# EUROPEAN ATM MASTER PLAN

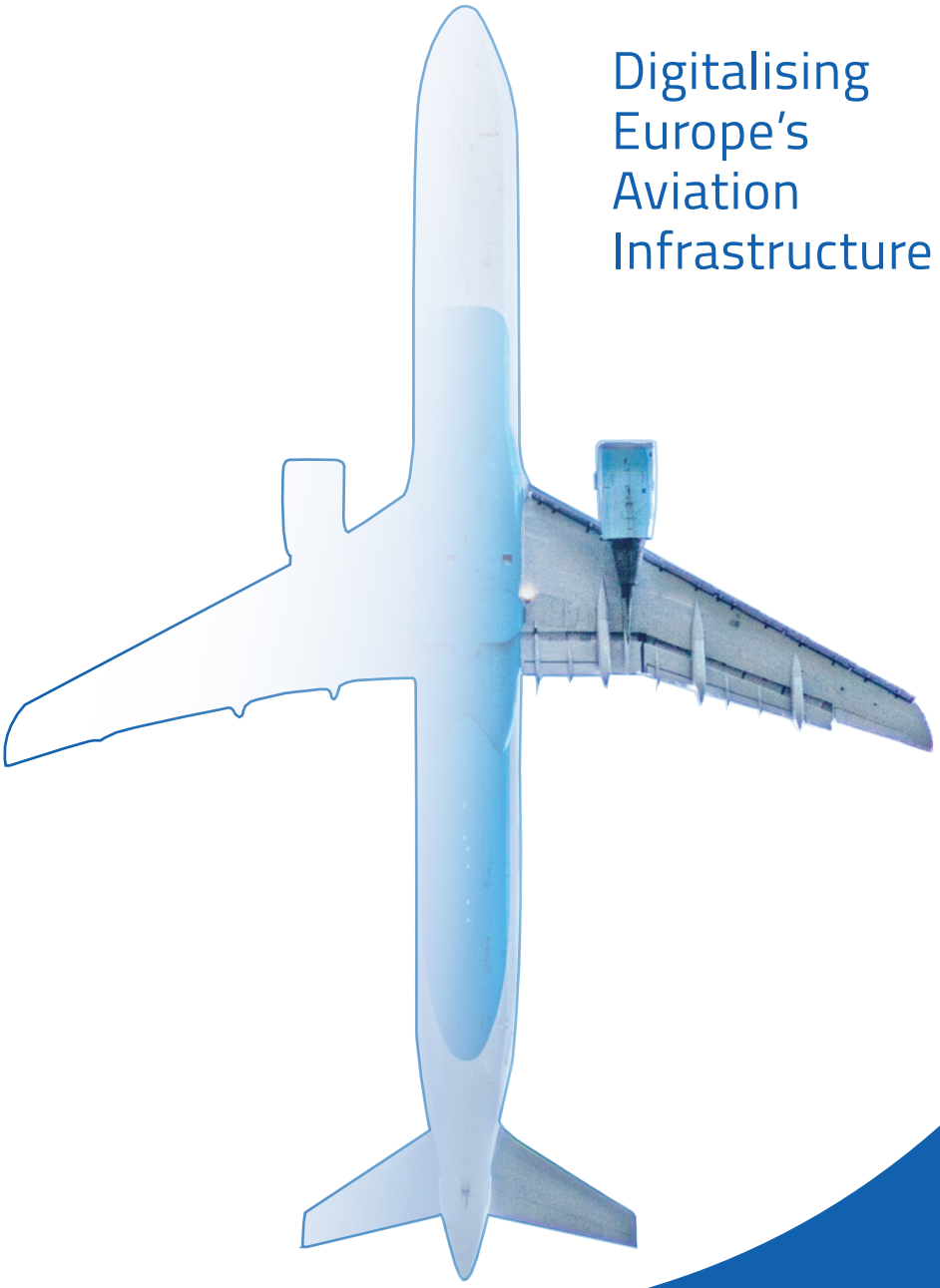
## Implementation view

## Progress report 2023

Reference year 2022

sesar JOINT UNDERTAKING

Digitalising Europe's Aviation Infrastructure



EUROPEAN PARTNERSHIP

Co-funded by the European Union

EXPLORATORY RESEARCH

sesar JOINT UNDERTAKING

# PJ20 W2 AMPLE ATM Master Plan Level 3 Implementation Report 2023

| | |
|---|---|
| **Deliverable ID:** | **D4.8** |
| **Dissemination Level:** | **PU** |
| **Project Acronym:** | **PJ20-W2 AMPLE** |
| **Grant:** | **874475** |
| **Call:** | **H2020-SESAR-2019-1** |
| **Topic:** | **SESAR-IR-VLD-WAVE2-01-2019** |
| **Consortium Coordinator:** | **EUROCONTROL** |
| **Edition date:** | **22 June 2023** |
| **Edition:** | **00.01.01** |
| **Template Edition:** | **02.00.05** |

EUROPEAN PARTNERSHIP

Co-funded by the European Union

## Authoring & Approval

### Authors of the document

| Name / Beneficiary | Position / Title | Date |
|---|---|---|
| EUROCONTROL | PJ20 WP4 Leader | 09/06/2023 |
| DFS | PJ20 WP4 Member | 09/06/2023 |
| DSNA | PJ20 WP4 Member | 09/06/2023 |
| ENAIRE | PJ20 WP4 Member | 09/06/2023 |
| ENAV | PJ20 WP4 Member | 09/06/2023 |
| INDRA | PJ20 WP4 Member | 09/06/2023 |
| LEONARDO | PJ20 WP4 Member | 09/06/2023 |
| PANSA (B4) | PJ20 WP4 Member | 09/06/2023 |
| THALES | PJ20 WP4 Member | 09/06/2023 |
| SKYGUIDE | PJ20 WP4 Member | 09/06/2023 |
| AIRBUS | PJ20 WP4 Member | 09/06/2023 |
| HC (FSP) | PJ20 WP4 Member | 09/06/2023 |
| NATS | PJ20 WP4 Member | 09/06/2023 |

### Reviewers internal to the project

| Name / Beneficiary | Position / Title | Date |
|---|---|---|
| EUROCONTROL | PJ20 coordinator (WP1 & WP5 Lead) | 09/06/2023 |
| EUROCONTROL | PJ20 WP2 Lead | 09/06/2023 |
| EUROCONTROL | PJ20 WP3 Lead | 09/06/2023 |
| EUROCONTROL | PJ20 WP4 Lead | 09/06/2023 |
| EUROCONTROL | PJ20 Standards and Rules | 09/06/2023 |
| EUROCONTROL | PJ20 Communication/WP6 Ethics Lead | 09/06/2023 |
| IATA | PJ20 WP4 Airspace User Contributor | 09/06/2023 |

### Approved for submission to the SJU By - Representatives of all beneficiaries involved in the project

| Name / Beneficiary | Position / Title | Date |
|---|---|---|
| EUROCONTROL | PJ20 W2 Coordinator | Silent Approval |
| ACG (COOPANS) | PJ20 W2 Lead Contributor | Silent Approval |
| AIRBUS | PJ20 W2 Lead Contributor | Silent Approval |
| Avinor (SEAC) | PJ20 W2 Lead Contributor | Silent Approval |





Co-funded by the European Union

| | | |
|---|---|---|
| DFS | PJ20 W2 Lead Contributor | Silent Approval |
| DLR (AT- One) | PJ20 W2 Lead Contributor | Silent Approval |
| DSNA | PJ20 W2 Lead Contributor | Silent Approval |
| ENAIRE | PJ20 W2 Lead Contributor | Silent Approval |
| ENAV | PJ20 W2 Lead Contributor | Silent Approval |
| HC (FSP) | PJ20 W2 Lead Contributor | Silent Approval |
| HAL (SEAC) | PJ20 W2 Lead Contributor | Silent Approval |
| INDRA | PJ20 W2 Lead Contributor | Silent Approval |
| LEONARDO | PJ20 W2 Lead Contributor | Silent Approval |
| LFV (COOPANS) | PJ20 W2 Lead Contributor | Silent Approval |
| MUC (SEAC 2020) | PJ20 W2 Lead Contributor | Silent Approval |
| NATS | PJ20 W2 Lead Contributor | Silent Approval |
| Naviair (COOPANS) | PJ20 W2 Lead Contributor | Silent Approval |
| ON (B4) | PJ20 W2 Lead Contributor | 19/06/2023 |
| PANSA (B4) | PJ20 W2 Lead Contributor | Silent Approval |
| SAAB (NATMIG) | PJ20 W2 Lead Contributor | Silent Approval |
| SINTEF (NATMIG) | PJ20 W2 Lead Contributor | Silent Approval |
| SKYGUIDE | PJ20 W2 Lead Contributor | Silent Approval |
| SNBV (SEAC 2020) | PJ20 W2 Lead Contributor | Silent Approval |
| THALES | PJ20 W2 Lead Contributor | Silent Approval |

### Rejected By - Representatives of beneficiaries involved in the project

| Name and/or Beneficiary | Position / Title | Date |
|---|---|---|
| | | |

## Document History

| Edition | Date | Status | Name / Beneficiary | Justification |
|---|---|---|---|---|
| 00.00.01 | 26/05/2023 | Draft | EUROCONTROL | First draft for review |
| 00.01.00 | 14/06/2023 | Proposed version | EUROCONTROL | Proposed version for PJ20 approval |
| 00.01.01 | 22/06/2023 | Beneficiaries' approved proposed version | EUROCONTROL | For SJU delivery and upload in Horizon2020 |



EUROPEAN PARTNERSHIP

Co-funded by the European Union

# PJ20-W2 AMPLE

PJ20-W2 - MASTER PLANNING

This document is part of a project that has received funding from the SESAR Joint Undertaking under grant agreement No 874475 under European Union's Horizon 2020 research and innovation programme.

## Abstract

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

This Level 3 Implementation Report is based on the Master Plan Level 3 2022 Implementation Plan that included 78 active Implementation Objectives.

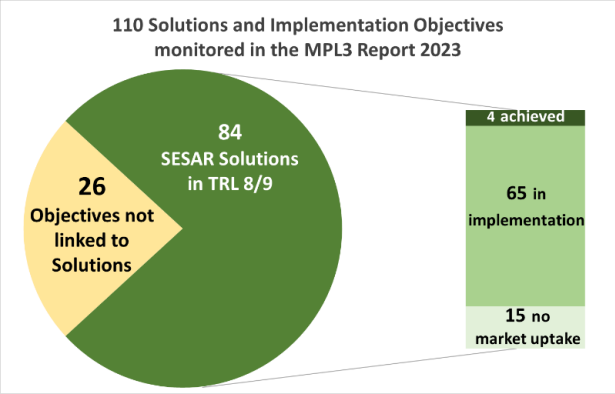


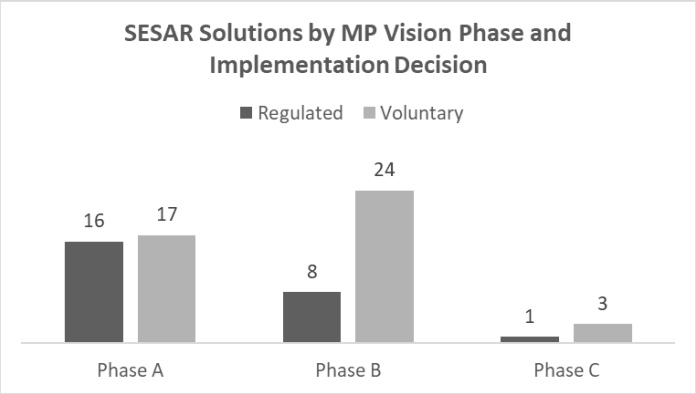
EUROPEAN PARTNERSHIP

Co-funded by the European Union

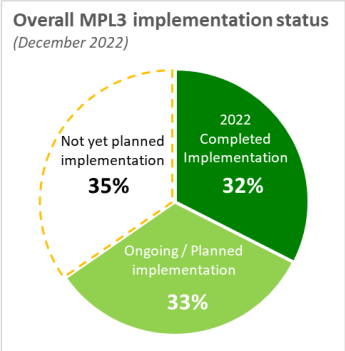
# MASTER PLAN LEVEL 3 IMPLEMENTATION REPORT 2023 DASHBOARD

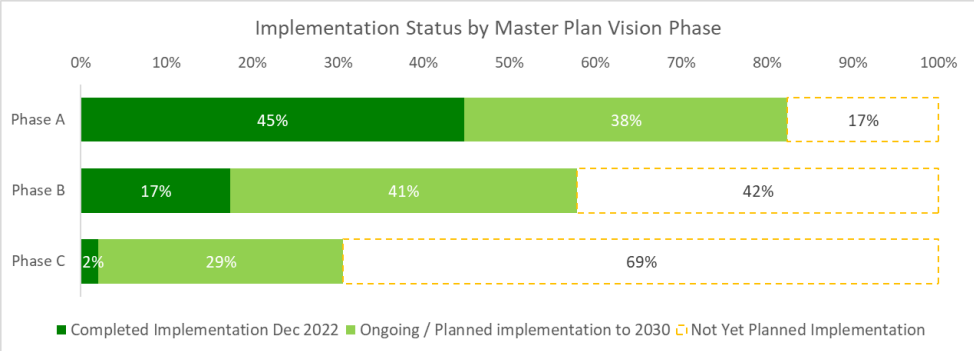
## The SESAR Solutions and the Implementation Objectives Monitored in the MPL3 Implementation Plan



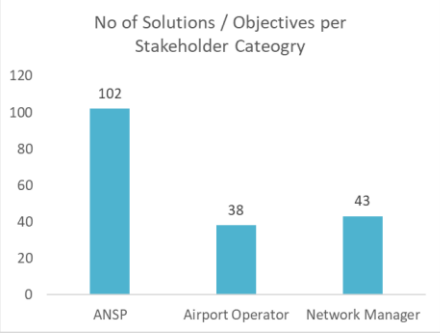



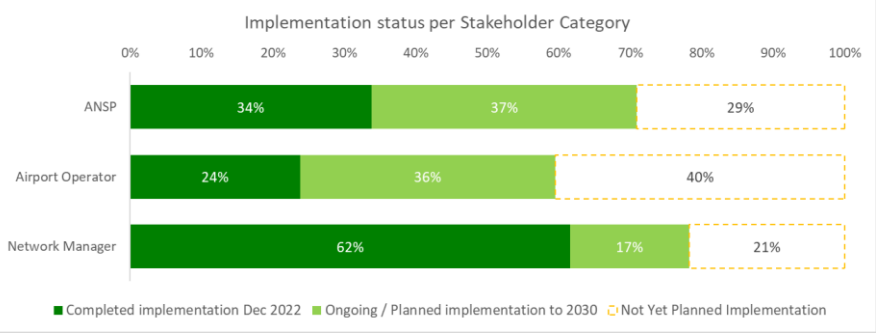

## Overall implementation status in December 2022 and by Master Plan Vision Phase



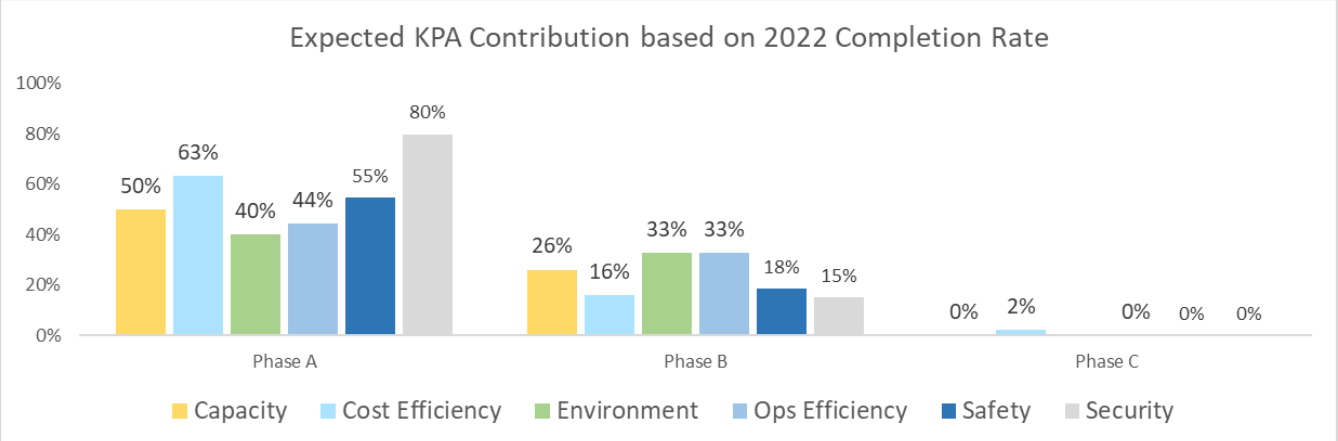




## 2022 Implementation status by Stakeholder Category




## 2022 Contribution to Performance




*Source: DS 22 and LSSIP+ Database*

# EXECUTIVE SUMMARY

The European ATM Master Plan is the main planning tool for setting the ATM priorities and ensuring that the SESAR vision "to deliver a fully scalable traffic management system capable of handling growing air traffic, both manned and unmanned", 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.

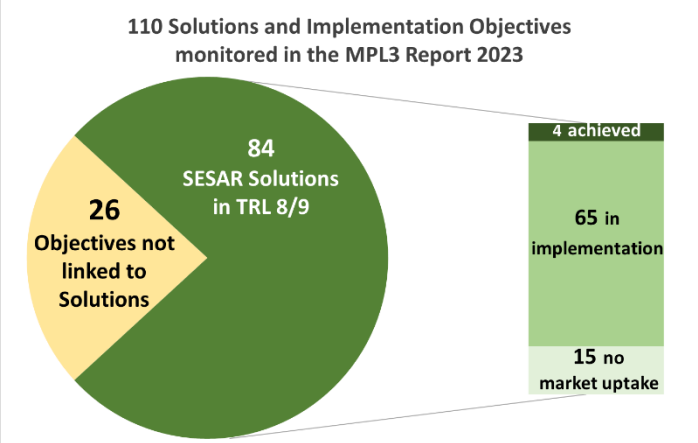
The level 3 of the Master Plan reports on the implementation progress of SESAR for 41 ECAC States plus Israel and Morocco ('ECAC+') and MUAC on a given year, monitored through the LSSIP+ Monitoring Cycle. The monitored elements are SESAR Solutions, new or improved operational procedures or technologies 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 2023 edition of the Implementation Report builds on the Master Plan Level 3 Implementation Plan 2022, and it reports on the status of implementation of SESAR Solutions with a TRL 8/9 maturity level, and related Implementation Objectives, up to 31 December 2022. Considering the ongoing process towards the strengthening and simplification of the Master Plan towards the SESAR 3 framework, this document does not address Solutions in industrialisation. These Solutions are treated within the established stream delivering the future S3JU Strategic Deployment Monitoring Report deliverable, which aims at providing the full picture on deployment, thus on both industrialisation and implementation.

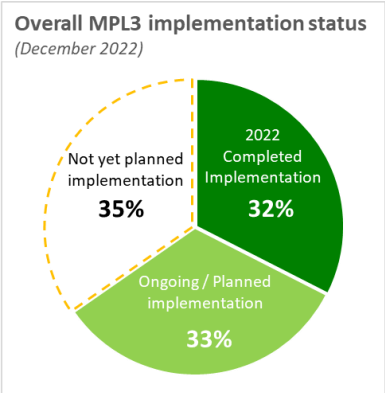
With this premise, the **Solutions in implementation,** therefore monitored in the Master Plan Level 3 Implementation Report 2023, are **84:**

- **4 Solutions** have been achieved[1] during or prior to the current monitoring cycle,
- **65 Solutions** are in implementation,
- **15 Solutions** have no market uptake, i.e., they raised little Stakeholders' interest for their operational implementation.

On top of these 84 Solutions, there are **26 Implementation Objectives** which are not linked to any SESAR Solution but are nevertheless considered essential contributors to the ATM modernisation in ECAC+.




This document aims at providing an accurate picture of the status of implementation focusing on technologies that have an impact on European network and at the Stakeholders' implementation site. Therefore, its statistics will only consider Solutions, and related Implementation Objectives, with market uptake (69), and Implementation Objectives not linked to any Solution but that experience a widespread interest across the monitored area.




At the end of 2022, the **completed implementation** across all States and Airports in the ECAC+ geographical area that committed to implement a given Solution or Implementation Objective reached **32%**. The most significant achievements were accomplished in the areas of Flexible Airspace Management, and Free Route, also thanks to the deadlines set by the CP1 Regulation.

In parallel, Stakeholders are engaged or have firm implementation plans on another 33% of the currently implementable activities until 2030, mainly with regards to SWIM-related Services and Flow Capacity Management Solutions.

The remaining 35% of the potential implementation in the pipeline is not yet planned by Stakeholders. The majority is linked to Solutions (to be) implemented on a voluntary basis to address local operational needs.

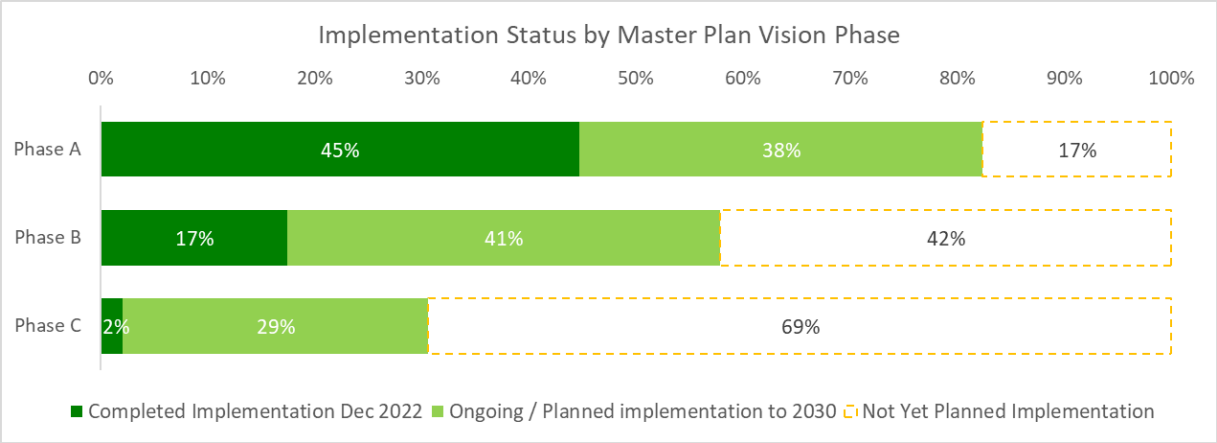
[1] A Solution is achieved if it has been completed by at least 80% of the States / Airports in its applicability area or 100% of the States / Airports in its applicability area in case of a Regulated Solution.


EUROPEAN PARTNERSHIP
Co-funded by the European Union

The Report also 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,
- Phase D – Digital European Sky.

