two thirds of the States achieved a progress between 1% and 75%, the majority being in the 50%-75% range of the pie. 5 states have not yet started the works.



- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- 11 States already use the Airspace Availability Service via B2B with the NM.
- 13 States reported to be “Ongoing”, the majority through the exchange of AUP/UUP information via NM B2B Services.
- 3 States have plans to implement the Objective via LARA, whilst the remaining 2 do not have plans yet.
- LU and MT are the only CP1 States that declared this Objective as Not Applicable to them. Malta justified the choice with its exemption from FUA.

	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b>		
	<b>INF10.5 Aeronautical Information Exchange – Airspace Reservation (ARES) Service</b>		
Stakeholders	ANSPs	Expected Benefits	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
FOC	31/12/2025	OI Steps / Enablers	IS-0901-A
Estimated achievement	Not Available	CP1 AF & SDP Family	AF5   5.3.1
Status	Not Available	ICAO ASBUs	-
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>	

The Objective has **0% progress** so far as it a new CP1 Objective in its first year of monitoring. All States with plans will implement INF10.5 by its FOC date, i.e. Dec 2025.

The large majority of States has not yet started the implementation of the Service. Only 8 States reported some progress within 25%, with one outlier at 53%.

### Status of implementation

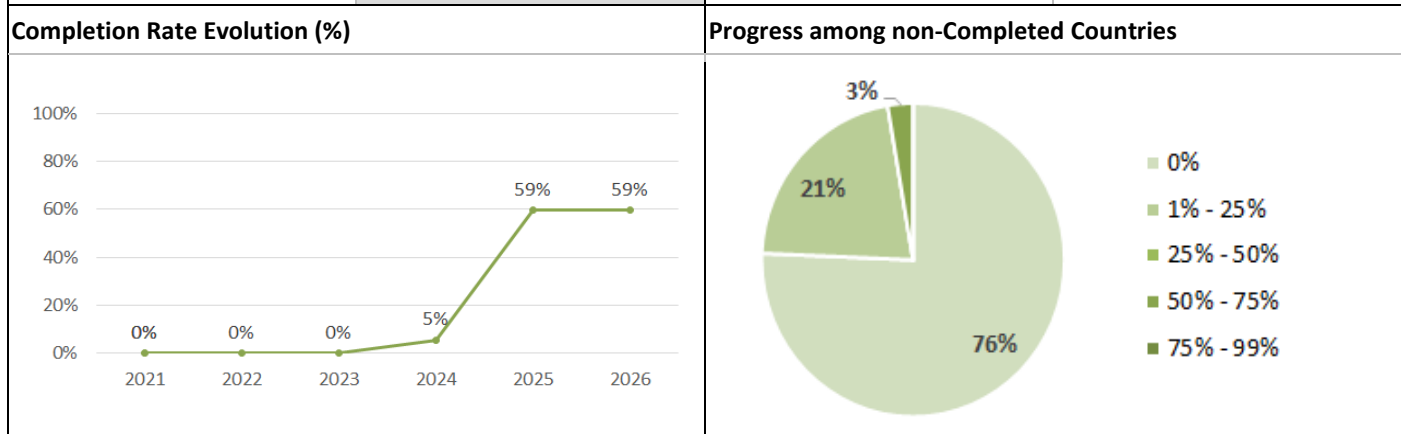
**29 Applicable States**

<span style="color: green;">■</span> Completed	<span style="color: orange;">■</span> Not Yet Planned
<span style="color: lightgreen;">■</span> Ongoing	<span style="color: gray;">■</span> Not Applicable
<span style="color: blue;">■</span> Planned	<span style="color: white;">■</span> Missing Data

- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- 9 States started the implementation, the majority through the use of the ARES functionality in LARA.
- 11 States have plans to implement the Service within the FOC date, whilst the remaining 9 do not have plans yet although the intention is to be compliant with the CP1 Regulation.
- LU and MT are the only CP1 States that declared this Objective as Not Applicable to them. LU is set to have a wider review of the SWIM Objectives, whilst MT is NA due to being exempt from FUA.

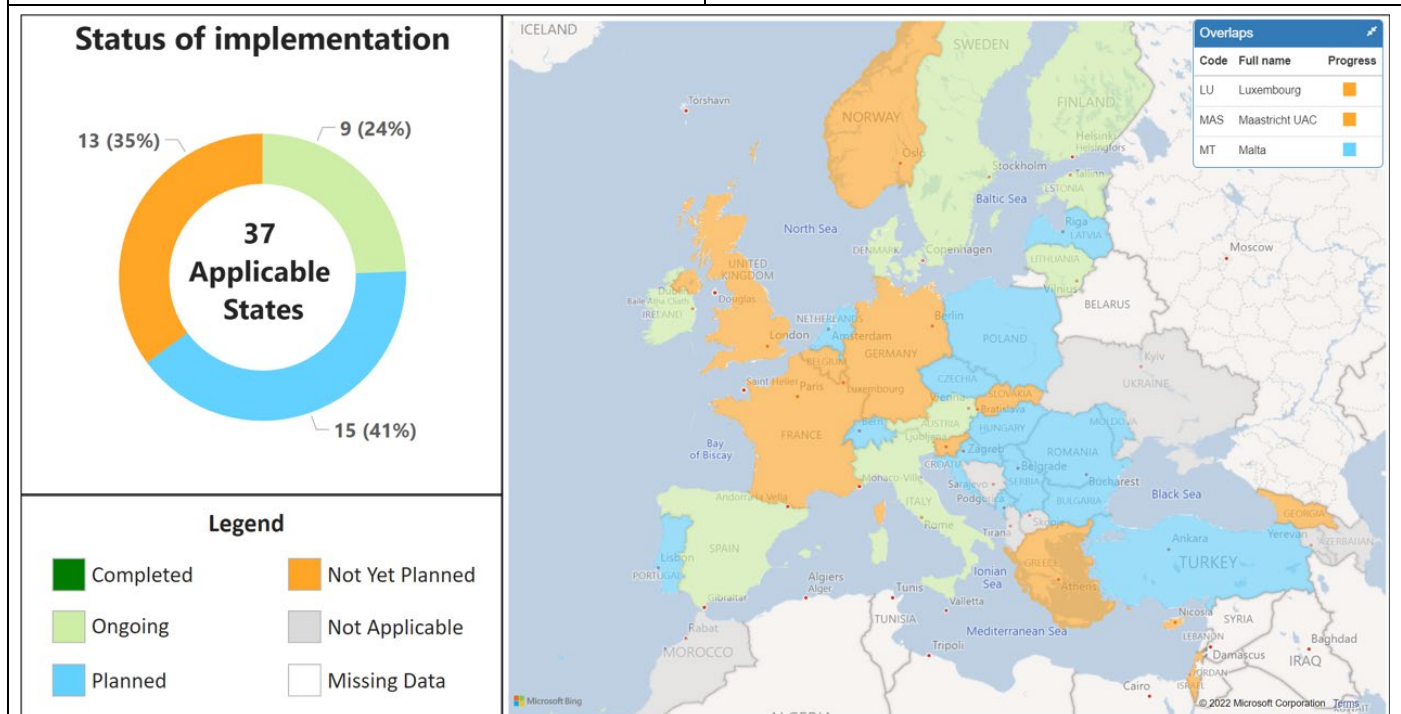
	ATM interconnected network	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b> <b>Solution #34 Digital Integrated Briefing</b>
	<b>INF10.6</b>	<b>Aeronautical Information Exchange – Digital NOTAM Service</b>

<b>Stakeholders</b>	AISPs ANSPs	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.	
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A, IS-0205	
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5	5.3.1
<b>Status</b>	Not Available	<b>ICAO ASBUS</b>	-	



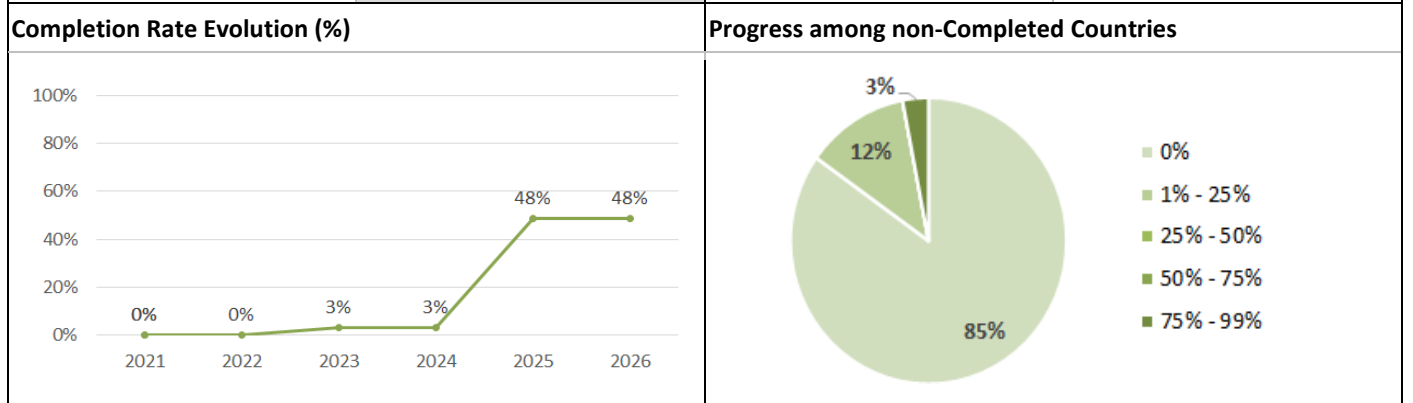
The Objective has **0% progress** so far as it a new CP1 Objective in its first year of monitoring. Nonetheless, all CP1 States with plans will implement INF10.6 by its FOC date, i.e. Dec 2025.

More than two third of the States have not yet started the implementation of the Service. Only 9 States reported some progress within 10%, and a peak at 80%.



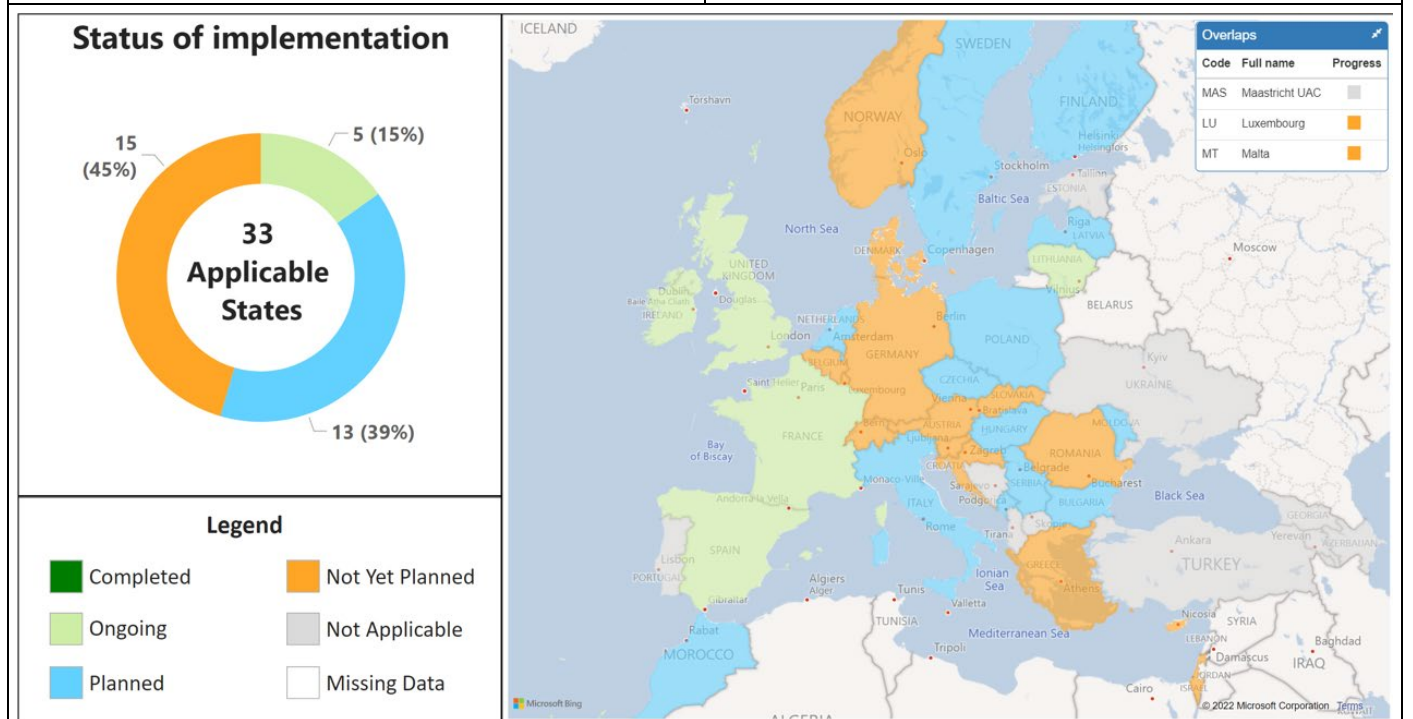
- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- No States have the Digital NOTAM Service implemented yet.
- 9 States reported to be at the initial stages of the implementation.
- Of the 28 States that have not yet begun the works, 15 have plans within the FOC date with only two going beyond 2025.
- 13 States do not have plans, one reason being the need to choose yet between the European and the local certificate.
- The States that are not in the Applicability Area do not belong to the list of CP1 Countries.

	ATM interconnected network	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b> <b>Solution #34 Digital Integrated Briefing</b>	
	<b>INF10.7</b>	<b>Aeronautical Information Exchange – Aerodrome Mapping Info Exchange Service</b>	
<b>Stakeholders</b>	AISPs	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A, IS-0205
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5   5.3.1
<b>Status</b>	Not Available	<b>ICAO ASBUS</b>	-



The Objective has **0% progress** so far as it a new CP1 Objective in its first year of monitoring. The completion rate looks uncertain due to the high number of States with no plans.

85% of the States have not yet started the implementation of the Service. Only 4 States reported some progress within 10%, and one at 80%.



- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- 5 States reported to be at the initial stages of the implementation.
- Of the 28 States that have not yet begun the works, 11 have plans within the FOC date and 2 beyond 2025.
- 15 States do not have plans yet, either due to the need to choose yet between the European and the local certificate and / or due to the need to investigate how to implement the different SWIM service / data exchanges.
- Estonia and Portugal are the only CP1 States that declared this Objective as Not Applicable. Estonia justified it with Tallinn Airport being outside the CP1 Applicability Area. MUAC is also Not Applicable.

	ATM interconnected network	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b> <b>Solution #34 Digital Integrated Briefing</b>	
	<b>INF10.8 Aeronautical Information Exchange – Aeronautical Information Features Service</b>		
<b>Stakeholders</b>	AISPs ANSPs	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A, IS-0205
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5   5.3.1
<b>Status</b>	Not Available	<b>ICAO ASBUS</b>	-

<b>Completion Rate Evolution (%)</b>	<b>Progress among non-Completed Countries</b>
The Objective has <b>0% progress</b> so far as it a new CP1 Objective in its first year of monitoring. The completion rate looks uncertain due to the high number of States with no plans.	71% of the States have not yet started the implementation of the Service. 10 States reported some progress between 8% and 17%.

### Status of implementation

**34 Applicable States**

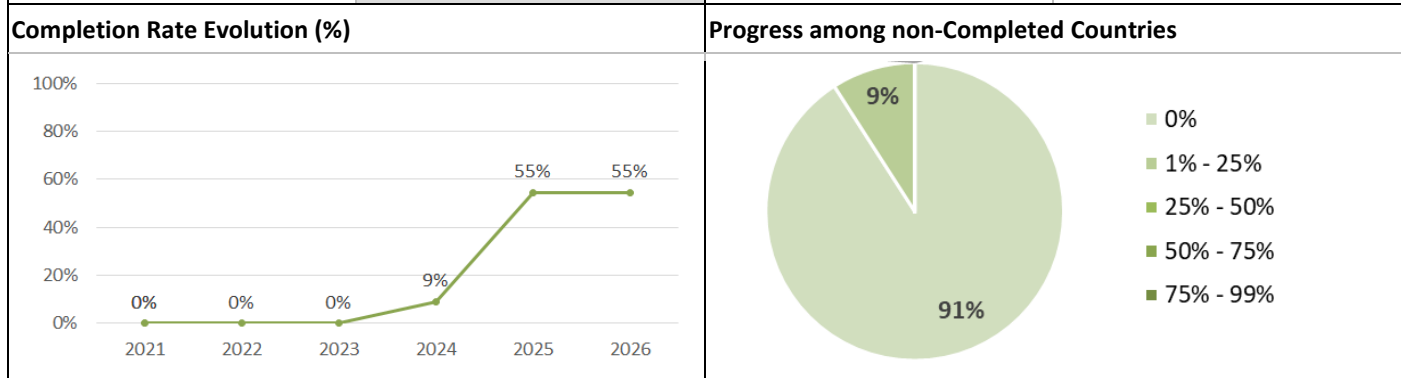
Legend	Count	Percentage
Completed	15	44%
Ongoing	10	29%
Planned	9	26%
Not Yet Planned	0	0%

Code	Full name	Progress
LU	Luxembourg	Completed
MAS	Maastricht UAC	Completed
MT	Malta	Completed

- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- No States have the Aeronautical Information Feature Service implemented yet.
- 5 States reported to be at the initial stages of the implementation.
- Of the 28 States that have not yet begun the works, 9 have plans to implement within the FOC date.
- 15 States do not have plans yet, as the majority has not yet started a proper deployment assessment.
- The States that are not in the Applicability Area do not belong to the list of CP1 Countries.

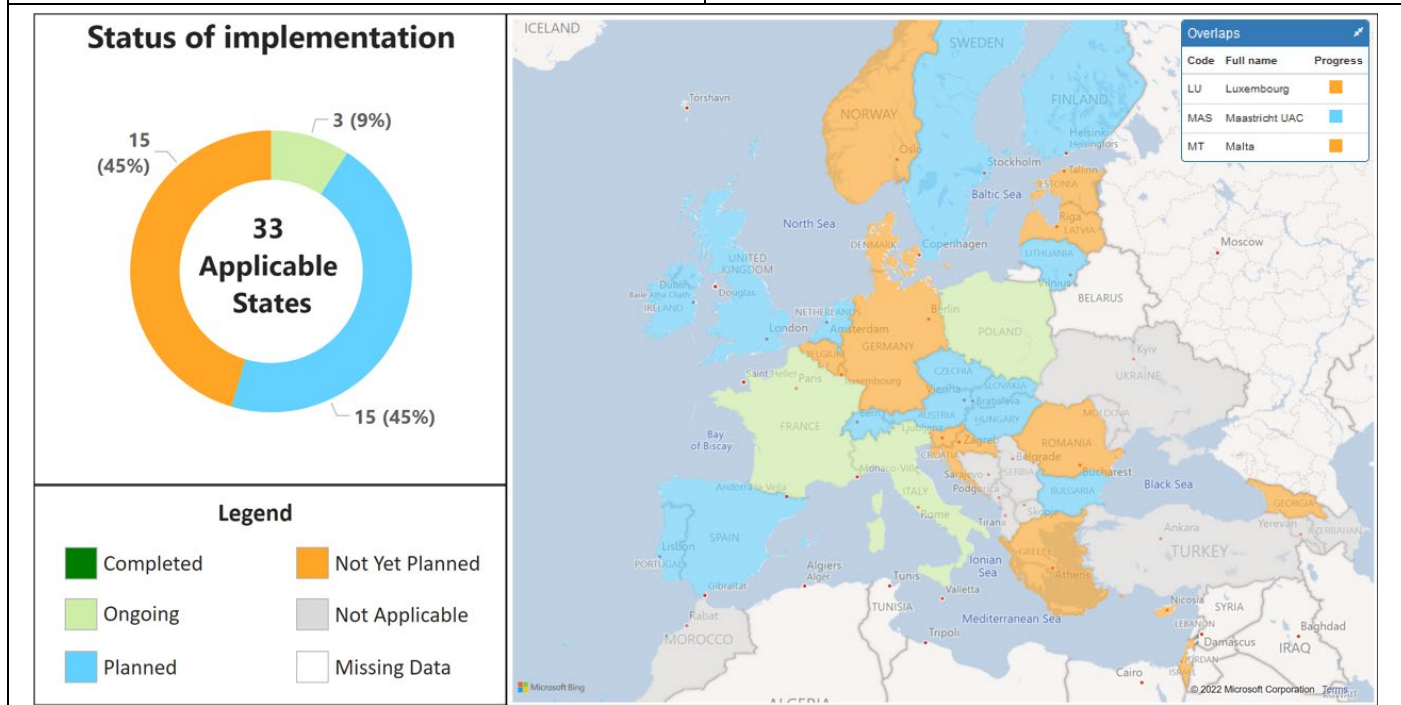
	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b> <b>Solution #34 Digital Integrated Briefing</b> <b>Solution #35 MET Information Exchange</b>		
	<b>INF10.9 Meteorological Information Exchange – Volcanic Ash Mass Concentration information service</b>		

<b>Stakeholders</b>	ANSPs MET Service Providers NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.	
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A, IS-0205, MET-0101	
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5	5.4.1
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBUS</b>	-	



The Objective has **0% progress** so far as it a new CP1 Objective in its first year of monitoring. The completion rate looks uncertain due to the number of States with no plans.

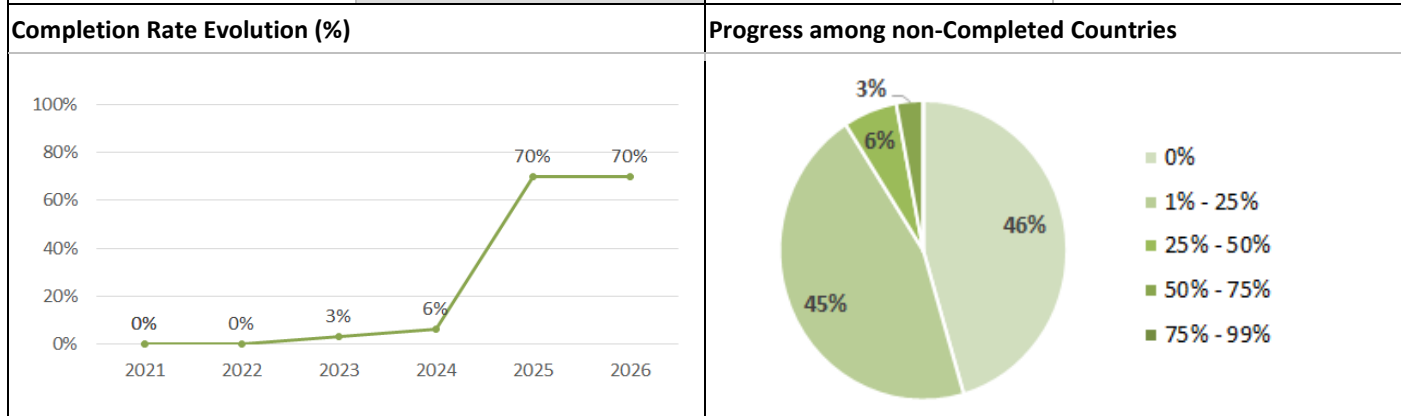
More than 90% of the States have not yet started the implementation of the Service. 3 States started the implementation and reported a progress of 3%.



- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- No States have the Volcanic Ash Mass Concentration Information Service implemented yet.
- Only 3 States reported to be at the initial stages of the implementation.
- Of the 30 States that have not yet begun the works, 15 have plans to implement within the FOC date.
- 15 States do not have plans yet, as the majority has not yet started a proper deployment assessment.
- The States that are not in the Applicability Area do not belong to the list of CP1 Countries.

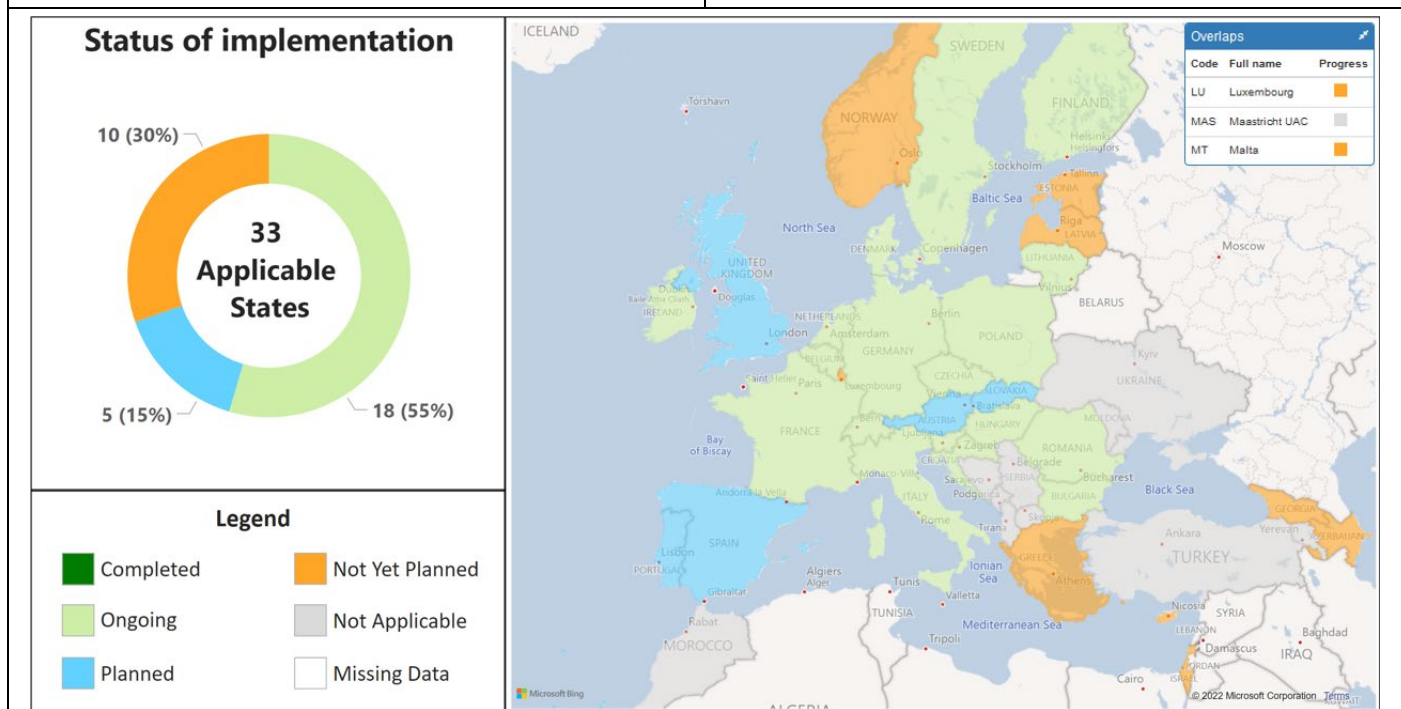


	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b> <b>Solution #34 Digital Integrated Briefing</b> <b>Solution #35 MET Information Exchange</b>		
	<b>INF10.10 Meteorological Information Exchange – Aerodrome Meteorological information Service</b>		
<b>Stakeholders</b>	ANSPs Airport Operators MET Service Providers NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A, IS-0205, MET-0101
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5   5.4.1
<b>Status</b>	Not Available	<b>ICAO ASBUs</b>	-



The Objective has **0% progress** so far as it a new CP1 Objective in its first year of monitoring. The completion rate spikes over the FOC year, reason why the evolution looks uncertain.

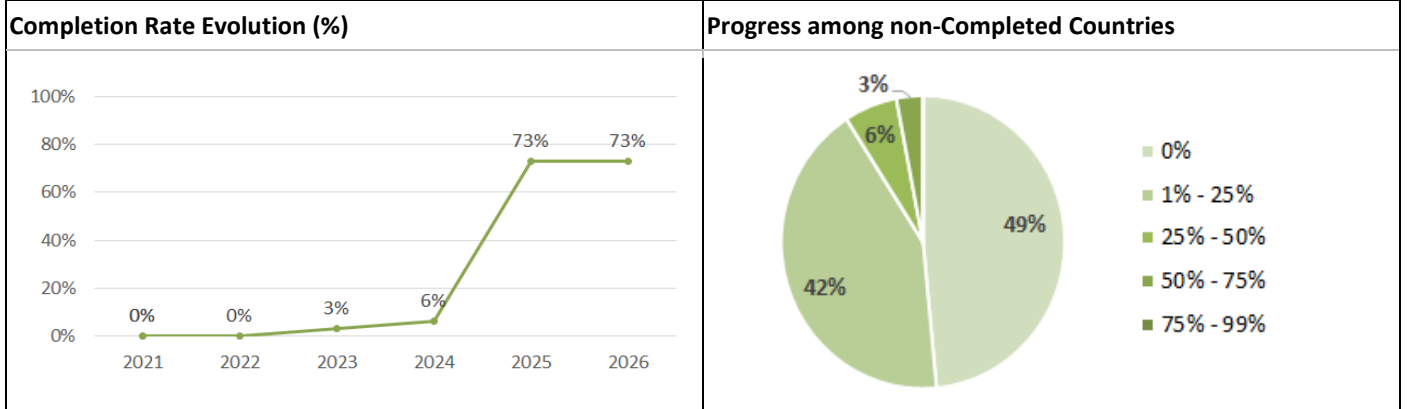
18 States started the implementation, the majority reporting between 1% and 23% progress. 15 States are at 0%, with the majority having no plans yet to implement.



- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- 18 States reported some progress , but most of them are at very early stages of the implementation.
- Of the 15 States that have not yet begun the works, only 5 have plans to implement and within the FOC.
- The remaining 10 States do not have plans yet, as the majority will properly assess the implementation in the future.
- The States that are not in the Applicability Area do not belong to the list of CP1 Countries, besides MUAC.