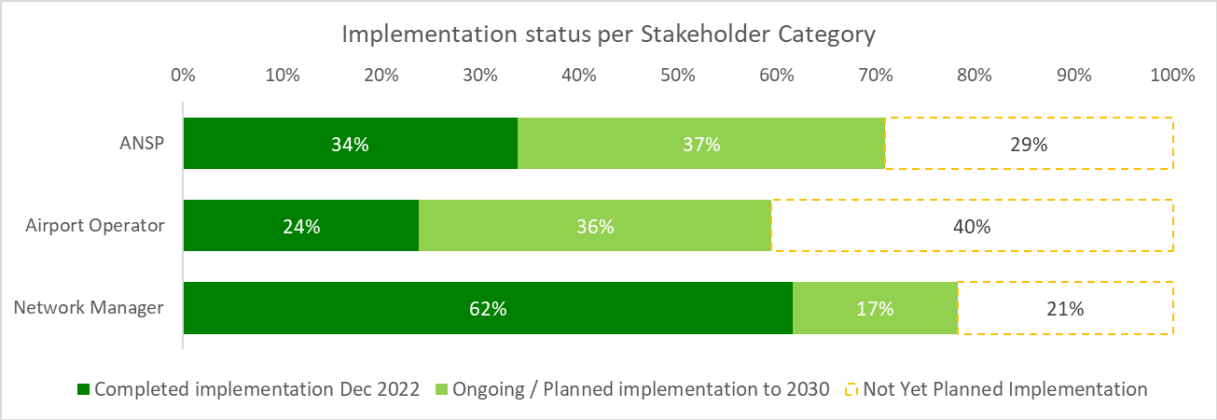
As the Master Plan Level 3 is addressing short and medium implementation timeframes (5-7 years), the document addresses the first three phases. Phase A reached 45% completion due to the achieved Solutions and Implementation Objectives, and thanks to the progress of the CP1 elements related to DMAN synchronised with pre-departure sequencing, Free Route, and Dynamic Sectorisation. The 38% ongoing implementation is mainly due to Extended AMAN, AOP / NOP Integration, and SWIM. Phase B reports a smaller progress, with 75% of the Solutions / Objectives being implemented on a voluntary basis. The majority of the 17% completion is attributed to the implementation of Airspace Management and Advanced Flexible Use of Airspace, and ATFM Slot Swapping. Phase C is the least advanced due to the recent completion of their associated R&D validation activities. Very few Solutions having reached maturity belong to this Phase. They are implemented on a voluntary basis and in few locations.




The implementation status per Stakeholder Category shows that **ANSPs** are quite advanced in the implementation. At the end of 2022, they reached 34% completion thanks to the advanced progress on the Flexible Airspace Management and FRA. Activities are ongoing to bring into operation, among others, CP1-related SWIM Services, Advanced AOP, and the AOP / NOP Integration. The remaining portion of the implementation with no plans is linked to voluntary actions.

**Airports Operators** completed 24% of the foreseen activities which are mainly related to DMAN, A-SMGCS Services, and Continuous Descent Operations (CDO). The ongoing portion is primarily linked to the AOP implementation, the integration between AOP and NOP, and Airport Safety Nets. There are very few plans, instead, for areas such as the more advanced A-SMGCS services.

The **Network Manager** is the most advanced with 62% of its activities already achieved. All SWIM-related Services, but the Meteorological Information Exchange Services, are implemented. The activities to enable the AOP / NOP Information Sharing are ongoing, as well as the tasks linked to the Stakeholder's SWIM PKI and cybersecurity.



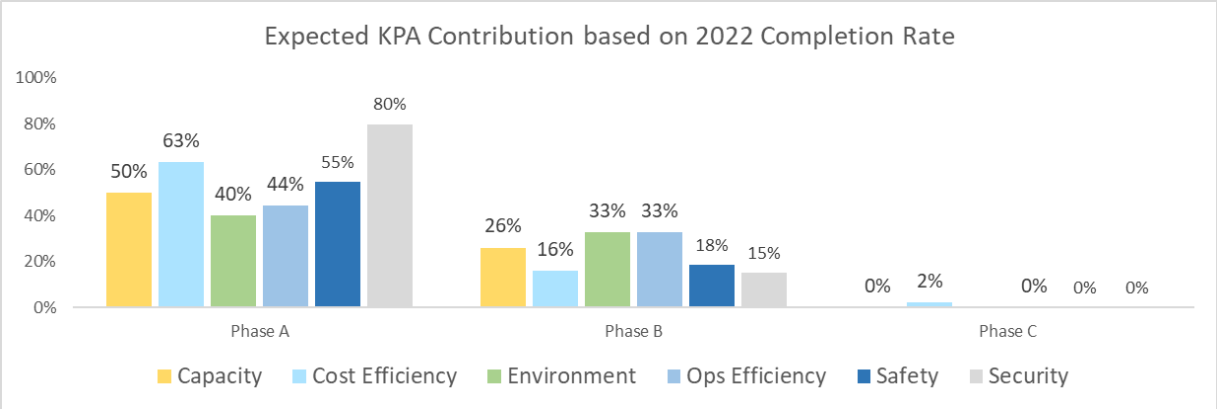



EUROPEAN PARTNERSHIP

Co-funded by the European Union

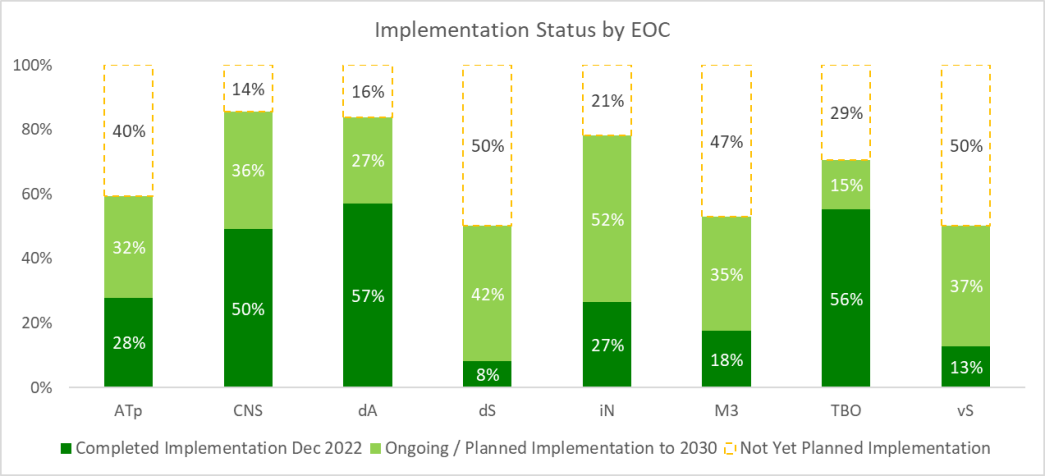
The implementation pace identified above is also reflected in the expected contribution to the Key Performance Areas (KPAs) listed in the Executive view of the Master Plan. The chart below integrates the expected contribution to the six KPAs of each individual SESAR Solution and Implementation Objective. 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 2023 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, considered the more advanced implementation status of its constitutive elements, the Phase A is the most advanced in all the six KPAs.




Following this 2022 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[2] (EOC).

First, it should be noted that during the reporting cycle, 2 CP1 Implementation Objectives reached completion. They are AOM19.4 – Management of Pre-defined Airspace Configurations and AOM21.2 – Initial Free Route. The chart below provides a consolidated view across the EOCs by aggregating the implementation progress to date as well as the plans by 2030.




**Fully Dynamic and Optimised Airspace (dA)** EOC remains the most advanced in terms of implementation. It benefits of the fact that it mainly addresses Regulated and Committed MPL3 elements, therefore its progress is mostly driven by the need for regulatory compliance. The completion rate progress of 13pp recorded in 2022 is mainly due to the fact that several CP1 related Implementation Objectives within the EOC were having a FOC date of 2022 therefore they were subject to particular implementation efforts.

The implementation progress of the **Trajectory Based Operations (TBO)** follows closely, however this progress has to be put in the context of the limited number of MPL3 elements part of the EOC as it only comprises one active pre-SESAR Objective and a "local" one.

The **CNS Infrastructure and Services (CNS)** EOC closely matches the overall progress of top scoring EOCs. This EOC features 8 Active Implementation Objectives, of which 2 are related to SESAR Solutions. The presence of mature elements, pre-dating SESAR, explains both the relatively good completion rate recorded at the end of 2022 as well as expected progress by 2030. The

[2] 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.



Co-funded by the European Union

good progress of the EOC is critical as it provides many of the technical enablers on which subsequent operational improvements will rely.

The **Airport and TMA Performance (ATp)** EOC slightly lags behind the top three performers. The great number of Orphan Solutions, counting for roughly 50% of the elements in this EOC as well as the high number of "local" Objectives showing a modest progress and a high level of "Not Yet Planned", plays a significant role in the implementation pace at EOC level. On the other hand, the progress registered at the end of 2022 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 implementation progress of the **ATM Interconnected Network (iN)** EOC is still low, but this is the EOC showing the highest future increase in terms of planned/ongoing implementation. This is mostly due to the high number (22) of SWIM related elements which are still in early implementation phases, but which are all expected to see a substantial implementation spike in advance of the regulated completion date of 2025.It should be noted that within the EOC, the Network Manager is leading the way by having already implemented most of the actions applicable to it.

The three remaining EOCs, namely **Digital AIM and MET Services (dS)**, **Virtualisation of Service Provision (vS)** and **Multimodal Mobility and Integration of all Airspace Users ($M^3$)** show a less advanced progress towards implementation. Compared to the others, these three EOCs feature on one side a lower number of elements, on the other less mature Solutions that can contribute to the overall implementation.



Co-funded by the European Union

# TABLE OF CONTENTS

# TABLE OF FIGURES

# 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 vision "to deliver a fully scalable traffic management system capable of handling growing air traffic, both manned and unmanned", 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 identifies what needs to be done to deliver a high-performing ATM system, why and by when. It sets the framework for 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 fully aligned with the SESAR Deployment Programme (SDP) of the SESAR Deployment Manager.

The Master Plan is structured in three levels available through the European ATM portal (https://www.atmmasterplan.eu/). The Level 3 "Implementation view" contains the Implementation Plan and the Implementation Report, which in turn is fed by reporting processes such as the LSSIP+ (Local Single Sky ImPlementation) as shown in Figure 2.

The Implementation Objectives, and their link to SESAR Solutions, 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. They also serve 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.


*Figure 1-1 Master Plan Level 3 Yearly Cycle*

## 1.2 MASTER PLAN LEVEL 3 IMPLEMENTATION REPORT 2023

The structure of 2023 Master Plan Level 3 Report (reference year 2022) consists of:

- **Executive Summary,** which highlights the most important findings of the report.
- **Introduction,** which gives the context of the ATM Master Plan Level 3 as the ECAC+ wide implementation monitoring and planning of the Master Plan.
- **ECAC+ Implementation Status 2022,** which provides an overview of the implementation progress across the ECAC+ geographical area at a high-level and from an aggregated perspective.
- **Synoptic View,** which reports on the implementation progress in 2022 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 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 2022 Implementation Plan, reflecting the implementation status as well as the implementation plans on 31st December 2022.

The implementation progress in this report is assessed against the implementation dates set in the Master Plan Level 3 2022 Implementation Plan. These Full Operational Capability (FOC) dates represent the dates agreed by the ATM community and they


EUROPEAN PARTNERSHIP
Co-funded by the European Union

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 implementable SESAR Solutions as Implementation Objectives, some of which relate to the CP1 and its associated Deployment Programme, produced by the SESAR Deployment Manager (SDM). The MP Level 3 Implementation Report aggregates the progress reported in the LSSIP+ database in year-1 by 43 ECAC+ States (41 ECAC States, plus Israel and Morocco) and MUAC, on every active Implementation Objective.

As of 2021, the LSSIP+ process became the only data collection mechanism for both this Report and 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.

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 a more granular level, but also provides more general, ECAC+ wide overview of progress.



Co-funded by the European Union

# 2 ECAC+ IMPLEMENTATION STATUS 2022

The Master Plan Level 3 Implementation Report 2023 reports against the SESAR Solutions that have reached the implementation phase, hence at least a TRL 8/9 maturity level.

Taking this into consideration, the total number of SESAR Solutions monitored in this document is 84, of which 65 included in the original ATM Master Plan 2020 Edition baseline and 19 developed after the delivery of the Master Plan.

These 84 monitored Solutions can be clustered by stage of implementation:

- **4 Solutions** have been achieved[3] during or prior to the current monitoring cycle,
- **65 Solutions** are in implementation,
- **15 Solutions** have no market uptake[4].

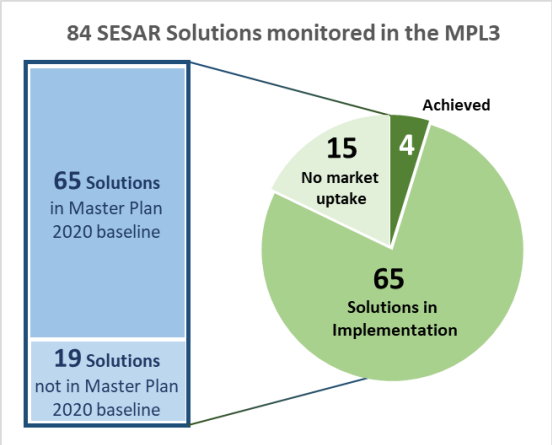



*Figure 2-1 Solutions monitored in the Implementation Report 2023, source: LSSIP+ Dec 2022 and EATMA DS 22*

These SESAR Solutions were developed through specific SESAR R&D Programmes and, in turn, assigned to a Master Plan Vision Phase based on the scope of their innovation features. The chart below shows their distribution according to these two parameters: Master Plan Vision Phase and SESAR R&D Programme.

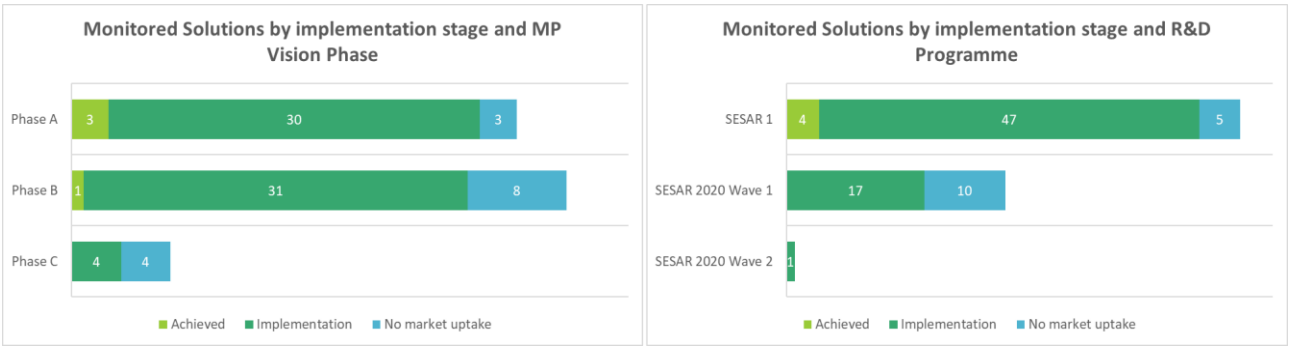



*Figure 2-2 Monitored Solutions by implementation stage, MP Vision Phase, R&D Programme, source: LSSIP+ Dec 2022 and EATMA DS 22*

90% of Solutions achieved or in implementation belong to Phases A and B, hence addressing critical network performance deficiencies and delivering efficient services and infrastructure. These were delivered either by SESAR 1 or SESAR2020 Wave 1.

Solutions with no market uptake are distributed across all three Phases, with the majority in Phase B and delivered by SESAR2020 Wave 1. These Solutions cover technologies that address local operational needs or that Stakeholder did not consider as a priority for implementation, mainly in the area of Airport and TMA Performance, but also CNS, and TBO.

When in implementation phase, Solutions may have different exposure depending on the implementation decision taken over their technologies and the existence of a regulatory instrument addressing them. In this respect, it is important to note that the upcoming paragraphs will only feature statistics related to Solutions achieved and in implementation, thus excluding the ones with no market uptake. The reason behind this decision is to provide an accurate picture of the status of implementation, focusing on technologies with an impact on the European network and at the Stakeholders' implementation site.

The 69 Solutions with positive market uptake can be further classified as:

- **Regulated**, linked to an EU Implementing Rule, such as CP1 (2021/116).
- **Voluntary**, implemented based on local operational needs.

[3] A Solution is achieved if it has been completed by at least 80% of the States / Airports in its applicability area or 100% of the States / Airports in its applicability area in case of a Regulated Solution.

[4] A Solution with no market uptake has, within the LSSIP Applicability Area, either:

- not raised any interest from States/Airports, i.e., no States/Airports implemented or declared plans for implementation.
- raised low interest from States/Airports, i.e., less than 5% of States/Airports implemented or declared plans for implementation.



Co-funded by the European Union

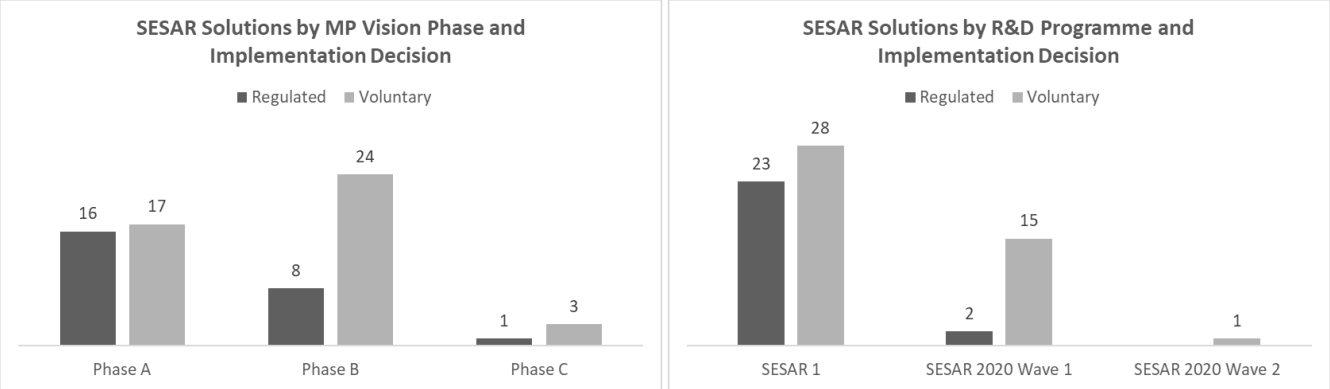



*Figure 2-3 Monitored SESAR Solutions by MP Vision Phase, R&D Programme, Implementation Decision, source LSSIP+ Dec 2022*

CP1-related Solutions were essentially delivered by the SESAR 1 Programme. They represent the majority of the Regulated Solutions in Phase A, and they are mainly linked to Extended AMAN, Airport Integration and Throughput, Flexible ASM, Free Route Airspace, and Network Collaborative Management. Phase B, instead, includes AMAN-DMAN integration and SWIM-related Solutions. The remaining Regulated Solutions concern the Commission Implementing Regulation (EU) 2018/1048 on Performance-Based Navigation. The Voluntary implementations are spread across all Phases.

This Implementation Report also features 26 Implementation Objectives that do not have any link to SESAR Solutions but are nevertheless considered essential contributors to ATM modernisation. 6 of these have already been achieved over previous monitoring cycles, whilst 20 are still progressing towards full implementation and reported upon in the upcoming section.

Taking the above into consideration, the following paragraphs provide an overview of the status of implementation of all elements included in the MPL3 Implementation Report 2023, and specifically:

- **69 SESAR Solutions** with market uptake, linked or not to Implementation Objectives,
- **26 Implementation Objectives**, not linked to any SESAR Solution.

At the end of 2022, the completed implementation, i.e., the number of States / Airports which individually achieved the implementation of a given Solution among the total number of States / Airports planning to implement it, reached 32%. The main contributors are Solutions linked to Flexible Airspace Management and Free Route, TBO and CNS-related Implementation Objectives not linked to any Solution, but also the four achieved Solutions until today:

- #32 Free Route through the use of Direct Routing,
- #56 Enhanced ATFM Slot Swapping,
- #60 Enhanced Short Term Conflict Alert (STCA) for Terminal Manoeuvring Areas (TMAs),
- #65 User Preferred Routing.

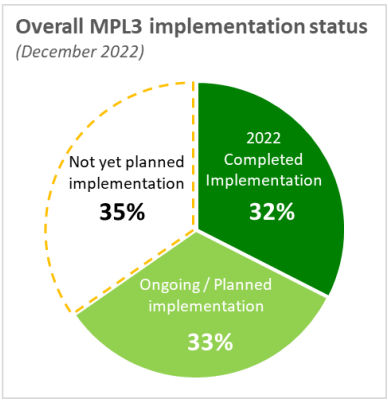



*Figure 2-4 Overall implementation in 2022, source: LSSIP+ Dec 2022*

The ongoing / planned activities represent 33% of the overall implementation status. In this respect, Stakeholders are progressing towards the final entering into operations of the technology, mainly with regards to SWIM-related Services and Flow Capacity Management Solutions.

On the other hand, the remaining 35% of the implementation activities in the pipeline are not yet linked to clear and specific implementation plans from Stakeholders. Very few are Regulated activities, whereas the majority are Solutions implemented on a voluntary basis to address local operational needs.

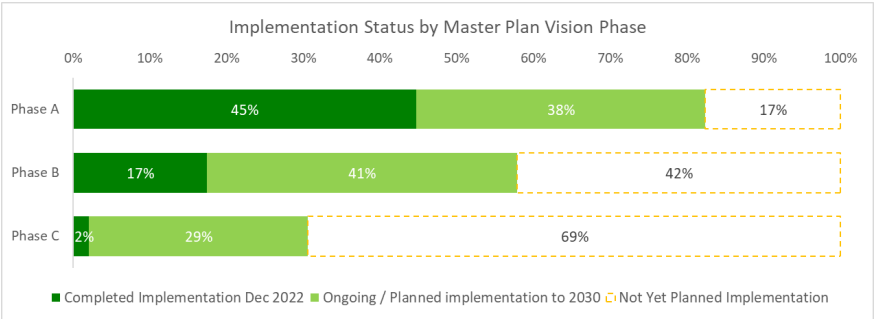



*Figure 2-5 Implementation status by Master Plan Vision Phase, source: LSSIP+ Dec 2022*

When split by Master Plan Vision Phase, the progress shows Phase A is the most advanced (45%) due to the achieved Solutions and Implementation Objectives, but also thanks to the progress of the CP1 elements related to DMAN synchronised with pre-departure sequencing, Free Route, and Dynamic Sectorisation. The 38% ongoing



Co-funded by the European Union

implementation is mainly due to Extended AMAN, AOP / NOP Integration, and SWIM.

Phase B reports a smaller progress, with 75% of the Solutions / Objectives being implemented on a voluntary basis. The majority of the 17% completion is attributed to the implementation of Airspace Management and Advanced Flexible Use of Airspace, and ATFM Slot Swapping.

Phase C is the least advanced due to the recent completion of their associated R&D validation activities. Very few Solutions having reached maturity belong to this Phase. They are implemented on a voluntary basis and in few locations.

The implementation progress per Stakeholder Category is depicted in the following chart.

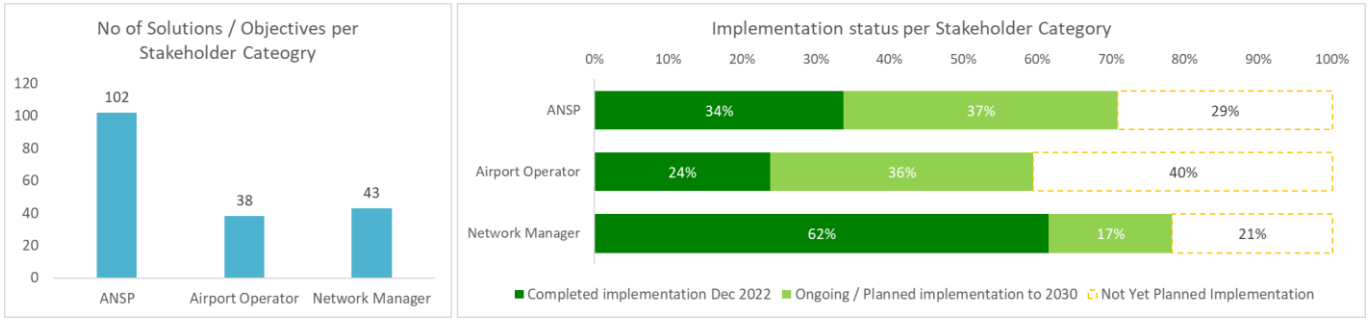



*Figure 2-6 Solutions / Objectives per Stakeholder Category and status of implementation in December 2022, source: LSSIP+ Dec 2022*

Despite the involvement in a high number of Solutions and Objectives (102), **ANSPs** are quite advanced in the implementation. At the end of 2022, they reached 34% completion thanks to the achieved Solutions and Objectives, but mostly from the advanced progress on the Flexible Airspace Management and Free Route Airspace. Activities are ongoing to bring into operation, among others, CP1-related SWIM Services, Advanced AOP, and the AOP / NOP Integration. The remaining portion of the implementation with no plans is linked to voluntary actions.

**Airports Operators** are involved in the implementation of 38 Solutions and Objectives, and they have completed 24% of the foreseen activities which are mainly related to DMAN, A-SMGCS Services, and Continuous Descent Operations (CDO). The ongoing portion is primarily linked to the AOP implementation, the integration between AOP and NOP, and Airport Safety Nets. There are very few plans, instead, for areas such as the more advanced A-SMGCS services.

The **Network Manager** is the most advanced with 62% of its activities already achieved. All SWIM-related Services, but the Meteorological Information Exchange Services, are implemented. The activities to enable the AOP / NOP Information Sharing are ongoing, as well as the tasks linked to the Stakeholder's SWIM PKI and cybersecurity.

The implementation pace identified above is also reflected in the expected contribution to the Key Performance Areas (KPAs) 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 MPL3 Plan 2022, which in turn relies on the information of the Solution Data Packs, or on the EUROCONTROL business cases and analysis, for the Objectives not linked to Solutions. As expected, considered the more advanced implementation status of its constitutive elements, Phase A is the most advanced in all the six KPAs.

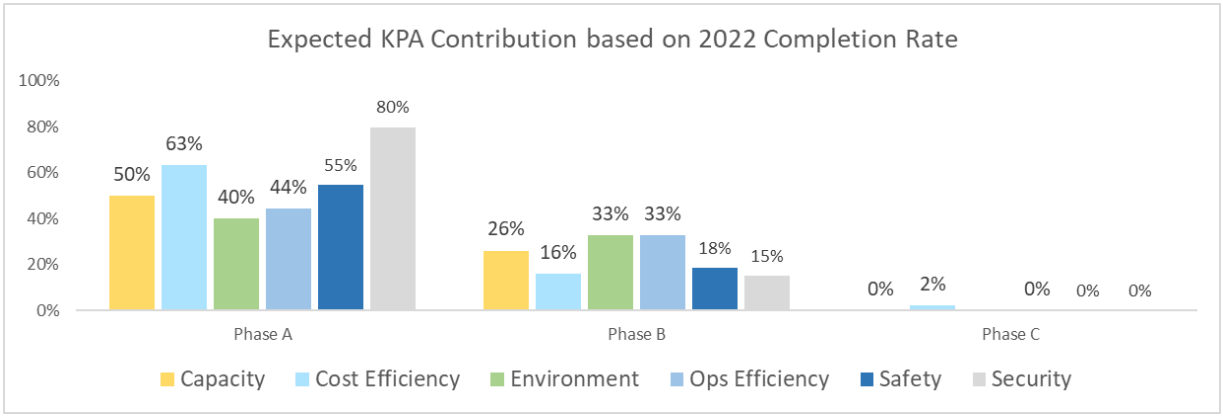



*Figure 2-7 Expected KPA Contribution based on 2022 Completion Rate*



Co-funded by the European Union

# 3 SYNOPTIC 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 ATM Master Plan Vision Phase, and it is supported through the implementation of several Essential Operational Changes (EOCs), fully described in the Executive view of the European ATM Master Plan 2020 edition.

To ensure full coherence across the three Levels of the Master Plan, this Implementation Report is structured based on EOCs. Each EOC of the Master Plan 2020 Edition, but U-Space, is described hereafter in a "Synoptic View", summarising the 2022 evolution of the SESAR Solutions / Implementation Objectives included in each EOC and providing estimations for their short-term developments.

The upcoming sections feature, as in the introductory chapter, Solutions and Objectives with market uptake, therefore:

- **69 SESAR Solutions**, linked or not to Implementation Objectives,
- **26 Implementation Objectives,** not linked to any SESAR Solution.

Based on the links to Implementation Objectives, the 69 SESAR Solutions[5] in implementation are either:

- **Committed**, hence linked to Implementation Objective(s) and, in turn, implemented in a regulated or voluntary way
- **Orphan**, implemented by Stakeholders in a voluntary way without coordination at European level. The evolution of the Committed Solutions can be derived from the progress of the objective itself. Orphan Solutions, instead, are monitored thanks to a dedicated questionnaire included in the LSSIP+ process. This exercise aims at collecting information on whether a Solution has been implemented or if there are any plans for implementation.

The charts below provide an overview of the 69 SESAR Solutions in implementation and the 26 Implementation Objectives not linked to any Solution split by EOC and, in turn, by Master Plan Vision Phase and by SESAR R&D Programme. Airport and TMA Performance is the most populated, with most Solutions belonging to Phase A and Pre-SESAR or SESAR 1. ATM Interconnected Network and Fully Dynamic Airspace Configuration closely follow with a similar pattern, as Solutions are mostly in Phase A and developed wither pre-SESAR or during SESAR 1 R&D Programme.

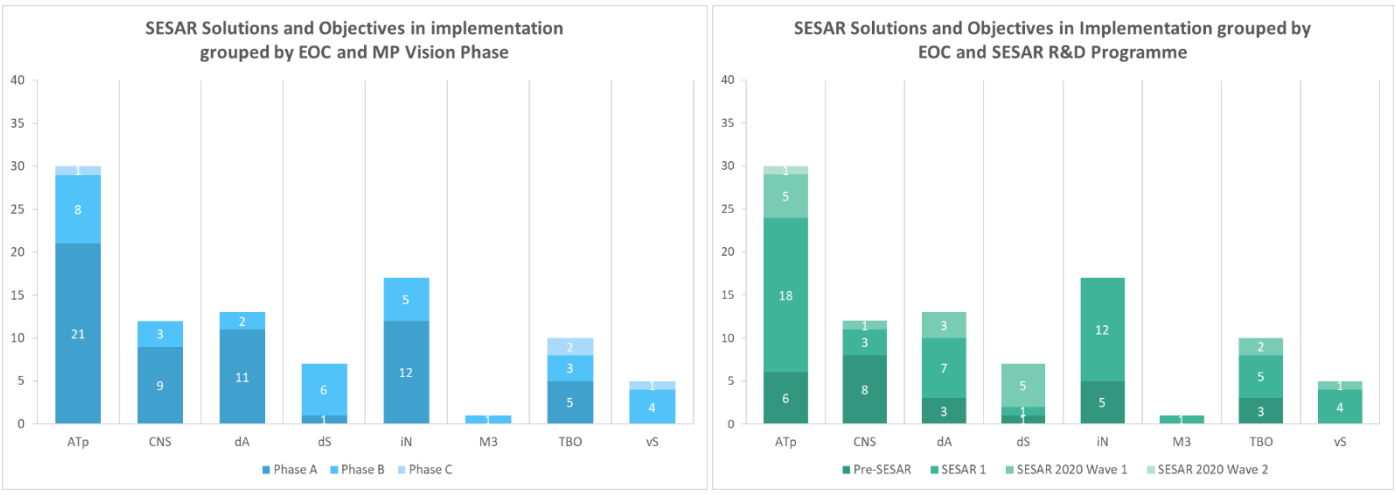



*Figure 3-1 SESAR Solutions / Objectives in implementation grouped by EOC, MP Vision Phase, R&D Programme, source: LSSIP+ Dec 2022*

[5] The Level 3 Implementation Report 2022 covers SESAR Solutions that were validated by SESAR 1, SESAR2020 Wave 1 and Wave 2.


EUROPEAN PARTNERSHIP
Co-funded by the European Union

The implementation progress by EOC is available in the chart below. Fully Dynamic Airspace Configuration is the most advanced with 57% completion rate due to the progress of Free Route implementation across ECAC+. TBO and CNS closely follow, also thanks for the limited number of elements in implementation included in the EOC.

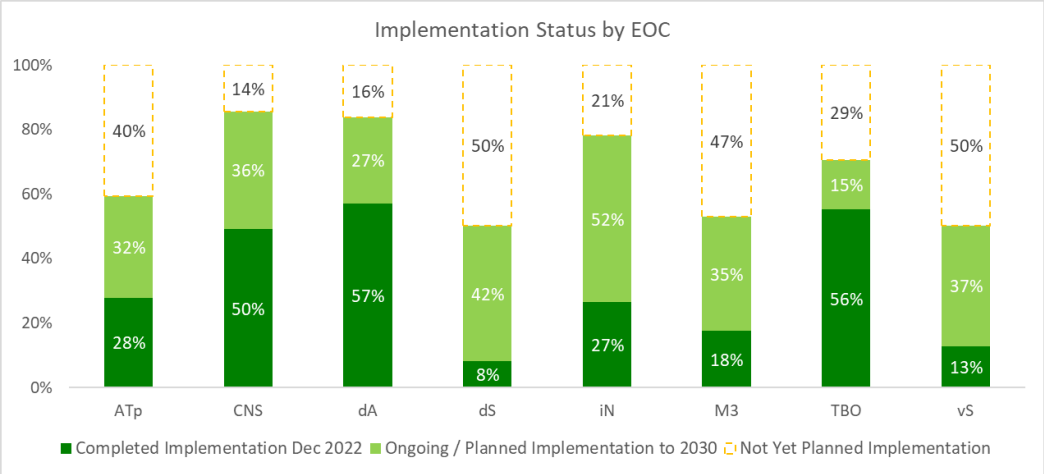



*Figure 3-2 Implementation Status of SESAR Solutions and Implementation Objectives by EOC, source: LSSIP+ Dec 2022*

## ALLOCATION OF IMPLEMENTATION OBJECTIVES PER EOC

The following table maps each Active or Initial Objective in implementation to the related Essential Operational Change and SESAR R&D Programme. In total, this document reports on 78 Active Implementation Objectives and 6 Initial Implementation Objectives, monitored via the SESAR Solution Questionnaire mentioned in the previous paragraph.

| EOC | Pre-SESAR | SESAR 1 | SESAR 2020 W1 |
|---|---|---|---|
| CNS CNS infrastructure and services | COM10.2<br>COM11.1, COM11.2<br>ITY-ACID, ITY-AGDL, ITY-AGVCS2 | COM13<br>NAV10 | |
| iN ATM interconnected network | AOM13.1<br>COM12<br>FCM03 | AOP11.1, AOP11.2, AOP17<br>FCM04.2, FCM06.1, FCM10, FCM11.1, FCM11.2<br>INF10.2 to INF10.23 | |
| dS Digital AIM and MET services | INF07 | | INF11.1 (PJ.18-04b-01)<br>INF11.2 (PJ.18-04b-02) |
| ATp Airport and TMA performance | AOP04.2, AOP05<br>ATC07.1<br>SAF11.1<br>ENV02, ENV03 | AOP04.1, AOP10, AOP12.1, AOP13, AOP15, AOP16, AOP18, AOP19, AOP25<br>ATC19, ATC26, ENV01<br>NAV03.1, NAV03.2, NAV11.1 | AOP26<br>AOP21 (PJ.02-01-04)<br>AOP20 (PJ.02-01-06)<br>AOP23 (PJ.02-08-01)<br>AOP24 (PJ.02-08-02) |
| dA Fully dynamic and optimised airspace | ATC15.1<br>ITY-FMTP<br>SAF10.1 | AOM19.4, AOM19.5<br>AOM21.2<br>ATC12.1, ATC15.2, ATC18 | AOM21.3 |
| TBO Trajectory -based operations | ATC02.8 | ATC20 | |
| M3 Multimodal mobility and integration of all airspace users | | NAV12 | |
| vS Virtualisation of service provision | | AOP14.1 | |



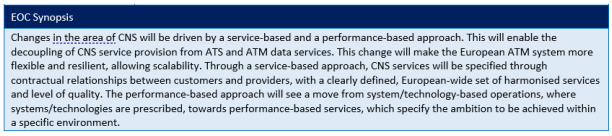
Co-funded by the European Union

## 3.1 How to read the Individual Synoptic View

Each Synoptic View groups the elements of this Implementation Plan by Essential Operational Change (EOC) as identified in the Executive view of the European ATM Master Plan 2020 edition. 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 2022 LSSIP+ cycle, reflecting the implementation status as of the 31st December 2022.

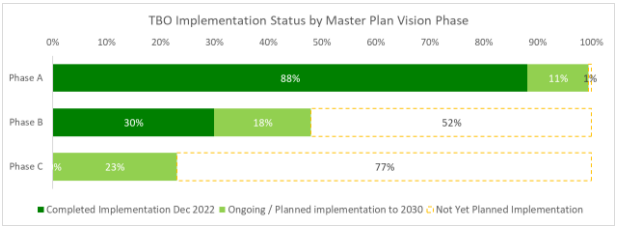
### Introduction to the EOC


- 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.

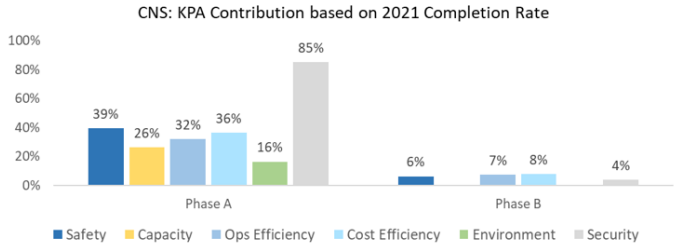
### Implementation status by Master Plan Vision Phase




The chart shows:

- The completed implementation in 2022, including SESAR Objectives achieved over previous monitoring cycles.
- The ongoing / planned implementation until 2030.
- The remaining implementation, Not Yet Planned by Stakeholders.

### Expected KPA contribution to the EOC based on the 2022 completion rate




- The chart shows the expected KPA contribution to the EOC based on the 2022 completion rate per Master Plan Vision Phase.
- Once the EOC implementation is completed, all indicators should mark a progress between 80% (achievement threshold for non-regulated Objectives) and 100%.
- Achieved Objectives over previous monitoring cycles are included in the calculations, when applicable.

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

| Phase A Objectives / Solutions | Phase B Objectives / Solutions |
|---|---|
| **ITY-AGVCS2**<br>8.33 kHz A/G Voice Channel Spacing below FL195 | **#109**<br>Air Traffic Services datalink using SatCom Class B |
| **COM11.2**<br>VoIP in Airport/Terminal | **#110**<br>ADS-B surveillance of aircraft in flight and on the surface |
| **NAV10**<br>RNP Approach Procedures to instrument RWY | **#114 (ATC21)**<br>Composite Surveillance (ADS-B/WAM) |
| **COM11.1**<br>VoIP in En-Route | **PJ.14-02-06**<br>AeroMACs integrated with ATN, Digital Voice and Multilink |
| **ITY-AGDL**<br>Initial ATC air-ground data link services | **PJ.14-03-04**<br>RNP1 reversion based on DME/DME |

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

### Implementation Status at the end of 2022: 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 2022 monitoring cycle, and in particular:

- The Objective Code.
- The SESAR Solution, if any, linked to the Objective.
- The delta of States/Airports that completed the Objective in 2022 vs the previous year.
- The list of States/Airports that completed the objective in 2022. The ones in red between brackets, e.g. (CZ), reverted their status from "Completed" to another.
- The Completion Rate in 2022 and the increase in percentage points (pp) vs 2021.
- The estimated completion date, coloured depending on the status of the Objective (Achieved, On time, Planned delay, Late) against the FOC date.



Co-funded by the European Union

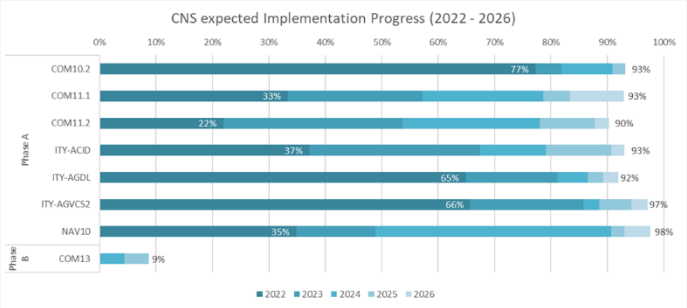
### Implementation Status at the end of 2022: Orphan SESAR Solutions and Initial Objectives

| 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 Solutions linked to an Initial Objective. It relies on the data collected through the SESAR Solutions questionnaire, 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 2022, calculated against the number of applicable respondents.
- The number of States reporting an " Ongoing" or "Planned" status.

### Expected EOC Implementation Progress (2022 – 2026)




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.





Co-funded by the European Union

## 3.2 CNS Infrastructure and Services

| | |
|---|---|
| CNS infrastructure and services | ❖ 4 SESAR Solutions out of 84 of which:<br>○ 2 addressed by Active Objectives<br>○ 2 Orphans<br>❖ 6 Active Objectives not linked to any Solution |

**EOC Synopsis**

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. Among the Solutions / Objectives with market uptake, it will expectedly reach almost 100% completion for Phase A within 2030, whilst around 30% for Phase B. In terms of impacted Key Performance Areas, Phase A averaging a 50% 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 implementation status of the CNS Infrastructure and Services EOC, and the expected KPA contribution based on the 2022 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

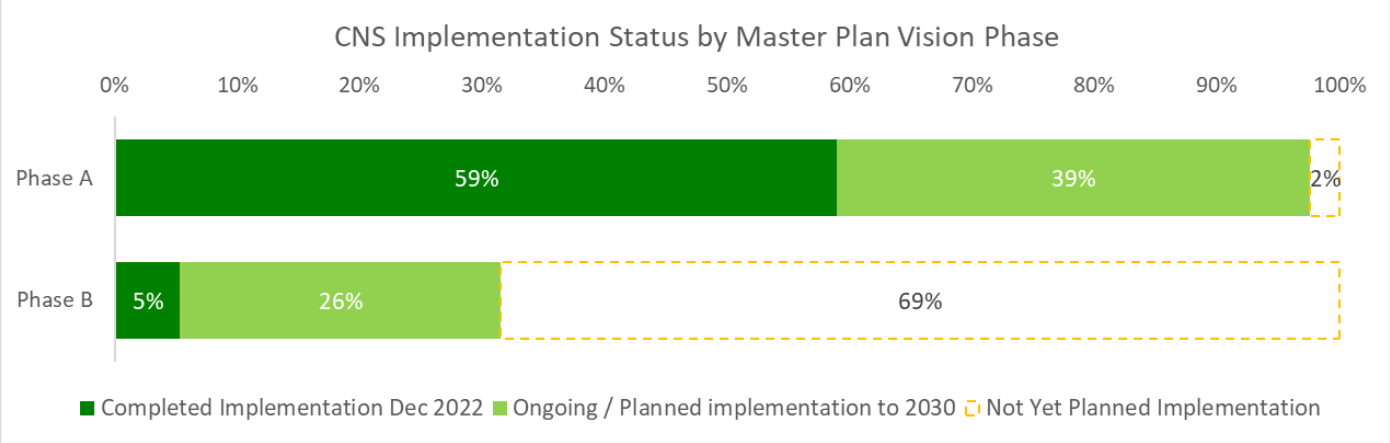



*Figure 3-3 CNS implementation status, split by Master Plan Vision Phase, source: LSSIP+ Dec 2022*

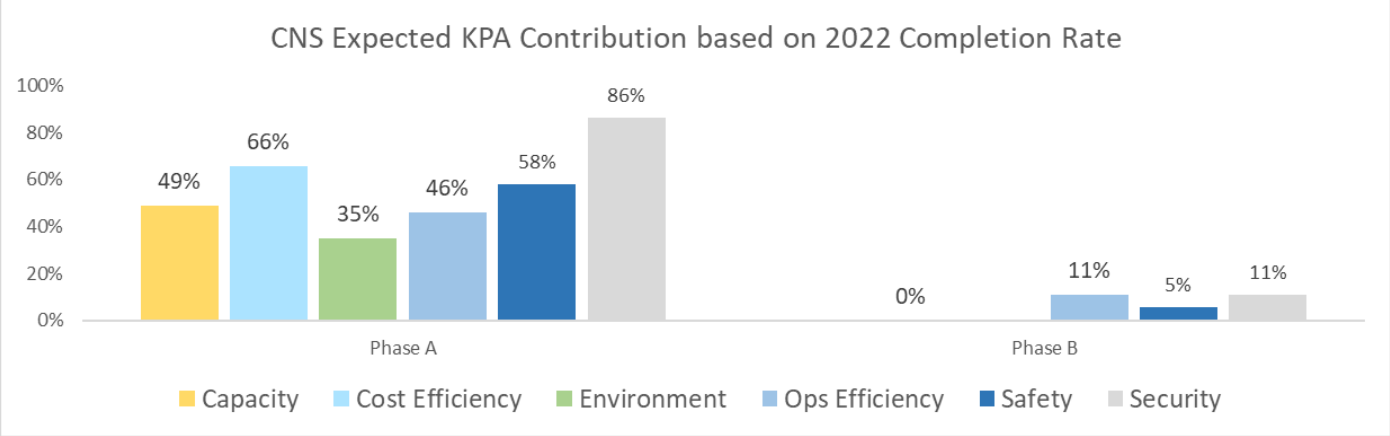



*Figure 3-4 Expected KPA contribution to the CNS EOC based on the 2022 Completion Rate, source: LSSIP+ Dec 2022*



Co-funded by the European Union

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 |
|---|---|
| **COM10.2**<br>Extended AMHS | **COM13**<br>Air Traffic Services datalink using SatCom Class B |
| **COM11.1**<br>VoIP in En-Route | **PJ.14-03-04**<br>RNP1 reversion based on DME/DME |
| **COM11.2**<br>VoIP in Airport/Terminal | |
| **ITY-ACID**<br>Aircraft identification | |
| **ITY-AGDL**<br>Initial ATC air-ground data link services | |
| **ITY-AGVCS2**<br>8.33 kHz A/G Voice Channel Spacing below FL195 | |
| **NAV10**<br>RNP Approach Procedures to instrument RWY | |
| **#102**<br>Aeronautical mobile airport communication system (AeroMACS) | |

## Implementation Status at the end of 2022

The table below summarises the progress of the CNS-related Implementation Objectives over the 2022 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 2022 vs 2021 | States / Airports completing the Objective in 2022 | 2022 Completion Rate (Δ vs 2021) | Estimated achievement |
|---|---|---|---|---|---|
| COM10.2 | - | 0 | - | 77% (0 pp) | 2023 |
| COM11.1 | - | 3 | IE, MA, TR | 33% (8 pp) | 2025 |
| COM11.2 | - | 0 | - | 22% (0 pp) | 2025 |
| COM13 | #109 | 0 | - | 0% (0 pp) | Not Available |
| ITY-ACID | - | -1 | LU, (BA), (LT) | 37% (-2 pp) | 2025 |
| ITY-AGDL | - | -1 | CY, (AZ), (MT) | 65% (1 pp) | 2023 |
| ITY-AGVCS2 | - | 3 | BE, HU, PL | 66% (10 pp) | 2024 |
| NAV10 | #103 | 1 | AT, EE, LV, (HR), (HU) | 35% (3 pp) | 2026 |

**Legend:** Achieved | On Time | Planned delay | Late

- Overall, the CNS-related implementation Objectives maintained the implementation pace shown in the previous years.
- Even of no States have achieved completion in 2022, **COM10.2** is still expected to be finalised “On time”, taking into account that it has already reached 77% completion and that 2 other States are expected to finalise deployment in 2023, getting it over the 80% completion threshold, applicable to “non-regulated” Objectives.
- **COM11.2** will likely be implemented beyond its FOC date, hence the “Planned delay” status. The progress increase in 2021 has not been maintained in 2022 (no States have finalised deployment in 2022) and the current estimates show that the completion threshold will not be reached before 2025.
- Compared with the previous edition of the Report, the “Estimated Achievement” status of NAV10 changed from “On Time” to “Planned delay”. Even if very good progress is expected to be achieved before its FOC date (2024) as the Implementation Objective is backed by an EU Regulation (PBN IR), full completion across the EU Member States will only be achieved in 2026.
- **COM13** has been monitored for the first time during this reporting cycle and the interest in deployment is still very modest, while the vast majority of stakeholders have not yet decided on the need for implementation.