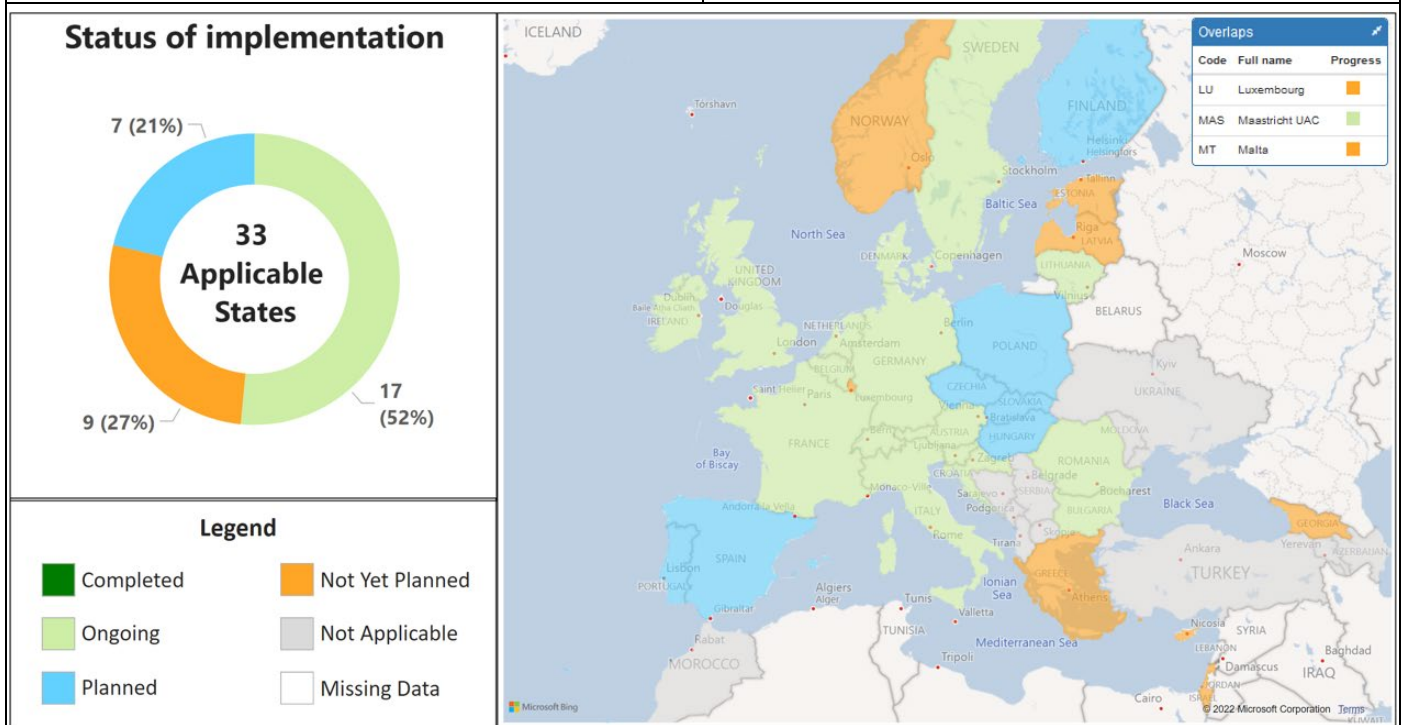
	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b> <b>Solution #34 Digital Integrated Briefing</b> <b>Solution #35 MET Information Exchange</b>		
	<b>INF10.11 Meteorological Information Exchange – En-Route and Approach Meteorological information service</b>		

<b>Stakeholders</b>	ANSPs MET Service Providers NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.	
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A, IS-0205, MET-0101	
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5	5.4.1
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBUs</b>	-	



The Objective has **0% progress** so far as it a new CP1 Objective in its first year of monitoring. The completion rate spikes over the FOC year, reason why the evolution looks uncertain.

Almost 50% of the States have not yet started the implementation of the Service. 17 States reported a progress between 3% and 53%.



- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- 17 States started to update of the local met systems to consume the En-Route and Approach Met information service.
- Of the 16 States that have not yet begun the works, a shy half has plans to implement and within the FOC.
- The remaining 9 States do not have plans yet, as the majority will properly assess the implementation in the future.
- The States that are not in the Applicability Area do not belong to the list of CP1 Countries.

	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b> <b>Solution #34 Digital Integrated Briefing</b> <b>Solution #35 MET Information Exchange</b>
	<b>INF10.12 Meteorological Information Exchange – Network Meteorological Information</b>

<b>Stakeholders</b>	ANSPs MET Service Providers NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.	
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A, IS-0205, MET-0101	
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5	5.4.1
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBUs</b>	-	

<b>Completion Rate Evolution (%)</b> 	<b>Progress among non-Completed Countries</b> 
<p>The <b>completion rate</b> is <b>0%</b>, being INF10.12 a new objective under the CP1 Regulation. The completion rate looks uncertain due to the high number of States with no plans.</p>	<p>The average progress of implementation is at 5% among all the states reporting within the Applicability Area.</p>

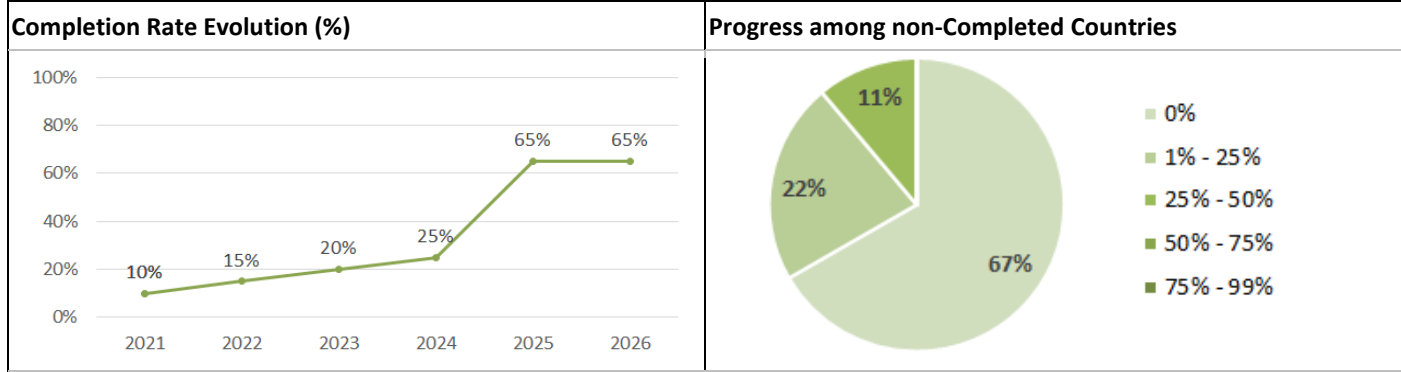
### Status of implementation

**32 Applicable States**

12 (38%)  
13 (41%)  
7 (22%)

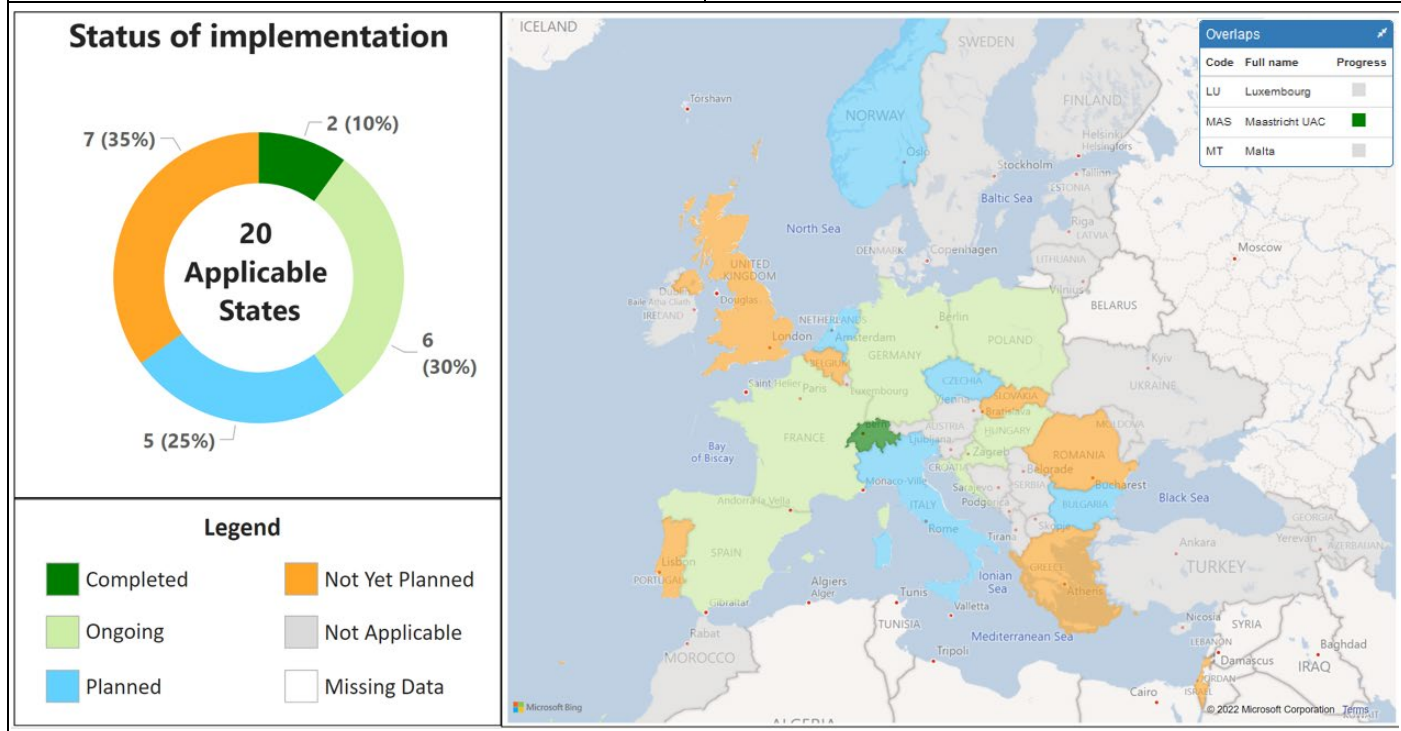
- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- Two thirds of the states within the Applicability Area have reported Ongoing or Planned, and part have initiated the implementation for this objective, all of them committed to implement the objective by the FOC date 31st of December 2025.
- One third of the states have not yet plans for the implementation despite being on the list of Applicable states. They will assess the situation again in the next cycle.

	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b>		
	<b>INF10.13 Cooperative Network Information Exchange – ATFCM Tactical Updates Service</b>		
<b>Stakeholders</b>	ANSPs NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5      5.5.1
<b>Status</b>	Not Available	<b>ICAO ASBUs</b>	-



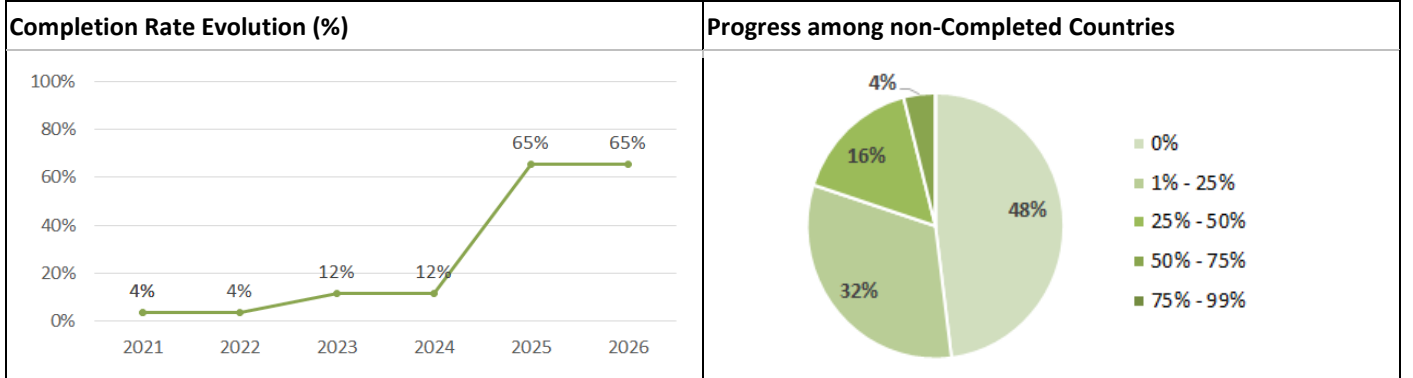
The Objective has **10% progress** so far, as it is a new CP1 objective in its first year of monitoring. Nonetheless, the majority of States are planning to implement it by its FOC date.

The majority of States reported not having started yet with the implementation, with only 5 States having plans for it. Meanwhile 6 Countries reported a progress below 50%.



- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- Switzerland and MUAC completed the implementation.
- 6 States reported to be underway with the implementation.
- 5 States have plans to implement whilst 7 do not have plans yet, despite being included in the CP1 list of applicable Countries.
- 12 CP1 States reported to be “Not Applicable” as their ANSP reported that the NM tool will be used for Traffic Complexity Management in Objective FCM06.1.

	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b>		
	<b>INF10.14 Cooperative Network Information Exchange – Flight Management Service</b>		
<b>Stakeholders</b>	ANSPs Airport Operators Airspace Users NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5      5.5.1
<b>Status</b>	Not Available	<b>ICAO ASBUs</b>	-



The Objective achieved **4% progress** so far, as it is a new CP1 Objective in its first year of monitoring. All States with plans will complete the implementation by its FOC date, Dec 2025.

Roughly, a bit more than half of the States are progressing towards completion, with the majority between 1% and 25% completion. 48% of States do not report any progress yet.

### Status of implementation

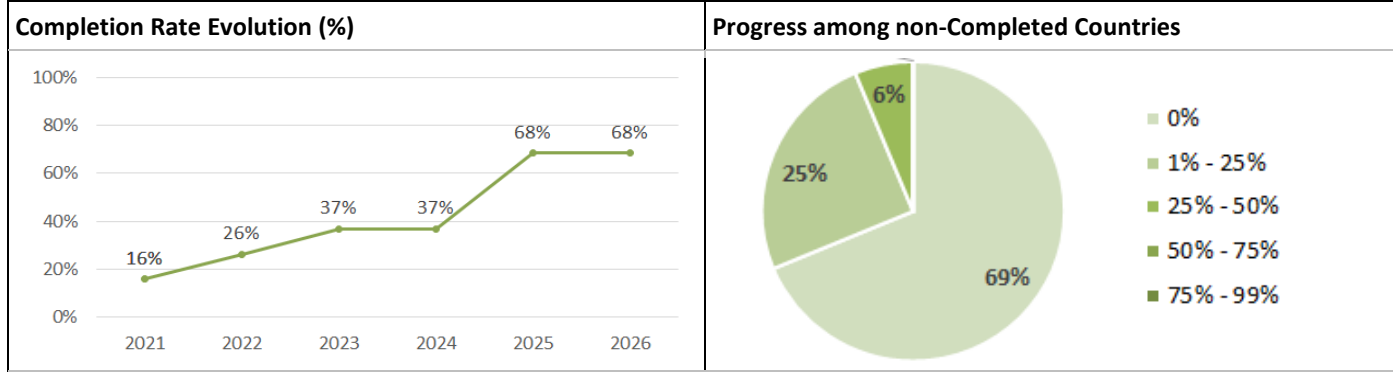
**26 Applicable States**

**Legend**

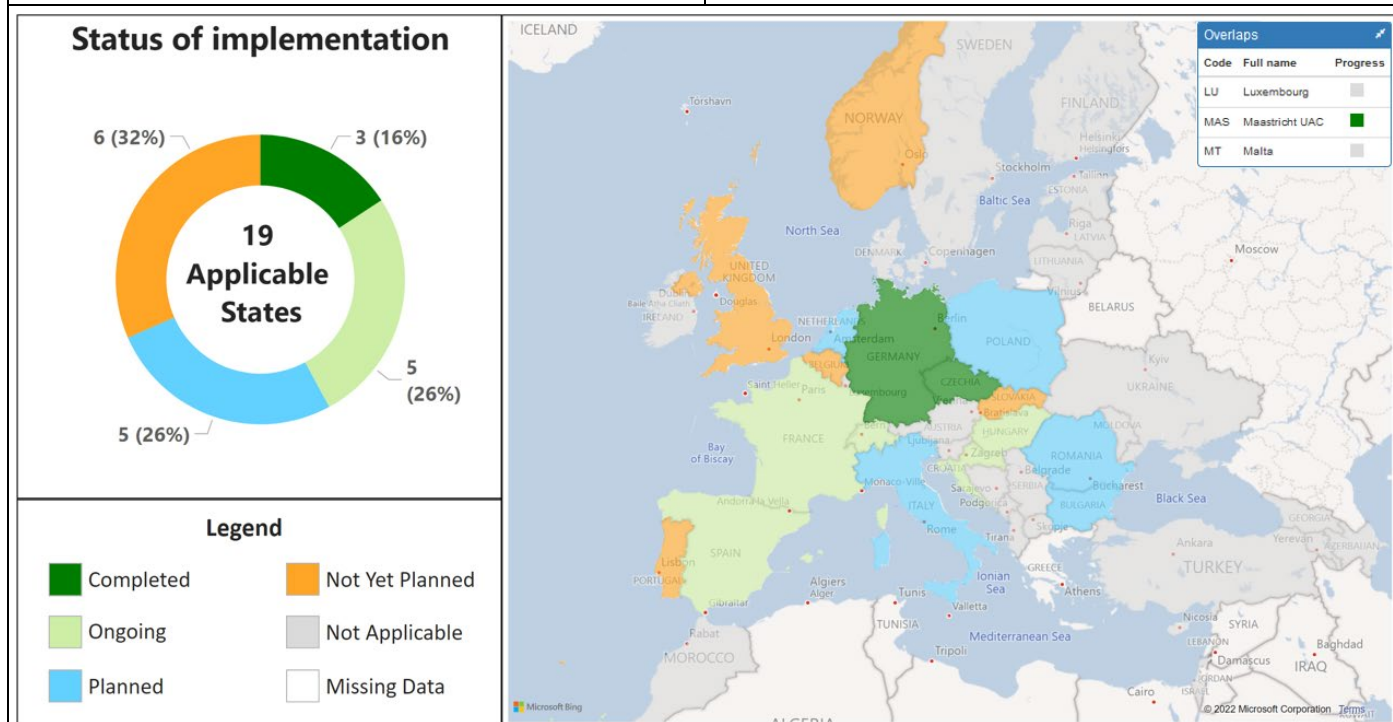
<span style="color: green;">■</span> Completed	<span style="color: orange;">■</span> Not Yet Planned
<span style="color: lightgreen;">■</span> Ongoing	<span style="color: grey;">■</span> Not Applicable
<span style="color: blue;">■</span> Planned	<span style="border: 1px solid black; display: inline-block; width: 15px; height: 15px;"></span> Missing Data

- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- Only MUAC has completed the implementation.
- 12 States reported to be underway with the implementation.
- 4 States have plans to implement, whilst other 9 do not have plans still keeping the FOC as a target.
- CY, LU, LT, MT and SI are the only CP1 States that declared this Objective as Not Applicable, as they will use the NM tool for Traffic Complexity Management.

	ATM interconnected network	<b>Solution #46 - Initial system-wide information management (SWIM) technology solution</b>	
	<b>INF10.15 Cooperative Network Information Exchange – Measures Service</b>		
<b>Stakeholders</b>	ANSPs Airspace Users NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5   5.5.1
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBU</b>	-

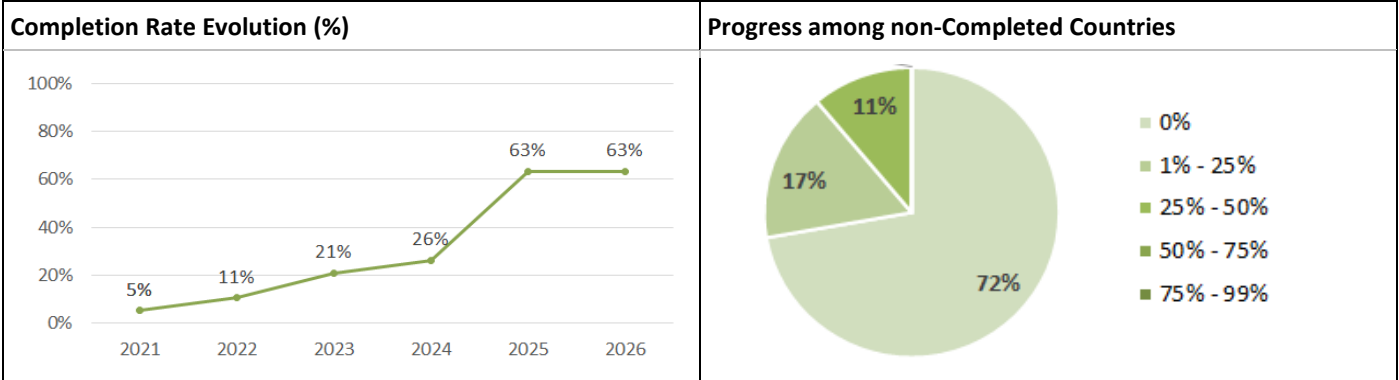


INF10.15 is a new Objective, reason for the low achieved progress of 16%. Although the evolution looks uncertain, all States with plans will implement the Objective by its FOC date. The implementation is still in its early stage with more than two thirds of the States at 0% progress. Only 5 CP1 States reported a progress between 5% and 38%.

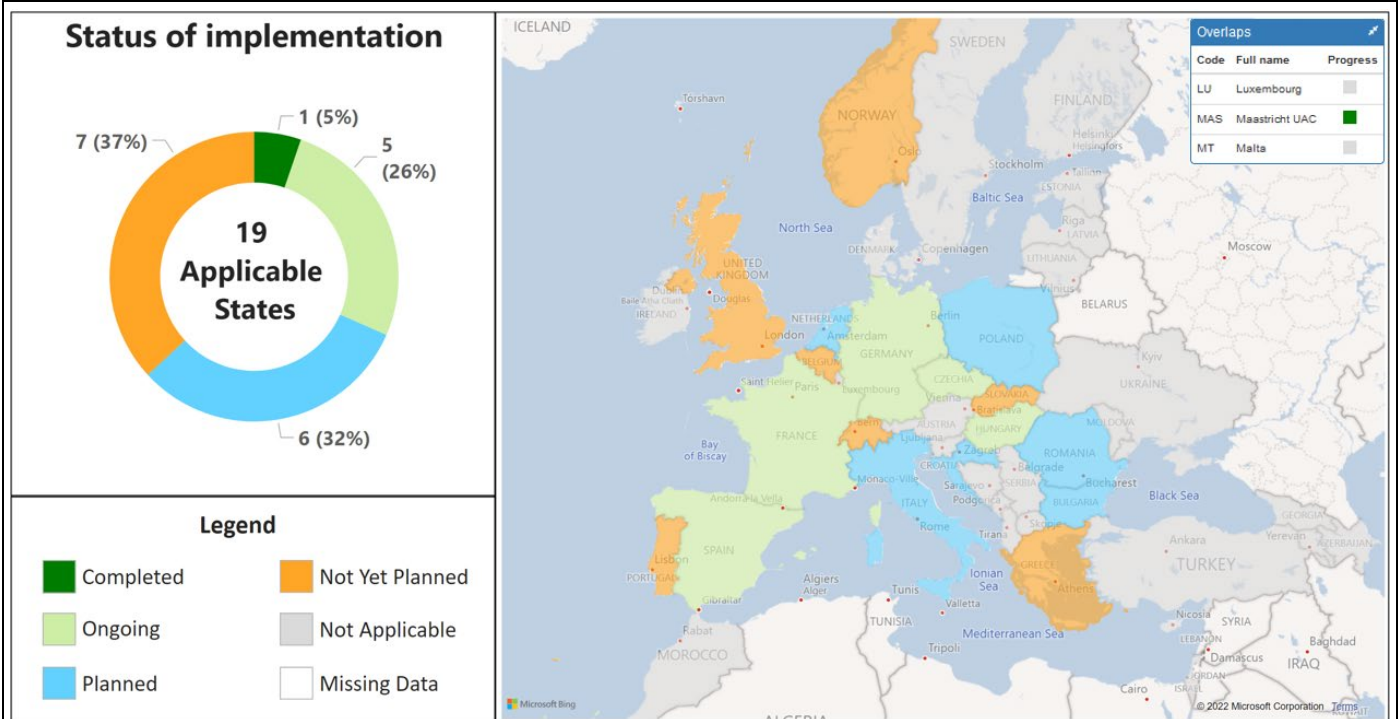


- INF10.15 is a new SWIM objective stemming from the recently endorsed CP1 regulation and it is linked with objective FCM04.2 (Enhanced STAM).
- Stakeholders have the option to use the European Common Aviation PKI (EACP) to generate certificates or to develop their own PKI.
- Only CZ, DE and MUAC declared the implementation as completed so far.
- The majority of the States within the applicability area reported the objective as “Not yet planned” or “Not applicable”. This is because the plans are still in the early stage and different options are being considered, or because ANSPs rely fully on NM tools and systems.

	ATM interconnected network	<b>Solution #46 - Initial system-wide information management (SWIM) technology solution</b>	
	<b>INF10.16</b>	<b>Cooperative Network Information Exchange - Short Term ATFCM Measures services</b>	
<b>Stakeholders</b>	ANSPs Airspace Users NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5      5.5.1
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBU</b>	-

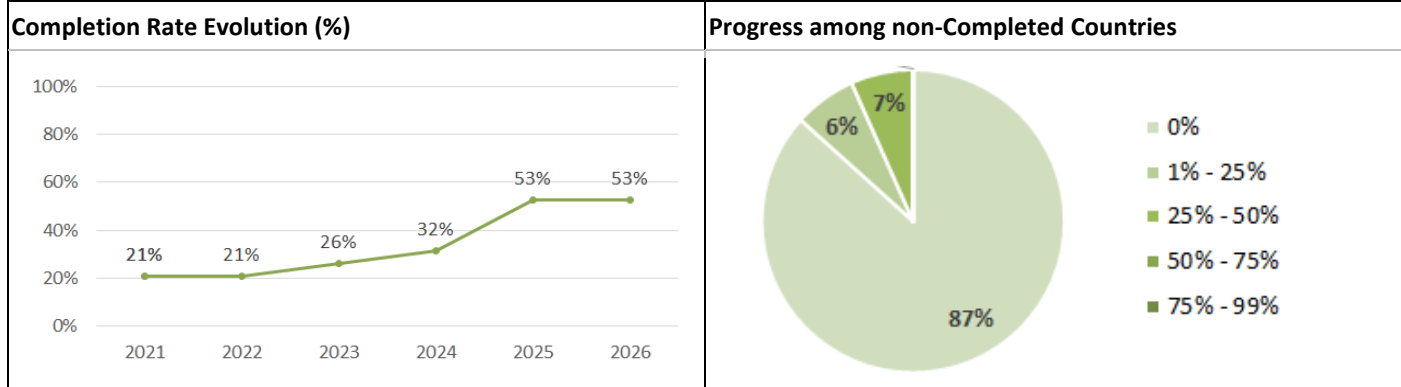


INF10.16 is a new Objective, reason for the low achieved progress of 5%. Although the evolution looks uncertain, all States with plans will implement the Objective by its FOC date. The implementation is still at its early stage with the large majority of States not having started the implementation. Only 5 CP1 States reported a progress between 5% and 38%.



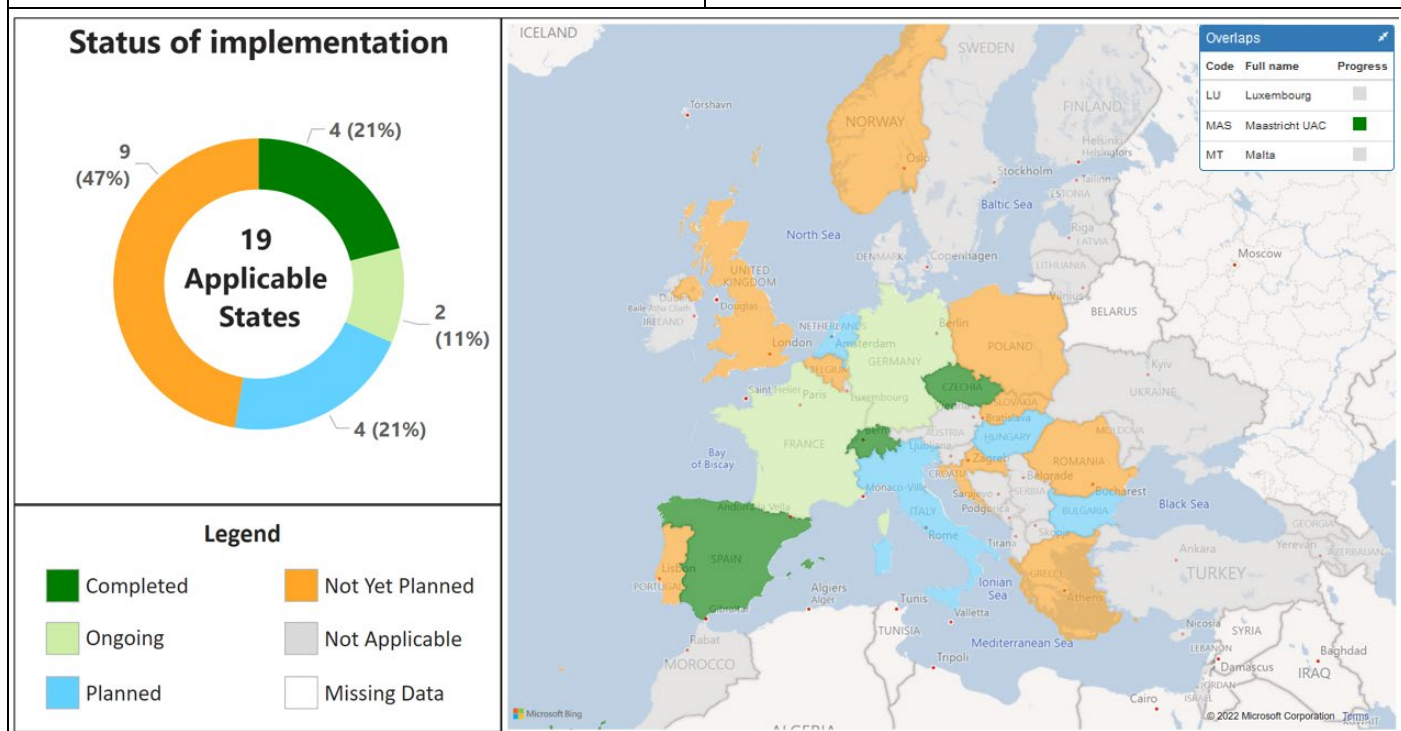
- INF10.16 is a new SWIM objective stemming from the recently endorsed CP1 regulation and it is linked with objective FCM04.2 (Enhanced STAM).
- Stakeholders have the option to use the European Common Aviation PKI (EACP) or to develop their own PKI.
- Only MUAC declares the implementation as completed so far.
- The majority of the States within the applicability area reported the objective as “Not yet planned” or “Not applicable”, This is because the plans are still in the early stage and different options are being considered, or because ANSPs rely fully on NM tools and systems.

ATM interconnected network	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b>		
	<b>INF10.17 Cooperative Network Information Exchange – Counts service</b>		
<b>Stakeholders</b>	ANSPs NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	IS-0901-A
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5      5.5.1
<b>Status</b>	Not Available	<b>ICAO ASBUs</b>	-




The Objective has **21% progress** so far, although it is a new CP1 Objective in its first year of monitoring. All States with plans will complete the implementation by its FOC date, Dec 2025.

Most of the States have not yet started the implementation of the Service. 13% of States report a progress below 50%.



- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- Czech Republic, MUAC, Spain and Switzerland already implemented the service.
- 2 States reported to be underway with the implementation.
- 4 States have plans to implement, whilst other 9 do not have plans still keeping the FOC as a target.
- 12 CP1 States reported as Not Applicable as their ANSP reported that the NM tool will be used for Traffic Complexity Management in Objective FCM06.1.

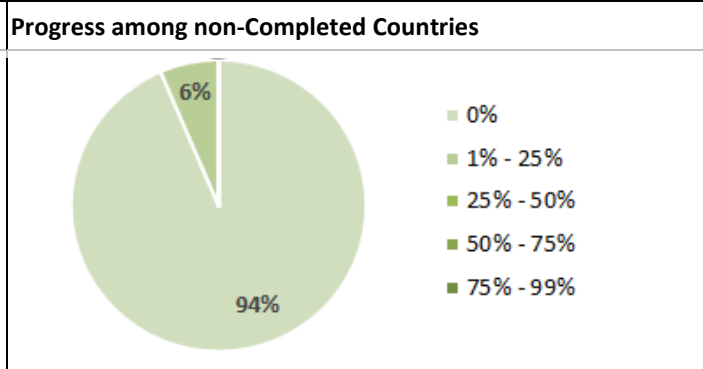
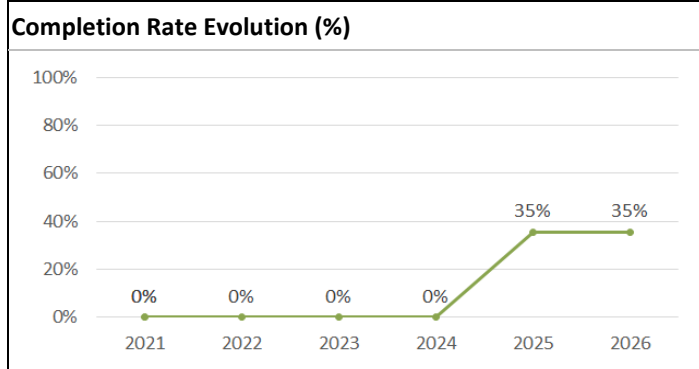


	ATM interconnected network		<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b>	
	<b>INF10.18 Flight Information Exchange (Yellow Profile) – Filing Service</b>			
<b>Stakeholders</b>	Airspace Users NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.	
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	AUO-0207	
<b>Estimated achievement</b>	31/12/2025	<b>CP1 AF &amp; SDP Family</b>	AF5	5.6.1
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBUs</b>	FICE-B2/2	
<ul style="list-style-type: none"> <li>• The Deployment View of INF10.18 does not feature charts or maps due to the nature of the Stakeholders implementing the Objective: Network Manager and Airspace Users.</li> <li>• For the Network Manager, the implementation of the service is considered as completed.</li> <li>• For Airspace Users, the trials and validations are in place with few CFSPs, but none of them have operationally deployed the service yet.</li> </ul>				

**IN** ATM interconnected network **Solution #46 Initial system-wide information management (SWIM) technology solution**

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

<b>Stakeholders</b>	ANSPs NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.	
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	AUO-0207	
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5	5.6.1
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBUs</b>	FICE-B2/4	



The Objective has **0% progress** so far as it a new CP1 Objective in its first year of monitoring. The completion rate looks uncertain due to the high number of States with no plans.

Most of the States have not yet started the implementation of the Service. Only 2 States reported some progress within 10%.

**Status of implementation**

**31 Applicable States**

- 20 (65%) Not Yet Planned
- 9 (29%) Planned
- 2 (6%) Ongoing

**Legend**

- Completed (Green)
- Ongoing (Light Green)
- Planned (Blue)
- Not Yet Planned (Orange)
- Not Applicable (Grey)
- Missing Data (White)

**Overlaps**

Code	Full name	Progress
LU	Luxembourg	Orange
MAS	Maastricht UAC	Orange
MT	Malta	Orange

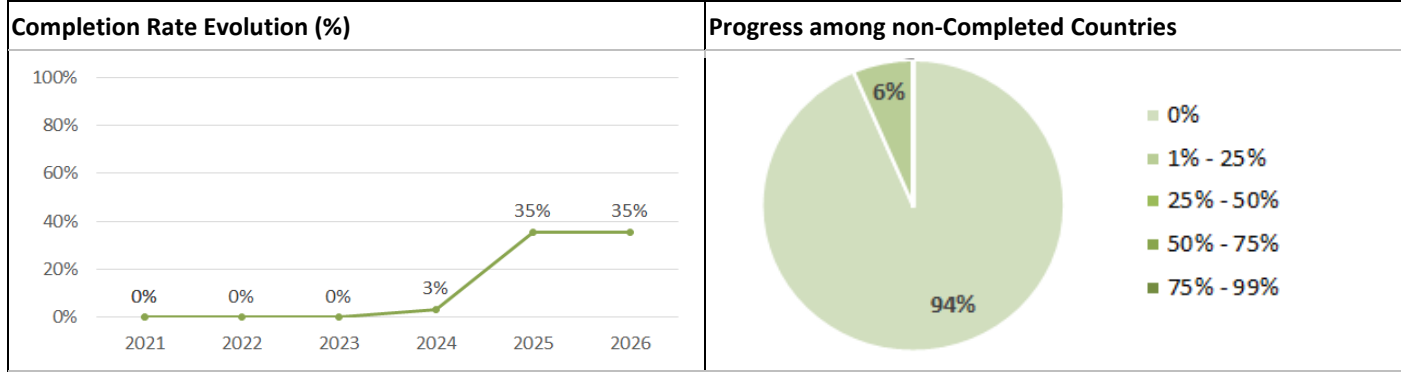
- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- Austria and Hungary reported to be at the initial stages of the implementation.
- Of the 29 States that have not yet begun the works, 9 have plans within the FOC date.
- 20 States do not have plans; the main reasons reported being the dependence on the choices that will be made for PKI infrastructure and the experimentation with NM FF-ICE/R1 services.
- The States that are not in the Applicability Area do not belong to the list of CP1 Countries.

	ATM interconnected network	<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b>	
<b>INF10.20 Flight Information Exchange (Yellow Profile) – Notification Service</b>			
<b>Stakeholders</b>	ANSPs NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	AUO-0207
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5      5.6.1
<b>Status</b>	Not Available	<b>ICAO ASBUs</b>	FICE-B2/5
<b>Completion Rate Evolution (%)</b> 		<b>Progress among non-Completed Countries</b> 	
The Objective has <b>0% progress</b> so far as it a new CP1 Objective in its first year of monitoring. The completion rate looks uncertain due to the high number of States with no plans.		97% of the States have not yet started the implementation of the Service. Only 1 State reported some progress within 10%.	
<b>Status of implementation</b> 			
<b>Legend</b> Completed (green)      Not Yet Planned (orange) Ongoing (light green)      Not Applicable (grey) Planned (blue)      Missing Data (white)			
<ul style="list-style-type: none"> <li>• Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.</li> <li>• Only Austria reported to be at the initial stages of the implementation.</li> <li>• Of the 29 States that have not yet begun the works, 9 have plans within the FOC date.</li> <li>• 20 States do not have plans; the main reasons reported being the dependence on the choices that will be made for PKI infrastructure and the experimentation with NM FF-ICE/R1 services.</li> <li>• MUAC is the only one affected by CP1 that declared this Objective as Not Applicable due to not having airports in its Area of Responsibility.</li> </ul>			

**IN** ATM interconnected network **Solution #46 Initial system-wide information management (SWIM) technology solution**

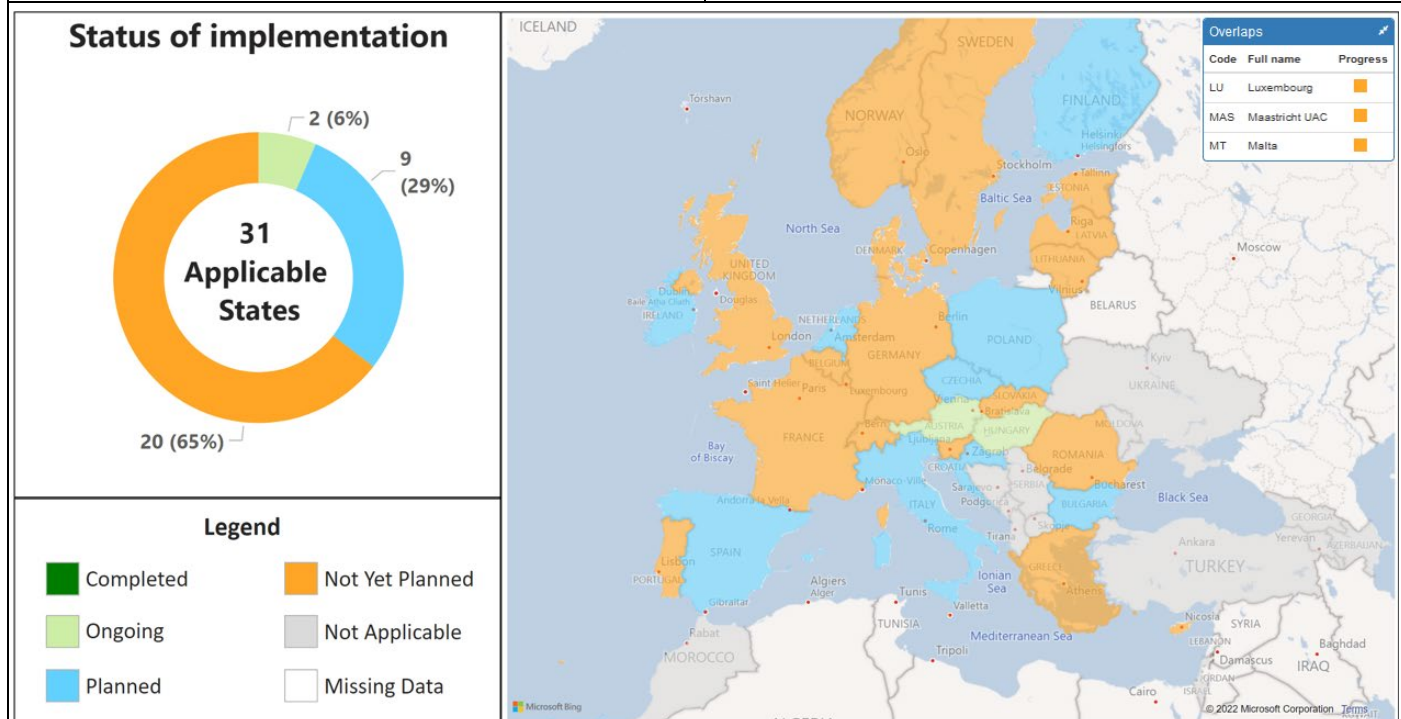
**INF10.21 Flight Information Exchange (Yellow Profile) – Data Publication Service**

<b>Stakeholders</b>	ANSPs NM	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.	
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	AUO-0207	
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5	5.6.1
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBUs</b>	FICE-B2/6	




The Objective has **0% progress** so far as it a new CP1 Objective in its first year of monitoring. The completion rate looks uncertain due to the high number of States with no plans.

Most of the States have not yet started the implementation of the Service. Only 2 States reported some progress within 10% and 25%.



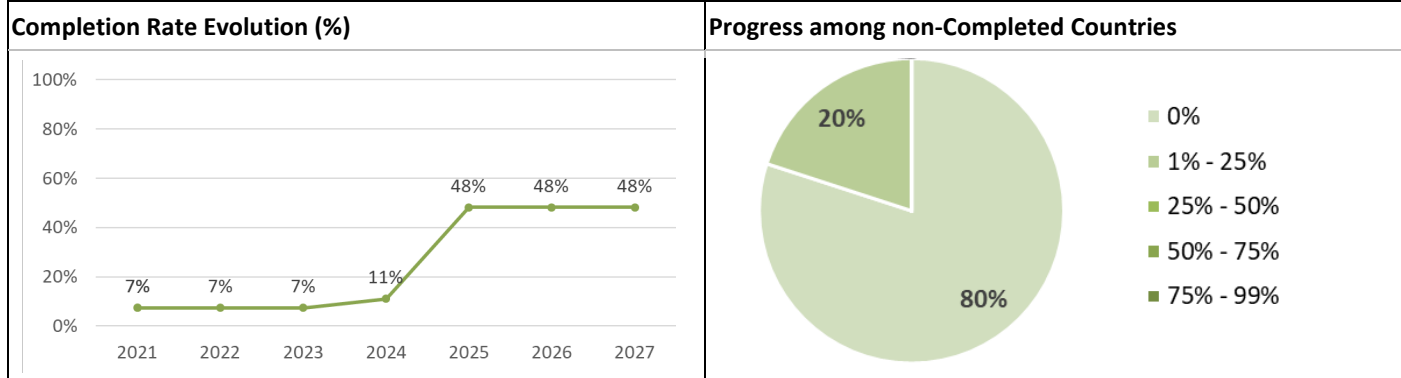
- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States + MUAC + CH.
- Austria and Hungary reported to be at the initial stages of the implementation.
- Of the 29 States that have not yet begun the works, 9 have plans within the FOC date.
- 20 States do not have plans; the main reasons reported being the dependence on the choices that will be made for PKI infrastructure and the experimentation with NM FF-ICE/R1 services.
- The States that are not in the Applicability Area do not belong to the list of CP1 Countries.

	ATM interconnected network		<b>Solution #46 Initial system-wide information management (SWIM) technology solution</b>	
	<b>INF10.22 Flight Information Exchange (Yellow Profile) – Trial Service</b>			
Stakeholders	NM	Expected Benefits	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.	
FOC	31/12/2025	OI Steps / Enablers	AUO-0219	
Estimated achievement	31/12/2021	CP1 AF & SDP Family	AF5	5.6.1
Status	Achieved	ICAO ASBUs	FICE-B2/3	
<ul style="list-style-type: none"> <li>• The Deployment View of INF10.22 does not feature charts or maps due to the nature of the Stakeholders implementing the Objective: Network Manager and Airspace Users.</li> <li>• For the Network Manager the implementation of the service is considered as completed.</li> </ul>				

**IN** ATM interconnected network **Solution #46 Initial system-wide information management (SWIM) technology solution**

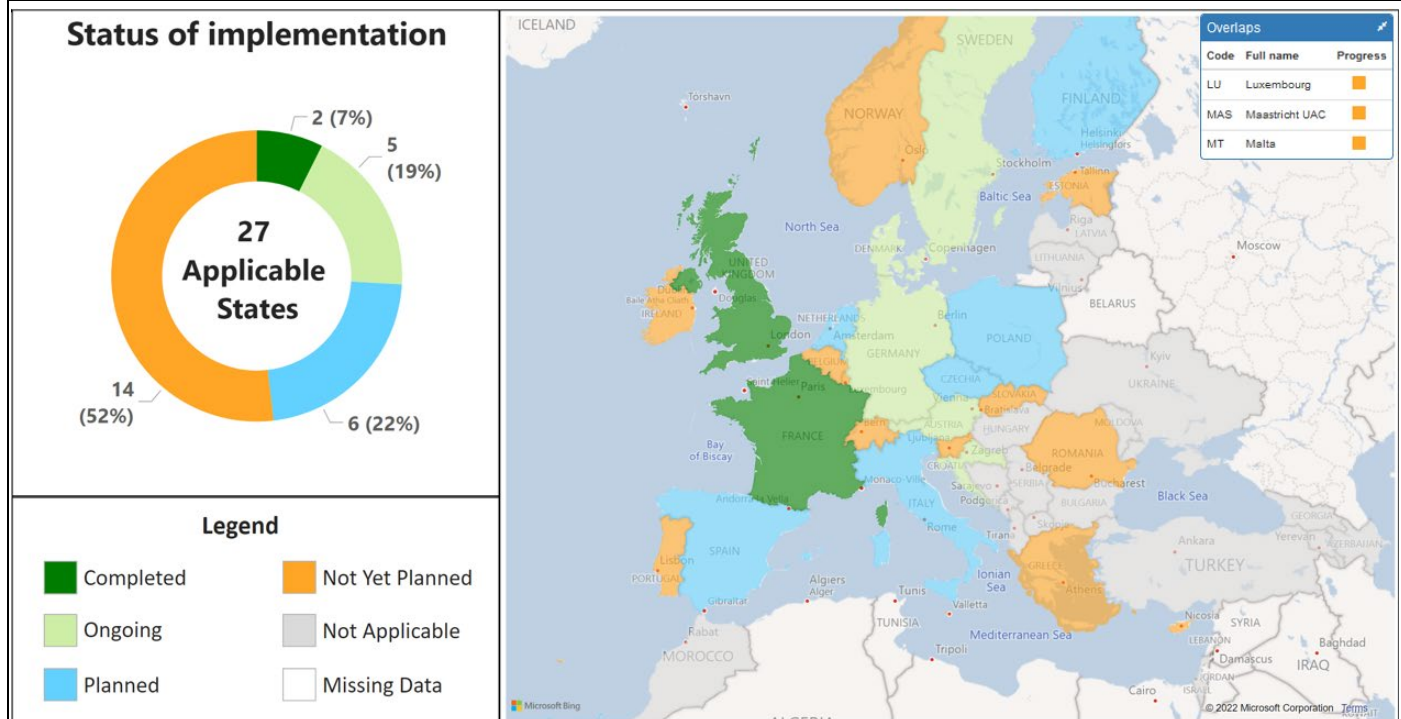
**INF10.23 Flight Information Exchange (Yellow Profile) – Extended AMAN SWIM Service**

<b>Stakeholders</b>	ANSPs	<b>Expected Benefits</b>	The benefits are dependent upon the applications that will be run over the SWIM infrastructure.	
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	AUO-0207	
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF5	5.6.1
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBUs</b>	DAIM-B2/1, SWIM-B3/1	



The Objective has **7% progress** so far even though it is a new CP1 Objective in its first year of monitoring. The completion rate looks uncertain due to the high number of States with no plans.

80% of the States have not yet started the implementation of the Service. Only 5 States reported some progress within 3% and 13%.



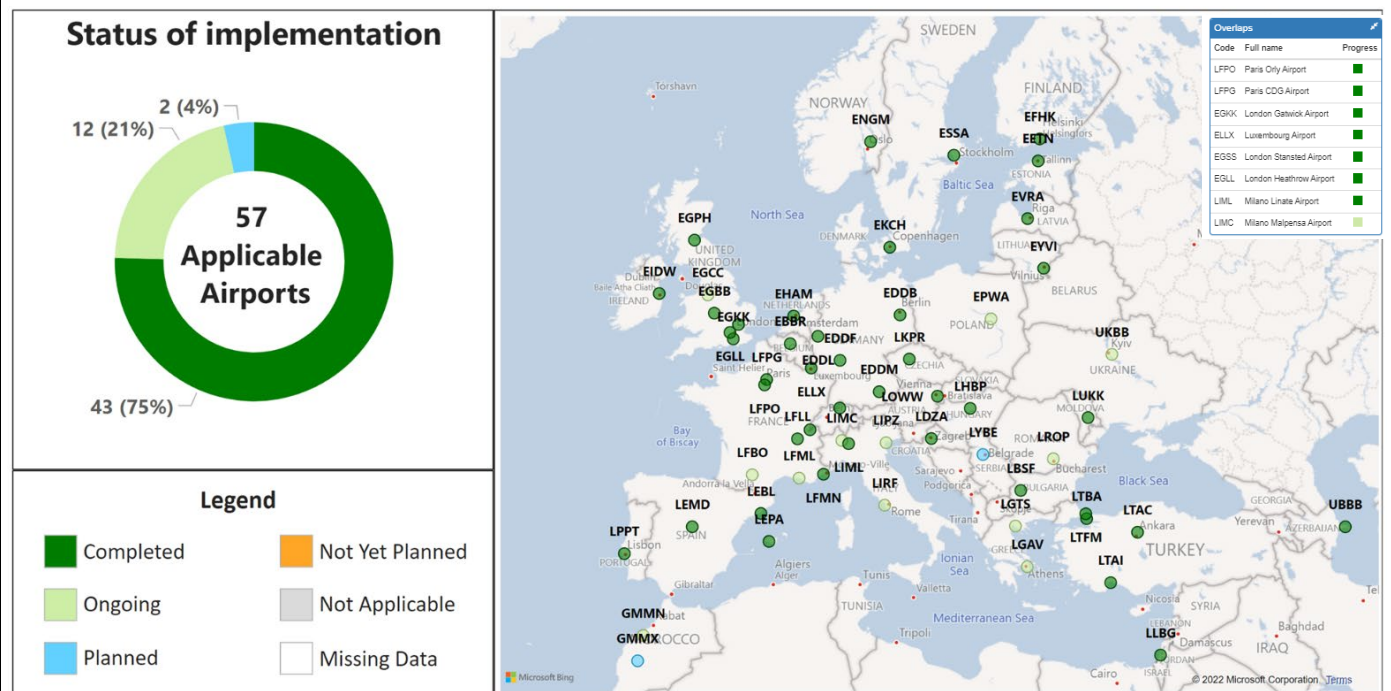
- This Service is part of Family 5.6.1 of the SESAR Deployment Programme, applicable for EU States + MUAC + CH.
- UK and France reported to have completed the Objective during this monitoring cycle.
- Austria, Croatia, Denmark Germany, and Sweden reported to be at the initial stages of the implementation.
- Of the 20 States that have not yet begun the works, 6 have plans within the FOC date.
- 14 States do not have plans; the main reasons being the lack of a SWIM infrastructure.
- Some States, also CP1, reported “Not Applicable” due to the lack of operational advantages to implement Extended AMAN, insufficient funds, or the lack of CP1 applicable Airports under their responsibility.

### 3.4 DIGITAL AIM AND MET SERVICES

	<h2>SESAR Solution – Nil</h2>										
<b>INF07 Electronic Terrain and Obstacle Data (e-TOD)</b>											
<b>Stakeholders</b>	ANSPs Airport Operators Regulators	<b>Expected Benefits</b>									
<b>FOC</b>	31/12/2018	<b>OI Steps / Enablers</b>	AIMS-16								
<b>Estimated achievement</b>	31/12/2023	<b>CP1 AF &amp; SDP Family</b>	-      -								
<b>Status</b>	<b>Late</b>	<b>ICAO ASBU</b>	DAIM-B1/3, DAIM-B1/4								
<b>Completion Rate Evolution (%)</b> 	<b>Progress among non-Completed Countries</b> 										
During 2021, one State completed e-TOD, raising the total number to 12 and the <b>completion rate to 28%</b> (vs 26% in 2020).		A little more than 25% of the Countries reached a progress rate of 50%, whilst only 2 have not yet started the implementation.									
<h3>Status of implementation</h3> <table border="1" data-bbox="119 1624 582 1825"> <thead> <tr> <th colspan="2">Legend</th> </tr> </thead> <tbody> <tr> <td><span style="color: green;">■</span> Completed</td> <td><span style="color: orange;">■</span> Not Yet Planned</td> </tr> <tr> <td><span style="color: lightgreen;">■</span> Ongoing</td> <td><span style="color: gray;">■</span> Not Applicable</td> </tr> <tr> <td><span style="color: lightblue;">■</span> Planned</td> <td><span style="border: 1px solid gray; display: inline-block; width: 10px; height: 10px;"></span> Missing Data</td> </tr> </tbody> </table>	Legend		<span style="color: green;">■</span> Completed	<span style="color: orange;">■</span> Not Yet Planned	<span style="color: lightgreen;">■</span> Ongoing	<span style="color: gray;">■</span> Not Applicable	<span style="color: lightblue;">■</span> Planned	<span style="border: 1px solid gray; display: inline-block; width: 10px; height: 10px;"></span> Missing Data			
Legend											
<span style="color: green;">■</span> Completed	<span style="color: orange;">■</span> Not Yet Planned										
<span style="color: lightgreen;">■</span> Ongoing	<span style="color: gray;">■</span> Not Applicable										
<span style="color: lightblue;">■</span> Planned	<span style="border: 1px solid gray; display: inline-block; width: 10px; height: 10px;"></span> Missing Data										
<ul style="list-style-type: none"> <li>• The overall status continues to be late, and the estimated achievement now is one year forward, on 31/12/2023.</li> <li>• Two more states have established the National TOD Policy, which is considered the cornerstone for the completion of other SLoAs. The establishment of the National TOD Policy must describe all roles and responsibilities for TOD stakeholders. The implementation of the objective directly depends on this point.</li> <li>• 29 states reported to be Ongoing and two have no plans so far. One third of the states reporting Ongoing have shown good progress in the past cycle, however, the other two-thirds didn't report any progress compared to 2020.</li> <li>• For other SLoAs, INF07-ASP01 progressed from 20 to 22 completed and INF07-APO01 from 26 to 27 completed.</li> </ul>											

### 3.5 AIRPORT AND TMA PERFORMANCE

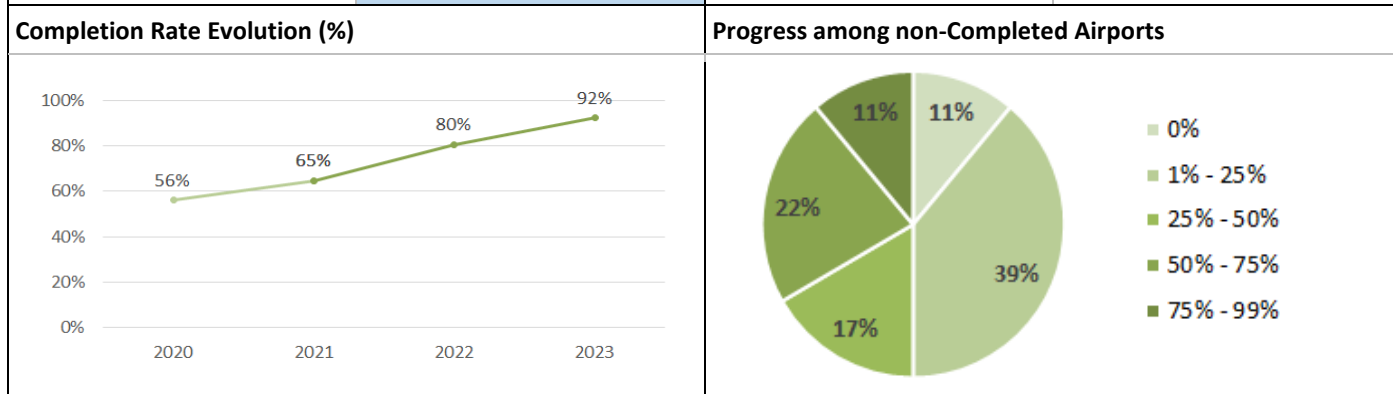
		<h2>Solution #70 Enhanced ground ATCO situation awareness in AWO</h2>	
<h3>AOP04.1 A-SMGCS Surveillance (former Level 1)</h3>			
<b>Stakeholders</b>	ANSPs Airport Operators Airspace Users International Organisations Regulators	<b>Expected Benefits</b>	Capacity Operational efficiency Cost efficiency Safety Environment Security
<b>FOC</b>	31/12/2020	<b>OI Steps / Enablers</b>	AO-0201, AO-0201-A
<b>Estimated achievement</b>	31/12/2022	<b>CP1 AF &amp; SDP Family</b>	-
<b>Status</b>	Late	<b>ICAO ASBU</b>	SURF-B0/2
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Airports</b>	
One additional airport Lisbon Airport (LPPT) implemented A-SMGCS during 2021 to reach <b>75% progress</b> . 43 airports have completed this over the 57 that consider it applicable.		In most of the remaining Airports that still need to implement, the progress achieved so far is greater than 25%, 6 of which are foreseen to finalise implementation in 2022.	



- This year the Applicability Area shows 27 CP1 airports and 30 non-CP1 airports. The applicability area is more than double compared with the applicability area of the objective at its creation.
- Although according to the ATM Master Plan Level 3 Report 2021, this Objective was estimated to be achieved by the end of 31/12/2021, this was not yet the case and the completion was postponed after the FOC date.
- 14 airports are still in the planning or the ongoing phase of implementation. The latest planned dates of implementation are for non-CP1 airports in France (LFML – 2025) and Serbia (LYBE – 2027).

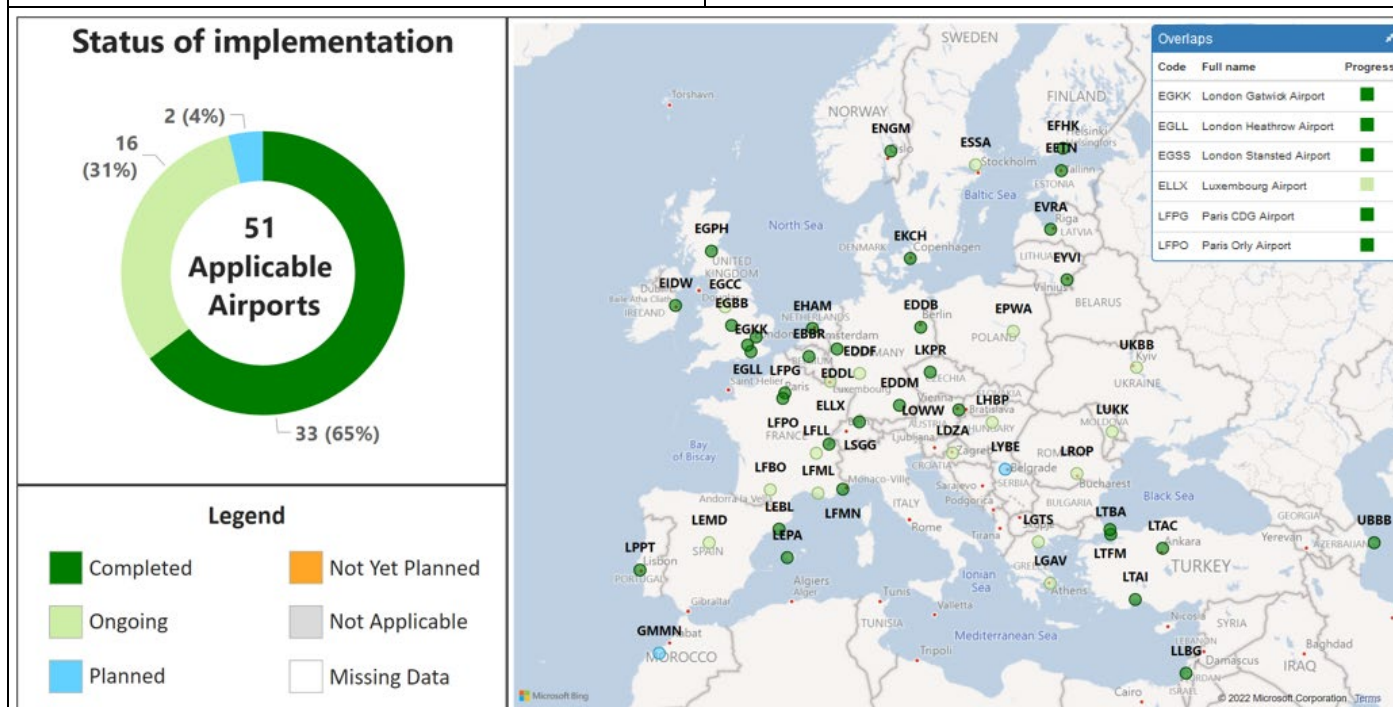


	<h2>SESAR Solution – Nil</h2>		
	<h3>AOP04.2 A-SMGCS RMCA (former Level 2)</h3>		
<b>Stakeholders</b> ANSPs Airport Operators International Organisations Regulators	<b>Expected Benefits</b>		 Capacity  Operational efficiency  Cost efficiency  Safety  Environment  Security
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	AO-0102
<b>Estimated achievement</b>	31/12/2022	<b>CP1 AF &amp; SDP Family</b>	-
<b>Status</b>	On Time	<b>ICAO ASBU</b>	SURF-B0/3



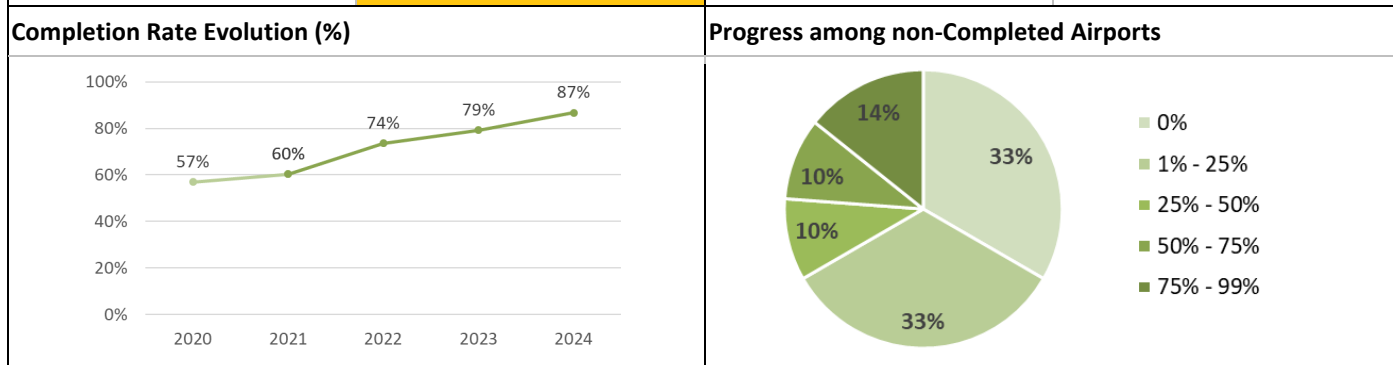
Two airports in the Applicability Area have finalized the implementation in 2021, i.e. LEBL and LEPA, increasing the progress to 65% vs 56% in 2021.