EUROPEAN PARTNERSHIP
Co-funded by the European Union

The other Objectives are "Late", as the FOC date already passed. Out of those, **COM11.1** and **ITY-AGVCS2** have recorded a good progress of their completion rates (around 10 percentage points each) while for the others (**ITY-ACID** and **ITY-AGDL)** the overall implementation has stagnated or suffered a reduction as some States have reverted the "Completed" status. However, it is important to note that for all these Objectives, local, punctual progresses have been achieved during the reporting year, bringing them closer to completion. The CNS EOC also encompasses 2 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, which have passed the Industrialisation phase, building on the data collected through the SESAR Solutions questionnaire during the 2022 LSSIP+ monitoring cycle.

| Solution Reference | Solution / Objective Title | Objective Code | Deployment Status | States replying to Questionnaire | Completion Rate in 2022 | States "Ongoing" or "Planned" |
|---|---|---|---|---|---|---|
| PJ.14-03-04 | RNP 1 reversion based on DME/DME | - | Implementation | 42 | 11% | 11 |
| #102 | Aeronautical mobile airport communication system (AeroMACS) | - | No market uptake | 40 | 0% | 0 |

- Stakeholders showed the highest interest for Solution **PJ.14-03-04** RNP1 reversion based on DME/DME, while Solution #102 on AeroMACS raised no interest in implementation.

## Expected EOC Implementation Progress (2022 – 2026)

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.

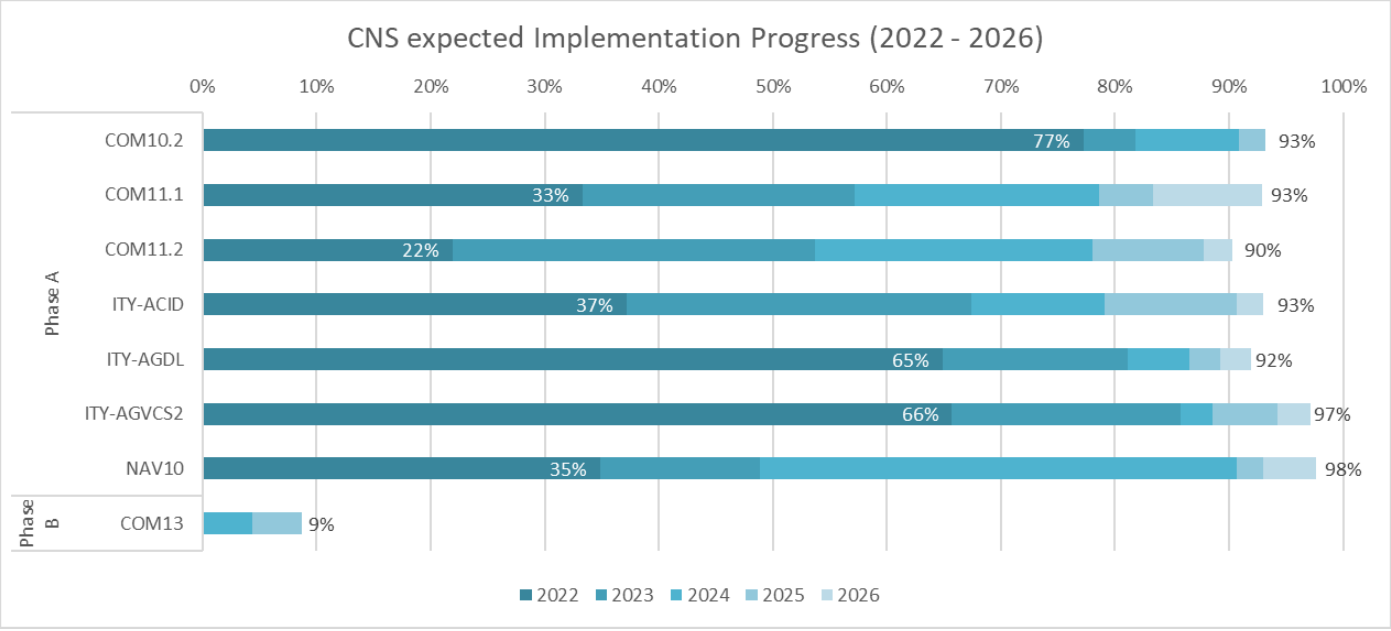



*Figure 3-5 CNS expected implementation progress (2022 - 2026), source: LSSIP+ Dec 2022*

- In 2023, many Objectives within the EOC, including the ITY-Objectives, expect a surge in their Completion rates (between 20 and 30 pp). Among them, **COM10.2** is expected to reach the completion threshold.

## 3.3 ATM Interconnected Network

| | |
|---|---|
| iN ATM interconnected network | ❖ 14 SESAR Solutions out of 84 of which:<br>○ 1 addressed by 1 Achieved Objective<br>○ 9 addressed by 30 Active Objectives<br>○ 4 Orphans<br>❖ 3 Active Objectives not linked to any Solution |

**EOC Synopsis**

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

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. Among the Solutions / Objectives with market uptake, it will expectedly reach a 80% completion for Phase A within 2030, and 70% for Phase B. Phase C includes one Solution with no market uptake, therefore not reported in the chart. 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 implementation status of the ATM Interconnected Network EOC and the expected KPA contribution based on the 2022 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

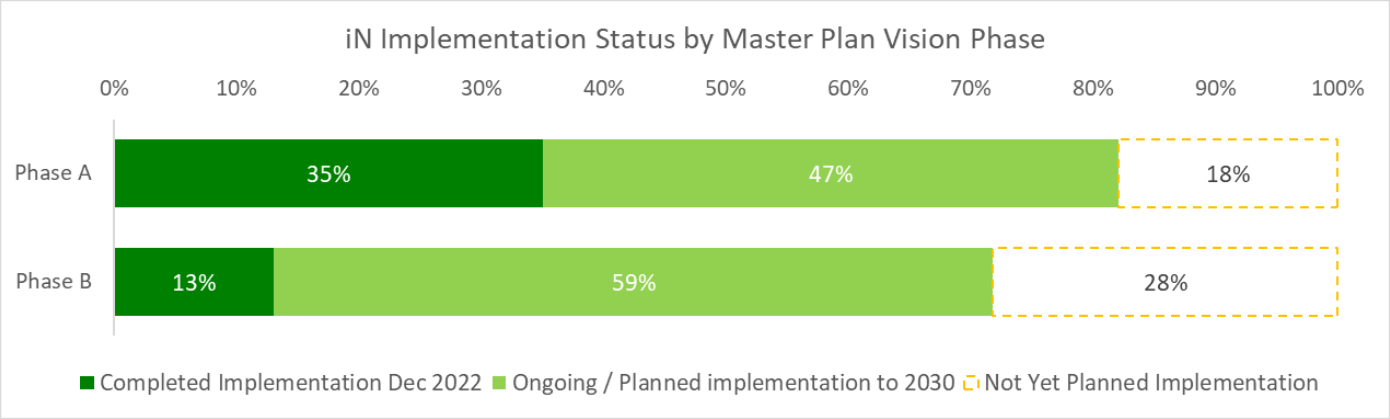



*Figure 3-6 iN implementation status, split by Master Plan Vision Phase, source: LSSIP+ Dec 2022*

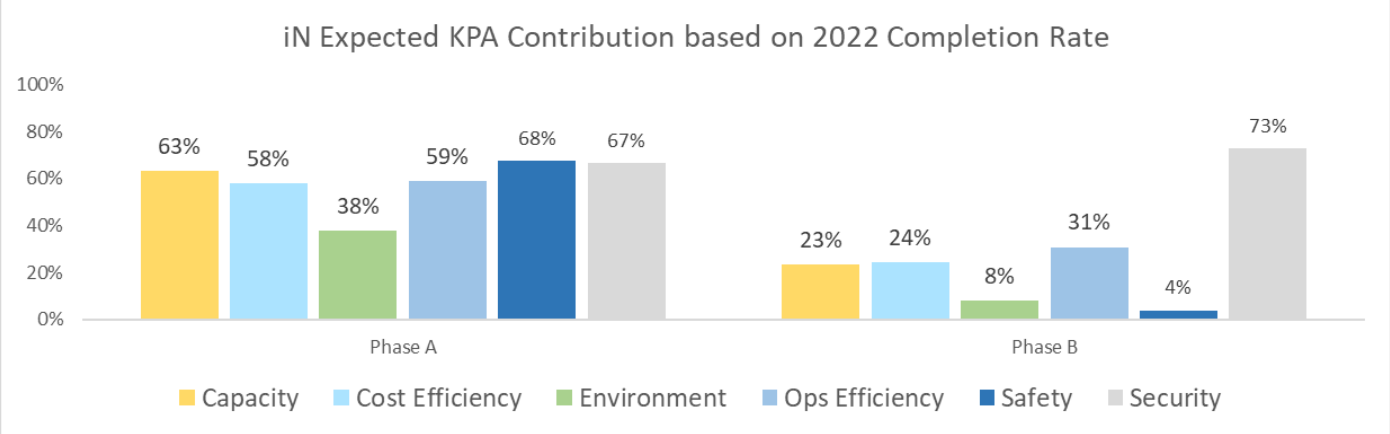



*Figure 3-7 Expected KPA contribution to the iN EOC based on the 2022 Completion Rate, source: LSSIP+ Dec 2022*





Co-funded by the European Union

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 |
|---|---|---|
| **AOM13.1**<br>Harmonise OAT and GAT handling | **AOP11.1**<br>Initial Airport Operations Plan | **PJ.15-01**<br>Initial Sub-regional Demand Capacity Balancing Service |
| **AOP17**<br>Provision/integration of DEP planning info to NMOC | **AOP11.2**<br>Extended Airport Operations Plan | |
| **FCM03**<br>Collaborative flight planning | **COM12**<br>NewPENS | |
| **FCM04.2**<br>Enhanced Short Term ATFCM Measures | **FCM11.1**<br>Initial AOP/NOP Information Sharing | |
| **FCM06.1**<br>Traffic Complexity Assessment | **FCM11.2**<br>AOP/NOP integration | |
| **FCM10**<br>Interactive rolling NOP | **INF10.6**<br>Aeronautical Information Exchange - Digital NOTAM service | |
| **INF10.2**<br>Stakeholders' SWIM PKI and cybersecurity | **INF10.7**<br>Aeronautical Information Exchange - Aerodrome Mapping information exchange | |
| **INF10.3**<br>Aeronautical Information Exchange - Airspace structure service | **INF10.8**<br>Aeronautical Information Exchange - Aeronautical Information Features service | |
| **INF10.4**<br>Aeronautical Information Exchange - Airspace availability service | **INF10.9**<br>Meteorological Information Exchange - Volcanic ash mass concentration information | |
| **INF10.5**<br>Aeronautical Information Exchange - Airspace Reservation (ARES) service | **INF10.10**<br>Meteorological Information Exchange - Aerodrome Meteorological information | |
| **INF10.13**<br>Cooperative Network Information Exchange - ATFCM Tactical Updates Service | **INF10.11**<br>Meteorological Information Exchange - En-Route and APCH Met information service | |
| **INF10.14**<br>Cooperative Network Information Exchange - Flight Management Service | **INF10.12**<br>Meteorological Information Exchange - Network Manager Meteorological Information | |
| **INF10.15**<br>Cooperative Network Information Exchange - Measures Service | **#37**<br>Extended Flight Plan | |
| **INF10.16**<br>Cooperative Network Information Exchange - Short Term ATFCM Measures services | **#67**<br>AOC data increasing trajectory prediction accuracy | |
| **INF10.17**<br>Cooperative Network Information Exchange - Counts service | | |
| **INF10.18**<br>Flight Information Exchange (Yellow Profile) – Filing Service | | |
| **INF10.19**<br>Flight Information Exchange (Yellow Profile) – Flight Data Request Service | | |
| **INF10.20**<br>Flight Information Exchange (Yellow Profile) – Notification Service | | |
| **INF10.21**<br>Flight Information Exchange (Yellow Profile) – Data Publication Service | | |
| **INF10.22**<br>Flight Information Exchange (Yellow Profile) – Trial Service | | |
| **INF10.23**<br>Flight Information Exchange (Yellow Profile) – Extended AMAN SWIM Service | | |
| **#57**<br>UDPP Departure | | |





Co-funded by the European Union

## Implementation Status at the end of 2022

The table below summarises the progress of the iN-related Implementation Objectives over the 2022 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 2022 vs 2021 | States / Airports completing the Objective in 2022 | 2022 Completion Rate (Δ vs 2021) | Estimated achievement |
|---|---|---|---|---|---|
| AOM13.1 | - | 2 | NO, UK | 67% (6 pp) | 2023 |
| AOP11.1 | #21 | 2 | EKCH, LIRF | 16% (6 pp) | 2023 |
| AOP11.2 | #21 | 0 | - | 0% (0 pp) | Not Available |
| AOP17 | #61 | 6 | LFBO, LFML, LGMT, LGRP, LGSM, LGTS | 56% (12 pp) | 2023 |
| COM12 | - | 0 | - | 73% (0 pp) | 2023 |
| FCM03 | - | 1 | LU, PT, (FI) | 55% (2 pp) | 2023 |
| FCM04.2 | #17 | 18 | 19 EU States, (UK) | 65% (49 pp) | 2024 |
| FCM06.1 | #19, PJ.18-02c | 10 | AT, BE, DK, FR, IE, LU, NL, RO, ES, UK | 44% (23 pp) | 2024 |
| FCM10 | #18, #20 | 5 | BE, CZ, HU, LU, ME, RS, (DK) | 23% (13 pp) | 2027 |
| FCM11.1 | #20, #21 | 0 | - | 0% (0 pp) | 2023 |
| FCM11.2 | #18, #20, #21 | 0 | - | 0% (0 pp) | Not Available |
| INF10.2 | #46 | 0 | - | 0% (0 pp) | 2025 |
| INF10.3 | #46 | 1 | FI, NO, CH, (CZ), (PT) | 47% (2 pp) | 2025 |
| INF10.4 | #46 | 2 | EE, FI, NO, CH, (CZ), (PT) | 42% (4 pp) | 2025 |
| INF10.5 | #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.6 | #34, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.7 | #34, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.8 | #34, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.9 | #34, #35, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.10 | #34, #35, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.11 | #34, #35, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.12 | #34, #35, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.13 | #46 | 1 | HU | 14% (4 pp) | Not Available |
| INF10.14 | #46 | 1 | HU | 8% (4 pp) | Not Available |
| INF10.15 | #46 | 1 | ES | 19% (3 pp) | Not Available |


EUROPEAN PARTNERSHIP
Co-funded by the European Union

| | | | | | |
|---|---|---|---|---|---|
| INF10.16 | #46 | 1 | FR | 10% (5 pp) | Not Available |
| INF10.17 | #46 | 2 | BE, LU | 32% (11 pp) | Not Available |
| INF10.18 | #46 | 0 | - | 50% (0 pp) | 2025 |
| INF10.19 | #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.20 | #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.21 | #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.22 | #46 | 0 | - | 100% (0 pp) | 2021 |
| INF10.23 | #46 | -2 | (FR), (UK) | 0% (-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. During the reporting year, only 2 States have finalised implementation, however, based on the current planning, the implementation will be achieved in 2023, when six other States are expected to report completion.
- **FCM03**, **FCM04.2** and **FCM06.1** are also labelled as "Late" as their FOC dates have passed at the end of 2022 and the implementation is only expected to be finalised by 2024. However the good progress of the completion rates achieved in 2022 has to be recognised, in particular for FCM06.1 for which 10 States finalised implementation in 2022.
- Eight Objectives, all but 2 being new Objectives created in 2021, are expected to be implemented "On time" that is, within the FOC date. Among the eight, four Objectives (**AOP11.1**, **AOP17**, **COM12** and **FCM11.1**) are expected to be completed in 2023, **COM12** currently having the highest completion rate (73%).
- **AOP17** is a "local" Objective without a predefined applicability area nor a FOC date. Its expected completion is relative to the airports which have currently voluntarily joined its applicability area.
- **INF10.22** has been completed in 2021 is now in operational use in the applicability area. The Objective is still listed in the Report due to its direct link to the CP1 Regulation.

The iN EOC also encompasses four SESAR Solutions not subject to any Objective ("Orphan Solutions"). The table below provides few insights on the implementation progress of those Solutions which have passed the Industrialisation phase, building on the data collected through the SESAR Solutions questionnaire during the 2022 LSSIP+ monitoring cycle.

| Solution Reference | Solution / Objective Title | Objective Code | Deployment Status | States replying to Questionnaire | Completion Rate in 2022 | States "Ongoing" or "Planned" |
|---|---|---|---|---|---|---|
| #37 | Extended Flight Plan | - | Implementation | 32 | 0% | 5 |
| #57 | UDPP Departure | - | Implementation | 41 | 11% | 8 |
| #67 | AOC data increasing trajectory prediction accuracy | - | Implementation | 40 | 7% | 2 |
| PJ.15-01 | Initial Sub-regional Demand Capacity Balancing Service | - | No market uptake | 38 | 6% | 0 |

- Solution **#57** seems to trigger most of the interest in deployment.
- For Solution PJ.15-01 it does not seem to be any market uptake while Solution **#37** is overtaklen by events as the CP1 Regulation is mandating the deployment of FF-ICE1.



Co-funded by the European Union

## Expected EOC Implementation Progress (2022 – 2026)

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.

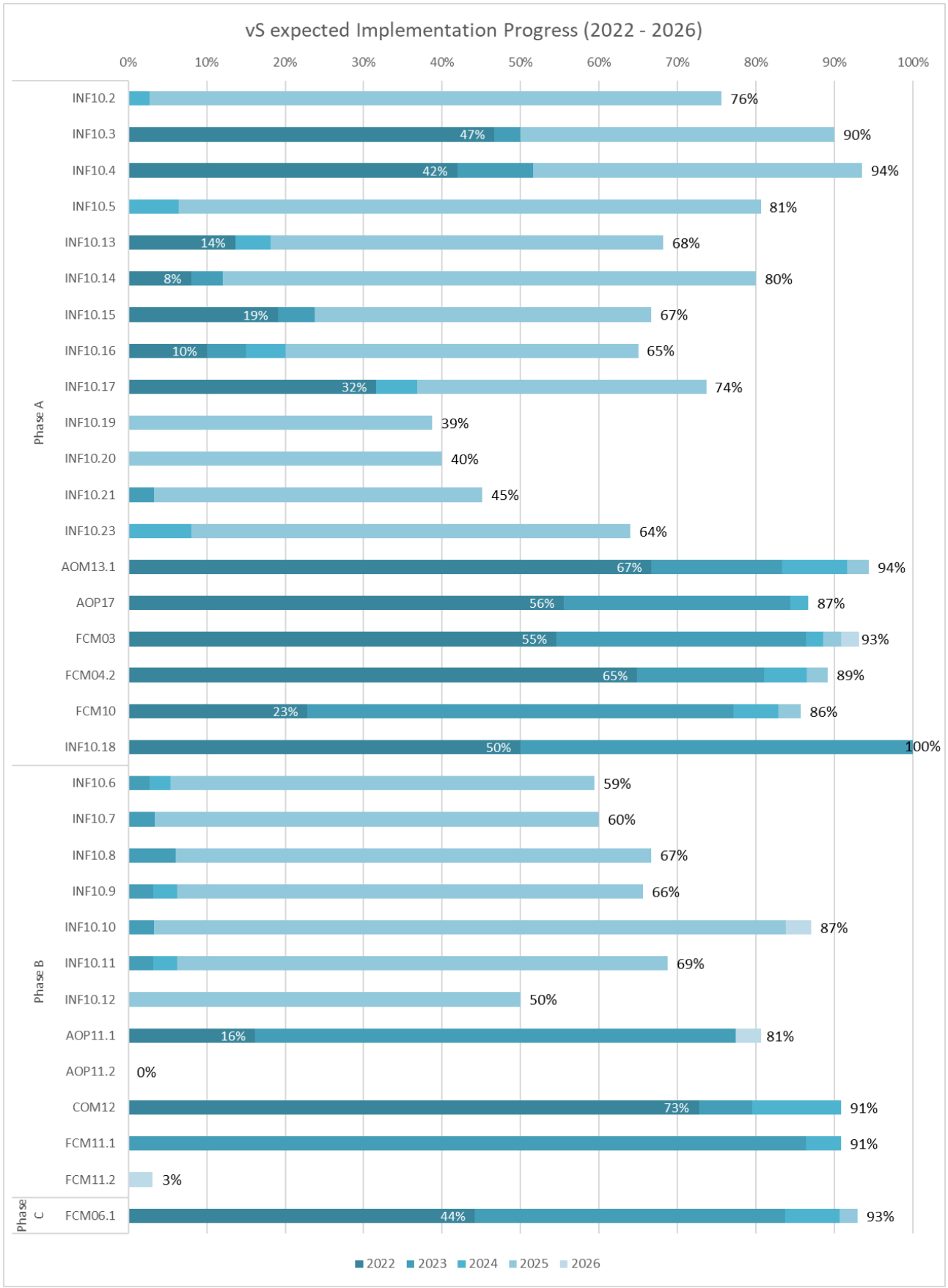



*Figure 3-8 iN expected implementation progress (2022 - 2026), source: LSSIP+ Dec 2022*





Co-funded by the European Union

- Substantial progress (increase of more than 20 percentage points) is expected in 2023 for several Objectives within the EOC ( **AOP11.1**, **AOP17, FCM03**, **FCM06.1, FCM10,** and **FCM11.1**).
- Amongst the above, **AOP11.1** and **FCM11.1** are expected to record an increase of 61 respectively 86 percentage points.
- As the EOC contains many recent Objectives, 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.