Several airports in the remaining States (8/18) have progress achieved so far is greater than 50%.



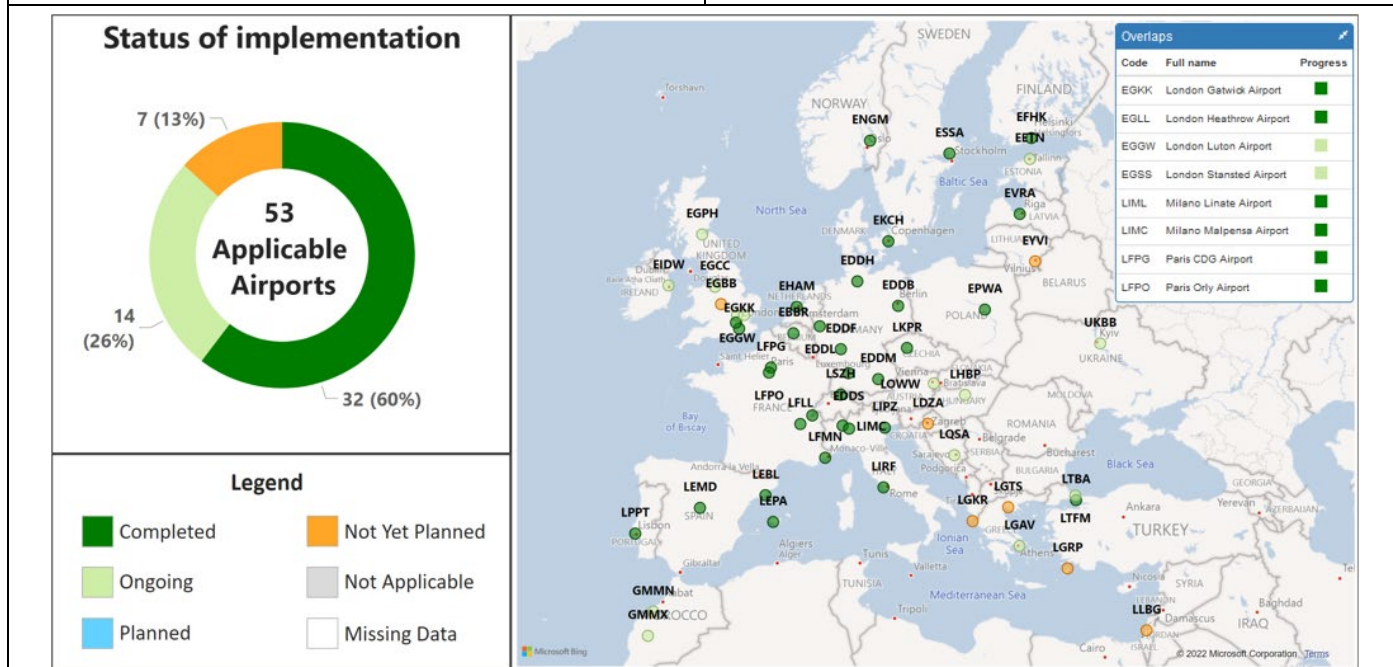
- A-SMGCS RMCA implementation builds on the implementation of AOP04.1.
- In 2021, 33 airports are having this functionality operational.
- Delay have been absorbed by the CP1 Regulation, which requires the deployment of airport safety nets (to which AOP04.2 is an important prerequisite) by 12/2025 (implementation date moved from 12/2022).
- Because of some overlap between AOP04.2 and one SLoA of AOP12.1, some states decided to report only on AOP12.1.
- All airports but one are planning to implement at least one year before the FOC 2025 date. LYBE is planning it for 2027.

	<h2>SESAR Solution – Nil</h2>		
	<b>AOP05 Airport CDM</b>		
<b>Stakeholders</b>	ANSPs Airport Operators Airspace users NM	<b>Expected Benefits</b>	Capacity Operational efficiency Cost efficiency Safety Environment Security
<b>FOC</b>	31/12/2020	<b>OI Steps / Enablers</b>	AO-0501, AO-0601, AO-0602, AO-0603, TS-0201
<b>Estimated achievement</b>	31/12/2024	<b>CP1 AF &amp; SDP Family</b>	-                      -
<b>Status</b>	<b>Late</b>	<b>ICAO ASBU</b>	ACDM-B0/1, ACDM-B0/2, NOPS-B0/4



AOP05 was substantially changed. A more reliable evolution rate will be available after next cycle. This year showed gradual progress to 60%, with estimated achievement by 2024.

4 Airports (EYVI, EGBB, LDZA, LLBG) with “late” or “ongoing” 2020 changed status to ‘NYP’, either due to COVID (negative impact traffic; budget) or other – not clarified – reasons.



- Progress is difficult to show due to the change in the applicability area (1 Airport taken out LTAI; 3 Airports added but with status NYP - LTGS, LGKR and LGRP; 2 Airports added (EDDH, EDDS - status completion), and the change in the objective itself. A more reliable comparison will be available after next cycle.
- The SLoA regarding the definition and implementation of variable taxi-times and pre-departure sequencing procedure (i.e. initial DMAN) according to airport CDM Manual guidelines is no longer part of this objective.
- Nearly 20% of the Airports in the applicability area (LOVV, LQSA, EETT, LLBG, EYVI, EGBB, EGCC, EGGW, EGSS) reported delay in some activities within this objective due to COVID-19 (related to budget or not sufficient traffic to perform validations)

	<h2 style="text-align: center;">Solution #64 Time-based separation</h2>		
<b>AOP10 Time Based Separation</b>			
<b>Stakeholders</b>	ANSPs Airspace Users Regulators	<b>Expected Benefits</b>	
<b>FOC</b>	31/12/2023	<b>OI Steps / Enablers</b>	AO-0303
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	-
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBU</b>	WAKE-B2/7
<b>Completion Rate Evolution (%)</b> 		<b>Progress among non-Completed Airports</b> 	
Slight evolution to this Objective, which reached <b>7% progress</b> in 2021. A spike is expected in 2023.		Based on what is reported, seven airports have actively pursued implementation in 2021.	
<b>Status of implementation</b> 			
<ul style="list-style-type: none"> <li>• The objective is currently implemented only at London Heathrow (EGLL).</li> <li>• 7 additional airports (including EDDF - Frankfurt Airport, LTFM - Istanbul Airport, EKCH - Copenhagen Kastrup Airport, EGCC - Manchester Airport and EHAM - Amsterdam Airport) will reach completion by the FOC date (12/2023).</li> <li>• In 2021, 3 airports have still no plans yet to implement.</li> <li>• The applicability area decreased from 19 to 14 airports in 2021. This decrease was caused by the fact that the deployment of TBS is not legally binding anymore.</li> <li>• The fact that this functionality is not addressed by the CP1 Regulation (EU 116/2021) anymore as well as the COVID-19 crisis also impacted the implementation plans as foreseen (e.g. in Denmark and Ireland).</li> </ul>			

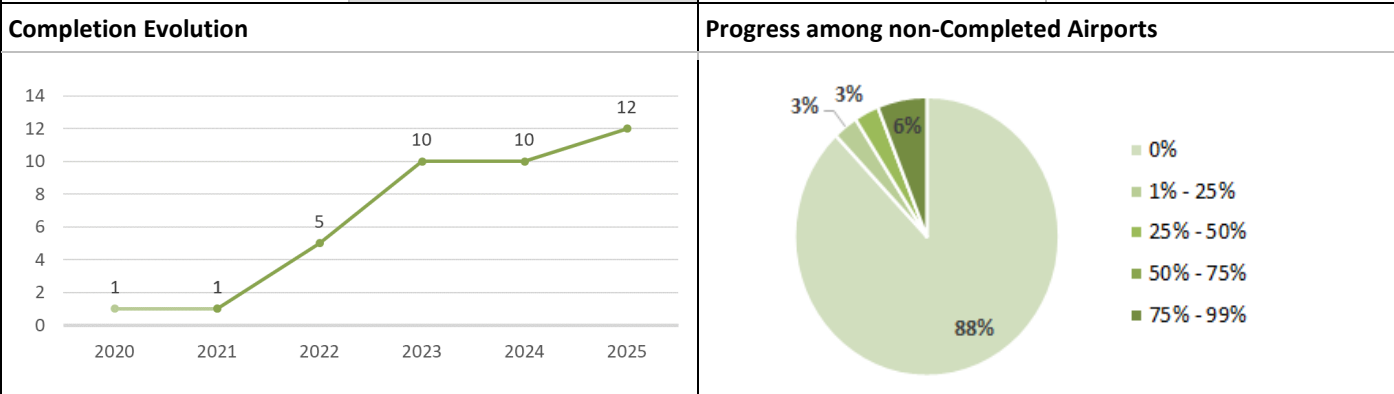
	<h2 style="text-align: center;">Solution #02 Airport Safety Nets</h2>				
<b>AOP12.1 Airport Safety Nets</b>					
<b>Stakeholders</b>	ANSPs Airport Operators	<b>Expected Benefits</b>	Capacity	Operational efficiency	Cost efficiency
			Safety	Environment	Security
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	AO-0104-A		
<b>Estimated achievement</b>	31/12/2025	<b>CP1 AF &amp; SDP Family</b>	AF2	2.3.1	
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBU</b>	SURF-B1/3		
<b>Completion Rate Evolution (%)</b>			<b>Progress among non-Completed Airports</b>		
AOP12.1 was substantially changed, hence there is no historical completion rate evaluation available. Out of the 3 “Completed” airports, UBBB and LKPR implemented only RMCA, while LTFM implemented all 3 functionalities (RMCA, CATC, and CMAC).			Due to the changes to the objective, most of the implementers are still in early progress phases.		
<h3 style="text-align: center;">Status of implementation</h3>					
<p style="text-align: center;"><b>Legend</b></p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <span style="color: green;">■</span> Completed                 </div> <div style="text-align: center;"> <span style="color: orange;">■</span> Not Yet Planned                 </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="text-align: center;"> <span style="color: lightgreen;">■</span> Ongoing                 </div> <div style="text-align: center;"> <span style="color: gray;">■</span> Not Applicable                 </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="text-align: center;"> <span style="color: lightblue;">■</span> Planned                 </div> <div style="text-align: center;"> <span style="border: 1px solid gray; display: inline-block; width: 10px; height: 10px;"></span> Missing Data                 </div> </div>					
<ul style="list-style-type: none"> <li>• This objective has changed substantially for reporting cycle 2021, and became AOP12.1.</li> <li>• Objective AOP04.2 (RMCA) is the pre-requisite for the implementation of CATC and CMAC in this objective. As a result, the reporting was impacted and some airports had to revert to ‘Ongoing’ after a status ‘Completed’ last cycle.</li> <li>• 3 Airports reported completion, from which LTFM implemented the three functions RMCA, CATC and CMAC.</li> <li>• The general view from the Stakeholders is that implementation is foreseen by 2025.</li> </ul>					

	<b>Solution #22 Auto. assist ATCO for surface movement planning and routing</b> <b>Solution #53 Pre-DEP sequencing supported by route planning</b>		
<b>AOP13 Automated Assistance to ATCO for Surface movement plan &amp; routing.</b>			
<b>Stakeholders</b>	ANSPs Regulators	<b>Expected Benefits</b>	
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	AO-0205, TS-0202
<b>Estimated achievement</b>	Not available	<b>CP1 AF &amp; SDP Family</b>	-                      -
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBU</b>	SURF-B1/4
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Airports</b>	
While a little progress is visible for the Airports with status ‘Ongoing’, no ‘Completion’ is expected before 2022. The majority of Airports in the applicability area still report “Not Yet Planned” or “Planned” as status. Therefore, it is not possible to provide a reliable date for an estimate of achievement.		From the Airports with Status ‘Ongoing’, LTFM reports progress of 69%, the others all report below 35% progress. The majority of the Airports with status ‘Planned’ estimate implementation by FOC date.	
<b>Status of implementation</b>  			
<ul style="list-style-type: none"> <li>• The applicability area changed in 2021, by taking out 4 airports (EDDB, LFPG, LFMN, LFPO). Main reason provided for this change is that there is no proof for operational benefits and/or lack of maturity.</li> <li>• The removal last cycle of the functionality from the scope of the CP1 Regulation (EU 116/2021) might have impacted the progress and/or status of this objective.</li> </ul>			

**ATp** Airport and TMA performance **Solution #04 Enhanced sit. awareness and APO SNET for vehicle drivers**

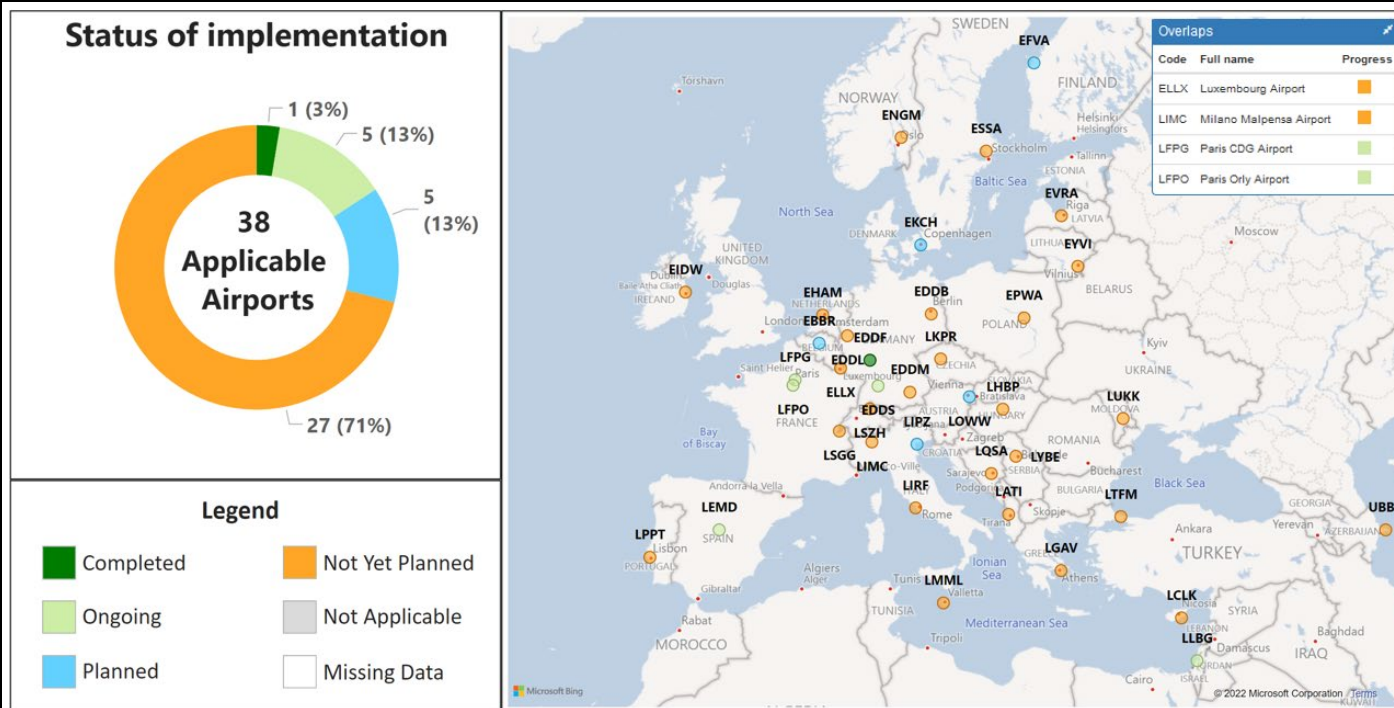
**AOP15 Safety Nets for vehicle drivers**

<b>Stakeholders</b>	Airport Operators International Organisations Regulators	<b>Expected Benefits</b>	Capacity	Operational efficiency	Cost efficiency
			Safety	Environment	Security
<b>FOC</b>	Open (Local Objective)	<b>OI Steps / Enablers</b>	AO-0105, AO-0204		
<b>Estimated achievement</b>	Not Applicable	<b>CP1 AF &amp; SDP Family</b>	-	-	
<b>Status</b>	<b>Not Applicable</b>	<b>ICAO ASBU</b>	SURF-B2/2		



No new implementation in any Airport this year. Frankfurt Airport is the only one to have completed the Objective since 2019.

Two airports in France will implement this local objective in 2022: Paris CDG (LFPG) and Paris Orly (LFPO). LEMD - Madrid Barajas Airport will finalise the implementation by 2023.



- The “Enhanced traffic situational awareness and airport safety nets for the vehicle drivers” functionality is still not yet planned for most of the airports,
- In 2021, EDDS - Stuttgart Airport started the implementation and reported this objective as ‘ongoing’ with Implementation date in December 2023.
- 5 airports have not yet started the implementation but report plans to implement it (EBBR by 12/2023, EKCH by 12/2022, EFVA by 12/2024, LIPZ by 12/2022, LOWW by 12/2025).
- The remaining airports within ECAC+ area reported this objective as “Not applicable”.

	<h2>Solution #47 Guidance assistance through AGL</h2>								
<b>AOP16 Guidance assistance through airfield ground lighting (AGL)</b>									
<b>Stakeholders</b>	ANSPs Airport Operators Airspace Users International Organisations	<b>Expected Benefits</b>							
<b>FOC</b>	Open (Local Objective)	<b>OI Steps / Enablers</b>	AO-0222-A						
<b>Estimated achievement</b>	Not Applicable	<b>CP1 AF &amp; SDP Family</b>	-						
<b>Status</b>	<b>Not Applicable</b>	<b>ICAO ASBU</b>	SURF-B1/1						
<b>Completion Evolution</b>		<b>Progress among non-Completed Airports</b>							
No airport has currently implemented this local objective.		Two airports (EHAM, LTFM) started the implementation, one of them in 2020 (EHAM) with completion expected in 2022 and the other one in 2025.							
<h3>Status of implementation</h3> <div style="margin-top: 10px;"> <p><b>Legend</b></p> <table border="0"> <tr> <td><span style="color: green;">■</span> Completed</td> <td><span style="color: orange;">■</span> Not Yet Planned</td> </tr> <tr> <td><span style="color: lightgreen;">■</span> Ongoing</td> <td><span style="color: gray;">■</span> Not Applicable</td> </tr> <tr> <td><span style="color: blue;">■</span> Planned</td> <td><span style="border: 1px solid gray; display: inline-block; width: 15px; height: 10px;"></span> Missing Data</td> </tr> </table> </div>		<span style="color: green;">■</span> Completed	<span style="color: orange;">■</span> Not Yet Planned	<span style="color: lightgreen;">■</span> Ongoing	<span style="color: gray;">■</span> Not Applicable	<span style="color: blue;">■</span> Planned	<span style="border: 1px solid gray; display: inline-block; width: 15px; height: 10px;"></span> Missing Data		
<span style="color: green;">■</span> Completed	<span style="color: orange;">■</span> Not Yet Planned								
<span style="color: lightgreen;">■</span> Ongoing	<span style="color: gray;">■</span> Not Applicable								
<span style="color: blue;">■</span> Planned	<span style="border: 1px solid gray; display: inline-block; width: 15px; height: 10px;"></span> Missing Data								
<ul style="list-style-type: none"> <li>• Guidance assistance through airfield ground lighting (AGL) is intended for controllers, flight crews and vehicle drivers. It corresponds to the A-SMGCS Guidance function foreseen in ICAO’s A-SMGCS Manual (Doc. 9830).</li> <li>• It links aerodrome lighting infrastructure with the taxi route management system (Routing &amp; Planning), thus providing an unambiguous route for the taxiing aircraft/vehicle to follow.</li> <li>• Most of the airports in the Applicability Area have not yet planned any implementation of this objective (27), while the rest of the airports in ECAC+ area have declared it as “not applicable”.</li> </ul>									

	<h2>Solution #01 Runway status lights</h2>																																									
<b>AOP18 Runway Status Lights</b>																																										
<b>Stakeholders</b>	ANSPs Airport Operators Airspace Users International Organisations Regulators	<b>Expected Benefits</b>																																								
<b>FOC</b>	Open (Local Objective)	<b>OI Steps / Enablers</b>	AO-0209																																							
<b>Estimated achievement</b>	Not Applicable	<b>CP1 AF &amp; SDP Family</b>	-																																							
<b>Status</b>	<b>Not Applicable</b>	<b>ICAO ASBU</b>	SURF-B2/2, SURF-B2/3																																							
<b>Completion Evolution</b> 		<b>Progress among non-Completed Airports</b> 																																								
No new implementation of this objective in 2021.		Progress achieved so far in Türkiye is greater than 50%, giving confidence in positive outlook for the implementation in 2022.																																								
<div style="display: flex; justify-content: space-between;"> <div data-bbox="124 1093 593 1760" style="width: 30%;"> <h3>Status of implementation</h3> <p style="text-align: center;"><b>21 Applicable Airports</b></p> <table border="1"> <thead> <tr> <th>Legend</th> <th>Count</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Completed</td> <td>1</td> <td>5%</td> </tr> <tr> <td>Ongoing</td> <td>1</td> <td>5%</td> </tr> <tr> <td>Not Yet Planned</td> <td>19</td> <td>90%</td> </tr> <tr> <td>Not Applicable</td> <td>-</td> <td>-</td> </tr> <tr> <td>Planned</td> <td>-</td> <td>-</td> </tr> <tr> <td>Missing Data</td> <td>-</td> <td>-</td> </tr> </tbody> </table> </div> <div data-bbox="593 1093 1471 1760" style="width: 65%;"> <table border="1"> <thead> <tr> <th>Code</th> <th>Full name</th> <th>Progress</th> </tr> </thead> <tbody> <tr> <td>EGLL</td> <td>London Heathrow Airport</td> <td>Not Yet Planned</td> </tr> <tr> <td>EGSS</td> <td>London Stansted Airport</td> <td>Not Yet Planned</td> </tr> <tr> <td>ELLX</td> <td>Luxembourg Airport</td> <td>Not Yet Planned</td> </tr> <tr> <td>LIMC</td> <td>Milano Malpensa Airport</td> <td>Not Yet Planned</td> </tr> <tr> <td>LFPG</td> <td>Paris CDG Airport</td> <td>Completed</td> </tr> </tbody> </table> </div> </div>				Legend	Count	Percentage	Completed	1	5%	Ongoing	1	5%	Not Yet Planned	19	90%	Not Applicable	-	-	Planned	-	-	Missing Data	-	-	Code	Full name	Progress	EGLL	London Heathrow Airport	Not Yet Planned	EGSS	London Stansted Airport	Not Yet Planned	ELLX	Luxembourg Airport	Not Yet Planned	LIMC	Milano Malpensa Airport	Not Yet Planned	LFPG	Paris CDG Airport	Completed
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<ul style="list-style-type: none"> <li>Runway Status Lights (RWSL) system is an automatic independent system based on aerodrome surveillance data that is used as a safety net to inform the flight crews/vehicle drivers about the instantaneous runway usage, irrespective of ATC clearances, to increase safety and reduce the number of RWY incursions.</li> <li>Airports need to implement first AOP04.1 A-SMGCS Surveillance objective as a dependency.</li> <li>Up to now, only 1 airport reported it as “completed” (LFPG).</li> <li>This year, while the vast majority of the airports in ECAC+ reported it as “not yet planned” (19), several airports changed their status to “not applicable” (11) including LEMD.</li> <li>LTFM – Istanbul Airport reported as ‘ongoing’ with an implementation date in December 2022, for Runway Entry Lights and Take-off Hold Lights for RWY 18/36. (depending on the performance, planned for RWY 17/35).</li> </ul>																																										



	<b>Solution #53 Pre-Departure Sequencing supported by Route Planning</b> <b>Solution #106 DMAN Baseline for integrated AMAN DMAN</b>																	
<b>AOP19 Departure Management Synchronised with Pre-departure sequencing</b>																		
<b>Stakeholders</b>	ANSPs Airport Operators	<b>Expected Benefits</b>																
<b>FOC</b>	31/12/2022	<b>OI Steps / Enablers</b>	AO-0602, TS-0201															
<b>Estimated achievement</b>	31/07/2025	<b>CP1 AF &amp; SDP Family</b>	AF2   2.1.1															
<b>Status</b>	<b>Planned delay</b>	<b>ICAO ASBU</b>	RSEQ-B0/2															
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Airports</b>																
No historical evolution is yet available as AOP19 is a new objective. The status after its first reporting cycle shows that approximately <b>20%</b> of the airports have reported <b>“Completed”</b> .		Almost half of the still implementing airports show an implementation progress of 50% or more .																
<b>Status of implementation</b>  <b>Legend</b> Completed (Green), Ongoing (Light Green), Planned (Blue), Not Yet Planned (Orange), Not Applicable (Grey), Missing Data (White)	<table border="1" data-bbox="1204 1205 1476 1388"> <thead> <tr> <th>Code</th> <th>Full name</th> <th>Progress</th> </tr> </thead> <tbody> <tr> <td>EGLL</td> <td>London Heathrow Airport</td> <td>Light Green</td> </tr> <tr> <td>LIMC</td> <td>Milano Malpensa Airport</td> <td>Light Green</td> </tr> <tr> <td>LFPG</td> <td>Paris CDG Airport</td> <td>Green</td> </tr> <tr> <td>LFPO</td> <td>Paris Orly Airport</td> <td>Green</td> </tr> </tbody> </table>			Code	Full name	Progress	EGLL	London Heathrow Airport	Light Green	LIMC	Milano Malpensa Airport	Light Green	LFPG	Paris CDG Airport	Green	LFPO	Paris Orly Airport	Green
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LFPG	Paris CDG Airport	Green																
LFPO	Paris Orly Airport	Green																
<ul style="list-style-type: none"> <li>• This new objective with a FOC date set by end of 2022 has shown already a good implementation rate amongst the airports.</li> <li>• Only two airports foresee the implementation date beyond the FOC date, mainly due to the COVID-19 situation and related consequences on staff and resources.</li> </ul>																		

		<h2>SESAR Solution – Nil</h2>		
<b>ATC07.1 AMAN tools and procedures</b>				
<b>Stakeholders</b>	ANSPs	<b>Expected Benefits</b>	Capacity Operational efficiency Cost efficiency Safety Environment Security	
<b>FOC</b>	31/12/2019	<b>OI Steps / Enablers</b>	TS-0102	
<b>Estimated achievement</b>	31/12/2022	<b>CP1 AF &amp; SDP Family</b>	-	-
<b>Status</b>	Late	<b>ICAO ASBU</b>	RSEQ-B0/1	
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Airports</b>		
<p>There has been <b>no progress</b> over the last year, in terms of number of airports having completed the implementation.</p>		<p>With the exception of Rome Fiumicino and Milano Malpensa (48%), the other sites where implementation is ongoing show a progress at or below 40%. Two are Planned (0%) and two in not yet planned.</p>		

### Status of implementation

**36 Applicable Airports**

<span style="color: green;">■</span> Completed	<span style="color: orange;">■</span> Not Yet Planned
<span style="color: lightgreen;">■</span> Ongoing	<span style="color: gray;">■</span> Not Applicable
<span style="color: lightblue;">■</span> Planned	<span style="color: white;">■</span> Missing Data

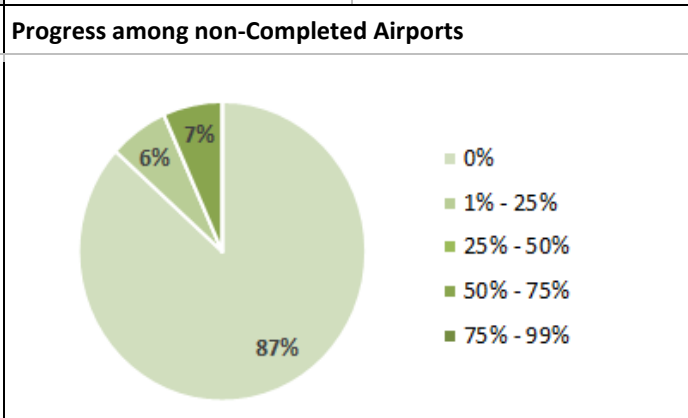
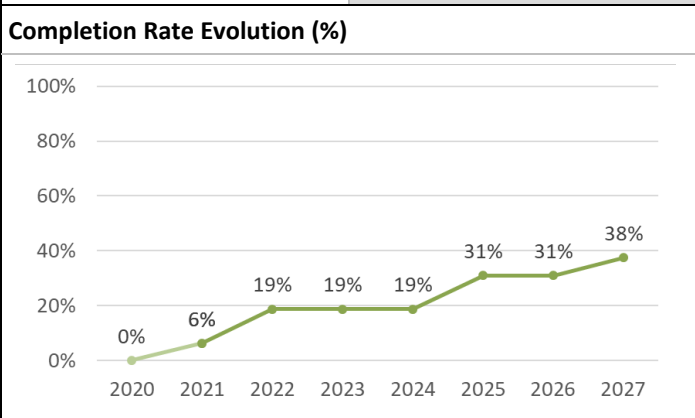
Code	Full name	Progress
EGKK	London Gatwick Airport	Completed
EGLL	London Heathrow Airport	Completed
EGSS	London Stansted Airport	Ongoing
ELLL	Luxembourg Airport	Planned
LIMC	Milano Malpensa Airport	Ongoing
LFPG	Paris CDG Airport	Completed
LFPO	Paris Orly Airport	Completed

- For some airports, the progress towards implementation has almost come to a stop, in the period 2020-2021. This is due to an overall traffic drop of traffic, related to the COVID-19 crisis and it is the case of LKPR - Prague, LROP - Bucharest and EGCC - Manchester.
- In other instances (LYBE - Belgrade, LIRF - Rome Fiumicino, LIMC - Milan Malpensa, LPPT - Lisbon, EVRA - Riga), progress continues as planned, with an expected completion by end 2022.

**ATp** Airport and TMA performance **Solution #54 Flow based Integration of Arrival and Departure Management**

**ATC19 Enhanced AMAN-DMAN integration**

<b>Stakeholders</b>	ANSPs Airport Operators	<b>Expected Benefits</b>	Capacity	Operational efficiency	Cost efficiency
			Safety	Environment	Security
<b>FOC</b>	31/12/2027	<b>OI Steps / Enablers</b>	TS-0308		
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	AF1	1.2.1	
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBU</b>	RSEQ-B2/1		



**One airport (LSZH) has completed** the objective. No indication yet on when the objective will be completed (note that the implementation is compulsory by 31/12/2027 for 5 European airports specified in the CP1 regulation).

Of the 2 “Ongoing” progresses, EGLL is at 58% while LTFM is at 3%. All the other airports are at 0%, as either ‘Planned’ or ‘Not Yet Planned’.

**Status of implementation**

**Legend**

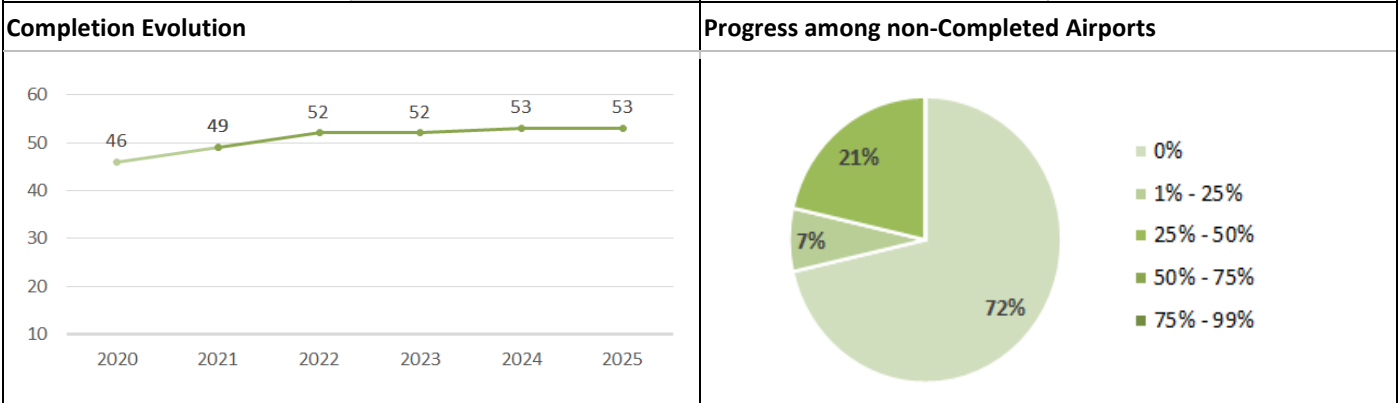
- Completed
- Ongoing
- Planned
- Not Yet Planned
- Not Applicable
- Missing Data

Code	Full name	Progress
EGLL	London Heathrow Airport	Ongoing
ELLX	Luxembourg Airport	Not Yet Planned
LIMC	Milano Malpensa Airport	Planned
LFPG	Paris CDG Airport	Not Yet Planned

- This objective is regulated by EU Reg. 2021/116 - Common Project 1. Within the CP1-regulated area, EDDB, EDDL, LFMN and LFPG have no firm plans yet. LIMC reports a ‘Planned’ status, with a progress that will depend on the implementation of Extended AMAN (ATC15.2).
- LSZH is the only airport reporting the objective as completed. Also, AMAN-DMAN is ‘Ongoing’ in LGLL (deployed at Heathrow while it is planned for deployment at Swanwick Terminal Control in late 2022).

	<h2 style="text-align: center;">Solution #11 Continuous Descent Operations (CDO)</h2>		
<b>ENV01 Continuous Descent Operations (CDO)</b>			
<b>Stakeholders</b>	ANSPs Airport Operators Airspace Users	<b>Expected Benefits</b>	
<b>FOC</b>	31/12/2023	<b>OI Steps / Enablers</b>	AOM-0701, AOM0702-A
<b>Estimated achievement</b>	31/12/2023	<b>CP1 AF &amp; SDP Family</b>	-
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBU</b>	APTA-B0/4, APTA-B1/4
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Airports</b>	
ENV01 reached <b>51% progress</b> in 2021. Eight additional Airports completed this Objective in 2021.		Most Airports reached a progress above 75% giving confidence that the Objective will be achieved by end 2023.	
<h3 style="text-align: center;">Status of implementation</h3>			
<p><b>Legend</b></p> <ul style="list-style-type: none"> <li style="width: 50%;"><span style="color: green;">■</span> Completed</li> <li style="width: 50%;"><span style="color: orange;">■</span> Not Yet Planned</li> <li style="width: 50%;"><span style="color: lightgreen;">■</span> Ongoing</li> <li style="width: 50%;"><span style="color: gray;">■</span> Not Applicable</li> <li style="width: 50%;"><span style="color: lightblue;">■</span> Planned</li> <li style="width: 50%;"><span style="border: 1px solid gray; display: inline-block; width: 10px; height: 10px;"></span> Missing Data</li> </ul>		<ul style="list-style-type: none"> <li>• Some ANSPs report that the implementation of CDO is delayed by one year due to COVID-19 impacts.</li> <li>• Some ANSPs report that due to low traffic a systematic collection and analysis of data does not take place.</li> <li>• Some ANSPs report that further training for ATCOs is needed to fully implement CDO.</li> <li>• Some ANSPs report that the procedures for monitoring and measurement of CDO execution are still in development</li> <li>• One ANSP reports a lower capacity when combining RNAV1/RNP1 approaches with CDO, therefore CDO is only possible during low density hours.</li> </ul>	

	<h2>SESAR Solution – Nil</h2>		
	<h3>ENV02 Airport Collaborative Environmental Management</h3>		
<b>Stakeholders</b> ANSPs Airport Operators Airspace Users EUROCONTROL	<b>Expected Benefits</b>		Capacity Operational efficiency Cost efficiency Safety Environment Security
<b>FOC</b>	Open (Local Objective)	<b>OI Steps / Enablers</b>	AO-0703, AO-0705; AO-0706
<b>Estimated achievement</b>	Not Applicable	<b>CP1 AF &amp; SDP Family</b>	-
<b>Status</b>	Not Applicable	<b>ICAO ASBU</b>	-



Progress was good in 2021. Three additional Airports completed this Objective in 2021 for a **total of 49 Airports**.

The progress is in the low margins, in particular because of the Airports which have not reported yet implementation plans.

### Status of implementation

**63 Applicable Airports**

Legend	Count	Percentage
Completed	49	78%
Ongoing	5	8%
Not Yet Planned	9	14%

Code	Full name	Progress
EGLC	London City Airport	Completed
EGKK	London Gatwick Airport	Completed
EGLL	London Heathrow Airport	Completed
EGGW	London Luton Airport	Completed
EGSS	London Stansted Airport	Completed
ELLX	Luxembourg Airport	Ongoing
LIML	Milano Linate Airport	Completed
LIMC	Milano Malpensa Airport	Completed
LFPG	Paris CDG Airport	Completed
LFPO	Paris Orly Airport	Completed

- Two Airports report that the CEM Working Arrangement still needs to be finalised.
- One Airport reports the finalisation of the formal partnership arrangement is still pending.
- One Airport reports that more engagement of Airport Operators and MET Services are planned
- One Airport reports that the implementation of practical measures is still ongoing.

	<h2 style="text-align: center;">SESAR Solution – Nil</h2>																																
<b>ENV03 Continuous Climb Operations (CCO)]</b>																																	
<b>Stakeholders</b>	ANSPs Airport Operators Airspace Users	<b>Expected Benefits</b>																															
<b>FOC</b>	Open (Local Objective)	<b>OI Steps / Enablers</b>	AOM-0703																														
<b>Estimated achievement</b>	Not Applicable	<b>CP1 AF &amp; SDP Family</b>	-                      -																														
<b>Status</b>	<b>Not Applicable</b>	<b>ICAO ASBU</b>	APTA-B0/5, APTA-B1/5																														
<b>Completion Evolution</b>		<b>Progress among non-Completed Airports</b>																															
Progress was good in 2021. Three additional Airports completed this Objective in 2021 for a <b>total of 57 Airports</b> .		The progress is in the low margins, due to the Airports that have not reported yet implementation plans.																															
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<ul style="list-style-type: none"> <li>Two Airports report that high terrain is presenting an obstacle for CCO.</li> <li>Several Airports report that they will implement CCO after an Airspace reorganisation.</li> <li>Several Airports report that CCO will follow the implementation of the National Performance Navigation Plan.</li> <li>One Airport reports that CCO applies where OPS conditions allow it.</li> <li>Several Airports report that CCO implementation still depends on the acceptance of the CAA's Airspace Change Proposal.</li> </ul>																																	

		<h2>Solution #62 P-RNAV in a complex TMA</h2>															
<b>NAV03.1 RNAV1 in TMA Operations</b>																	
<b>Stakeholders</b>	ANSPs Airspace Users Regulators	<b>Expected Benefits</b>	Capacity Operational efficiency Cost efficiency	Safety Environment Security													
<b>FOC</b>	06/06/2030	<b>OI Steps / Enablers</b>	AOM-0601, CTE-N08														
<b>Estimated achievement</b>	06/06/2030	<b>CP1 AF &amp; SDP Family</b>	-	-													
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBUs</b>	APTA-B0/2														
<b>Completion Rate Evolution (%)</b>			<b>Progress among non-Completed Countries</b>														
The <b>completion rate</b> increased by 7 percentage point vs 2020, reaching <b>38%</b> in 2021. The Objective will likely be fully deployed by June 2030, with no States going beyond the FOC.			More than 80% of the States achieved at least a 50% progress, making NAV03.1 well underway towards full implementation. The remaining 5 States span between 6% and 40% completion.														
<b>Status of implementation</b>																	
		<table border="1"> <thead> <tr> <th>Code</th> <th>Full name</th> <th>Progress</th> </tr> </thead> <tbody> <tr> <td>LU</td> <td>Luxembourg</td> <td>Completed</td> </tr> <tr> <td>MAS</td> <td>Maastricht UAC</td> <td>Completed</td> </tr> <tr> <td>MT</td> <td>Malta</td> <td>Completed</td> </tr> </tbody> </table>				Code	Full name	Progress	LU	Luxembourg	Completed	MAS	Maastricht UAC	Completed	MT	Malta	Completed
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MAS	Maastricht UAC	Completed															
MT	Malta	Completed															
<b>Legend</b>																	
Completed	Not Yet Planned																
Ongoing	Not Applicable																
Planned	Missing Data																
<ul style="list-style-type: none"> <li>As of 2021, the IR on PBN (EU) 2018/1048 is the only applicable regulation for NAV03.1 as the Common Project 1 (CP1) Regulation did not inherit the RNAV / RNP1 obligations from the Pilot Common Project (PCP).</li> <li>The IR on PBN (EU) 2018/1048 gives Stakeholders the choice to decide on the need for SIDs and STARs, and on the applicable specifications RNAV1 or RNP1.</li> <li>Norway, Finland and Estonia achieved the Objective during the 2021 monitoring cycle.</li> <li>The remaining 26 Applicable States are well underway towards the full achievement of the Objective.</li> </ul>																	

	<b>Solution #09 Enhanced TMA ops with auto RNP transit to ILS</b> <b>Solution #51 Enhanced TMA operations with LPV procedures</b>		
<b>NAV03.2 RNP1 in TMA Operations</b>			
<b>Stakeholders</b>	ANSPs Airspace Users Regulators	<b>Expected Benefits</b>	
<b>FOC</b>	06/06/2030	<b>OI Steps / Enablers</b>	AOM-0603, AOM-0605
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	-
<b>Status</b>	<b>Not Available</b>	<b>ICAO ASBUs</b>	APTA-B1/2
<b>Completion Rate Evolution (%)</b>	<b>Progress among non-Completed Countries</b>		
The <b>completion rate</b> doubled vs 2020, reaching <b>24%</b> in 2021. The Objective will likely be fully deployed by the FOC set for June 2030, with no States going beyond the deadline.	16 States achieved a progress between 1% and 87%. 9 States are still at 0%, 2 of them having declared plans to implement NAV03.2.		
<b>Status of implementation</b>  <b>Legend</b> Completed (Green), Ongoing (Light Green), Planned (Blue), Not Yet Planned (Orange), Not Applicable (Grey), Missing Data (White)			
<ul style="list-style-type: none"> <li>As of 2021, the IR on PBN (EU) 2018/1048 is the only applicable regulation for NAV03.2 as the CP1 Regulation did not inherit RNAV / RNP1 obligations from the Pilot Common Project (PCP). The IR on PBN (EU) 2018/1048 gives Stakeholders the choice to decide on the need for SIDs and STARs, and on the applicable specifications RNAV1 or RNP1.</li> <li>Denmark, Switzerland, Norway, Ireland, and Serbia achieved the Objective by the end of 2021.</li> <li>Despite last year's reporting, Slovak Republic has no plans to implement RNP1 SIDs and STARs with Radius to Fix.</li> <li>Most States that have not yet planned the implementation declared that RNAV1 procedures are sufficient or that the performance of reversion in case of GNSS failure should be studied further before implementing RNP1 + Radius to Fix.</li> </ul>			



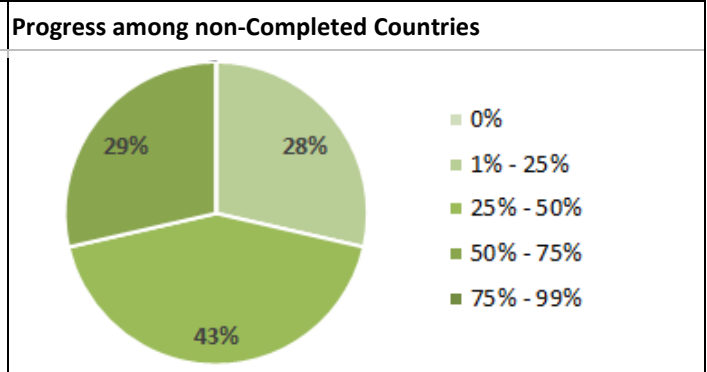
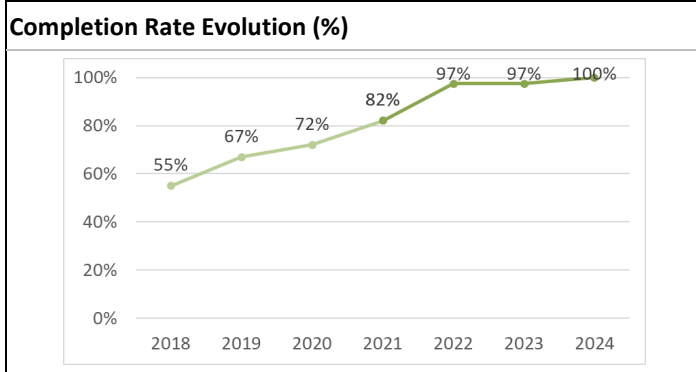
	<h2 style="text-align: center;">SESAR Solution – Nil</h2>		
<h3>SAF11 Prevent Runway Excursions</h3>			
<b>Stakeholders</b>	ANSPs Airport Operators Airspace Users NM Regulators	<b>Expected Benefits</b>	
<b>FOC</b>	31/01/2018	<b>OI Steps / Enablers</b>	PRO-006a
<b>Estimated achievement</b>	31/12/2022	<b>CP1 AF &amp; SDP Family</b>	-
<b>Status</b>	<b>Late</b>	<b>ICAO ASBU</b>	-
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>	
No States have completed the objective in 2021 while the <b>completion rate</b> decreased to <b>74%</b> as 1 State (MA) joined the applicability area.		The majority of States which have not yet finalised the implementation have a progress above 75%	
<h3>Status of implementation</h3>			
<b>Legend</b> <ul style="list-style-type: none"> <li style="width: 50%;"><span style="color: green;">■</span> Completed</li> <li style="width: 50%;"><span style="color: orange;">■</span> Not Yet Planned</li> <li style="width: 50%;"><span style="color: lightgreen;">■</span> Ongoing</li> <li style="width: 50%;"><span style="color: grey;">■</span> Not Applicable</li> <li style="width: 50%;"><span style="color: blue;">■</span> Planned</li> <li style="width: 50%;"><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Missing Data</li> </ul>		<ul style="list-style-type: none"> <li>• Nine States postponed the implementation, due to COVID-19 impacts, now to the end of 2022.</li> <li>• One State expects the implementation by mid-2023 and another one by the end of 2024.</li> <li>• Most of the actions listed in the “European Action Plan for the Prevention of Runway Excursions (EAPRE)” have been implemented in the States, but still not everything is finalised.</li> <li>• For several States, mainly Civil-Military Coordination is still ongoing.</li> <li>• One State is still busy with conducting a study to measure the implementation.</li> </ul>	

### 3.6 FULLY DYNAMIC AND OPTIMIZED AIRSPACE ORGANISATION

Fully dynamic and optimised airspace	<b>Solution #31 Variable profile military reserved areas and enhanced (further automated) civil-military collaboration</b> <b>Solution #66 Automated Support for Dynamic Sectorisation</b>		
<b>AOM19.4 Management of Pre-defined Airspace Configurations</b>			
<b>Stakeholders</b>	ANSPs NM	<b>Expected Benefits</b>	Capacity Operational efficiency Cost efficiency Safety Environment Security
<b>FOC</b>	31/12/2022	<b>OI Steps / Enablers</b>	Under definition
<b>Estimated achievement</b>	31/12/2024	<b>CP1 AF &amp; SDP Family</b>	AF3   3.1.2
<b>Status</b>	<b>Planned delay</b>	<b>ICAO ASBU</b>	NOPS-B1/6, FRTO-B1/4
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>	
AOM19.4 was substantially changed in 2021 and the FOC moved to 31/12/2022. Taking this in consideration, 9 States reported "Completed" in 2021, increasing the <b>completion rate to 26%</b> , and expecting to reach 68% by 2022.		Most remaining States, reporting an implementation rate of less than 10%, intend to complete the objective by the end of 2024. A more reliable comparison of progress will be available after next cycle.	
<div style="text-align: center;"> <b>Status of implementation</b> </div> <div style="margin-top: 10px;"> <b>Legend</b> <ul style="list-style-type: none"> <li style="width: 50%;"><span style="color: green;">■</span> Completed</li> <li style="width: 50%;"><span style="color: orange;">■</span> Not Yet Planned</li> <li style="width: 50%;"><span style="color: lightgreen;">■</span> Ongoing</li> <li style="width: 50%;"><span style="color: grey;">■</span> Not Applicable</li> <li style="width: 50%;"><span style="color: blue;">■</span> Planned</li> <li style="width: 50%;"><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Missing Data</li> </ul> </div>			
<ul style="list-style-type: none"> <li>• This functionality is part of Commission IR (EU) 116/2021 on CP1 and it is supposed to be finalised by the end of 2022.</li> <li>• Even with the good increase over this cycle and with good expectations in 2022, the full objective achievement seems to have a delay until 2024.</li> <li>• It is essential to highlight that some States registered a decrease in progress over this monitoring cycle due to the significant changes made on the Objective SLoAs and the corresponding new calculations.</li> </ul>			

	<p><b>Solution #31 Variable profile military reserved areas and enhanced (further automated) civil-military collaboration</b></p> <p><b>Solution #66 Automated Support for Dynamic Sectorisation</b></p>		
<p><b>AOM19.5 ASM and A-FUA</b></p>			
<p><b>Stakeholders</b></p>	<p>ANSPs Airspace Users NM</p>	<p><b>Expected Benefits</b></p>	
<p><b>FOC</b></p>	<p>31/12/2022</p>	<p><b>OI Steps / Enablers</b></p>	<p>AOM-0202, AOM-0202-A, AOM-0206-A</p>
<p><b>Estimated achievement</b></p>	<p>31/12/2026</p>	<p><b>CP1 AF &amp; SDP Family</b></p>	<p>AF3   3.1.1</p>
<p><b>Status</b></p>	<p><b>Planned delay</b></p>	<p><b>ICAO ASBU</b></p>	<p>NOPS-B1/5, NOPS-B0/1, FRTO-B1/3, FRTO-B0/2</p>
<p><b>Completion Rate Evolution (%)</b></p>		<p><b>Progress among non-Completed Countries</b></p>	
<p>AOM19.5 is a new Objective starting to report as of this year. Good progress is expected during the next cycle leading up to possible completion for the majority of States.</p>		<p>29 States reported to be “Ongoing”. 19 States reported a progress above 50%, and 6 of these are already above 75% progress soon reaching the full implementation.</p>	
<p><b>Status of implementation</b></p> <p><b>Legend</b></p> <ul style="list-style-type: none"> <li>Completed</li> <li>Ongoing</li> <li>Planned</li> <li>Not Yet Planned</li> <li>Not Applicable</li> <li>Missing Data</li> </ul>			
<ul style="list-style-type: none"> <li>• This new objective is merging and replacing former objectives AOM19.1, AOM19.2 and AOM19.3 and it is part of the Commission IR (EU) 116/2021 on CP1.</li> <li>• It covers the solution for dynamical managing airspace users’ demands in various operating environment.</li> <li>• At the end of this first reporting cycle, three States (BA, DK, LU) and MUAC reported completion.</li> <li>• While it proved to be more complex than expected for the reporting part, a good progress is foreseen during next cycle.</li> </ul>			

Fully dynamic and optimised airspace	<b>Solution #32 DCT FRA in cruise and vertically evolving in cross ACC/FIR</b> <b>Solution #33 FRA for flights in cruise and vertically above a specified FL</b> <b>Solution #66 Automated Support for Dynamic Sectorisation</b>		
	<b>AOM21.2 Initial Free Route Airspace</b>		
<b>Stakeholders</b> ANSPs Airspace Users NM	<b>Expected Benefits</b>		Capacity Operational efficiency Cost efficiency Safety Environment Security
<b>FOC</b>	31/12/2022	<b>OI Steps / Enablers</b>	AOM-0401, AOM-0402, AOM-0501, AOM-0505, CM-0102-A
<b>Estimated achievement</b>	31/12/2022	<b>CP1 AF &amp; SDP Family</b>	AF3   3.2.1
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBU</b>	FRTO-B1/1



The objective was substantially changed in 2021 and it includes now only the Initial FRA. The split allowed 4 States to report Completion in 2021 reaching an overall **progress of 82%**.

Out of the 7 "Ongoing" States, 5 reached a progress of at least 25%, whilst 2 vary between 6% and 12%. Full achievement is expected by 2022 for all CP1 States.

**Status of implementation**

**Legend**

- Completed (Dark Green)
- Ongoing (Light Green)
- Planned (Blue)
- Not Yet Planned (Orange)
- Not Applicable (Grey)
- Missing Data (White)

- Free Route Airspace was substantially changed for reporting cycle 2021 and was split into this AOM21.2 (Initial Free Route) and AOM21.3 (enhanced Free Route, covering Final FRA, Cross border FRA and Connectivity with TMAs).
- While the ANSPs may decide which system improvements needed for Initial FRA; the choice for the tool/functions remains at Stakeholder decision. The split of the objectives allows a better overall view of the implementation progress of the initial FRA. For reporting cycle 2021, 4 States (FR,DE,CZ,LT) reported completion, and 4 more States ( ES,UK,GR,TR ) are expecting to finalise in 2022.

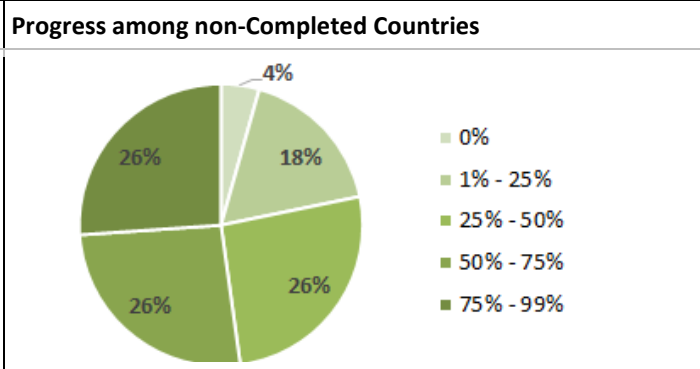
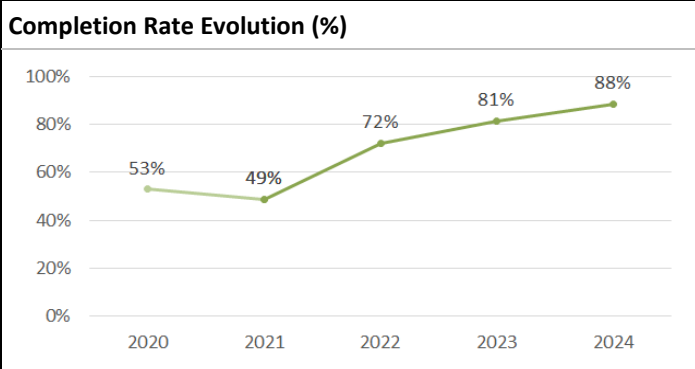
Fully dynamic and optimised airspace	<b>Solution #PJ.06-01 Optimised traffic management to enable Free Routing in high and very high complexity cross border environments</b>		
<b>AOM21.3 Enhanced Free Route Airspace Operations</b>			
<b>Stakeholders</b>	ANSPs Airspace Users NM	<b>Expected Benefits</b>	
<b>FOC</b>	31/12/2025	<b>OI Steps / Enablers</b>	AOM-0401, AOM-0402, AOM-0501, AOM-0505
<b>Estimated achievement</b>	31/12/2025	<b>CP1 AF &amp; SDP Family</b>	AF3   3.2.2
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBU</b>	FRTO-B2/3
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>	
This new Objective reported a <b>progress of 57%</b> in its first year of reporting. A steady progress is expected for the coming year, and full achievement within the FOC date seems feasible.		Of the 16 States that have not yet completed the Objective, the majority is "Ongoing" with a progress ranging between 6% and 85%. The remaining is at 0%, but the large majority with plans.	
<b>Status of implementation</b> 			
<b>Legend</b> Completed (Green), Ongoing (Light Green), Planned (Blue), Not Yet Planned (Orange), Not Applicable (Grey), Missing Data (White)			
<ul style="list-style-type: none"> <li>• This new objective AOM21.3 covers the enhanced elements of the Free Route Airspace (Final FRA without structural limitations, Connectivity with TMA and Cross-border aspects of FRA with at least one neighbouring State).</li> <li>• The split from the initial FRA allows for a better view of the more complex part of the FRA implementation.</li> <li>• 21 out of the 37 Applicable States reported completion in 2021.</li> <li>• A gradual progress is expected, showing possible achievement by end of 2025.</li> </ul>			



**Solution #27 MTCD and conformance monitoring tools**  
**Solution #104 Sector Team Operations – En-route Air Traffic Organiser**

**ATC12.1 MONA, TCT and MTCD**

<b>Stakeholders</b>	ANSPs	<b>Expected Benefits</b>	Capacity	Operational efficiency	Cost efficiency
			Safety	Environment	Security
<b>FOC</b>	31/12/2021	<b>OI Steps / Enablers</b>	CM-0202, CM-0203, CM-0205, CM-0207-A		
<b>Estimated achievement</b>	31/12/2023	<b>CP1 AF &amp; SDP Family</b>	-	3.2.1	
<b>Status</b>	<b>Late</b>	<b>ICAO ASBU</b>	FRTO-B0/4, FRTO-B1/5		



**Completion rate** decreased from 53% to 49% due to renewed plans by some Stakeholders. A major improvement of the implementation status is expected in 2022.

With the exception of one State reporting a 0% (No Plan (BE)), the other States are almost equally split among the remaining progress groupings.

**Status of implementation**

**43 Applicable States**

- Completed: 21 (49%)
- Ongoing: 21 (49%)
- Not Yet Planned: 1 (2%)

**Legend**

- Completed (Dark Green)
- Ongoing (Light Green)
- Planned (Blue)
- Not Yet Planned (Orange)
- Not Applicable (Grey)
- Missing Data (White)

- The number of “Completed” States decreased from 23 in 2020 to 21 in 2021, due to the decision of some Stakeholders to add new functionalities to their systems, on top of what originally planned. Serbia decided to include deployment of Tactical Controller Tools. Türkiye added MTCD, TCT Resolution Support Function to their Conformance Monitoring tool.
- In 2021, Lithuania finalised the objective with the introduction of the MTCD and the Resolution support function.
- Belgium has the MTCD tool available in their system, but this is not yet used operationally.
- Of the 4 functionalities addressed, MTCD is completed by 41 ACCs and ongoing in 20. Conformance Monitoring is implemented in 37 ACCs and ongoing in 24. Resolution Support is implemented in 24 and ongoing in 22. TCT is implemented in 11 ACCs and ongoing in 27. This function is declared N/A for another 21 ACCs.