Co-funded by the European Union

## 3.4 Digital AIM and MET Services

| | |
|---|---|
| dS Digital AIM and MET services | ❖ 5 SESAR Solutions out of 84 of which:<br>○ 5 Orphans, 2 of which addressed by 2 Initial Objectives<br>❖ 1 Active Objective not linked to any Solution |

**EOC Synopsis**

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

This EOC includes elements in both Phase A and B of the strategic view of the ATM Master Plan Level 1. Among the Solutions / Objectives with market uptake, it will expectedly reach beyond 90% completion rate for Phase A within 2030, whilst only 40% 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 implementation status of the Digital AIM and MET Services EOC and the expected KPA contribution based on the 2022 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

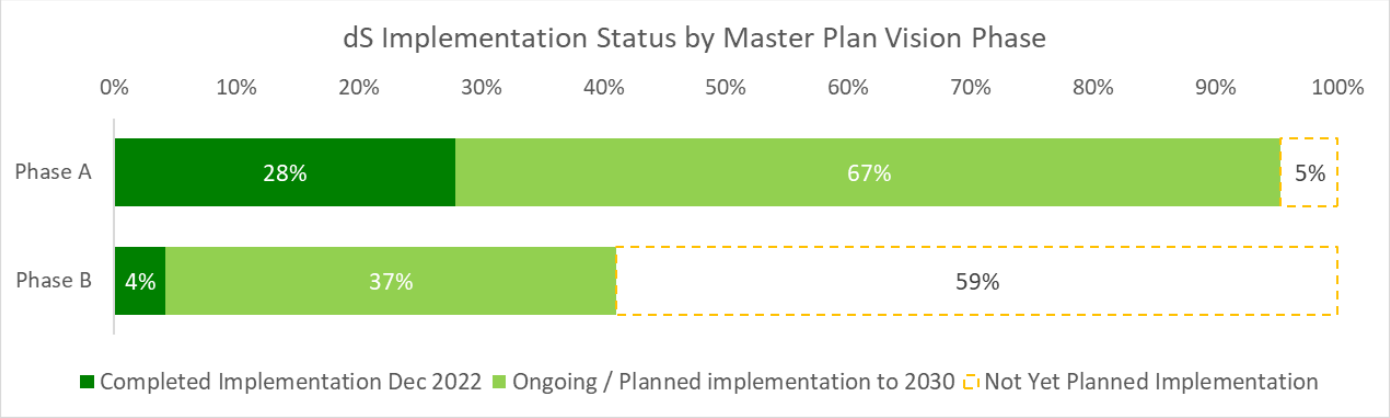



*Figure 3-9 dS implementation status, split by Master Plan Vision Phase, source: LSSIP+ Dec 2022*

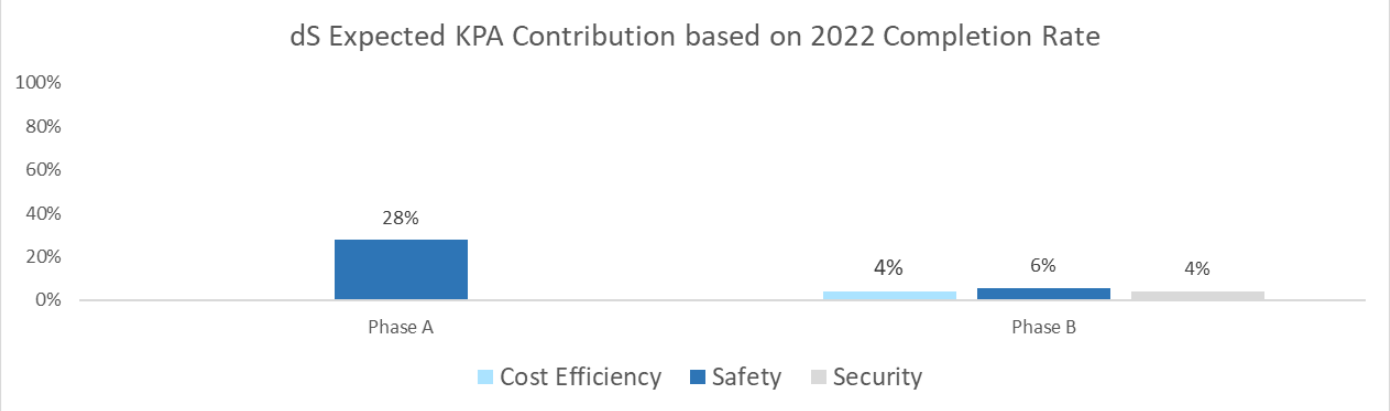



*Figure 3-10 Expected KPA contribution to the dS EOC based on the 2022 Completion Rate, source: LSSIP+ Dec 2022*

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

## Implementation Status at the end of 2022

The table below summarises the progress of the dS-related Implementation Objectives over the 2022 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 2022 vs 2021 | States / Airports completing the Objective in 2022 | 2022 Completion Rate (Δ vs 2021) | Estimated achievement |
|---|---|---|---|---|---|
| INF07 | - | 0 | - | 28% (0 pp) | 2024 |

**Legend:** Achieved | On Time | Planned delay | Late

- Implementation of Objective **INF07** is "Late" while the progress of the Completion Rate remains modest, with no new deployments recided during the reporting cycle.
- 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, there is a certain progress, as one more State has managed to setup such a National policy, leading the overall completion rate for this Line of Action to 61%.
-

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 which have passed the Industrialisation phase, building on the data collected through the SESAR Solutions questionnaire during the 2022 LSSIP+ monitoring cycle.

| Solution Reference | Solution / Objective Title | Objective Code | Deployment Status | States replying to Questionnaire | Completion Rate in 2022 | States "Ongoing" or "Planned" |
|---|---|---|---|---|---|---|
| PJ.15-10 | Aeronautical Data Service | - | Implementation | 39 | 4% | 12 |
| PJ.15-11 | Aeronautical Digital Map Service | - | Implementation | 39 | 0% | 11 |
| PJ.18-04a | Aeronautical Dataset service | - | Implementation | 39 | 0% | 17 |
| PJ.18-04b-01 | Enhanced Ground Weather Management System (GWMS) as local 4DWxCube | INF11.1 | Implementation | 40 | 11% | 3 |
| PJ.18-04b-02 | Cb Global capability and service | INF11.2 | Implementation | 40 | 7% | 2 |

- The interest in **PJ.18-04a** is the highest, within the EOC, with 17 States reporting plans for implementation.
- That solution is followed by Solutions **PJ.15-10** and **PJ.15-11** for which 12 respectively 11 States have reported implementation intentions.
- For the remaining ones, the interest as well as the completion rate from a Pan-European perspective is quite limited.



Co-funded by the European Union

## Expected EOC Implementation Progress (2022 – 2026)

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.

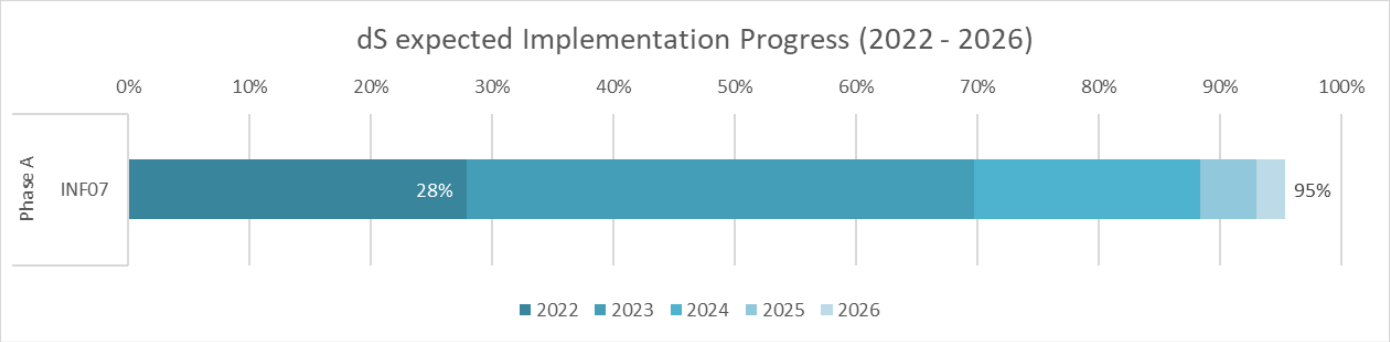



*Figure 3-11 dS expected implementation progress (2022 - 2026), source: LSSIP+ Dec 2022*

- The next two years are expected to bring a substantial increase in the completion rate (42 percentage points in 2023, followed by 18 percentage points in 2024). However, taking into account that the positive estimations of the previous reporting cycles have not materialised, the current expectation for completion in 2024 looks quite overoptimistic..



Co-funded by the European Union

## 3.5 AIRPORT AND TMA PERFORMANCE

| | |
|---|---|
| ATp Airport and TMA performance | ❖ 34 SESAR Solutions out of 84 of which:<br>○ 19 addressed by 16 Active Objectives<br>○ 15 Orphans, 4 of which addressed by 4 Initial Objectives<br>❖ 6 Active Objectives not linked to any Solution |

**EOC Synopsis**

This EOC covers both changes to operations at airports and in TMA airspace that allow maintenance of operational capacity under limiting conditions and changes that allow an increase in operational capacity during normal operations. This includes improvements to the planning and execution of operations at and around airports, such as traffic sequencing, reduced separation, reduced and more predictable runway occupancy time, and enhanced management of taxiway throughput, for both arrivals and departures. 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. Among the Solutions / Objectives with market uptake, it will expectedly reach above 60% completion for Phase A within 2030, whilst around 40% 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 implementation status of the Airport and TMA performance EOC and the expected KPA contribution based on the 2022 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

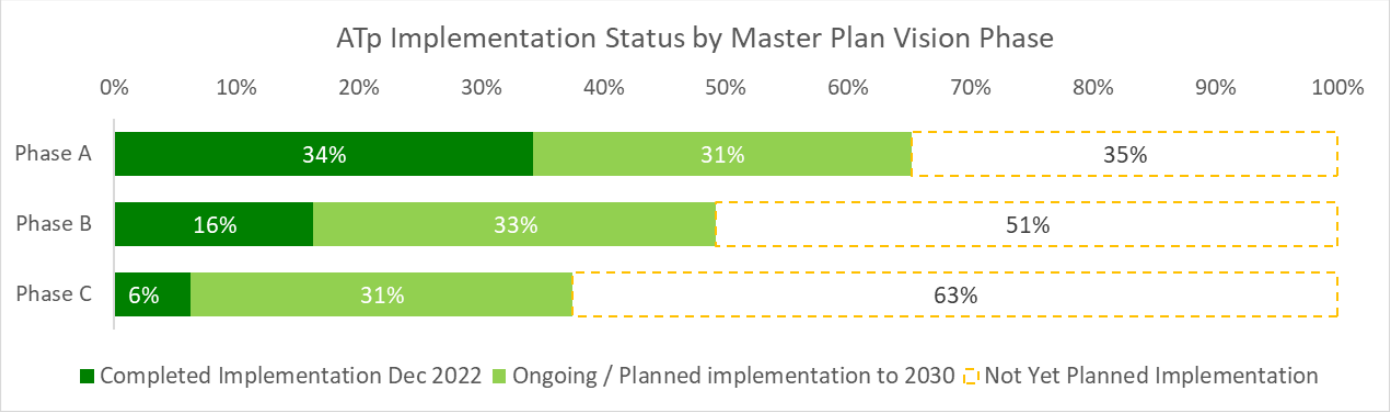



*Figure 3-12 ATp implementation status, split by Master Plan Vision Phase, source: LSSIP+ Dec 2022*

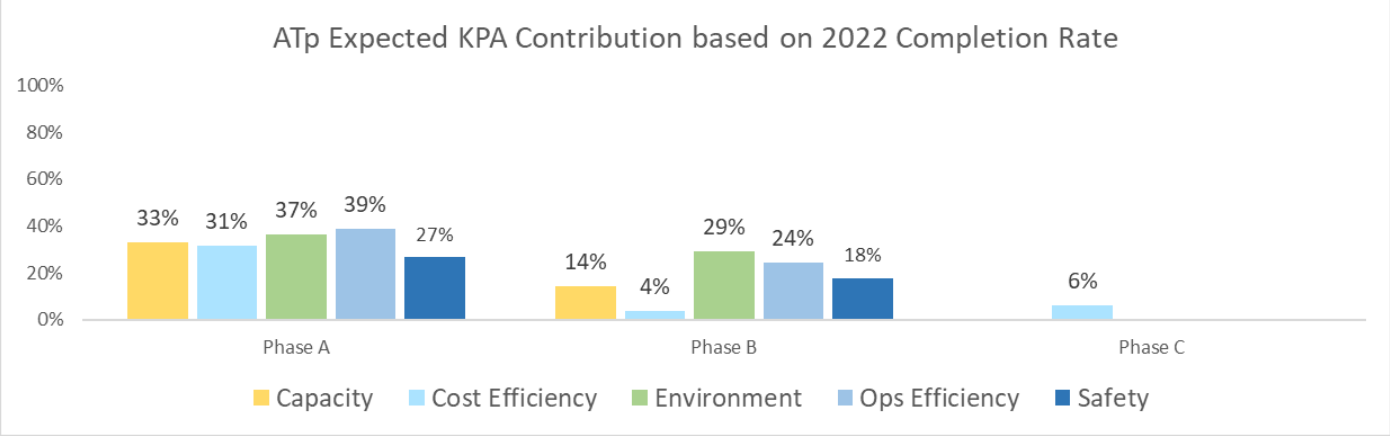



*Figure 3-13 Expected KPA contribution to the Atp EOC based on the 2022 Completion Rate, source: LSSIP+ Dec 2022*

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



Co-funded by the European Union

| Phase A Objectives / Solutions | Phase B Objectives / Solutions | Phase C Objectives / Solutions |
|---|---|---|
| **AOP04.1**<br>A-SMGCS Surveillance (former Level 1) | **AOP26**<br>Reduced separation based on local Runway Occupancy Time characterisation | **PJ.15-02**<br>E-AMAN Service |
| **AOP04.2**<br>A-SMGCS RMCA (former Level 2) | **ATC19**<br>AMAN/DMAN integration | **PJ.25-01**<br>Collaborative Decision Making (CDM) between airports, TMAs and ACCs for Overlapping AMANs |
| **AOP05**<br>Airport CDM | **ATC26**<br>Point Merge in complex TMA | **PJ.25-02**<br>Target Time of Arrival (TTA) management for seamless integration of out-of-area arrival flights |
| **AOP10**<br>Time Based Separation | **NAV03.1**<br>RNAV1 in TMA Operations | |
| **AOP12.1**<br>Airport Safety Nets | **NAV03.2**<br>RNP1 in TMA Operations | |
| **AOP13**<br>Automated Assistance to ATCO for Surface planning and routing | **#08**<br>Arrival Management into Multiple Airports | |
| **AOP15**<br>Safety Nets for Vehicle Drivers | **PJ.02-01-01**<br>Optimised Runway Delivery on Final Approach | |
| **AOP16**<br>Guidance assistance through AGL | **PJ.02-01-02**<br>Optimised Separation Delivery for Departure | |
| **AOP18**<br>Runway Status Lights (RWSL) | **PJ.02-01-03**<br>Weather-Dependent Reductions of WTS for Departures | |
| **AOP19**<br>Departure Management Synchronised with Pre-departure sequencing | **PJ.02-01-04 (AOP21)**<br>Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A) | |
| **AOP25**<br>De-icing Management Tool | **PJ.02-01-05**<br>Weather-Dependent Reductions of Wake Turbulence Separations for Final Approach | |
| **ATC07.1**<br>AMAN Tools and Procedures | **PJ.02-01-06 (AOP20)**<br>Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D) | |
| **ENV01**<br>Continuous Descent Operations | **PJ.02-01-07**<br>Wake Decay Enhancing Devices | |
| **ENV02**<br>Airport Collaborative Env. Management | **PJ.02-08-01 (AOP23)**<br>Integrated runway sequence for full traffic optimization on single and multiple runway airports | |
| **ENV03**<br>Continuous Climb Operations | **PJ.02-08-02 (AOP24)**<br>Optimised use of runway configuration for multiple runway airports | |
| **NAV11.1**<br>GLS CATII operations using GBAS GAST-C | | |
| **SAF11.1**<br>Improve runway safety by preventing runway excursions | | |

## Implementation Status at the end of 2022

The table below summarises the progress of the ATp-related Implementation Objectives over the 2022 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 2022 vs 2021 | States / Airports completing the Objective in 2022 | 2022 Completion Rate (Δ vs 2021) | Estimated achievement |
|---|---|---|---|---|---|
| AOP04.1 | #110, #70 | 0 | - | 74% (-1 pp) | 2023 |





Co-funded by the European Union

| | | | | | |
|---|---|---|---|---|---|
| AOP04.2 | - | 3 | LFLL, LUKK, LROP | 69% (5 pp) | 2023 |
| AOP05 | - | -1 | LOWW, (ESSA), (LTBA) | 57% (-3 pp) | 2024 |
| AOP10 | #64 | 0 | - | 5% (-2 pp) | Not Available |
| AOP12.1 | #02 | -1 | (UBBB) | 6% (-3 pp) | 2025 |
| AOP13 | #22, #53 | 1 | EVRA | 4% (4 pp) | Not Available |
| AOP15 | #04 | 3 | LFPG, LFPO, LIRF | 11% (9 pp) | Not Available |
| AOP16 | #47 | 0 | - | 0% (0 pp) | Not Available |
| AOP18 | #01 | 0 | - | 5% (0 pp) | Not Available |
| AOP19 | #53, #106 | 13 | EBBR, EDDB, EDDF, EDDL, EHAM, EDDH, EDDS, LEBL, LEMD, LEPA, LIMC, LIRF, LOWW | 62% (42 pp) | 2027 |
| AOP25 | #116 | 5 | LOWW, EKCH, LFPG, EPWA, LSZH | 17% (17 pp) | Not Available |
| AOP26 | PJ.02-08-03 | 2 | EFHK, EGLL | 7% (7 pp) | Not Available |
| ATC07.1 | - | 1 | LIRF | 67% (-3 pp) | 2024 |
| ATC19 | #54 | 0 | - | 6% (0 pp) | Not Available |
| ATC26 | #107 | 10 | EIDW, ENZV, ENBR, ENGM, ENVA, GCFV, GCRR, LTFJ, LTFM, UBBB | 43% (43 pp) | Not Available |
| ENV01 | #11 | 3 | EKCH, EIDW, EYVI, LSZH, LTFM, (EDDH), (EDDV) | 52% (1 pp) | 2025 |
| ENV02 | - | 1 | LEPA | 79% (2 pp) | 2023 |
| ENV03 | - | 1 | EGBB, LDZA, LYBE, (LUBL), (LUBM) | 63% (6 pp) | 2025 |
| NAV03.1 | #62 | 0 | - | 38% (0 pp) | 2030 |
| NAV03.2 | #09, #51 | 1 | IT, ES, (CH) | 28% (4 pp) | Not Available |
| NAV11.1 | #119 | 1 | DE | 5% (5 pp) | Not Available |
| SAF11.1 | - | 8 | BG, DK, FI, IT, LV, MD, NL, RO | 19% (19 pp) | 2030 |

**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**, **AOP19** and **ATC07.1** ). However, it should be noted that the applicability area of AOP04.1, AOP05 and ATC07.1) 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, because there are still Airports/States in the applicability area which have not yet put in place implementation plans therefore it is not possible to estimate when the completion threshold will be reached.
- Among the recent Objectives created in 2021 and driven by the CP1 requirements, one (**AOP19**) is already expected to be late, due to a limited number (four) of Airports within the regulated applicability area (EKCH, EIDW, ENGM and ESSA, which foresee the implementation after the FOC date..

- The new (local) Objectives monitored for the first time during this reporting cycle (**AOP25**, **AOP26**, **ATC26**, **SAF11.1**) show quite a promising start, with several Airports/States reporting completion from the first monitoring year. This start needs to be confirmed once the applicability area of these Objectives will stabilise.
- One Objective which was considered "On time" in the previous Reports (**ENV01**) changed its status to "Planned delay" as the current estimates show that the completion threshold will be reached only in 2025, 2 years after the FOC.
- For the remaining Objectives (**AOP04.2**, **AOP12.1**nd **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 fifteen 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 which have passed the Industrialisation phase, building on the data collected through the SESAR Solutions questionnaire during the 2022 LSSIP+ monitoring cycle.

| Solution Reference | Solution / Objective Title | Objective Code | Deployment Status | States replying to Questionnaire | Completion Rate in 2022 | States "Ongoing" or "Planned" |
|---|---|---|---|---|---|---|
| #108 | AMAN and Point Merge | - | Implementation | 30 | 20% | 1 |
| PJ.02-01-01 | Optimised Runway Delivery on Final Approach | - | Implementation | 39 | 7% | 3 |
| PJ.02-01-04 | Wake Turbulence Separations (for Arrivals) based on Static Aircraft Characteristics | AOP21 | Implementation | 38 | 0% | 4 |
| PJ.02-01-05 | Weather-Dependent Reductions of Wake Turbulence Separations for Final Approach | - | Implementation | 39 | 0% | 3 |
| PJ.15-02 | E-AMAN Service | - | Implementation | 41 | 6% | 5 |
| #08 | Arrival Management into Multiple Airports | - | No market uptake | 41 | 13% | 1 |
| #48 | Virtual Block Control in LVPs | - | No market uptake | 39 | 9% | 0 |
| PJ.02-01-02 | Optimised spacing delivery for departure | - | No market uptake | 40 | 7% | 0 |
| PJ.02-01-03 | Weather-Dependent Reductions of Wake Turbulence Separations for Departures | - | No market uptake | 39 | 0% | 0 |
| PJ.02-01-06 | Wake Turbulence Separations (for Departures) based on Static Aircraft Characteristics | AOP20 | No market uptake | 38 | 0% | 1 |
| PJ.02-01-07 | Wake Decay Enhancing Devices | - | No market uptake | 38 | 0% | 0 |
| PJ.02-08-01 | Integrated Runway Sequence for full traffic Optimization on Single and Multiple Runway Airports | AOP23 | No market uptake | 38 | 0% | 2 |
| PJ.02-08-02 | Optimised use of runway configuration for multiple runway airports | AOP24 | No market uptake | 38 | 0% | 1 |
| PJ.25-01 | Collaborative Decision Making (CDM) between airports, TMAs and ACCs for Overlapping AMANs | - | No market uptake | 33 | 0% | 1 |
| PJ.25-02 | Target Time of Arrival (TTA) management for seamless integration of out-of-area arrival flights | - | No market uptake | 34 | 0% | 0 |

- Among the15 Solutions, for 10 of them there is extremely low (or no) implementation interest reported by the implementing stakeholders.
- For the Solution addressing Point Merge functionality **(#108**), the high completion rate shall be put in the context of the relatively limited applicability area.



Co-funded by the European Union

## Expected EOC Implementation Progress (2022 – 2026)

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.