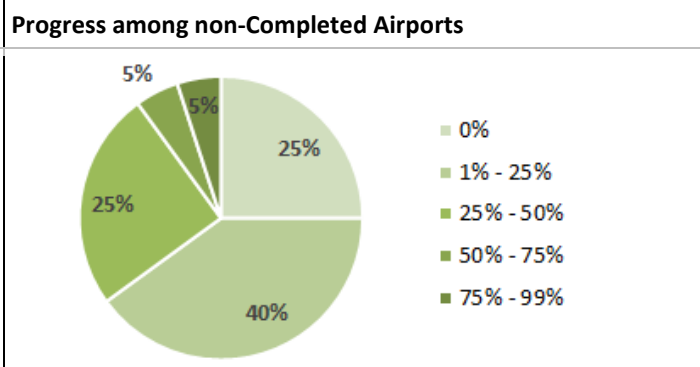
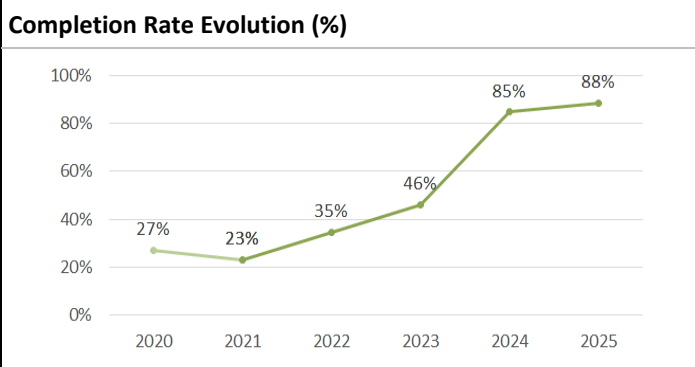
Fully dynamic and optimised airspace	<b>SESAR Solution – Nil</b>		
<b>ATC15.1</b>	<b>Implement, in en-route operations, information exchange mechanisms, tools and procedures in support of basic AMAN</b>		
<b>Stakeholders</b>	ANSPs	<b>Expected Benefits</b>	
<b>FOC</b>	31/12/2019	<b>OI Steps / Enablers</b>	TS-0305
<b>Estimated achievement</b>	31/12/2022	<b>CP1 AF &amp; SDP Family</b>	-
<b>Status</b>	<b>Late</b>	<b>ICAO ASBU</b>	-
<b>Completion Rate Evolution (%)</b>	<b>Progress among non-Completed Countries</b>		
The number of “Completed” States is unchanged vs 2020 (18), while the implementation area expanded from 25 to 28 States. This explains the decrease from 69% to <b>64% progress</b> .		40% of the “Ongoing” States are reporting a progress in the 50-75% bracket, supporting the many plans to complete the Objective by 2022.	
<b>Status of implementation</b> <b>Legend</b> <ul style="list-style-type: none"> <li>Completed</li> <li>Ongoing</li> <li>Planned</li> <li>Not Yet Planned</li> <li>Not Applicable</li> <li>Missing Data</li> </ul>			
<ul style="list-style-type: none"> <li>• Seven States plan to complete the implementation by end of 2022. These are Croatia – for which the plans were delayed due to COVID-19; Italy – that links it to the implementation of Extended AMAN as for the CP1 Regulation (see Implementation Objective ATC15.2); Morocco, Portugal and Romania – with the functionalities being part of their new ATM system; Montenegro and Serbia – as part of the ATM system SW upgrade.</li> <li>• The Netherlands report shortage of resources and complexity of the project. Planned completion is by end 2023.</li> <li>• Belgium reports technical shortcomings and the need of a system upgrade to achieve its full implementation by 2024.</li> </ul>			



## Solution #05 Extended Arrival Management (AMAN) horizon

### ATC15.2 Arrival Management extended to en-route airspace

<b>Stakeholders</b>	ANSPs NM	<b>Expected Benefits</b>	 Capacity	 Operational efficiency	 Cost efficiency
			 Safety	 Environment	 Security
<b>FOC</b>	31/12/2024	<b>OI Steps / Enablers</b>	TS-0305-A		
<b>Estimated achievement</b>	31/12/2024	<b>CP1 AF &amp; SDP Family</b>	AF1	1.1.1	
<b>Status</b>	<b>On Time</b>	<b>ICAO ASBU</b>	RSEQ-B1/1, NOPS-B1/8		



Of the 6 airports for which Extended AMAN is already coordinated in the domestic upstream ACCs, 4 are mandated by CP1. The overall completion will be achieved in line with the CP1 mandate (31/12/2024). Due to the changes applied to this Objective in 2021, the overall **progress** decreased to **23%**.

Three fourths of the implementing Airports reported to be “Ongoing”. 40% with an implementation progress below 25% whilst the rest reach peaks of up to 77% overall.

**Status of implementation**

**26 Applicable Airports**

Overlaps		
Code	Full name	Progress
EGLL	London Heathrow Airport	Completed
ELLX	Luxembourg Airport	Not Applicable
LIMC	Milano Malpensa Airport	Ongoing
LFPG	Paris CDG Airport	Ongoing
LFPO	Paris Orly Airport	Ongoing

- ATC15.2 provides a view on the implementation of Extended AMAN, up to 180 nautical miles, serving the arrivals into 18 EU Airports as per Commission IR (EU) 116/2021 (CP1), plus Zurich (bilateral agreement to adopt the CP1 Regulation), Casablanca, Istanbul, London Heathrow, Oslo and Warsaw. Belgrade and Prague, not mandated by CP1, reported “Not Yet Planned”.
- The reported progress refers to the completion of the objective within the national borders of the State hosting the airport.
- A more comprehensive view per each airport, including as well the progress across the border in upstream control centres within a 180NM radius, is provided in the Annex D to this document.



Fully dynamic and optimised airspace	<h2 style="text-align: center;">Solution #63 Multi Sector Planning</h2>								
<b>ATC18 Multi Sector Planning En-route – 1P2T</b>									
<b>Stakeholders</b>	ANSPs	<b>Expected Benefits</b>							
<b>FOC</b>	Open (Local Objective)	<b>OI Steps / Enablers</b>	CM-0301						
<b>Estimated achievement</b>	Not Applicable	<b>CP1 AF &amp; SDP Family</b>	-						
<b>Status</b>	<b>Not Applicable</b>	<b>ICAO ASBU</b>	FRTO-B1/6						
<b>Completion Evolution</b>		<b>Progress among non-Completed Countries</b>							
There has been no progress in the last two years. If current plans materialize, 13 States will achieve ATC18 by 2030.		Only one State (IE) reports “Ongoing” at 50% progress towards implementation. Another 6 report a “Planned” progress.							
<h3 style="text-align: center;">Status of implementation</h3>									
<p style="text-align: center;"><b>Legend</b></p> <table border="0"> <tr> <td><span style="color: green;">■</span> Completed</td> <td><span style="color: orange;">■</span> Not Yet Planned</td> </tr> <tr> <td><span style="color: lightgreen;">■</span> Ongoing</td> <td><span style="color: grey;">■</span> Not Applicable</td> </tr> <tr> <td><span style="color: blue;">■</span> Planned</td> <td><span style="color: white;">■</span> Missing Data</td> </tr> </table>		<span style="color: green;">■</span> Completed	<span style="color: orange;">■</span> Not Yet Planned	<span style="color: lightgreen;">■</span> Ongoing	<span style="color: grey;">■</span> Not Applicable	<span style="color: blue;">■</span> Planned	<span style="color: white;">■</span> Missing Data	<ul style="list-style-type: none"> <li>• This is a “Local” objective and it has no associated pre-defined applicability area, nor a common FOC date for reference.</li> <li>• In its fifth year of monitoring, its implementation is at all similar to the one of 2019: 6 ANSPs have already deployed multi-sector planning (IL, IT, NO, PL, RO and SE), while IE declared the implementation as “Ongoing”. This functionality is also part of the “NM Operational Excellence Programme” (OEP).</li> <li>• Six (6) States have concrete plans for implementation (CH, ES, FI, GR, MK, and MD), with foreseen dates of completion ranging from 2021 to 2030.</li> </ul>	
<span style="color: green;">■</span> Completed	<span style="color: orange;">■</span> Not Yet Planned								
<span style="color: lightgreen;">■</span> Ongoing	<span style="color: grey;">■</span> Not Applicable								
<span style="color: blue;">■</span> Planned	<span style="color: white;">■</span> Missing Data								

Fully dynamic and optimised airspace	<b>SESAR Solution – Nil</b>		
<b>ITY-FMTP Common Flight Message Transfer Protocol</b>			
<b>Stakeholders</b>	ANSPs Military	<b>Expected Benefits</b>	
<b>FOC</b>	31/12/2014	<b>OI Steps / Enablers</b>	CTE-C06
<b>Estimated achievement</b>	31/12/2022	<b>CP1 AF &amp; SDP Family</b>	-                      -
<b>Status</b>	<b>Late</b>	<b>ICAO ASBU</b>	-
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>	
<p><b>Progress</b> increased marginally in 2021, hitting <b>82%</b>. For 7 out of 8 States, completion is mostly planned by the end 2022, in line with what was reported in 2020.</p>		<p>FR reports a progress of 97%, GR 70% and DE 60%. IL reports a progress of 10%. The others are in the range of 41 to 50%.</p>	
<b>Status of implementation</b>			
<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">■</span> Completed</li> <li><span style="color: lightgreen;">■</span> Ongoing</li> <li><span style="color: blue;">■</span> Planned</li> <li><span style="color: orange;">■</span> Not Yet Planned</li> <li><span style="color: grey;">■</span> Not Applicable</li> <li><span style="color: white;">■</span> Missing Data</li> </ul>			
<ul style="list-style-type: none"> <li>Malta completed the objective in 2021, bringing the total of completed States to 36.</li> <li>While the majority of the remaining States (FR, DE, GR, PT, UA, UK) plans to complete implementation by end of 2022 with full migration from IPv4 to IPv6, MK plans to complete its implementation by end 2023, in line with the planned introduction of their new ATM System.</li> <li>Similarly, IL plans to address it in the context of the deployment of their new ATM system, delayed to 2027 due to COVID19 (budget issues).</li> </ul>			

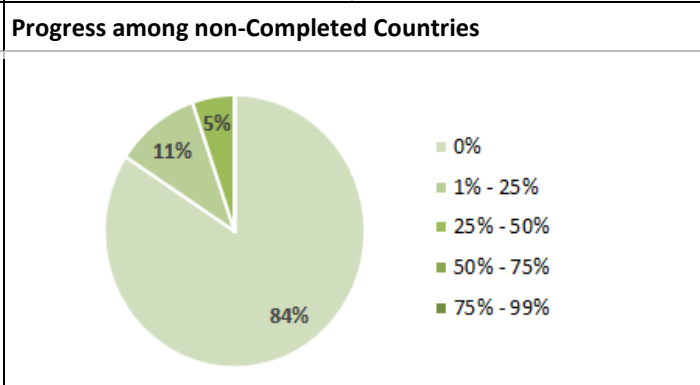
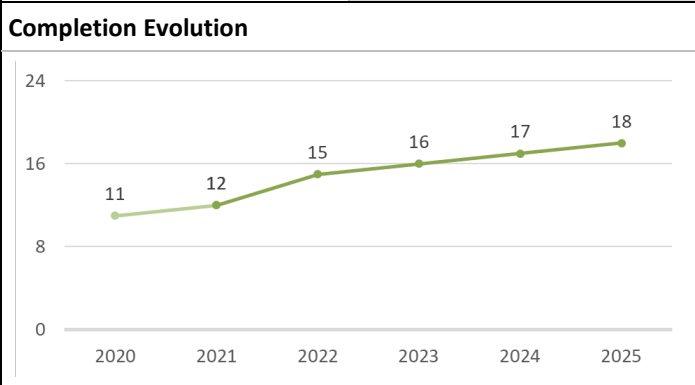
### 3.7 TRAJECTORY BASED OPERATIONS

		<h2>SESAR Solution – Nil</h2>			
<h3>ATC02.8</h3>		<h3>Ground-based Safety Nets</h3>			
<b>Stakeholders</b>	ANSPs	<b>Expected Benefits</b>	Capacity	Operational efficiency	Cost efficiency
			Safety	Environment	Security
<b>FOC</b>	31/12/2021	<b>OI Steps / Enablers</b>	CM-0801		
<b>Estimated achievement</b>	31/12/2022	<b>CP1 AF &amp; SDP Family</b>	-	3.2.1	
<b>Status</b>	<b>Late</b>	<b>ICAO ASBU</b>	SNET-B0/2, SNET-B0/3, SNET-B0/4		
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>			
<p><b>Progress</b> increased by 14 percentage points from 2020, reaching <b>67%</b>. 14 States are scheduled to complete the Objective beyond the FOC date.</p>		<p>In 12 TMAs, the implementation of APM is ongoing, with the majority having a progress ranging between 40% and 75%. One State is not yet planned.</p>			
<b>Status of implementation</b>		<b>ATC02.8-ASP03 Implement the MSAW function</b>		<b>ATC02.8-ASP05 Implement the APM function</b>	
<b>Legend</b>					
<ul style="list-style-type: none"> <li>• This objective refers to the implementation of Area Proximity Warning (APW); Minimum Safe Altitude Warning (MSAW) and Approach Path Monitoring (APM).</li> <li>• APW implementation was already completed in 2019, achieved in 58 ACCs representing 92% of the applicability area.</li> <li>• MSAW implementation has been completed in 2021 (52 ACCs, 83 % of the applicability area).</li> <li>• APM implementation is ongoing, with 43 ACCs having completed it (69% of the applicability area).</li> <li>• Implementation progress is dictated by the scheduled deployment of new ATM Systems in the individual States.</li> </ul>					



### Solution #69 Enhanced STCA with down-linked parameters

ATC20		Enhanced STCA with down-linked parameters via Mode S EHS	
Stakeholders	ANSPs Regulators	Expected Benefits	Capacity
			Operational efficiency
			Cost efficiency
			Safety
			Environment
			Security
FOC	Open (Local Objective)	OI Steps / Enablers	CM-0807-A
Estimated achievement	Not Applicable	CP1 AF & SDP Family	-
Status	Not Applicable	ICAO ASBU	SNET-B1/1



Twelve States have completed the Objective. Another five with firm plans to do so will achieve it by no later than 2024. A last one is scheduled for 2027.

The four States with “Ongoing” status are all below 30% progress rate. The remaining ones are “Planned”, i.e. 0% progress.

#### Status of implementation

Category	Count	Percentage
Completed	13	42%
Ongoing	12	39%
Planned	4	13%
Not Yet Planned	2	6%

**31 Applicable States**

Color	Status
Dark Green	Completed
Light Green	Ongoing
Blue	Planned
Orange	Not Yet Planned
Grey	Not Applicable
White	Missing Data

- ATC20 is a “Local” objective with no associated pre-defined applicability area, nor a common FOC date for reference.
- In its third year of monitoring, it shows a steady increase in the number of States having completed its implementation, with the addition of Türkiye and Denmark for 2021.
- 5 States (ES, FI, GR, NO and SI) will complete implementation by 2024.
- Due to the COVID-19 crisis, IL moved its implementation target date from 2024 to 2027.
- Overall, there has been no indication of any technical issues that would be the cause for delaying its implementation.

### 3.8 MULTIMODAL MOBILITY AND INTEGRATION OF ALL AIRSPACE USERS

<b>M3</b> Multimodal mobility and integration of all airspace users	<b>Solution #113 Optimised low-level IFR routes for rotorcraft</b>														
	<b>NAV12 ATS IFR Routes for Rotorcraft Operations</b>														
<b>Stakeholders</b> ANSPs Airspace Users Regulators	<b>Expected Benefits</b>		Capacity Operational efficiency Cost efficiency Safety Environment Security												
<b>FOC</b>	06/06/2030	<b>OI Steps / Enablers</b>	AOM-0810												
<b>Estimated achievement</b>	Not Available	<b>CP1 AF &amp; SDP Family</b>	-												
<b>Status</b>	Not Available	<b>ICAO ASBUs</b>	APTA-B0/6												
<b>Completion Rate Evolution (%)</b>		<b>Progress among non-Completed Countries</b>													
The <b>completion rate</b> increased by 5 percentage points vs 2020, reaching a <b>14%</b> in 2021. The States that have planned to implement will likely complete the Objective by the FOC date.		Out of the few Ongoing States, the majority achieved around 25% progress. Two States are Planned, whilst the rest at 0% progress do not have plans to deploy NAV12.													
<b>Status of implementation</b>															
		<table border="1"> <thead> <tr> <th>Code</th> <th>Full name</th> <th>Progress</th> </tr> </thead> <tbody> <tr> <td>LU</td> <td>Luxembourg</td> <td>Completed</td> </tr> <tr> <td>MAS</td> <td>Maastricht UAC</td> <td>Planned</td> </tr> <tr> <td>MT</td> <td>Malta</td> <td>Planned</td> </tr> </tbody> </table>		Code	Full name	Progress	LU	Luxembourg	Completed	MAS	Maastricht UAC	Planned	MT	Malta	Planned
Code	Full name	Progress													
LU	Luxembourg	Completed													
MAS	Maastricht UAC	Planned													
MT	Malta	Planned													
<ul style="list-style-type: none"> <li>It should be noted that IR on PBN (EU) 2018/1048 gives stakeholders the choice to decide on the need for SID/STAR, ATS routes, and LLR IFR for rotorcraft implementation, and on applicable specifications RNP0.3, RNP1 or RNAV1.</li> <li>3 States have already implemented ATS IFR Routes for Rotorcraft Operations. Estonia completed LLR procedures at the end of 2020 and closed the Objective during this Monitoring Cycle.</li> <li>Only few States are implementing the Objective at limited helipad locations.</li> <li>The majority of States are Not Yet Planned due to the lack of operational need to implement the procedures.</li> </ul>															

### 3.9 VIRTUALISATION OF SERVICE PROVISION

	<p><b>Solution #12 Single remote TWR operations for medium traffic volumes</b>  <b>Solution #13 Remotely provided TWR services for contingency at ADs (contingency)</b>  <b>Solution #52 Remote TWR for two low density aerodromes (two aerodromes)</b>  <b>Solution #71 ATC and AFIS at single low density AD from a remote CWP (one aerodrome)</b></p>		
<b>AOP14 Remote Tower Services</b>			
<b>Stakeholders</b>	ANSPs Airport Operators Regulators	<b>Expected Benefits</b>	
<b>FOC</b>	Open (Local Objective)	<b>OI Steps / Enablers</b>	SDM-0201, SDM-0204, SDM-0205
<b>Estimated achievement</b>	Not Applicable	<b>CP1 AF &amp; SDP Family</b>	-                      -
<b>Status</b>	<b>Not Applicable</b>	<b>ICAO ASBU</b>	RATS-B1/1
<b>Completion Evolution</b>		<b>Progress among non-Completed Airports</b>	
<p>In 2021, 3 additional airports implemented AOP14: ESNZ - Are Ostersund, ESNQ – Kiruna, EGLC - London City Airport.</p>		<p>The progress achieved so far is greater than 50% in most remaining States, giving a strong confidence in positive outlook for the next years with 6 planned implementation for 2022.</p>	
<b>Status of implementation</b>			
		<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">■</span> Completed</li> <li><span style="color: lightgreen;">■</span> Ongoing</li> <li><span style="color: blue;">■</span> Planned</li> <li><span style="color: orange;">■</span> Not Yet Planned</li> <li><span style="color: grey;">■</span> Not Applicable</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Missing Data</li> </ul>	
<ul style="list-style-type: none"> <li>18 Airports reported to be ongoing in 2021 (e.g. Brindisi and the remote tower Center in Tallinn for Tarttu Aerodrome).</li> <li>CH, FR, FI and RO reported to have plans to implement this objective at LSGG, LFBP, and LROV. As FI did not specify any location and as LROV is not yet available in the AIP, the corresponding info does not appear on the map nor in the statistics.</li> <li>EHAM went from an “Ongoing” status to “Not Yet Planned” while, Albania, Luxembourg and Serbia went from “Not Yet Planned” to “Not Applicable”.</li> <li>The overall planned dates of implementation across the other sites vary between 2022 and 2030.</li> </ul>			

## ANNEXES

### ANNEX A – MAIN DEFINITIONS OF THE TERMINOLOGY USED IN THE MASTER PLAN LEVEL 3 PROGRESS REPORT

This Annex provides a summary of the terminology and designators used across the Master Plan Level 3 (MPL3) Report. It is consistent with and complements the one used in the Master Plan Level 3 Plan.

The **Essential Operational Changes** (EOCs) defined in the MPL1 set out the structure of the MPL3.



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.

This document refers to the following **Stakeholder Group** designators:

<b>ASP</b>	Air Navigation Service Providers (Civil & Military)	<b>AGY</b>	EUROCONTROL Agency (non-Network Manager)
<b>APO</b>	Airport Operators	<b>INT</b>	International Organisations and Regional Bodies
<b>REG</b>	State Authorities	<b>IND</b>	Aeronautics Industry
<b>USE</b>	Airspace Users	<b>MET</b>	Meteorological Service Providers
<b>AIS</b>	Aeronautical Information Service Providers	<b>NM</b>	EUROCONTROL Network Manager

The **Key Performance Areas** (KPA) used in this document reflect those defined in Chapter 3 “Performance View” of the Level 1 of the European ATM Master Plan Edition 2020.



Capacity



Operational efficiency



Cost efficiency



Safety



Environment



Security

The **Implementation Objective** (OI) designators consists of the acronym of the designated ATM area of work and a serial number.

<b>AOM</b> = Airspace Organisation and Management	<b>FCM</b> = Flow and Capacity Management
<b>AOP</b> = Airport Operations	<b>INF</b> = Information Management
<b>ATC</b> = Air Traffic Control	<b>ITY</b> = Interoperability
<b>COM</b> = Communications	<b>NAV</b> = Navigation
<b>ENV</b> = Environment	<b>SAF</b> = 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 features **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. It is important to highlight that this year's edition does not include any Objective linked to SESAR Solutions in the industrialisation phase, i.e. the V4 phase in the E-OCVM.

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 a EU IR) binding the concerned stakeholders to implement a specified functionality by a predefined date and within a predefined applicability area;
- **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.



## ANNEX B – RELEVANT MAPPINGS OF LEVEL 3

Mapping of the L3 implementation Objectives to corresponding SESAR Essential Operational Changes, SESAR Solutions, 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.



Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
<b>ATC21</b> – Composite surveillance ADS-B/WAM	#114	-	ASUR-B0/1 ASUR-B0/2	RMT.0679 RMT.0519	SO8/3, SO8/4	AM-1.17	EAI
<b>COM10.1</b> – Migration from AFTN to AMHS (Basic service)	-	-	COMI-B0/7	-	SO7/4	-	EAI
<b>COM10.2</b> – Extended AMHS	-	-	COMI-B0/7	-	SO7/4	-	EAI
<b>COM11.1</b> – Voice over Internet Protocol (VoIP) in En-Route	-	-	COMI-B2/1	-	SO8/4	AM-1.3	EAI
<b>COM11.2</b> – Voice over Internet Protocol (VoIP) in Airport/Terminal	-	-	COMI-B2/1	-	SO8/4	-	EAI
<b>ITY-ACID</b> – Aircraft identification	-	-	-	-	SO8/2	-	EAI
<b>ITY-AGDL</b> – Initial ATC air-ground data link services	-	-	COMI-B0/4 COMI-B1/2	RMT.0524	SO4/1, SO8/3	AM-1.1	EAI
<b>ITY-AGVCS2</b> – 8.33 kHz Air-Ground Voice Channel Spacing below FL195	-	-	-	-	SO8/1	-	EAI
<b>NAV10</b> – RNP Approach Procedures to instrument RWY	#103	-	APTA-B0/1 APTA-B1/1 NAVS-B0/2	RMT.0445 RMT.0643	SO6/5	-	AATS
<b>NAV11</b> – Precision Approach using GBAS CAT II/III based on GPS L1	#55	-	NAVS-B1/1	RMT.0682 RMT.0379	-	-	HPAO



Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
<b>AOM13.1</b> – Harmonise OAT and GAT handling	-	-	-	-	SO6/2	-	OANS
<b>AOP11.1</b> – Initial Airport Operations Plan	#21	2.2.1	ACDM-B1/1	-	SO6/2	-	HPAO
<b>AOP11.2</b> – Extended Airport Operations Plan	#21	2.2.2	ACDM-B1/1	-	SO5/2	-	HPAO
<b>AOP17</b> – Provision/integration of DPI to NMOC	#61	-	NOPS-B0/4	-	-	-	HPAO
<b>COM12</b> – NewPENS	-	-	COMI-B1/1	-	SO2/3, SO2/4, SO8/3, SO8/4	-	EAI
<b>FCM03</b> – Collaborative flight planning	-	-	NOPS-B0/2	-	SO4/3	AM-1.14	OANS
<b>FCM04.2</b> – Enhanced Short Term ATFCM Measures	#17	4.1.1	NOPS-B1/1	-	SO4/5	AM-1.11	OANS
<b>FCM06.1</b> – Automated Support for Traffic Complexity Assessment and Flight Planning interfaces	#19	4.3.1	NOPS-B0/2 NOPS-B1/4	-	SO4/3, SO4/5	AM-1.13	OANS
<b>FCM09</b> – Enhanced ATFM Slot swapping	#56	-	NOPS-B1/7	-	SO6/1	-	OANS
<b>FCM10</b> – Interactive rolling NOP	#18 #20	4.2.1	NOPS-B1/2	-	SO2/2, SO4/2, SO4/5	AM-1.9 AM-1.12	OANS
<b>FCM11.1</b> – Initial AOP/NOP Information Sharing	#20 #21	4.2.2	NOPS-B0/4	-	SO4/4, SO4/5, SO5/2	AM-1.12	OANS
<b>FCM11.2</b> – AOP/NOP integration	#18 #20 #21	4.4.1	NOPS-B1/3	-	SO4/4, SO4/5, SO5/2	AM-1.12	OANS
<b>INF10.2</b> – Stakeholders’ SWIM PKI and cyber security	#46	5.2.1	SWIM-B2/3	RMT.0720	SO2/4	AM-1.5	EAI



Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
<b>INF10.3</b> – Aeronautical Information Exchange - Airspace structure service	#46	5.3.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.4</b> – Aeronautical Information Exchange - Airspace availability service	#46	5.3.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.5</b> – Aeronautical Information Exchange - Airspace Reservation (ARES) service	#46	5.3.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.6</b> – Aeronautical Information Exchange - Digital NOTAM service	#34 #46	5.3.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.7</b> – Aeronautical Information Exchange - Aerodrome Mapping information exchange service	#34 #46	5.3.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.8</b> – Aeronautical Information Exchange - Aeronautical Information Features service	#34 #46	5.3.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.9</b> – Meteorological Information Exchange - Volcanic ash concentration service	#34 #35 #46	5.4.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.10</b> – Meteorological Information Exchange - Aerodrome Meteorological information Service	#34 #35 #46	5.4.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.11</b> – Meteorological Information Exchange - En-Route and Approach Meteorological information service	#34 #35 #46	5.4.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.12</b> – Meteorological Information Exchange - Network Manager Meteorological Information	#34 #35 #46	5.4.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.13</b> – Cooperative Network Information Exchange - ATFCM Tactical Updates Service	#46	5.5.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.14</b> – Cooperative Network Information Exchange - Flight Management Service	#46	5.5.1	-	-	SO2/4, SO5/2	AM-1.5	EAI



Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
<b>INF10.15</b> – Cooperative Network Information Exchange - Measures Service	#46	5.5.1	-	-	SO2/4, SO4/5	AM-1.5	EAI
<b>INF10.16</b> – Cooperative Network Information Exchange - Short Term ATFCM Measures services	#46	5.5.1	-	-	SO2/4, SO4/5	AM-1.5	EAI
<b>INF10.17</b> – Cooperative Network Information Exchange - Counts service	#46	5.5.1	-	-	SO2/4	AM-1.5	EAI
<b>INF10.18</b> – Flight Information Exchange -Filing Service	#46	5.6.1	FICE-B2/2	-	SO2/4	AM-1.5	EAI
<b>INF10.19</b> – Flight Information Exchange - Flight Data Request Service	#46	5.6.1	FICE-B2/4	-	SO2/4	AM-1.5	EAI
<b>INF10.20</b> – Flight Information Exchange - Notification Service	#46	5.6.1	FICE-B2/5	-	SO2/4	AM-1.5	EAI
<b>INF10.21</b> – Flight Information Exchange - Publication Service	#46	5.6.1	FICE-B2/6	-	SO2/4	AM-1.5	EAI
<b>INF10.22</b> – Flight Information Exchange - Trial Service	#46	5.6.1	FICE-B2/3	-	SO2/4	AM-1.5	EAI
<b>INF10.23</b> – Flight Information Exchange - Extended AMAN SWIM Service	#46	5.6.1	DAIM-B2/1 SWIM-B3/1	-	SO2/4	AM-1.5	EAI



Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
<b>INF07</b> – Electronic Terrain and Obstacle Data (e-TOD)	-	-	DAIM-B1/3 DAIM-B1/4	RMT.0703 RMT.0722	SO2/5	-	EAI

Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
<b>AOP04.1</b> – A-SMGCS Surveillance (former Level 1)	#70	-	SURF-B0/2	MST.0029	SO6/6	-	HPAO
<b>AOP04.2</b> – A-SMGCS RMCA (former Level 2)	-	-	SURF-B0/3	MST.0029	SO6/6	-	HPAO
<b>AOP05</b> – Airport CDM	-	-	ACDM-B0/1 ACDM-B0/2 NOPS-B0/4	-	SO6/4	-	HPAO
<b>AOP10</b> – Time Based Separation	#64	-	WAKE-B2/7	-	SO6/5	-	HPAO
<b>AOP12.1</b> – Airport Safety Nets	#02	2.3.1	SURF-B1/3	MST.0029	SP6/6	-	HPAO
AOP13 – Automated assistance to Controller for Surface Movement planning and routing	#22 #53	-	SURF-B1/4	MST.0029	SO6/6	-	HPAO
<b>AOP15</b> – Safety Nets for vehicle drivers	#04	-	SURF-B2/2	MST.0029	-	-	HPAO
<b>AOP16</b> – Guidance assistance through airfield lighting	#47	-	SURF-B1/1	MST.0029	-	-	HPAO
<b>AOP18</b> – Runway Status Lights	#01	-	-	MST.0029	-	-	HPAO
<b>AOP19</b> – Departure Management Synchronised with Pre-departure sequencing	#53 #106	2.1.1	RSEQ-B0/2	-	-	-	HPAO
<b>AOP20</b> – Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)	PJ.02-01-06	-	WAKE-B2/4	RMT.0476	-	-	HPAO
<b>AOP21</b> – Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)	PJ.02-01-04	-	WAKE-B2/4	RMT.0476	-	-	HPAO
<b>AOP22</b> – Minimum pair separations based on SRP	PJ.02-03	-	-	-	-	-	HPAO



Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
<b>AOP23</b> – Integrated runway sequence for full traffic optimization on single and multiple runway airports	PJ.02-08-01	-	RSEQ-B2/1	-		-	HPAO
<b>AOP24</b> – Optimised use of runway configuration for multiple runway airports	PJ.02-08-02	-	RSEQ-B3/3	-		-	HPAO
<b>ATC07.1</b> – Arrival management tools	-	-	RSEQ-B0/1	-	SO4/1	-	AATS
<b>ATC19</b> – Enhanced AMAN-DMAN integration	#54	1.2.1	RSEQ-B2/1	-	SO6/5, SO4/1	-	AATS
<b>ENV01</b> – Continuous Descent Operations	#11	-	APTA-B0/4 APTA-B1/4	-	SO6/5	-	AATS
<b>ENV02</b> – Airport Collaborative Environmental Management	-	-	-	-	-	-	HPAO
<b>ENV03</b> – Continuous Climb Operations	-	-	APTA-B0/5 APTA-B1/5	-	SO6/5	-	AATS
<b>NAV03.1</b> – RNAV1 in TMA Operations	#62	-	APTA-B0/2	RMT.0445	SO6/5	-	AATS
<b>NAV03.2</b> – RNP1 in TMA Operations	#09 #51	-	APTA-B1/2	RMT.0445	SO6/5	-	AATS
<b>SAF11</b> – Improve runway safety by preventing runway excursions	-	-	-	MST.0028 RMT.0570 RMT.0703	-	-	HPAO



Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
<b>AOM19.4</b> – Management of Pre-defined Airspace Configurations	#31 #66	3.1.2	NOPS-B1/6 FRTO-B1/4	-	SO3/2, SO3/3	AM-1.10 AM-1.8-	OANS
<b>AOM19.5</b> – ASM and A-FUA	#31 #66	3.1.1	NOPS-B1/5, NOPS-B0/1, FRTO-B1/3, FRTO-B0/2	-	SO3/2, SO3/3	AM-1.10 AM-1.8	OANS
<b>AOM21.2</b> – Initial Free Route Airspace	#32 #33 #66	3.2.1	FRTO-B1/1	-	SO3/1, SO3/4	AM-1.10 AM-5.1	AATS
<b>AOM21.3</b> – Enhanced Free Route Airspace Operations	PJ.06-01	3.2.2	FRTO-B2/3	-	SO3/1, SO3/4	AM-1.6 AM-1.7	AATS
<b>ATC12.1</b> – MONA, TCT and MTCD	#27 #104	3.2.1	FRTO-B0/4 FRTO-B1/5	-	SO3/1, SO4/1	AM-1.15 AM-5.1	AATS
<b>ATC15.1</b> – Initial Extension of AMAN to En-route	-	-	-	-	SO4/1	-	AATS
<b>ATC15.2</b> – Arrival Management Extended to En-route Airspace	#05	1.1.1	RSEQ-B1/1 NOPS-B1/8	-	SO4/1	AM-1.3	AATS
<b>ATC18</b> – Multi Sector Planning En-route – 1P2T	#63	-	FRTO-B1/6	-	SO4/1	AM-4.3 AM-5.1	AATS
<b>ITY-FMTP</b> – Apply a common flight message transfer protocol (FMTP)	-	-	-	-	SO8/3	AM-1.3	EAI



Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
<b>ATC02.8</b> – Ground based safety nets	-	3.2.1	SNET-B0/1 SNET-B0/2	-	SO4/1	-	AATS



Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
			SNET-B0/3 SNET-B0/4				
<b>ATC20</b> – Enhanced STCA with DAP via Mode S EHS	#69	-	SNET-B1/1	MST.0030	SO7/2	-	AATS
<b>ATC22</b> – Initial Air-Ground Trajectory Information Sharing (Airborne Domain)	#115	6.1.1	-	RMT.0682	SO4/5	AM-1.2	EAI
<b>ATC23</b> – Initial Air-Ground Trajectory Information Sharing (Ground Domain)	#115 PJ.18-06b1	6.1.2	-	RMT.0682	SO4/5	AM-1.2	EAI
<b>ATC24</b> – Network Manager Trajectory Information Enhancement	PJ.18-06b1	6.2.1	-	RMT.0682	SO4/5	-	EAI
<b>ATC25</b> – Initial Trajectory Information Sharing ground distribution	#115	6.3.1	-	MST.0031		AM-1.2	EAI



Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
<b>NAV12</b> – ATS IFR Routes for Rotorcraft Operations	#113	-	APTA-B0/6	MST.0031	SO6/5	-	AATS



Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
-	-	-	-	-	-	-	-





Level 3 Implementation Objective	SESAR Solution	SDP Family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
<b>AOP14</b> – Remote Tower Services	#12 #13 #52 #71	-	RATS-B1/1	RMT.0624	SO6/5	-	HPAO

## ANNEX C – CONSOLIDATED PROGRESS AND IMPLEMENTATION STATUS

Consolidated progress of implementation in 2021 and the implementation status at the end of 2021 of all monitored, active Implementation Objectives.

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
AOM13.1	-	+2	AT, BA	61% (8 pp)	31 Dec 2022
AOM19.4	#31, #66	+4	FR, DE, IT, LT, UK, (BA)	26% (11 pp)	31 Dec 2024
AOM19.5	#31, #66	New Objective	BA, LT, LU	11% (11 pp)	31 Dec 2026
AOM21.2	#32, #33, #66	+4	CZ, FR, DE, MT	82% (10 pp)	31 Dec 2022
AOM21.3	PJ.06-01	New Objective	AL, BG, HR, HU, IE, MK, SK	57% (57 pp)	31 Dec 2025
AOP04.1	#70	+1	LPPT	75% (1 pp)	31 Dec 2022
AOP04.2	-	+3	EDDB, LEBL, LEPA	65% (9 pp)	31 Dec 2022
AOP05	-	+3	EDDH, EDDS, EVRA	60% (3 pp)	31 Dec 2024
AOP10	#64	0	-	7% (2 pp)	Not Available
AOP11.1	#21	New Objective	EGLL, EHAM, EFHK	10% (10 pp)	31 Dec 2023
AOP11.2	#21	New Objective	-	0% (0 pp)	Not Available
AOP12.1	#02	New Objective	UBBB, LKPR, LTFM	9% (9 pp)	31 Dec 2025
AOP13	#22, #53	0	-	0 (0 pp)	Not Available
AOP14	#12, #13, #52, #71	+3	ESNQ, ESNZ, EGLC	7 (3)	Not Applicable
AOP15	#04	0	-	1 (0)	Not Applicable
AOP16	#47	0	-	0 (0)	Not Applicable
AOP17	#61	+3	EBLG, LGKO, LEBB	20 (4)	Not Applicable
AOP18	#01	0	-	1 (0)	Not Applicable
AOP19	#53, #106	New Objective	-	20% (20 pp)	31 Jul 2025
ATC02.8	-	+5	AZ, CH, HR, LT, SE	67% (14 pp)	31 Dec 2024

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
ATC07.1	-	0	-	69% (0 pp)	31 Dec 2022
ATC12.1	#27 #104	-2	LT, (ME, RS, TK)	49% (-4 pp)	31 Dec 2023
ATC15.1	-	0	-	64% (-5 pp)	31 Dec 2022
ATC15.2	#05	+1	LOWW	23% (-4 pp)	31 Dec 2024
ATC18	#63	0	-	6 (0)	Not Applicable
ATC19	#54	0	-	6% (6 pp)	Not Available
ATC20	#69	+1	DK	12 (1)	Not Applicable
COM10.1	-	New Objective	MT	93% (93 pp)	31 Dec 2021
COM10.2	-	New Objective	EE, FI, MA, NL, SI	77% (77 pp)	31 Dec 2022
COM11.1	-	+7	AT, DK, HU, LT, ME, RS, ES	26% (17 pp)	31 Dec 2024
COM11.2	-	+4	DK, HU, ME, RS	22% (9 pp)	31 Dec 2024
COM12	-	+4	AL, BG, MT, ME, RS, (NL)	73% (8 pp)	31 Dec 2022
ENV01	#11	+8	EFHK, EGKK, ELLX, EVRA, LFML, LFPO, LTAI, LTBA	51% (15 pp)	31 Dec 2023
ENV02	-	+3	EBCI, EBLG, EDDB	49 (3)	Not Applicable
ENV03	-	+3	EVRA, EPWA, UKBB	57 (3)	Not Applicable
FCM03	-	-1	AT, MAS, (ME, LT, RS)	52% (-3 pp)	31 Dec 2023
FCM04.2	#17	-2	(BA, FR)	16% (-2 pp)	31 Dec 2024
FCM06.1	#19	New Objective	MAS, MT, PL	21% (21 pp)	31 Jul 2024
FCM09	#56	n/a	-	100%	31 Dec 2021
FCM10	#18, #20	New Objective	-	10% (10 pp)	Not Available
FCM11.1	#20, #21	New Objective	-	0% (0 pp)	31 Dec 2023
FCM11.2	#18, #20, #21	New Objective	-	0% (0 pp)	Not Available

Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
INF07	-	+1	MK	28% (2 pp)	31 Dec 2023
INF10.2	#46	New Objective	-	0% (0 pp)	31 Dec 2025
INF10.3	#46	New Objective	FR, DE, IT, LT, MAS, PT, SK	45% (45 pp)	31 Dec 2025
INF10.4	#46	New Objective	FR, DE, IT, LT, PT, SK	38% (38 pp)	31 Dec 2025
INF10.5	#46	New Objective	-	0% (0 pp)	Not Available
INF10.6	#34, #46	New Objective	-	0% (0 pp)	Not Available
INF10.7	#34, #46	New Objective	-	0% (0 pp)	Not Available
INF10.8	#34, #46	New Objective	-	0% (0 pp)	Not Available
INF10.9	#34, #35, #46	New Objective	-	0% (0 pp)	Not Available
INF10.10	#34, #35, #46	New Objective	-	0% (0 pp)	Not Available
INF10.11	#34, #35, #46	New Objective	-	0% (0 pp)	Not Available
INF10.12	#34, #35, #46	New Objective	-	0% (0 pp)	Not Available
INF10.13	#46	New Objective	MAS	10% (10 pp)	Not Available
INF10.14	#46	New Objective	-	4% (4 pp)	Not Available
INF10.15	#46	New Objective	DE, MAS	16% (16 pp)	Not Available
INF10.16	#46	New Objective	MAS	5% (5 pp)	Not Available
INF10.17	#46	New Objective	MAS, ES	21% (21 pp)	Not Available
INF10.18	#46	New Objective	-	-	31 Dec 2025
INF10.19	#46	New Objective	-	0% (0 pp)	Not Available
INF10.20	#46	New Objective	-	0% (0 pp)	Not Available
INF10.21	#46	New Objective	-	0% (0 pp)	Not Available
INF10.22	#46	New Objective	-	100%	31 Dec 2021

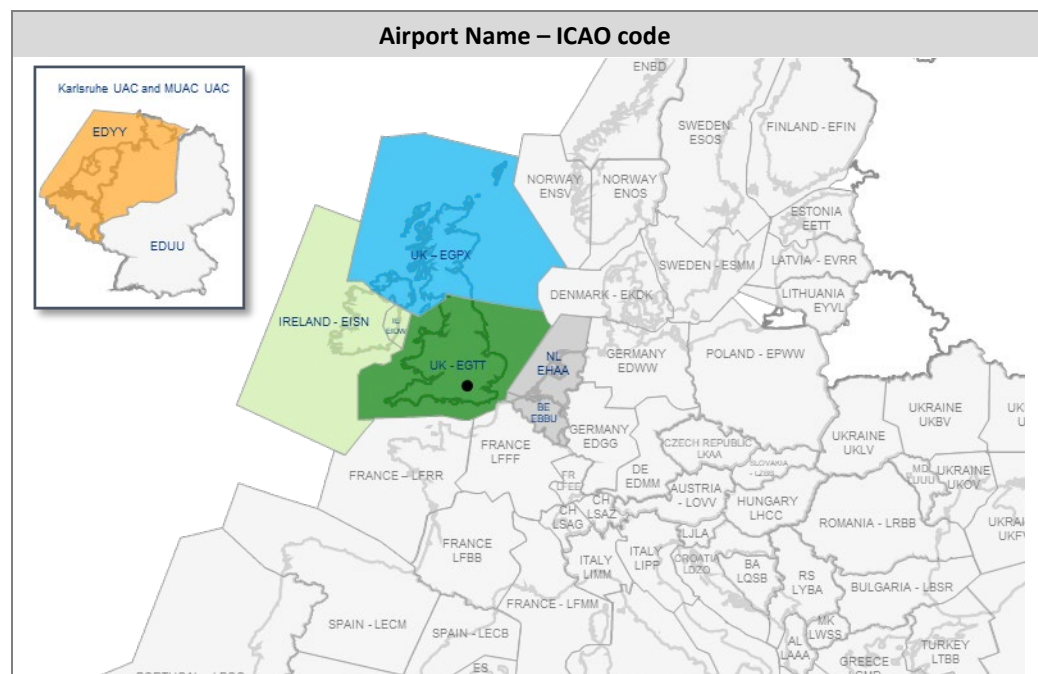
Objective Code	Solution Reference	Δ Completed States / Airports in 2021 vs 2020	States / Airports completing the Objective in 2021	Completion Rate in 2021 (Δ vs 2020)	Estimated achievement
INF10.23	#46	New Objective	FR	7% (7 pp)	Not Available
ITY-ACID	-	0	BA, BG, (CZ, TR)	40% (0 pp)	31 Dec 2024
ITY-AGDL	-	+8	AZ, BG, DK, EE, FR, LV, MT, NL	64% (19 pp)	31 Mar 2023
ITY-AGVCS2	-	+3	DE, GR, SI, SE, (FI)	56% (7 pp)	31 Dec 2024
ITY-FMTP	-	+1	MT	82% (2 pp)	31 Dec 2022
NAV03.1	#62	+3	FI, LV, NO	38% (7 pp)	06 Jun 2030
NAV03.2	#09, #51	+4	CH, DK, IE, NO, RS, (SK)	24% (12 pp)	Not Available
NAV10	#103	+5	FI, LT, ME, NO, RS	33% (12 pp)	25 Jan 2024
NAV12	#113	+1	EE	14% (5 pp)	Not Available
SAF11	-	0	-	74% (-2 pp)	31 Dec 2022

## ANNEX D – EXTENDED AMAN IMPLEMENTATION. DETAIL PER ACC

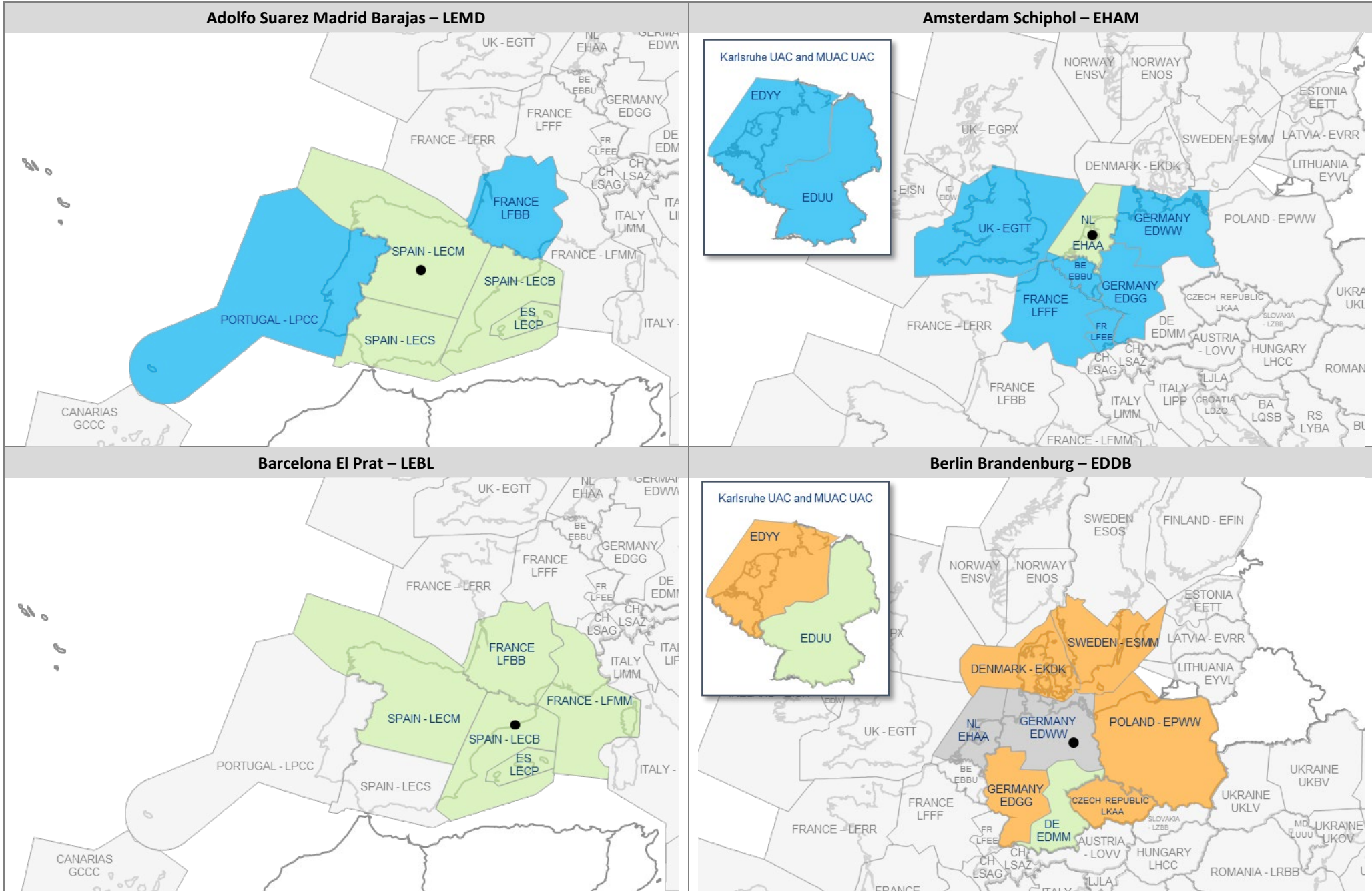
This Annex helps the reader have an exhaustive overview of the current implementation progress of Objective ATC15.2, dealing with Arrival Management (AMAN) extended to en-route airspace. The Objective per se is structured to gather reporting information at Airport level. However, in order to provide a proper picture of the 2021 implementation taking into account cross-border activities, the following maps show the status of the relevant ACCs within 180 nautical miles from the ACC of the Airport's location.

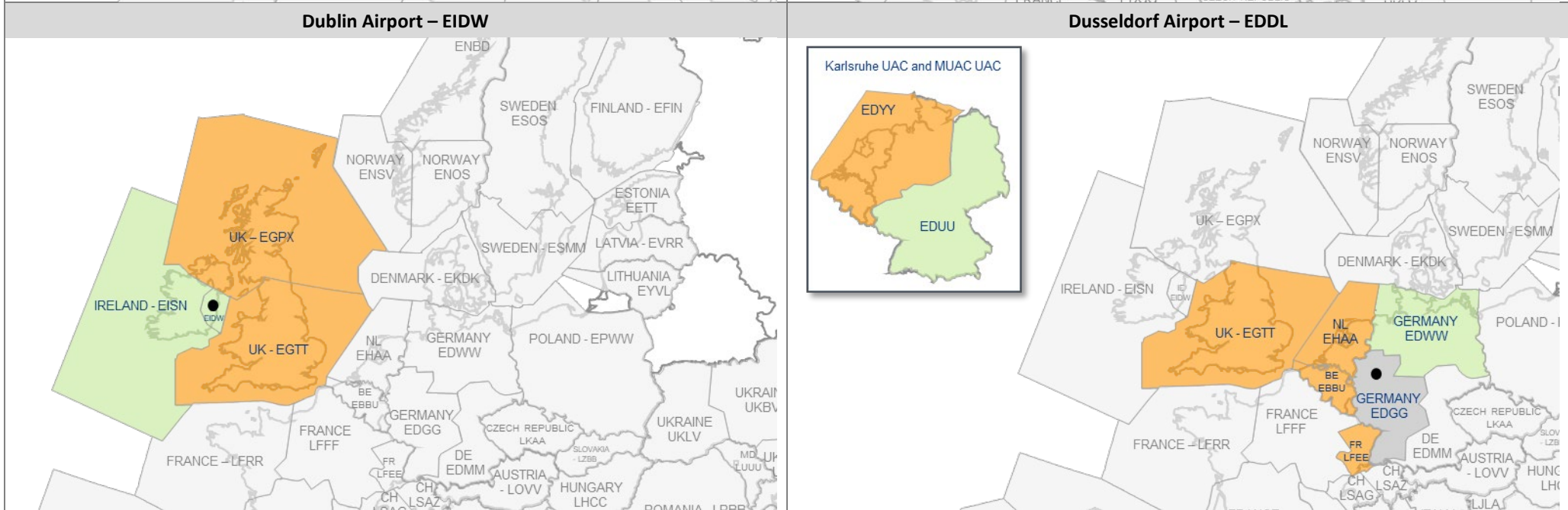
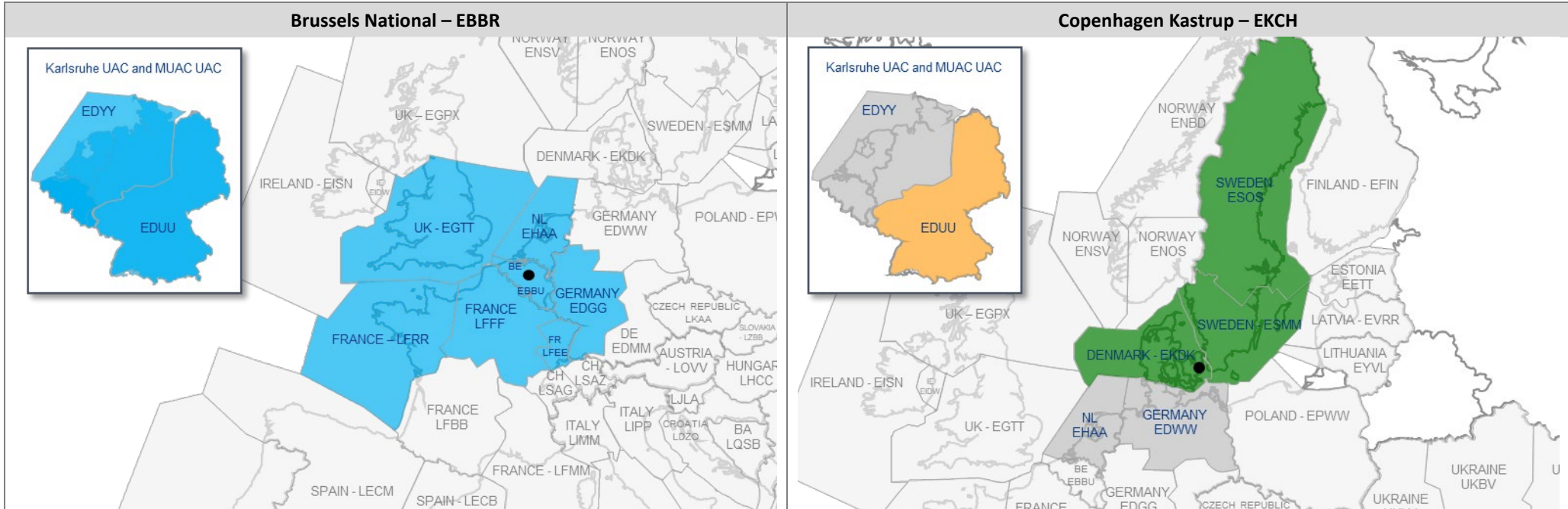
It is key to highlight that the Annex reports the information available in the LSSIP+ Tool, as Stakeholder reported during the 2021 Monitoring Cycle. Moreover, the information related to the CP1-mandated Airports matched the data reported in the SDP Monitoring View 2021.

Here below some additional explanation on how to read each map.

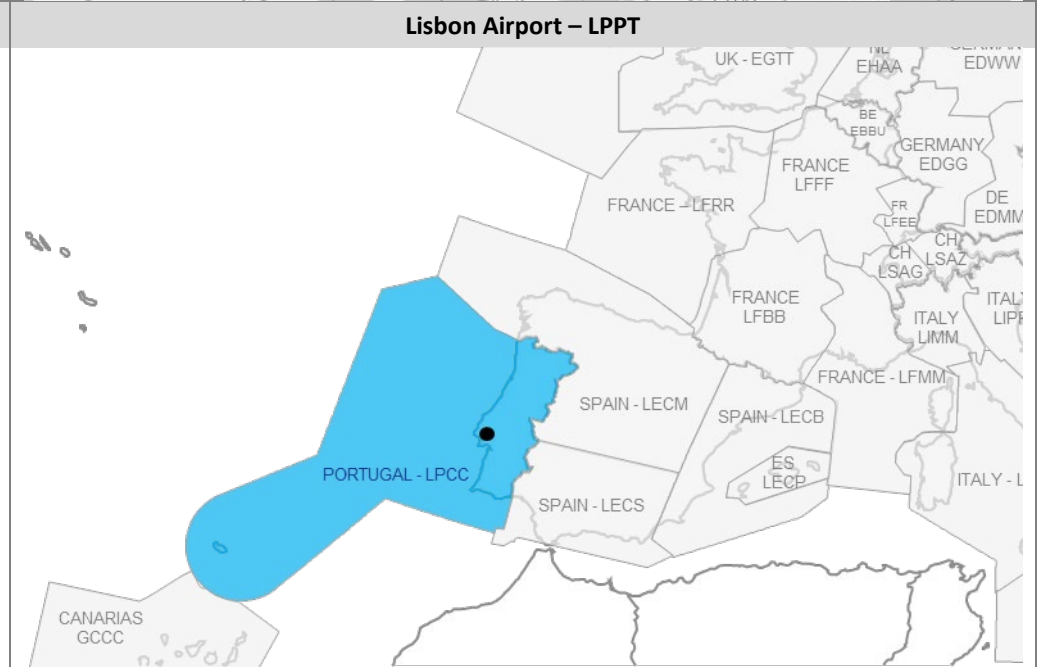
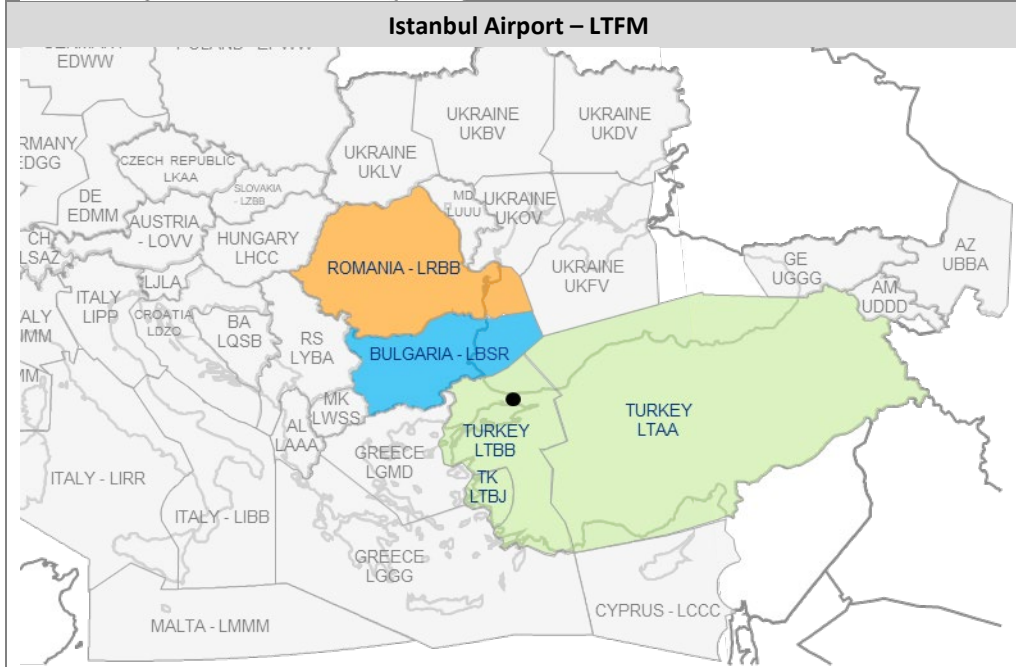
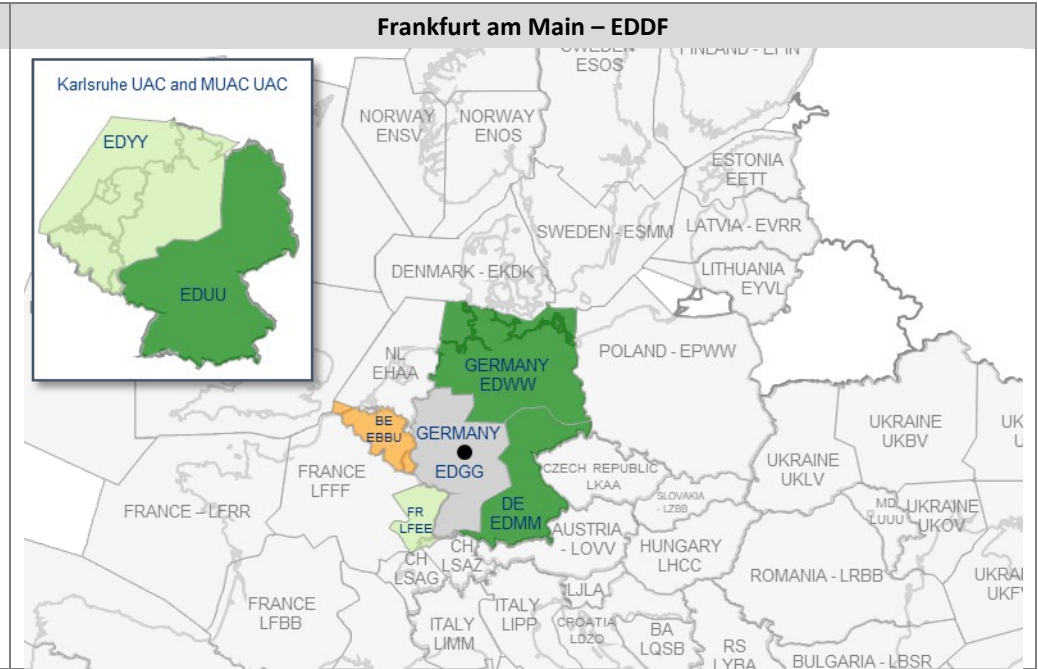
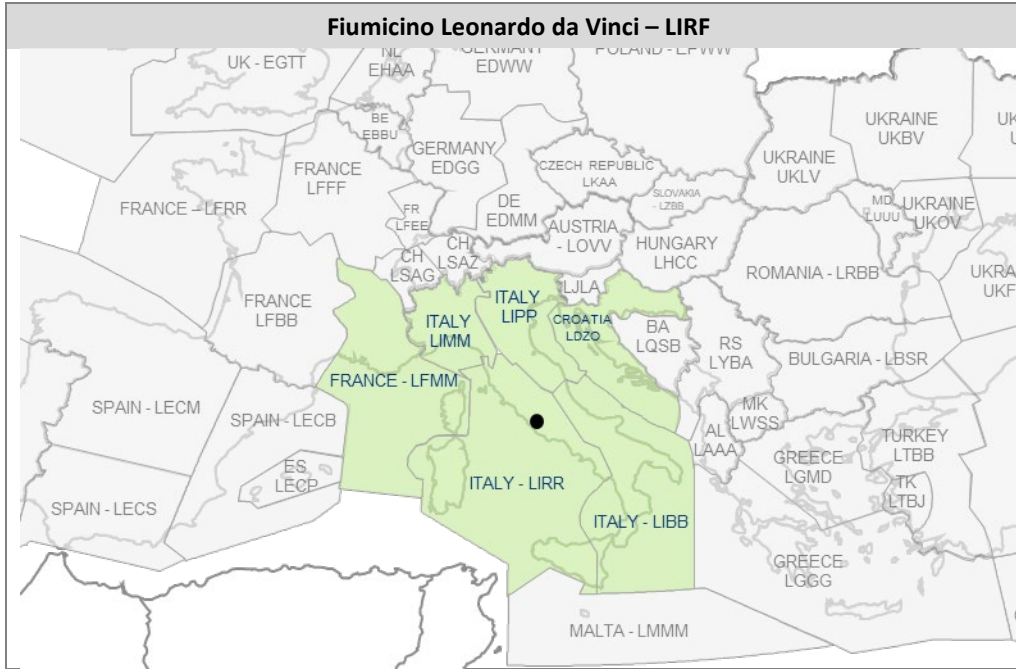


- The grey bar on top of the map reports the Airport name and ICAO code
- Each map focuses on the relevant Airport and affected ACCs
- A black dot marks the Airport location
- Each ACC features the Country and the ACC code
- Each ACC is identified with a colour marking its status at the end 2021. The status matched the coding used throughout this document
  - Completed, dark green
  - Ongoing, light green
  - Planned, light blue
  - Not Yet Planned, orange
  - Not Applicable, dark grey
- The ACCs in light grey are not addressed in the implementation of Objective ATC15.2, as Stakeholders reported during the 2021 LSSIP+ Monitoring Cycle.
- Some maps include an overlapping map of Benelux and Germany to split the information related to the ACCs and the related UACs of Karlsruhe and MUAC.