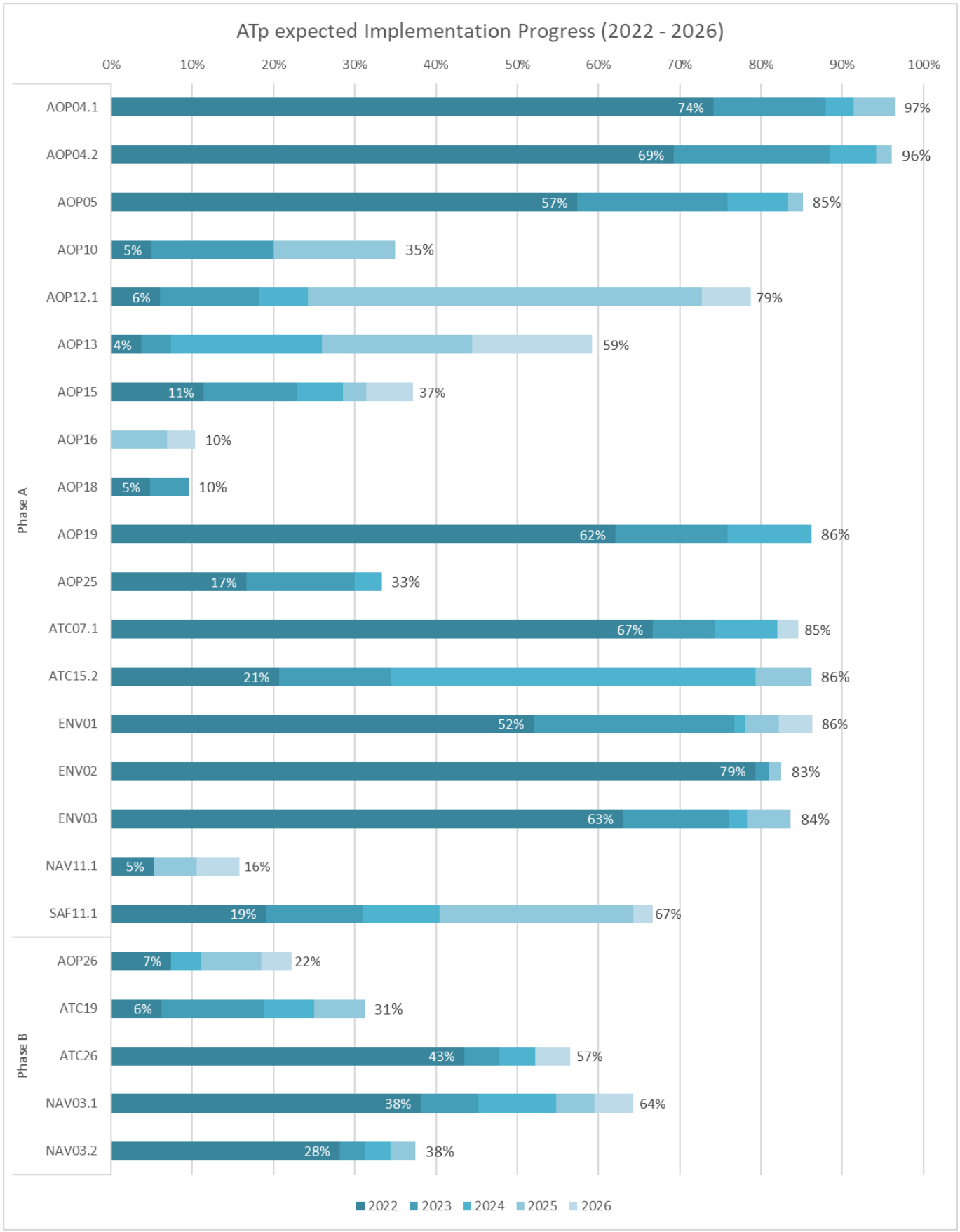



*Figure 3-14 ATp expected implementation progress (2022 - 2026), source: LSSIP+ Dec 2022*





Co-funded by the European Union

- The expected progress in 2023 is quite uneven across the EOC, going from Objectives for which no progress is expected during the year (**AOP16**) up to an expected increase of 19 percentage points (**AOP04.2** and **AOP05**)
- Overall, at EOC level, the expected increase of the completion rate in 2023 is around 10 percentage points.
- Three Objectives (**AOP04.1**, **AOP04.2** and **ENV02**) are planned to be achieved during the next 2023 reporting cycle, overall seven Objectives expected to be achieved by the end of 2025.
- 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. This is also very much related to the stabilisation of the applicability areas of the local Objectives.



Co-funded by the European Union

## 3.6 Fully Dynamic and Optimised Airspace Organisation

| | |
|---|---|
| dA Fully dynamic and optimised airspace | ❖ 13 SESAR Solutions out of 84 of which:<br>○ 1 addressed by 1 Achieved Objective<br>○ 10 addressed by 7 Active Objectives<br>○ 2 Orphans<br>❖ 3 Active Objectives not linked to any Solution |

**EOC Synopsis**

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. Among the Solutions / Objectives with market uptake, it will expectedly reach more than 90% completion for Phase A within 2030, whilst 60% 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 implementation status of the Fully Dynamic and Optimised Airspace EOC and the expected KPA contribution based on the 2022 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

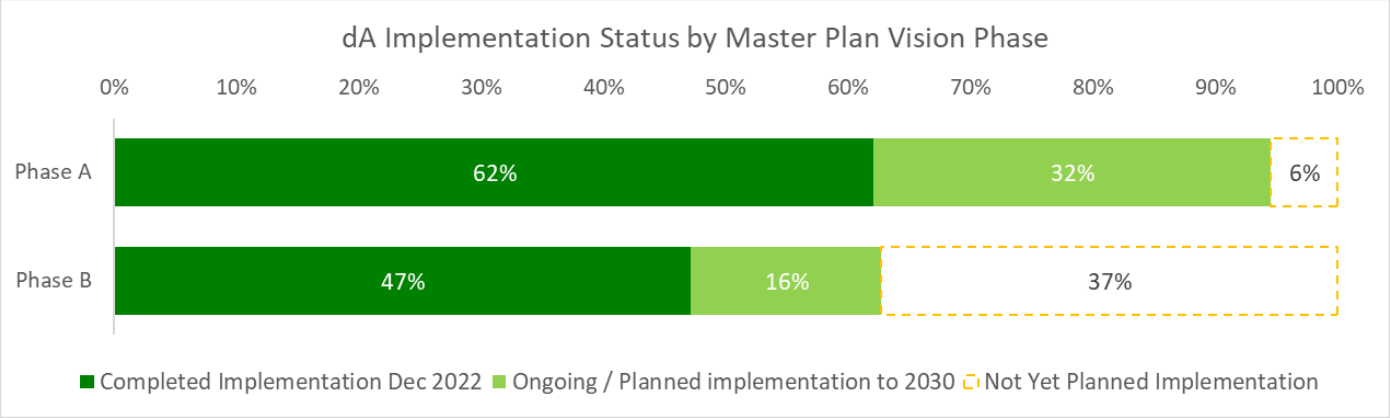



*Figure 3-15 dA implementation status, split by Master Plan Vision Phase, source: LSSIP+ Dec 2022*

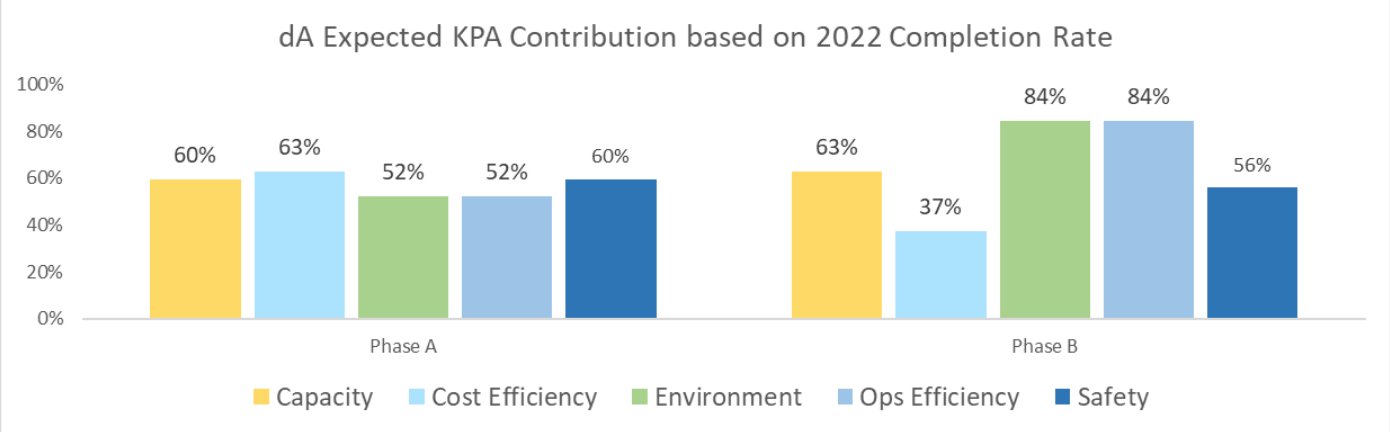



*Figure 3-16 Expected KPA contribution to the dA EOC based on the 2022 Completion Rate, source: LSSIP+ Dec 2022*

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 |
|---|---|
| **AOM21.2**<br>Initial Free Route Airspace | **AOM19.4**<br>Management of Pre-defined Airspace Configurations |
| **AOM21.3**<br>Enhanced Free Route Airspace Operations | **AOM19.5**<br>ASM and A-FUA |
| **ATC12.1**<br>MONA, TCT and MTCD | **ATC18**<br>Multi Sector Planning En-route 1P2T |
| **ATC15.1**<br>Information Exchange with en-route in Support of AMAN | **#10**<br>Optimised Route Network using Advanced RNP |
| **ATC15.2**<br>Arrival Management Extended to En-route Airspace | **PJ.10-01a1**<br>High Productivity Controller Team Organisation in En-Route (1PC – 2ECs) |
| **ITY-FMTP**<br>Common flight message transfer protocol (FMTP) | |
| **SAF10.1**<br>Implement measures to reduce the risk to aircraft operations caused by airspace infringements | |

## Implementation Status at the end of 2022

The table below summarises the progress of the dA-related Implementation Objectives over the 2022 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 2022 vs 2021 | States / Airports completing the Objective in 2022 | 2022 Completion Rate (Δ vs 2021) | Estimated achievement |
|---|---|---|---|---|---|
| AOM19.4 | #31, #66 | 24 | 20 EU States, CH, NO, BA, AZ | 92% (65 pp) | 2022 |
| AOM19.5 | #31, #66 | 26 | 25 EU States, NO | 77% (66 pp) | 2025 |
| AOM21.2 | #32, #33, #66 | 8 | BE, CY, GR, LU, NL, ES, CH, UK | 95% (13 pp) | 2022 |
| AOM21.3 | #33, PJ.06-01 | 7 | AM, BE, CZ, LT, LU, NL, PL | 68% (12 pp) | 2025 |
| ATC12.1 | #104, #27 | 3 | EE, ME, RS | 56% (7 pp) | 2023 |
| ATC15.1 | - | 1 | RS | 68% (4 pp) | 2023 |
| ATC15.2 | #05 | 0 | LKPR, LYBE, (EDDF), (EDDM) | 21% (-2 pp) | 2024 |
| ATC18 | #63, #118 | -1 | (PL) | 20% (-4 pp) | Not Available |
| ITY-FMTP | - | -1 | (MA) | 80% (-2 pp) | 2023 |
| SAF10.1 | - | 4 | DK, IT, LV, MD | 9% (9 pp) | Not Available |

**Legend:** Achieved | On Time | Planned delay | Late

- Two Objectives (**AOM19.4** and **AOM21.2**), both being driven by the CP1 Regulation, have achieved completion during the reporting cycle (more than 80% completion rate in the entire applicability area and 100% completion rate in the regulated applicability area).
- Four Objectives (**AOM19.5**, **ATC12.1**, **ATC15.1** and **ITY-FMTP**) within the EOC are "Late" as the FOC has already passed. Three of them (**ATC12.1**, **ATC15.1** and **ITY-FMTP**) are expected to be achieved in 2023.
- It should be noted that Objective **ITY-FMTP** has reached 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.



Co-funded by the European Union

- For the 2 local Objectives within the EOC (**ATC18** and **SAF10.1**) it is not yet possible to derive an expected completion date, due to the still high number of States reporting "Not yet Planned".

The dA EOC also encompasses 2 SESAR Solutions, not subject to any Objective ("Orphan Solutions"). The table below provides few insights on the implementation progress of those Solutions which have passed the Industrialisation phase, building on the data collected through the SESAR Solutions questionnaire during the 2022 LSSIP+ monitoring cycle.

| Solution Reference | Solution / Objective Title | Objective Code | Deployment Status | States replying to Questionnaire | Completion Rate in 2022 | States "Ongoing" or "Planned" |
|---|---|---|---|---|---|---|
| PJ.10-01a1 | High Productivity Controller Team Organisation in En-Route (1PC-2ECs) | - | Implementation | 38 | 0% | 3 |
| #10 | Optimised Route Network using Advanced RNP | - | No market uptake | 39 | 9% | 1 |

- It is observed that there is no interest in the deployment of the Solution addressing the optimised route network using Advanced RNP due to the widespread deployment of FRA en-route within the ECAC+.
- There is also a low appetite for the implementation of **PJ.10-01a1** as even the less demanding ATC18 fails to convince the majority of stakeholders of its operationalbenefits..

## Expected EOC Implementation Progress (2022 – 2026)

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.

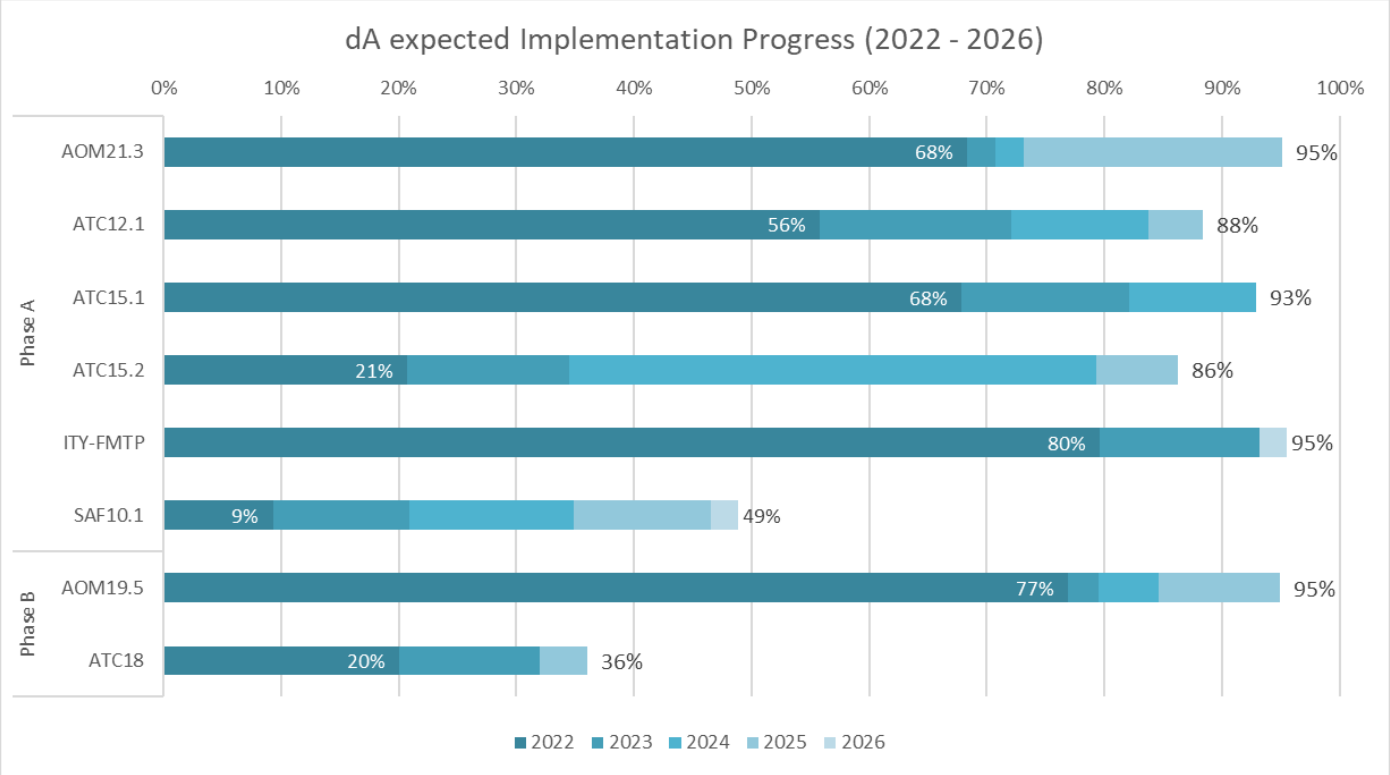



*Figure 3-17 dA expected implementation progress (2022 - 2026) , source: LSSIP+ Dec 2022*

- In 2023 the progress across the EOC is expected to be quite evenly distributed, with an average 10 PP progress for each Objective.
- With the progress expected in 2023, **ATC12.1**, **ATC15.1** and **ITY-FMTP** are expected to reach the implementation threshold, to be followed by **AOM19.5**, **AOM21.3** and **ATC15.2**, before the end of 2025.

## 3.7 Trajectory Based Operations

| | |
|---|---|
| TBO Trajectory -based operations | ❖ 8 SESAR Solutions out of 84 of which:<br>○ 1 addressed by 1 Achieved Objective<br>○ 2 addressed by 2 Active Objectives<br>○ 5 Orphans<br>❖ 1 Active Objective not linked to any Solution |

**EOC Synopsis**

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

This EOC includes elements in Phase A, B, and C of the strategic view of the ATM Master Plan Level 1. Among the Solutions / Objectives with market uptake, it will expectedly reach an almost 100% completion for Phase A within 2030, 50% for Phase B and 23% for Phase 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 implementation status of the Trajectory-Based Operations EOC and the expected KPA contribution based on the 2022 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

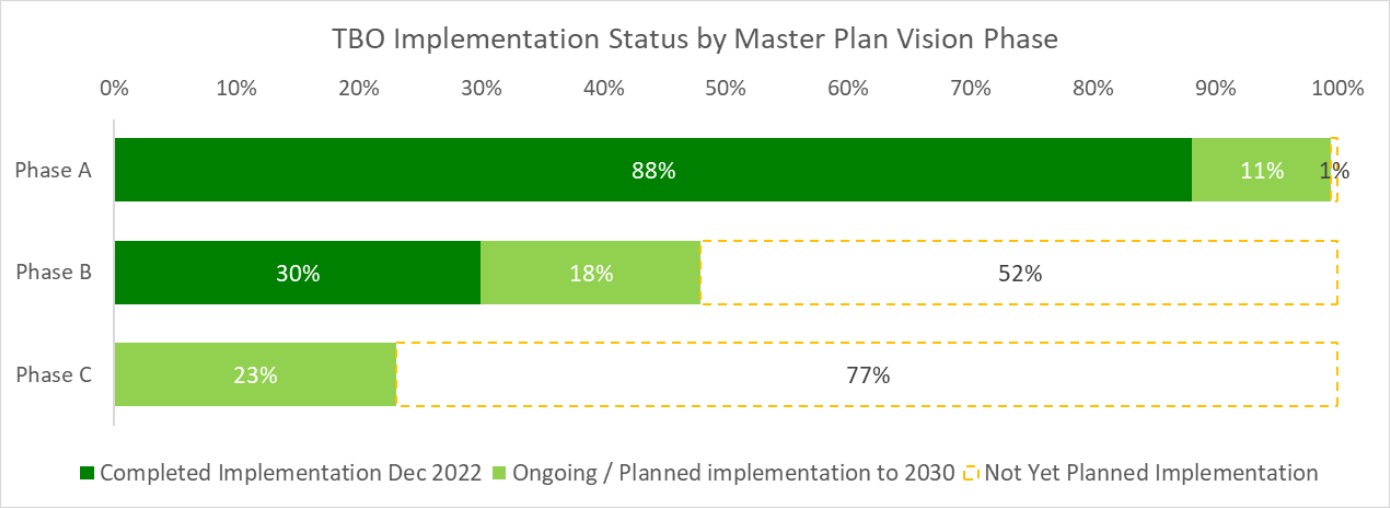



*Figure 3-18 TBO implementation status, split by Master Plan Vision Phase, source: LSSIP+ Dec 2022*

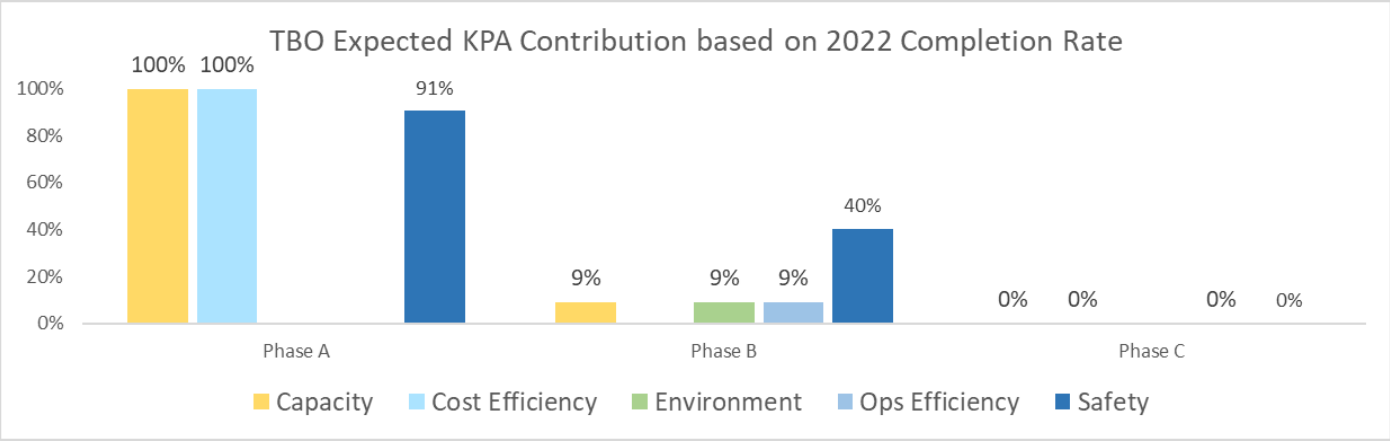



*Figure 3-19 Expected KPA contribution to the TBO EOC based on the 2022 Completion Rate, source: LSSIP+ Dec 2022*



Co-funded by the European Union

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 |
|---|---|---|
| **ATC02.8**<br>Ground based safety nets | **ATC20**<br>Enhanced STCA with DAPs via Mode S EHS | **PJ.07-01-01**<br>Reactive Flight Delay Criticality Indicator |
| **#101**<br>Extended hybrid surveillance | **#06**<br>Controlled Time of Arrival (CTA) in Medium density / medium complexity environment | **PJ.10-02a1**<br>Integrated tactical and medium CDT&R services and Conformance Monitoring tools for En-Route and TMA |
| | **#100**<br>ACAS Ground Monitoring and Presentation system | |

## Implementation Status at the end of 2022

The table below summarises the progress of the TBO-related Implementation Objectives over the 2022 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 2022 vs 2021 | States / Airports completing the Objective in 2022 | 2022 Completion Rate (Δ vs 2021) | Estimated achievement |
|---|---|---|---|---|---|
| ATC02.8 | - | 2 | CZ, EE, ME, (MK) | 71% (5 pp) | 2023 |
| ATC20 | #69 | 1 | PT | 43% (5 pp) | Not Available |

**Legend:** Achieved | On Time | Planned delay | Late

- While technically the Objective **ATC02.8** is "Late" as the FOC date has passed, 2 (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 13 States out of the 30 in its Applicability Area.

The TBO EOC also encompasses five 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 which have passed the Industrialisation phase, building on the data collected through the SESAR Solutions questionnaire during the 2022 LSSIP+ monitoring cycle.

| Solution Reference | Solution / Objective Title | Objective Code | Deployment Status | States replying to Questionnaire | Completion Rate in 2022 | States "Ongoing" or "Planned" |
|---|---|---|---|---|---|---|
| #06 | Controlled Time of Arrival (CTA) in Medium density / medium complexity environment | - | Implementation | 39 | 9% | 3 |
| #100 | ACAS Ground Monitoring and Presentation system | - | Implementation | 40 | 38% | 0 |
| PJ.10-02a1 | Integrated tactical and medium Conflict Detection & Resolution (CD&R) services and Conformance Monitoring tools for En-Route and TMA | - | Implementation | 39 | 0% | 6 |
| #101 | Extended hybrid surveillance | - | No market uptake | 38 | 0% | 0 |
| PJ.07-01-01 | Reactive Flight Delay Criticality Indicator | - | No market uptake | 37 | 0% | 0 |

- One Solution (**#100**) raised particular interest with 38% of the respondents to the Questionnaire reporting the Solution as deployed. However it should be noted that nobody else has reported the Solution as being in implementation or planned for implementation.



Co-funded by the European Union

- For the other Solutions, the interest is rather low, for 2 of the Solutions (**#101** and **PJ.07-01-01**) the answers to the questionnaire showing no actual deployments nor plans for deployment.