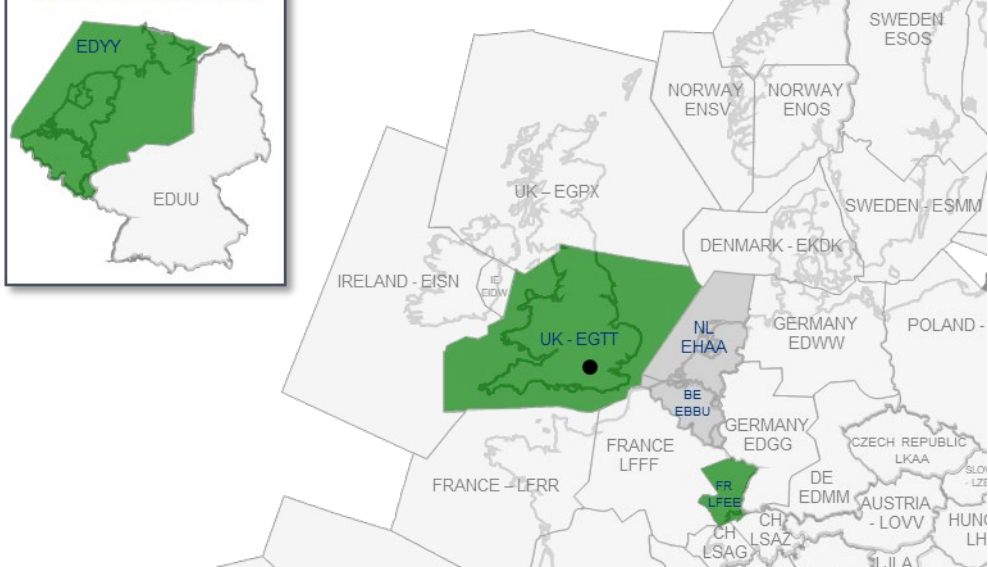






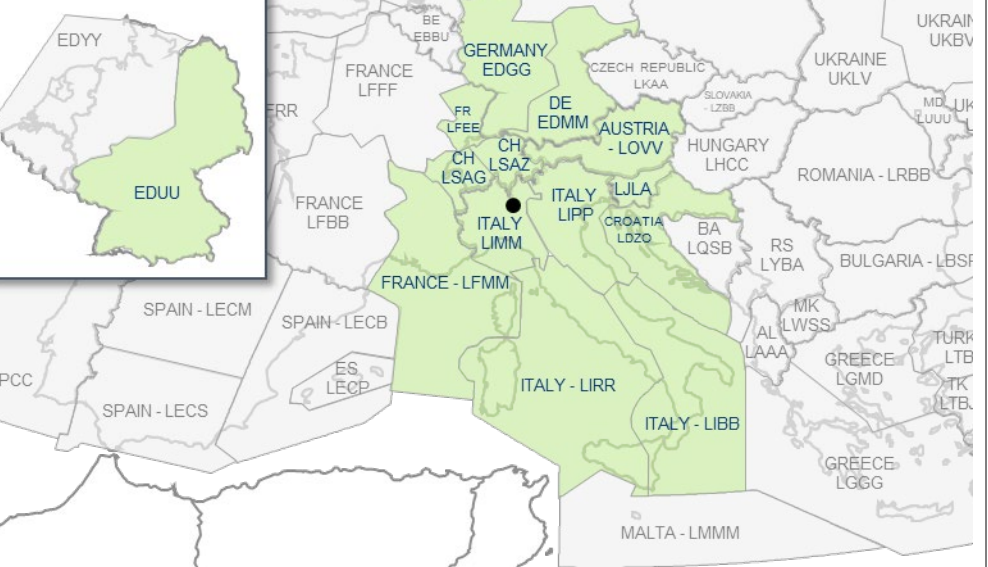
### London Heathrow – EGLL

Karlsruhe UAC and MUAC UAC



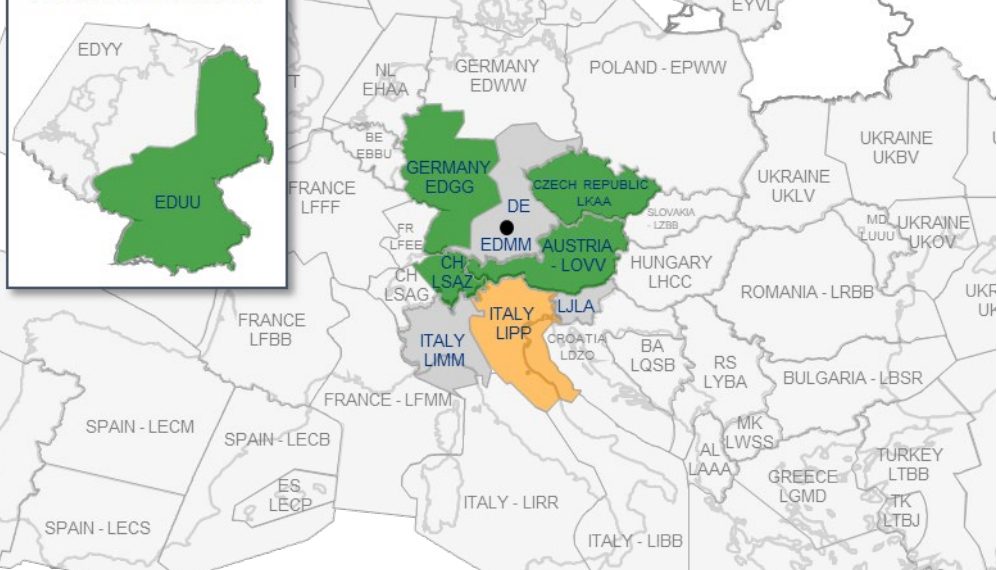
### Milano Malpensa – LIMC

Karlsruhe UAC and MUAC UAC

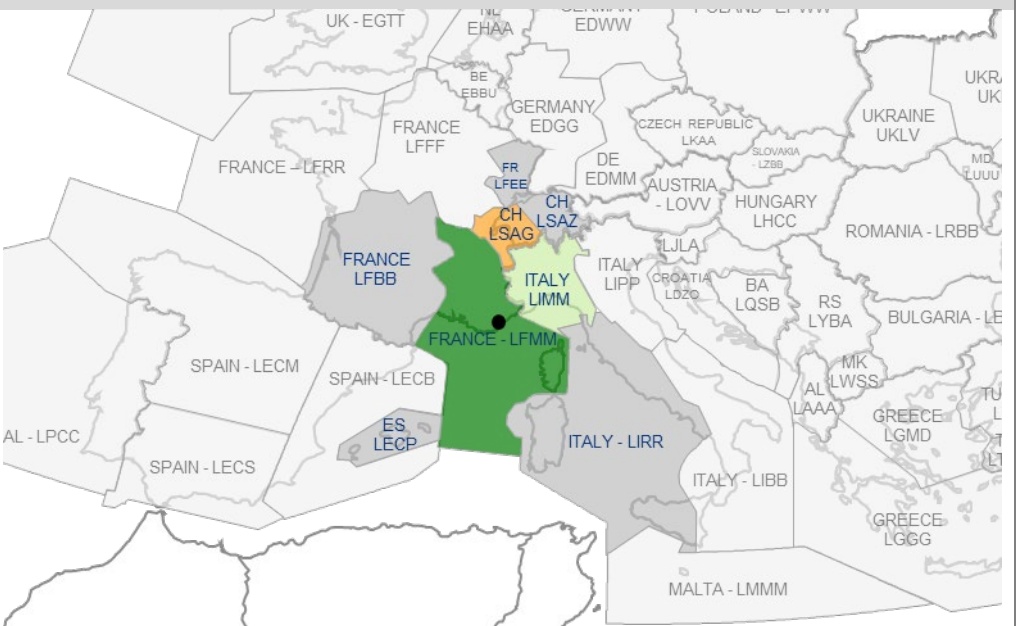


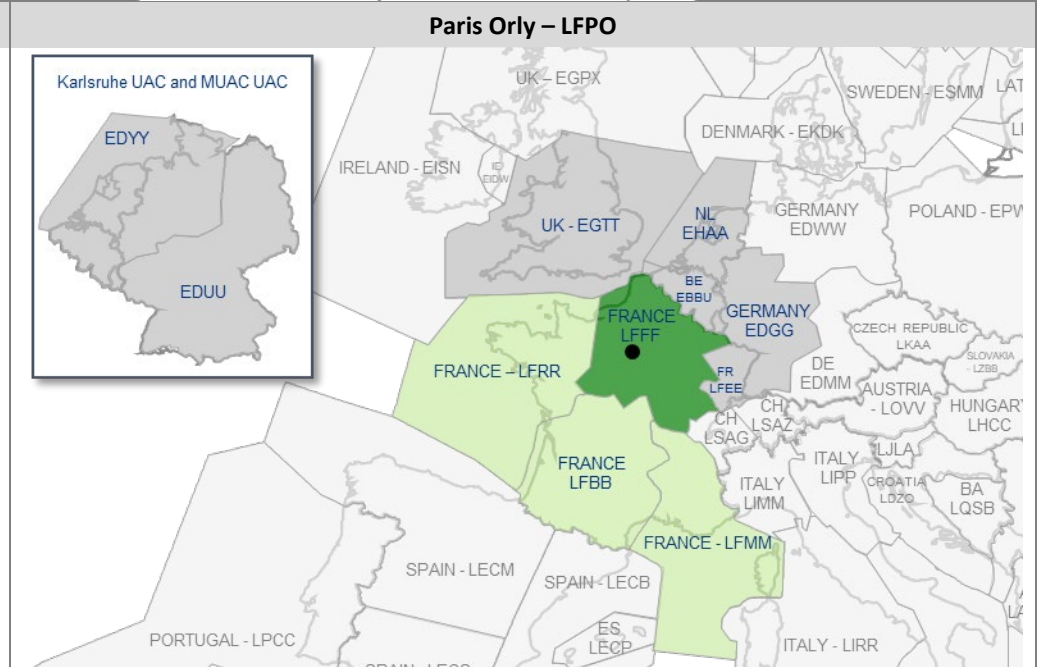
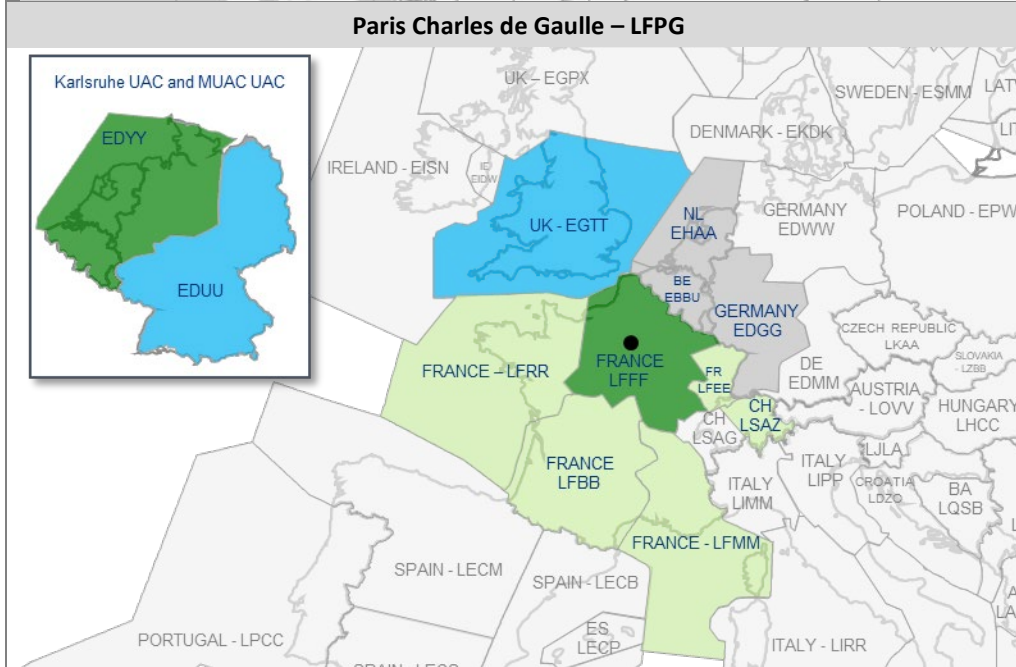
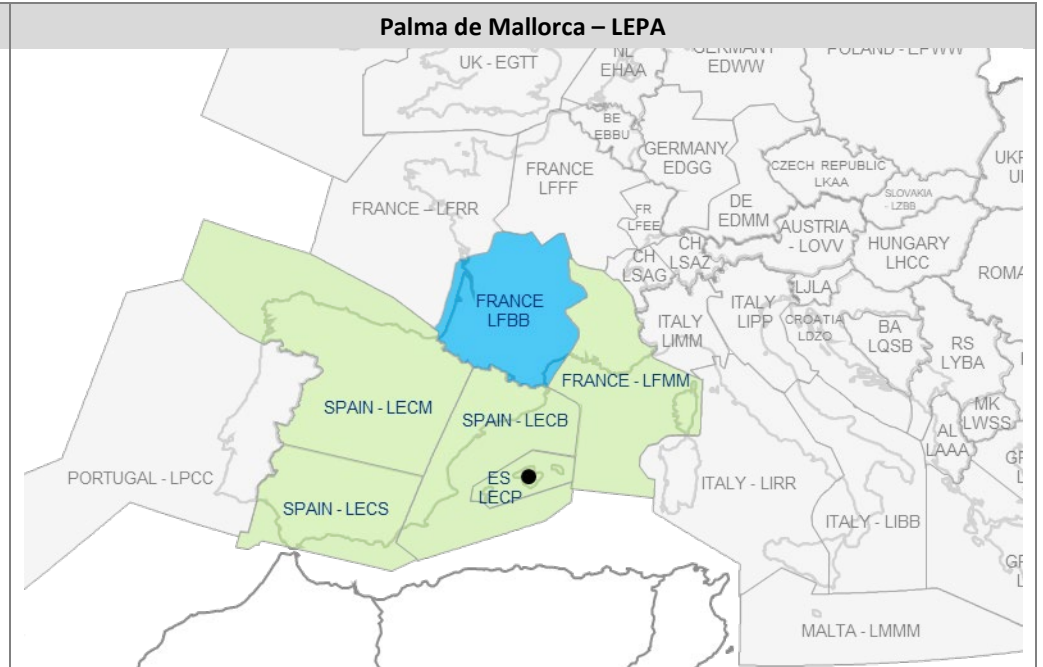
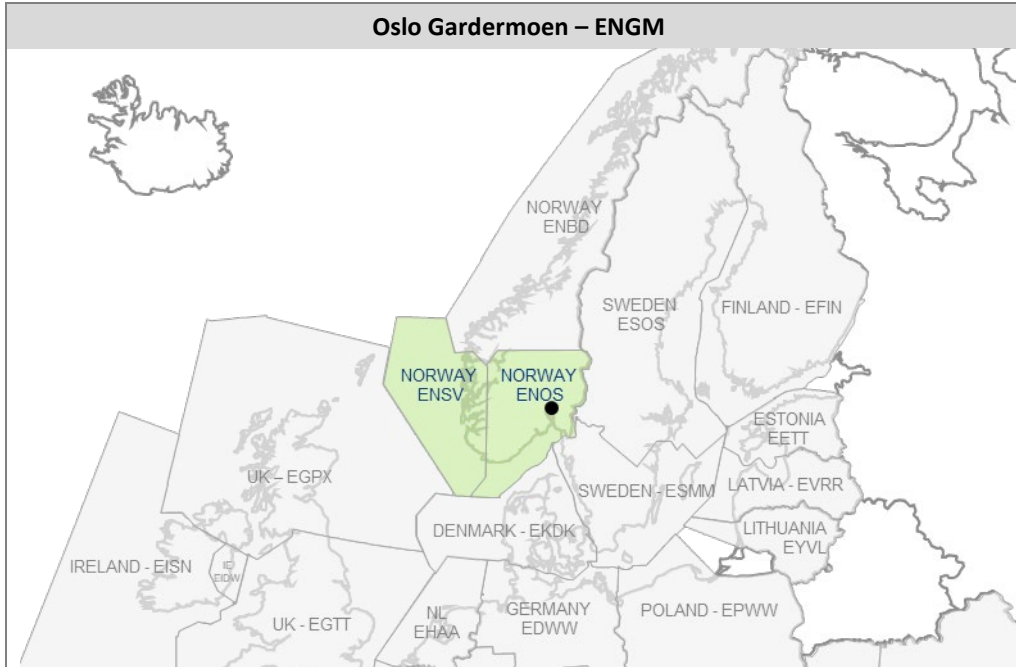
### Munich Airport – EDDM

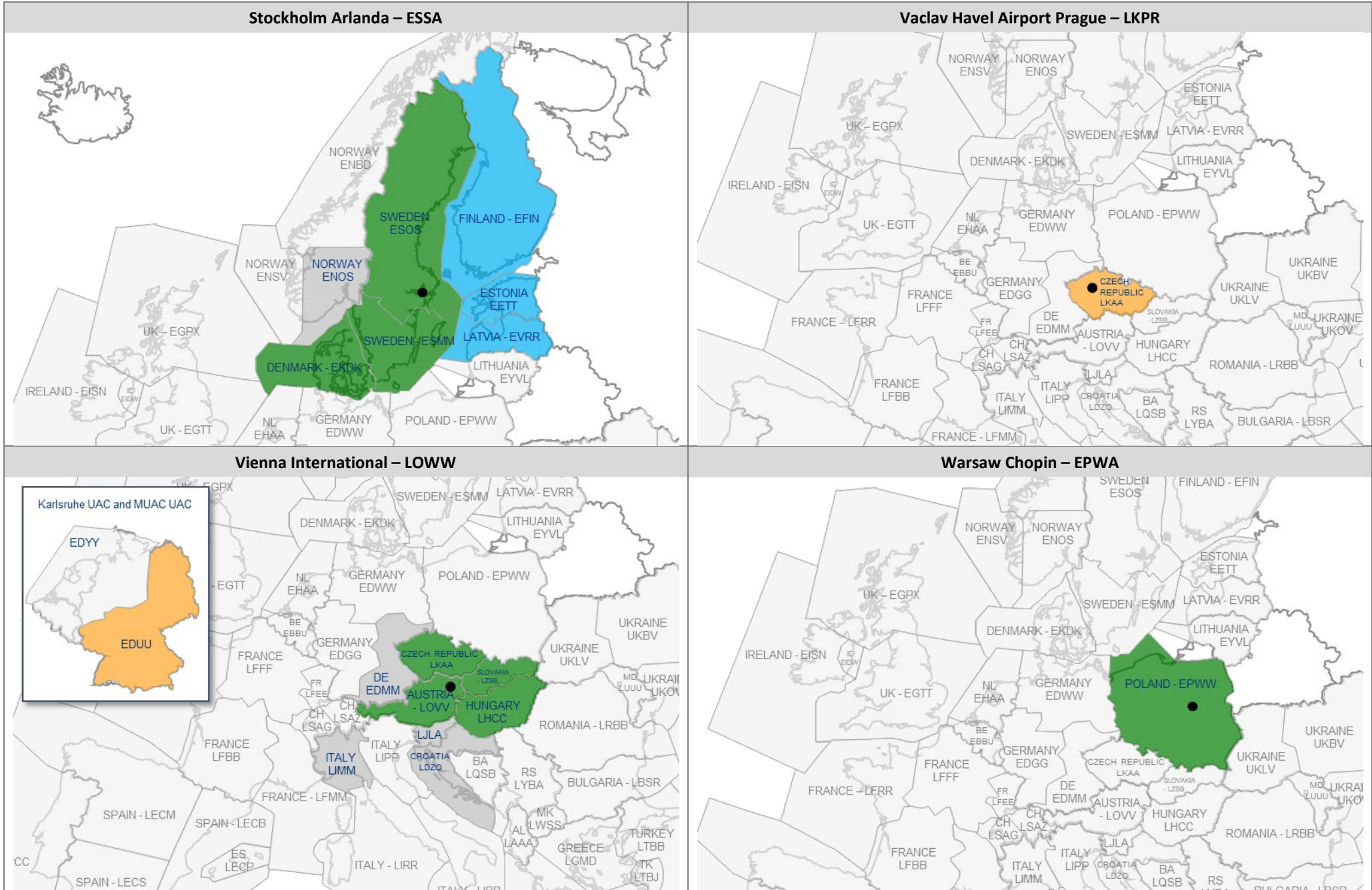
Karlsruhe UAC and MUAC UAC

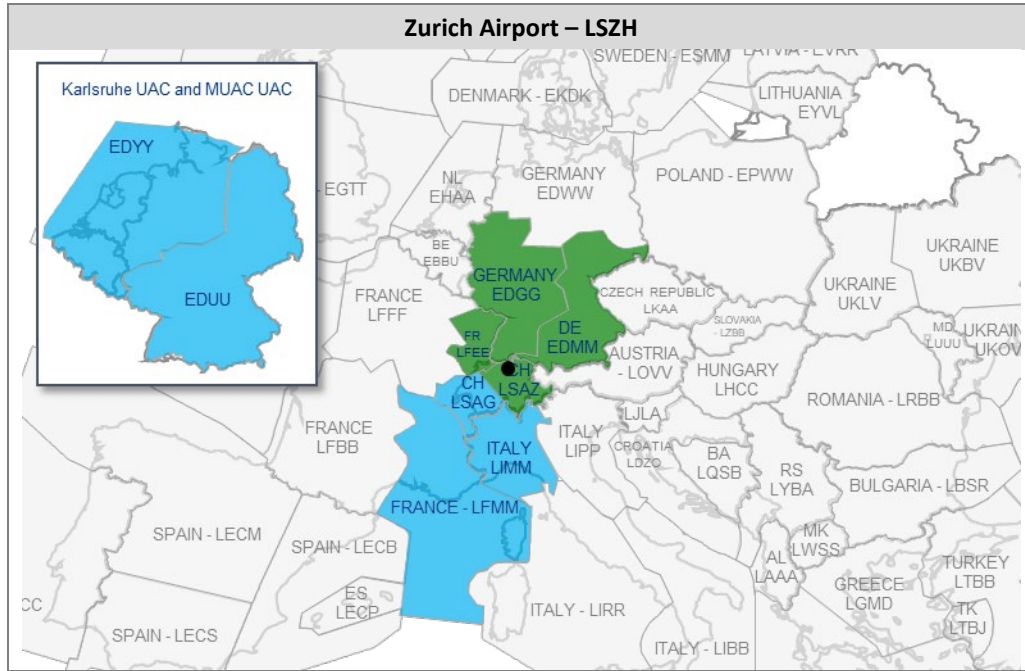


### Nice Cote d'Azur – LFMM









## ANNEX E – ACRONYMS

<b>A</b>	
AAS TP	Airspace Architecture Study Transition Plan
AATS	Advanced Air Traffic Services
A/G	Air/Ground
ACC	Area Control Centre
A-CDM	Airport Collaborative Decision making
ACL	ATC Clearances and Information service
ACM	ATC Communication Management service
ADQ	Aeronautical Data Quality
ADS-B	Automatic Dependent Surveillance - Broadcast
AF	ATM Functionality
AFP	ATC Flight plan Proposal message
AFTN	Aeronautical Fixed Telecommunications Network
AFUA	Advanced Flexible Use of Airspace
AGDL	Air-Ground Data Link
AIP	Aeronautical Information Publication
AIRM	ATM Information Reference Model
AIXM	Aeronautical Information eXchange Model
AL	Albania
AM	Armenia
AMA	Arrival Management Message
AMAN	Arrival Manager
AMC	ATC Microphone Check service
AMHS	ATS Message Handling Service
ANSP	Air Navigation Service Provider
AOM	Airspace organisation and management
AOP	Airport Operations Programme
APOC	Airport Operations Centre
APM	Approach Path Monitor
APT	Airport
APV	Approach with Vertical Guidance
APW	Area Proximity Warning
ASBU	Aviation System Block Upgrade
ASM	Airspace Management
A-SMCGS	Advanced Surface Movement Control and Guidance System
ASP	Air Navigation Service Providers
AT	Austria
ATC	Air Traffic Control
ATCO	Air Traffic Control Officer
ATFCM	Air Traffic Flow and Capacity Management
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATN	Aeronautical Telecommunications network
ATS	Air Traffic Services
ATSU	Air Traffic Service Unit

AU	Airspace Users
AUP	Airspace Use Plan
AZ	Azerbaijan
<b>B</b>	
BA	Bosnia Herzegovina
BE	Belgium
BG	Bulgaria
B2B	Business-to-Business
<b>C</b>	
CAA	Civil Aviation Authority
CATC	Conflicting ATC Clearances
CBA	Cost Benefit Analysis
CCO	Continuous Climb Operations
CDM	Collaborative Decision Making
CDO	Continuous Descent Approach
CEM	Collaborative Environmental Management
CFSP	Computerised Flight Plan Service Provider
CH	Switzerland
CNS	Communications, Navigation and Surveillance
COM	Communications
COTR	Coordination and Transfer
CP1	Common Project 1 – Regulation 116/2021
CPDLC	Controller Pilot Data Link Communications
CTOT	Calculated Take Off Time
CY	Cyprus
CZ	Czech Republic
<b>D</b>	
DCT	Direct Routing
DLS	Data Link Services
DE	Germany
DK	Denmark
DLIC	Data Link Initiation Capability
DMAN	Departure Manager
DP	Deployment Program
DPI	Departure Planning Information (NM message)
<b>E</b>	
EAI	Enabling aviation infrastructure
EATMA	European ATM Architecture
EC	European Commission
ECAC	European Civil Aviation Conference
EE	Estonia
EGNOS	European Geostationary Navigation Overlay Service
ENV	Environment
EOC	Essential Operational Change
EPAS	European Plan for Aviation Safety

ERNIP	European Route Network Improvement Plan
ES	Spain
eTOD	Electronic Terrain and Obstacle Data
EU	European Union
<b>F</b>	
FAB	Functional Airspace Block
FCM	Flow and Capacity Management
FI	Finland
FIR	Flight Information Region
FIS	Flight Information Services
FL	Flight Level
FMTP	Flight Message Transfer Protocol
FOC	Full Operational Capability
FPL	Flight Plan
FR	France
FRA	Free Route Airspace
FRQ	Frequencies
FUA	Flexible Use of Airspace
<b>G</b>	
GAT	General Air Traffic
GBAS	Ground Based Augmentation System
GE	Georgia
GNSS	Global Navigation Satellite System
GR	Greece
<b>H</b>	
HPAO	High-performing airport operations
HR	Croatia
HU	Hungary
<b>I</b>	
ICAO	International Civil Aviation Organisation
IE	Ireland
IFPS	Initial Flight Plan Processing System
IFR	Instrument Flight Rules
IL	Israel
IND	Industry
INF	Information Management
IP	Internet Protocol
IR	Implementing Rule
ISRM	Information Service Reference Model
IT	Italy
ITY	Interoperability
<b>J</b>	
<b>K</b>	
KF	Key Feature
KPI	Key Performance Indicators
<b>L</b>	
LARA	Local And sub-Regional Airspace Management
LT	Lithuania
LSSIP	Local Single Sky Implementation
LU	Luxembourg
LV	Latvia

LVC	Low Visibility Conditions
<b>M</b>	
MA	Morocco
MD	Moldova
ME	Montenegro
MHz	Megahertz
MIL	Military Authorities
MK	Republic of North Macedonia
Mode S	SSR Selective Interrogation Mode
MONA	MONitoring Aids
MPL3	Master Plan Level 3
MSSR	Monopulse Secondary Surveillance Radar
MT	Malta
MTCD	Medium Term Conflict Detection
MUAC	Maastricht Upper Area Control (Centre)
<b>N</b>	
N/A	Not applicable
NAV	Navigation
NL	Netherlands
NM	Network Manager
NMOC	Network Manager Operations Centre
NO	Norway
NOP	Network Operations Plan
NSP	Network Strategy Plan
<b>O</b>	
OANS	Optimised ATM network services
OAT	Operational Air Traffic
OC	Operational Change
OI	Operational improvements
OLDI	On Line Data Interchange
<b>P</b>	
PBN	Performance Based Navigation
PENS	Pan-European Network Services
PL	Poland
PRISME	Pan-European Repository of Information Supporting the Management of EATM
P-RNAV	Precision RNAV
PT	Portugal
<b>R</b>	
REG	Regulatory Authorities
RNAV	Area Navigation
RNP	Required Navigation Performance
RO	Romania
RP	Reference Period
RPAS	Remotely Piloted Aircraft Systems
RS	Serbia
RWY	Runway
<b>S</b>	
SAF	Safety
SBAS	Satellite Based Augmentation System
SDM	SESAR Deployment Manager
SE	Sweden

SES	Single European Sky
SESAR	Single European Sky ATM Research
SI	Slovenia
SJU	SESAR Joint Undertaking
SK	Slovak Republic
SLoA	Stakeholder Line of Action
SO	Strategic Objective
SPI	Surveillance Performance and Interoperability
SSR	Secondary Surveillance Radar
STAM	Short-Term ATFCM Measures
SWIM	System-Wide Information Management
<b>T</b>	
TBS	Time Based Separation
TCP/IP	Transmission Control Protocol / Internet Protocol
TCT	Tactical Controller Tool
TMA	Terminal Manoeuvring Area
TR	Türkiye
TTA	Target Time of Arrival
TWR	Tower

<b>U</b>	
UA	Ukraine
UDPP	Users Driven Prioritisation Process
UK	United Kingdom
UUP	Update Airspace Use Plan
<b>V</b>	
VCCS	Voice Communication and Control System
VoIP	Voice over Internet Protocol
<b>W</b>	
WAM	Wide Area Multilateration
WP	Work Package