## Expected EOC Implementation Progress (2022 – 2026)

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.

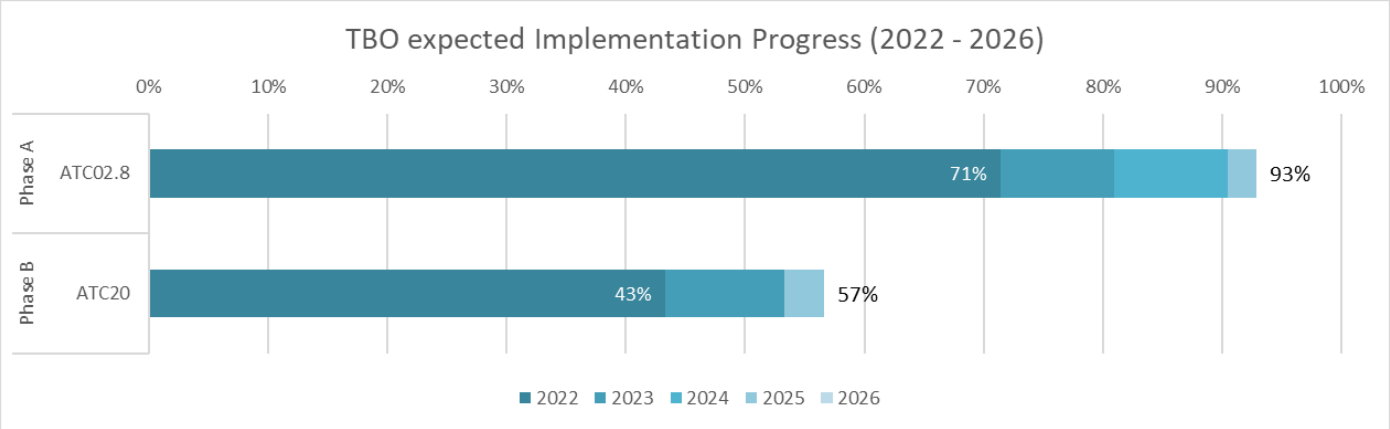



*Figure 3-20 TBO expected implementation progress (2022 - 2026), source: LSSIP+ Dec 2022*

- With the incoming increase in the completion rate expected in 2023 (10 percentage points for the overall Objective), 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 States expect to complete the deployment in 2023) the implementation of the "Local" Objective **ATC20** is expected to stagnate for one year (2024) after which the implementation will resume at a low pace. However the progress rate of the Objective and its overall expected completion is impacted by the still large number of States (9) which report not having yet any implementation plans.



Co-funded by the European Union

## 3.8 Multimodal Mobility and Integration of all Airspace Users

| | |
|---|---|
| M3 Multimodal mobility and integration of all airspace users | ❖ 1 SESAR Solution out of 84 of which:<br>○ 1 addressed by 1 Active Objective |

**EOC Synopsis**

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

This EOC includes only one element in Phases B of the strategic view of the ATM Master Plan Level 1. The expected completion rate is 18%, whilst it is projected to exceed 50% by 2030. The remaining portion is not yet planned. 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 implementation status of the Multimodal Mobility and integration of all Airspace Users EOC and the expected KPA contribution based on the 2022 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

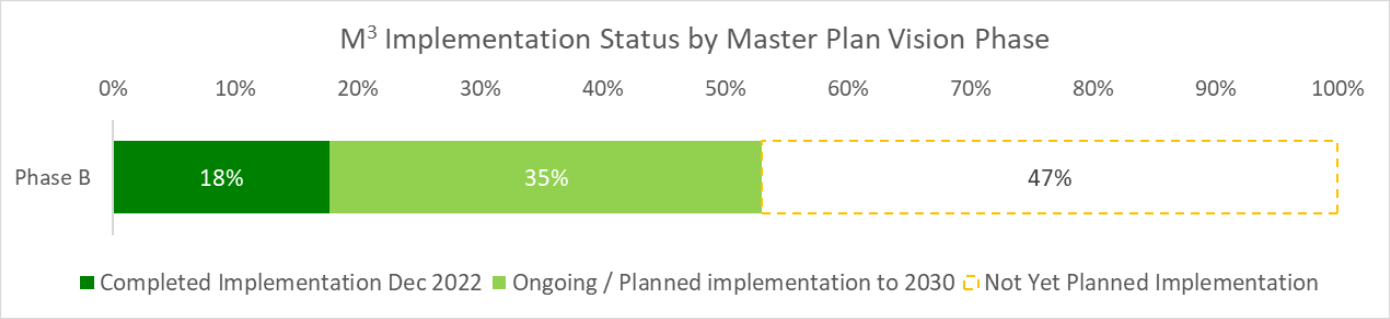



*Figure 3-21 M³ implementation status, split by Master Plan Vision Phase, source: LSSIP+ Dec 2022*

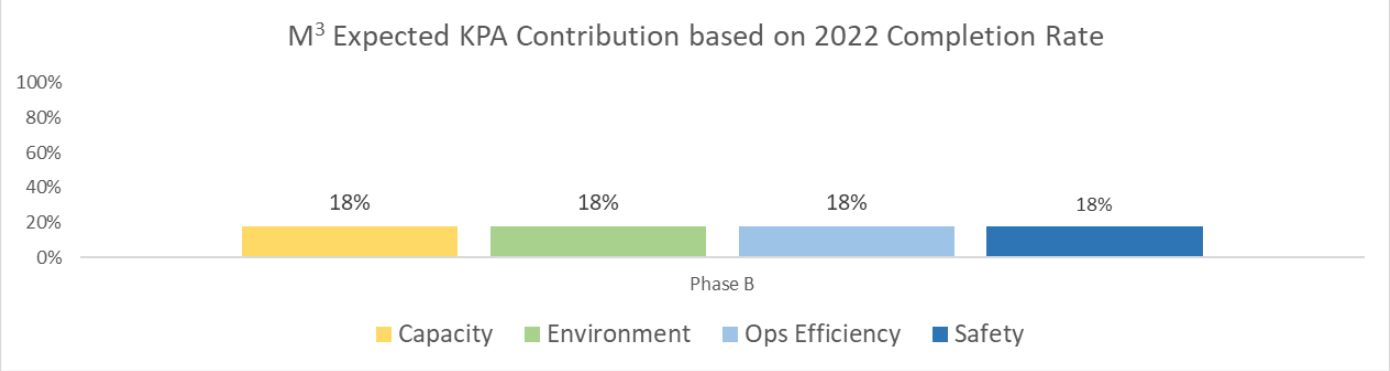



*Figure 3-22 Expected KPA contribution to the M³ EOC based on the 2022 Completion Rate, source: LSSIP+ Dec 2022*

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

| Phase B Objectives / Solutions |
|---|
| **NAV12**<br>ATS IFR Routes for Rotorcraft Operations |

### Implementation Status at the end of 2022

The table below summarises the progress of the M³-related Implementation Objectives over the 2022 monitoring cycle. In addition, the bullet points provide explanations on the data aggregation and related outcomes.



Co-funded by the European Union

| Objective Code | Solution Reference | Δ Completed States / Airports in 2022 vs 2021 | States / Airports completing the Objective in 2022 | 2022 Completion Rate (Δ vs 2021) | Estimated achievement |
|---|---|---|---|---|---|
| NAV12 | #113 | 0 | - | 18% (3 pp) | Not Available |

**Legend:** Achieved | On Time | Planned delay | Late

- The Objective raises a limited interest, with more than 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, almost half (8 out of 17 States) do not have yet concrete implementation plans.
- For the time being, only three States have reported completion of the Objective (no progress compared with the previous year) 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 M³ EOC does not feature any Orphan SESAR Solution in implementation.

## Expected EOC Implementation Progress (2022 – 2026)

The M³-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.

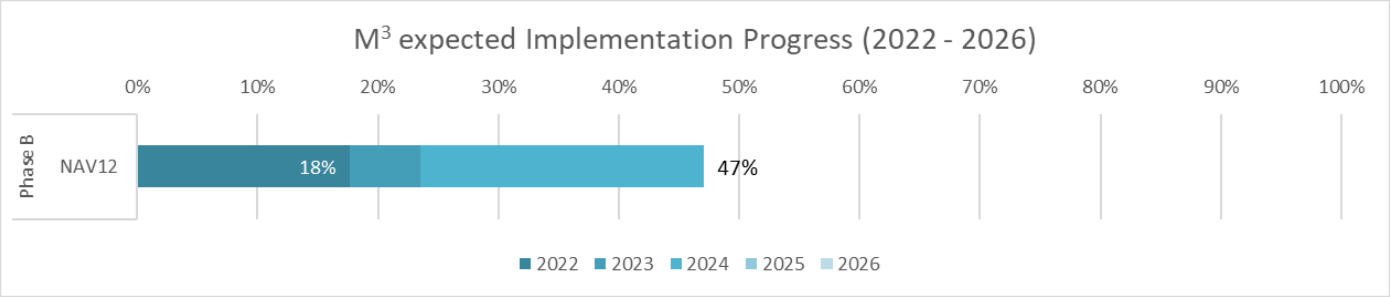



*Figure 3-23 M³ expected implementation progress (2022 - 2026), source: LSSIP+ Dec 2022*

- 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 (2 completions expected in 2023) and will only reach almost half of the States in the applicability area by end of 2024.



Co-funded by the European Union

## 3.9 VIRTUALISATION OF SERVICE PROVISION

| | |
|---|---|
| vS Virtualisation of service provision | ❖ 5 SESAR Solutions out of 84 of which:<br>○ 4 addressed by 1 Active Objective<br>○ 1 Orphan |

**EOC Synopsis**

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 reaches 70% for Phase B, whilst it reaches 31% 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 implementation status of the Virtualisation of Service provision EOC and the expected KPA contribution based on the 2022 completion rate. Both charts include data coming from Implementation Objectives and Orphan SESAR Solutions, for which no Objective exists so far.

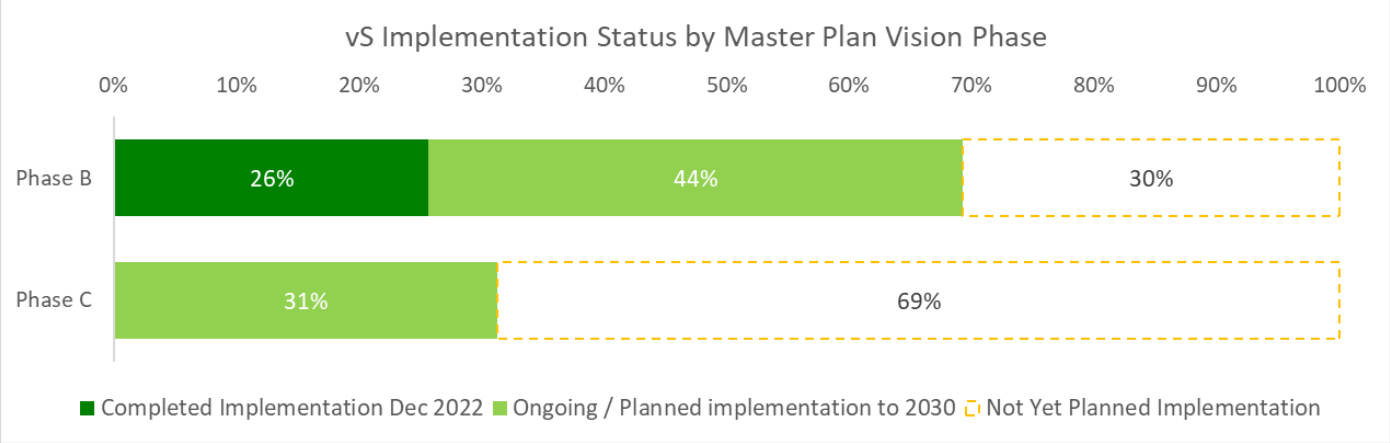



*Figure 3-24 vS implementation status, split by Master Plan Vision Phase, source: LSSIP+ Dec 2022*

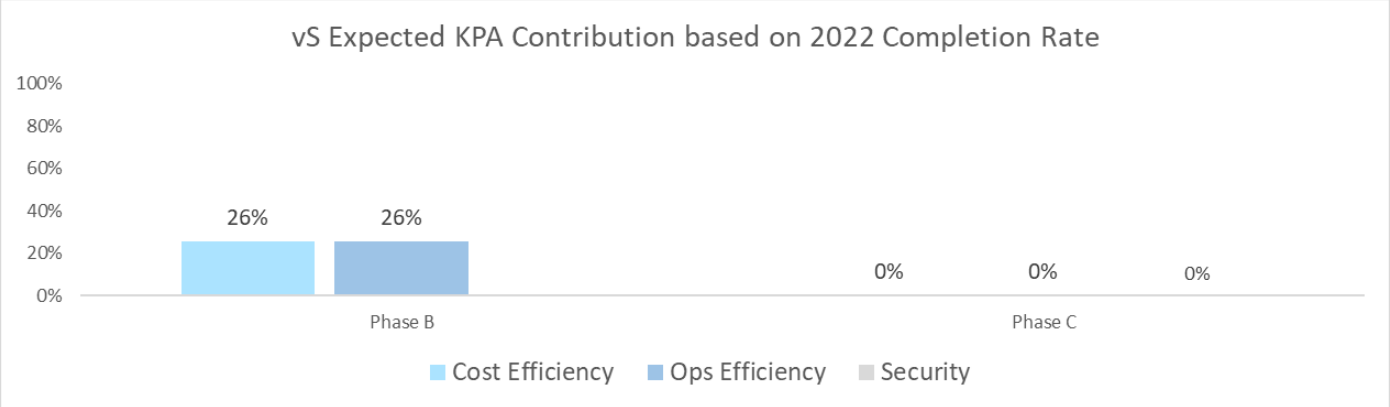



*Figure 3-25 Expected KPA contribution to the vS EOC based on the 2022 Completion Rate, source: LSSIP+ Dec 2022*

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 |
|---|---|
| **AOP14.1**<br>Remote Tower Services | **PJ.16-04-01**<br>Multi-Touch Input at the Controller Working Position |

## Implementation Status at the end of 2022

The table below summarises the progress of the vS-related Implementation Objectives over the 2022 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 2022 vs 2021 | States / Airports completing the Objective in 2022 | 2022 Completion Rate (Δ vs 2021) | Estimated achievement |
|---|---|---|---|---|---|
| AOP14.1 | #12, #13, #52, #71 | 2 | EDDR, ENRC, LIBR, (LHBP) | 26% (4 pp) | Not Available |

**Legend:** Achieved | On Time | Planned delay | Late

- AOP14.1 is a "Local" Objective, so it does have neither a predefined FOC. Currently, 35 airports report interest in deployment. Still 8 of them to do have concrete implementation plans yet, therefore it is not yet possible to derive an expected date when the implementation threshold will be reached.
- 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 constantly since the creation of the Objective (currently 35 Airports are in the applicability area).
- Three new locations have started remote tower operations in 2022.

The vS EOC also encompasses one SESAR Solution, not subject to any Objective ("Orphan Solutions"). The table below provides few insights on the implementation progress of those Solutions which have passed the Industrialisation phase, building on the data collected through the SESAR Solutions questionnaire during the 2022 LSSIP+ monitoring cycle.

| Solution Reference | Solution / Objective Title | Objective Code | Deployment Status | States replying to Questionnaire | Completion Rate in 2022 | States "Ongoing" or "Planned" |
|---|---|---|---|---|---|---|
| PJ.16-04-01 | Multi-Touch Input at the Controller Working Position | - | Implementation | 37 | 0% | 5 |

- 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 (provision of services from one location to multiple airports) or for operations in more demanding environments.
- For Solution **PJ.16-04-01** the interest is still reduced, with no current implementations and quite reduced number of reported deployment plans.

## Expected EOC Implementation Progress (2022 – 2026)

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.

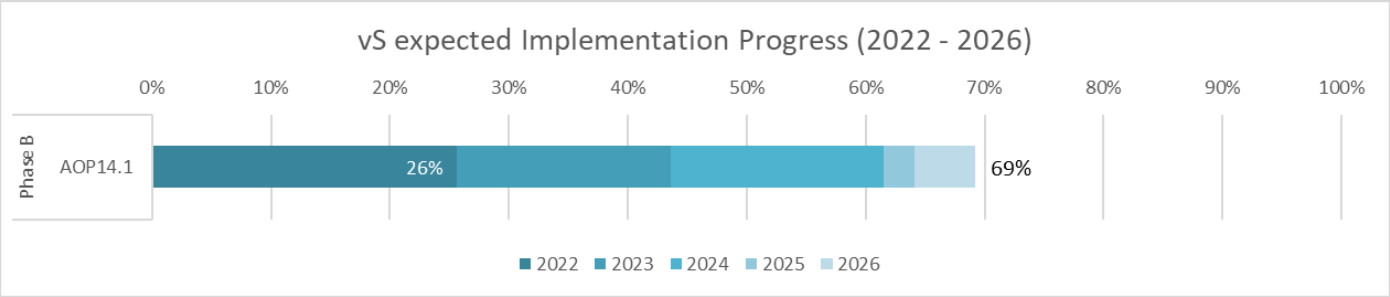



*Figure 3-26 vS expected implementation progress (2022 - 2026), source: LSSIP+ Dec 2022*

- Implementation of the remote tower functionality is expected to continue at an increased pace with the completion rate being expected to increase by almost three times in the next 2-3 years.



Co-funded by the European Union

# 4 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 2022, thanks to the data collected through the 2022 LSSIP+ Monitoring Cycle.

This 2023 edition of the MPL3 Implementation Report includes a total number of 78 Active Implementations Objectives, as mentioned in the 2022 edition of the MPL3 Implementation Plan. It is important to mention that this list includes all CP1 Objectives Achieved in previous cycles which, due their regulatory nature, are kept in the Progress Report. Specifically, of these 78 Objectives:

- 3 were **Achieved** (2 in 2022 and 1 CP1 Objective from previous cycles),
- 13 are **On Time**,
- 4 are under implementation, with a **Planned Delay**,
- 18 will be implemented **Late** against their FOC date,
- 24 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 16 remaining "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 16 Implementation Objectives.

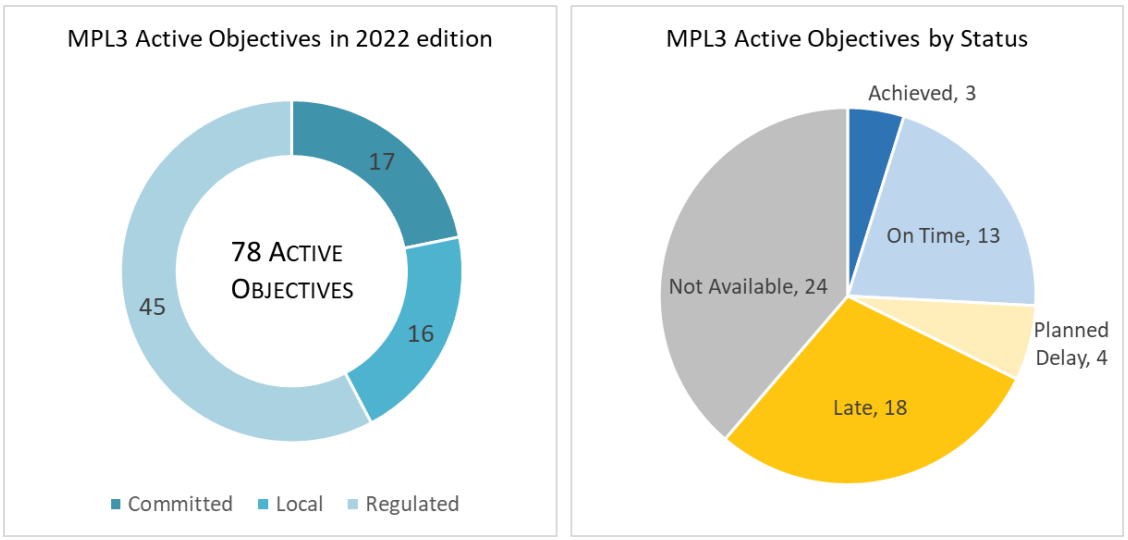



*Figure 4-1 MPL3 Active Implementation Objectives in 2022 edition, split by Status*

## 4.1 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 2022 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.



Co-funded by the European Union

| 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. |
| **Not Applicable** | Linked to Active "Local" Objectives which, due their voluntary nature, are not assessed against any FOC date. |

**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 2022 Implementation Plan.

| | | | | | |
|---|---|---|---|---|---|
| Capacity | Capacity | Operational efficiency | Operational Efficiency | Cost efficiency | Cost Efficiency |
| Safety | Safety | Environment | Environment | Security | 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 show the past (if applicable) and the expected evolution of the Implementation Objective completion rate within the Applicability Area. The completion rate is considered to be the number of Completed States / Airports over the number of States / Airports included in the Applicability Area. The Completion Rate calculation is also applicable to Active "Local" Objectives. 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 2022 LSSIP+ monitoring cycle.

**Status of Implementation** – This donut chart, located within the map area, splits the number of Applicable States / Airports by progress status. The map's colour coding and related definition is below:

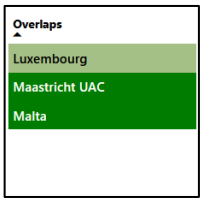
| Progress status | Definition |
|---|---|
| **Completed** | The development / improvement defined in the SLoA is fulfilled according to the MP L3 Plan Finalisation Criteria. An Objective is marked completed if all SLoAs are completed. |
| **Ongoing** | Stakeholders kicked-off the implementation, but 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** | 1. The Stakeholder has not yet defined a project management/implementation plan for the Objective.<br>2. The Stakeholder is in the scoping phase, hence developing a feasibility study including a cost benefit analysis etc. Final decision is still pending. |



Co-funded by the European Union

| Progress status | Definition |
|---|---|
| **Not Applicable** | 1. The Stakeholder is not part of the MP L3 Plan 'Applicability Area'; or<br>2. The Stakeholder is part of the MP L3 Plan 'Applicability Area', however:<br>• The Stakeholder does not provide the required service for this; or<br>• The Stakeholder implementation is not justified particularly in terms of operational needs; or<br>• The Stakeholder is implementing alternative solutions. |
| **Missing Data** | Lack of data from a Stakeholder makes it impossible to define a Progress status |

**Overlaps** – This box, located within the map area, provides States / Airports that are not clearly visible in the map, to provide better readability. Each State / Airport is coloured on the basis of its implementation status (as reported in the table above – Progress Status definition).





**Applicability Area Changes vs 2021** – This box, located within the map area, reports the Objective's Applicability Area changes vis-à-vis the previous reporting cycle. The green colour reflects States / Airports that joined, whilst the dark orange colour reflects the States / Airports that withdrew from it.
For Airport-related Objective, the list features the Airport ICAO code, whilst for Country-related Objectives, the box reports the full name of the State.





Co-funded by the European Union

## List of Master Plan Level 3 Implementation Objectives in Alphabetical Order

| Objective | Title | Solution | Page # |
|---|---|---|---|
| AOM13.1 | Harmonise OAT and GAT handling | - | 58 |
| AOM19.4 | Management of Pre-defined Airspace Configurations | #31 #66 | 114 |
| AOM19.5 | ASM and A-FUA | #31 #66 | 115 |
| AOM21.2 | Initial Free Route Airspace | #32 #33 #66 | 116 |
| AOM21.3 | Enhanced Free Route Airspace Operations | #33 PJ.06-01 | 117 |
| AOP04.1 | A-SMGCS Surveillance Service (former ICAO Level 1) | #70 #110 | 92 |
| AOP04.2 | A-SMGCS RMCA (former ICAO Level 2) | - | 93 |
| AOP05 | Airport CDM | - | 94 |
| AOP10 | Time Based Separation | #64 | 95 |
| AOP11.1 | Initial Airport Operations Plan | #21 | 59 |
| AOP11.2 | Extended Airport Operations Plan | #21 | 60 |
| AOP12.1 | Airport Safety Nets | #02 | 96 |
| AOP13 | Automated Assistance to ATCO for Surface planning and routing | #22 #53 | 97 |
| AOP14.1 | Remote Tower Services | #12 #13 #52 #71 | 127 |
| AOP15 | Safety Nets for Vehicle Drivers | #04 | 98 |
| AOP16 | Guidance assistance through AGL | #47 | 99 |
| AOP17 | Provision/integration of DEP planning info to NMOC | #61 | 61 |
| AOP18 | Runway Status Lights (RWSL) | #01 | 100 |
| AOP19 | Departure Management Synchronised with Pre-departure sequencing | #53 #106 | 101 |
| AOP25 | De-icing management tool | #116 | 102 |
| AOP26 | Reduced separation based on local ROT characterisation | PJ.02-08-03 | 103 |
| ATC02.8 | Ground based safety nets | - | 124 |
| ATC07.1 | AMAN Tools and Procedures | - | 104 |
| ATC12.1 | MONA, TCT and MTCD | #27 #104 | 118 |
| ATC15.1 | Information Exchange with en-route in Support of AMAN | - | 119 |
| ATC15.2 | Arrival Management Extended to En-route Airspace | #05 | 120 |
| ATC18 | Multi Sector Planning En-route 1P2T | #63 #118 | 121 |
| ATC19 | AMAN/DMAN integration | #54 | 105 |
| ATC20 | Enhanced STCA with DAPs via Mode S EHS | #69 | 125 |
| ATC26 | Point Merge in complex TMA | #107 | 106 |
| COM10.2 | Extended AMHS | - | 50 |
| COM11.1 | VoIP in En-Route | - | 51 |
| COM11.2 | VoIP in Airport/Terminal | - | 52 |
| COM12 | NewPENS | - | 62 |
| COM13 | Air Traffic Services (ATS) datalink using SatCom Class B | #109 | 53 |
| ENV01 | Continuous Descent Operations | #11 | 107 |
| ENV02 | Airport Collaborative Environmental Management | - | 108 |
| ENV03 | Continuous Climb Operations | - | 109 |
| FCM03 | Collaborative flight planning | - | 63 |
| FCM04.2 | Enhanced Short Term ATFCM Measures | #17 | 64 |
| FCM06.1 | Traffic Complexity Assessment | #19 PJ.18-02c | 65 |
| FCM10 | Interactive rolling NOP | #18 #20 | 66 |
| FCM11.1 | Initial AOP/NOP Information Sharing | #20 #21 | 67 |

| Objective | Title | Solution | Page # |
|---|---|---|---|
| FCM11.2 | AOP/NOP integration | #18 #20 #21 | 68 |
| INF07 | Electronic Terrain and Obstacle Data (e-TOD) | - | 91 |
| INF10.2 | Stakeholders' SWIM PKI and cybersecurity | #46 | 69 |
| INF10.3 | Aeronautical Information Exchange - Airspace structure service | #46 | 70 |
| INF10.4 | Aeronautical Information Exchange - Airspace availability service | #46 | 71 |
| INF10.5 | Aeronautical Information Exchange - Airspace Reservation (ARES) service | #46 | 72 |
| INF10.6 | Aeronautical Information Exchange - Digital NOTAM service | #34 #46 | 73 |
| INF10.7 | Aeronautical Information Exchange - Aerodrome Mapping information exchange service | #34 #46 | 74 |
| INF10.8 | Aeronautical Information Exchange - Aeronautical Information Features service | #34 #46 | 75 |
| INF10.9 | Meteorological Information Exchange - Volcanic ash mass concentration information service | #34 #35 #46 | 76 |
| INF10.10 | Meteorological Information Exchange - Aerodrome Meteorological information Service | #34 #35 #46 | 77 |
| INF10.11 | Meteorological Information Exchange - En-Route and Approach Meteorological information service | #34 #35 #46 | 78 |
| INF10.12 | Meteorological Information Exchange - Network Manager Meteorological Information | #34 #35 #46 | 79 |
| INF10.13 | Cooperative Network Information Exchange - ATFCM Tactical Updates Service | #46 | 80 |
| INF10.14 | Cooperative Network Information Exchange - Flight Management Service | #46 | 81 |
| INF10.15 | Cooperative Network Information Exchange - Measures Service | #46 | 82 |
| INF10.16 | Cooperative Network Information Exchange - Short Term ATFCM Measures services | #46 | 83 |
| INF10.17 | Cooperative Network Information Exchange - Counts service | #46 | 84 |
| INF10.18 | Flight Information Exchange (Yellow Profile) – Filing Service | #46 | 85 |
| INF10.19 | Flight Information Exchange (Yellow Profile) – Flight Data Request Service | #46 | 86 |
| INF10.20 | Flight Information Exchange (Yellow Profile) – Notification Service | #46 | 87 |
| INF10.21 | Flight Information Exchange (Yellow Profile) – Data Publication Service | #46 | 88 |
| INF10.22 | Flight Information Exchange (Yellow Profile) – Trial Service | #46 | 89 |
| INF10.23 | Flight Information Exchange (Yellow Profile) – Extended AMAN SWIM Service | #46 | 90 |
| ITY-ACID | Aircraft identification | - | 54 |
| ITY-AGDL | Initial ATC air-ground data link services | - | 55 |
| ITY-AGVCS2 | 8.33 kHz A/G Voice Channel Spacing below FL195 | - | 56 |
| ITY-FMTP | Common flight message transfer protocol (FMTP) | - | 122 |
| NAV03.1 | RNAV1 in TMA Operations | #62 | 110 |
| NAV03.2 | RNP1 in TMA Operations | #09 #51 | 111 |
| NAV10 | RNP Approach Procedures to instrument RWY | #103 | 57 |
| NAV11.1 | Implement precision APCH procedures using GBAS CAT II based on GAST C | #119 | 112 |
| NAV12 | ATS IFR Routes for Rotorcraft Operations | #113 | 126 |
| SAF10.1 | Implement measures to reduce the risk to aircraft operations caused by airspace infringements | - | 123 |
| SAF11.1 | Improve Runway Safety by Preventing Runway Excursions | - | 113 |



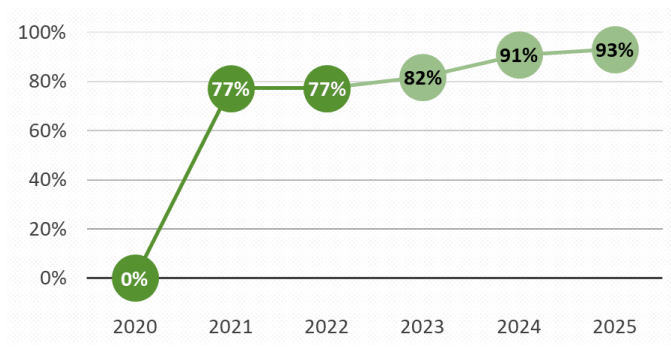


Co-funded by the European Union

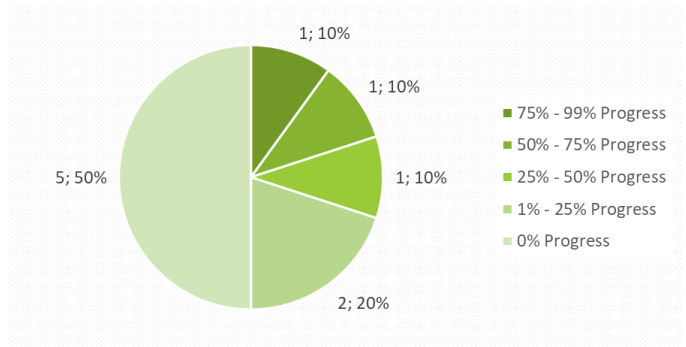
## 4.2 CNS INFRASTRUCTURE AND SERVICES

| CNS infrastructure and services | **SESAR Solution – Nil** | | | | | | |
|---|---|---|---|---|---|---|---|
| **COM10.2** | **Extended AMHS** | | | | | | |
| **Stakeholders** | ANSPs<br>EUROCONTROL<br>Industry | **Expected Benefits** | | | | | |
| | | Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security |
| **FOC** | 31/12/2024 | **OI Steps / Enablers** | | | CTE-C06c | | |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | | | - | - | |
| **Status** | **On Time** | **ICAO ASBU** | | | COMI-B0/7 | | |

**Completion Rate Evolution (%)**

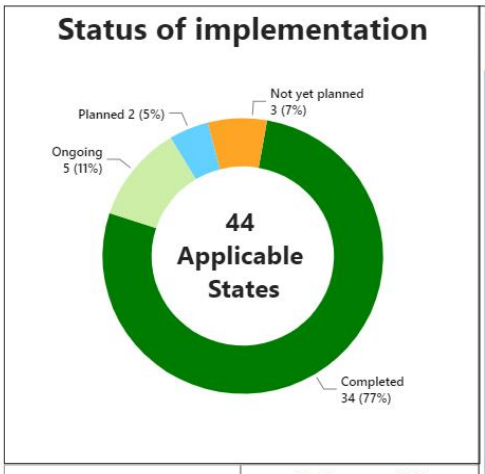



**Progress among non-Completed Countries**




**Progress** has not evolved, stagnating at **77%**. 34 States reported completion, while 2 are expected to implement in 2023.

Only few States have not finalised implementation. 3 States have not reported implementation plans yet.






- The objective is nearly achieved, with a completion rate of 77% by the end of 2022.
- In most remaining States, existing AMHS systems already support some extended functionalities, with full migration still ongoing.
- TR, CY and MT have not yet planned the implementation of Extended AMHS.
- HR, IE and UK intend to implement AMHS by the FOC date (2024).





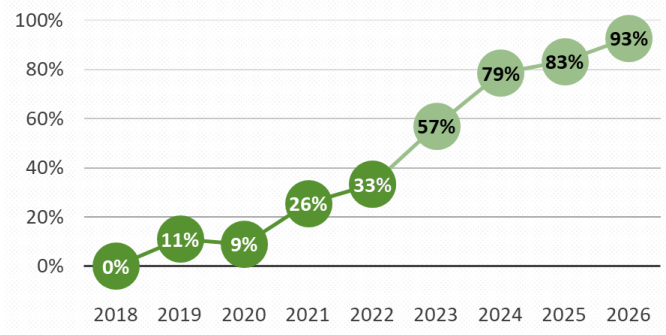
Co-funded by the European Union

# SESAR Solution – Nil

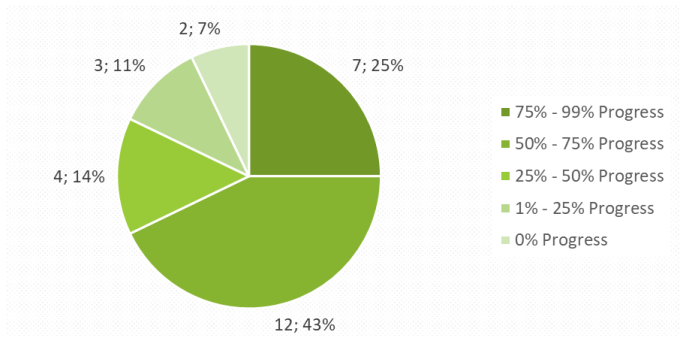
## COM11.1 Voice over Internet Protocol (VoIP) in En-Route

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Stakeholders** | ANSPs | **Expected Benefits** | Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security |
| **FOC** | 31/12/2021 | **OI Steps / Enablers** | | | | CTE-C05a, CTE-C05b | | |
| **Estimated achievement** | 31/12/2025 | **CP1 AF & SDP Family** | | | | - | - | |
| **Status** | **Late** | **ICAO ASBU** | | | | COMI-B2/1 | | |

**Completion Rate Evolution (%)**

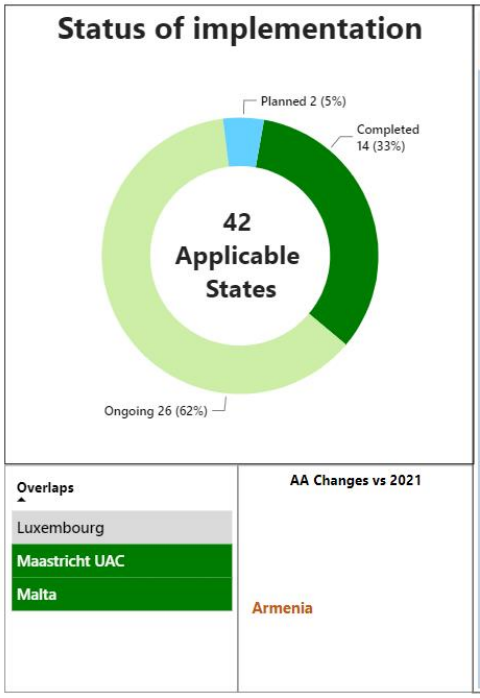


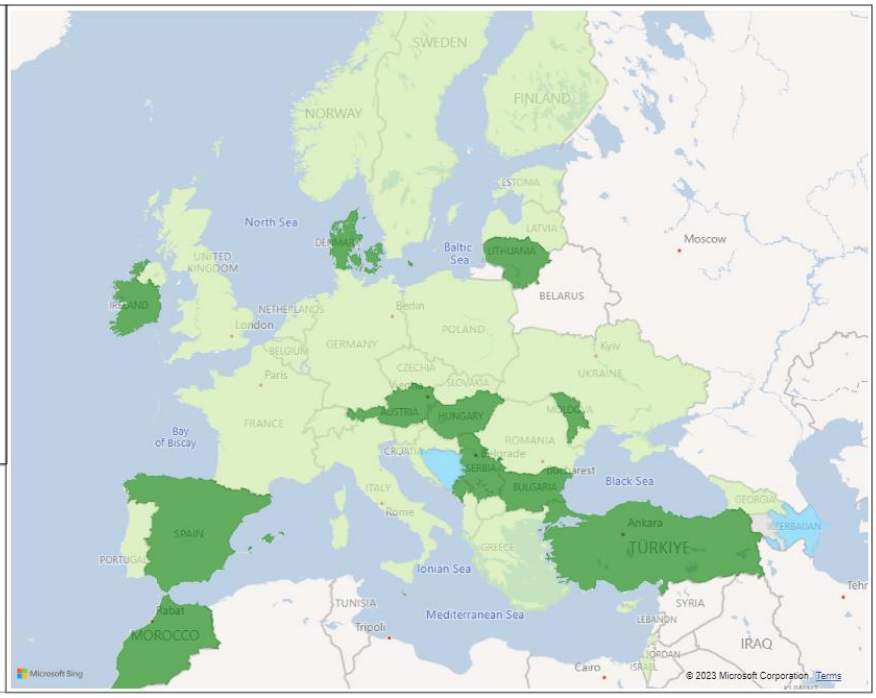

**Progress among non-Completed Countries**




Three more States finalized the implementation during 2022, corresponding to an increase in completion of 7 percentage points vs 2021, i.e. **33% completion**.

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.




- 3 more States declaring completion of the objective.
- Despite rather low completion rate achieved so far (33%), the procurement process and technical installation of the new VCS systems has already been finalized in a number of centres.
- Significant progress is expected during 2023, with 10 more States expected to finalize implementation according to currently reported plans.
- In some cases, full implementation is dependent on the capability of neighbouring centres, while in other the implementation is pending by military.





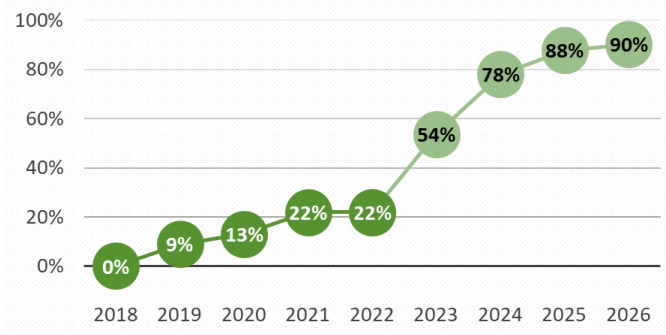
Co-funded by the European Union

## SESAR Solution – Nil

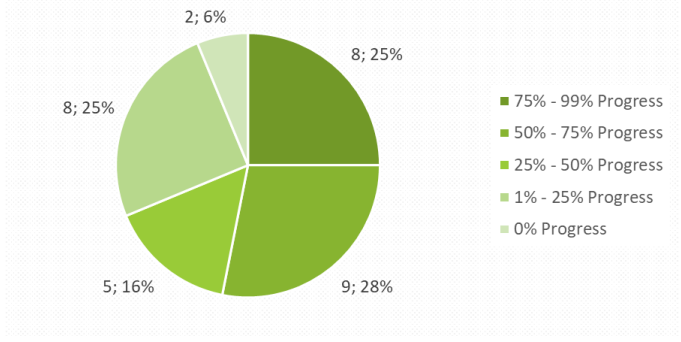
### COM11.2 Voice over Internet Protocol (VoIP) in Airport/Terminal

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2023 | **OI Steps / Enablers** | CTE-C05a, CTE-C05b |
| **Estimated achievement** | 31/12/2025 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Planned delay** | **ICAO ASBU** | COMI-B2/1 |

**Completion Rate Evolution (%)**

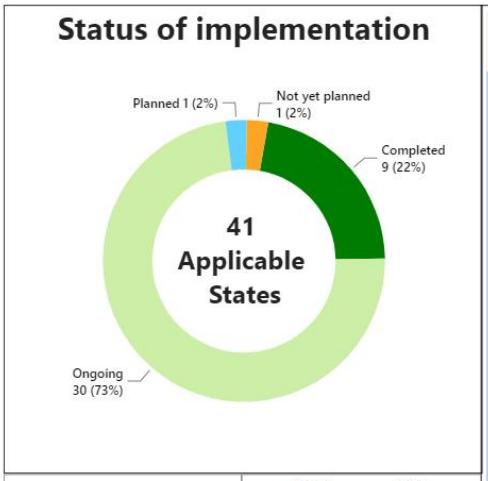



**Progress among non-Completed Countries**



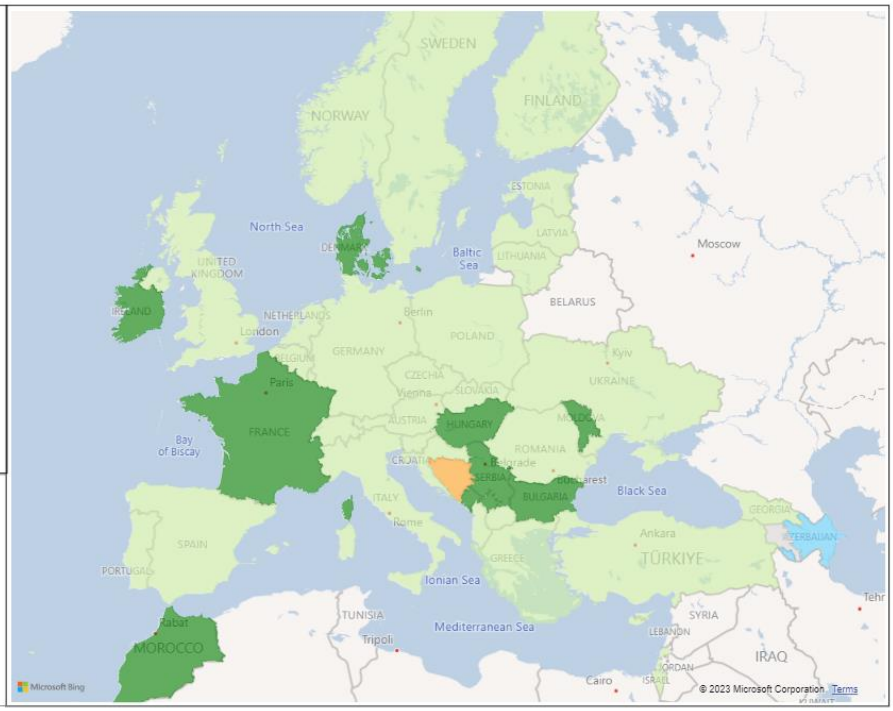

**Progress** has not evolved, stagnating at **22%**. 9 States reported completion up to 2022. We expect a strong progress in 2023 with 13 more States expected to finalize implementation.

Progress is somehow equally spread. However, more than half of the States report a progress above 50%. Only 1 State has not yet started the implementation.




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

AA Changes vs 2021




- No progress in 2022. Significant progress is expected during 2023, with 13 more States expected to finalize implementation according to currently reported plans.
- The objective is expected to be achieved in 2025.
- BA has not yet planned the implementation for VoIP in Airport/Terminal.





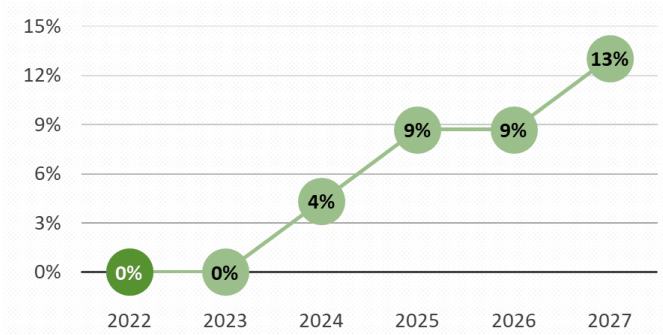
Co-funded by the European Union

# Solution #109 Air Traffic Services (ATS) datalink using SatCom Class B

## COM13 Air Traffic Services (ATS) datalink using SatCom Class B

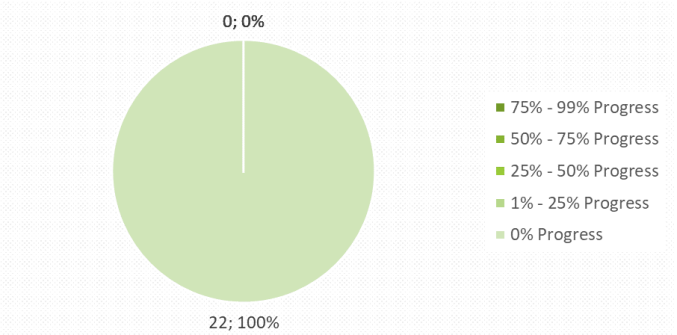
| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>Regulators | **Expected Benefits** | Capacity, Operational efficiency, Cost efficiency, Safety, Environment, Security | |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | POI-0018-COM | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - | - |
| **Status** | **Not Applicable** | **ICAO ASBU** | COMI-B1/3 | |

**Completion Rate Evolution (%)**

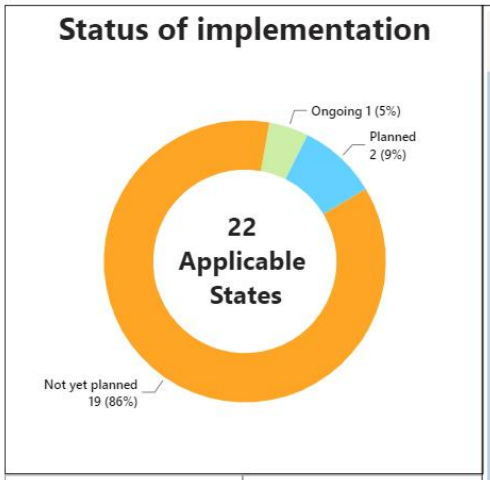



This is a new Objective monitored for the first time in 2022. Currently, no State reported the Objective as completed, hence the **completion rate at 0%** and no progress expected next year.

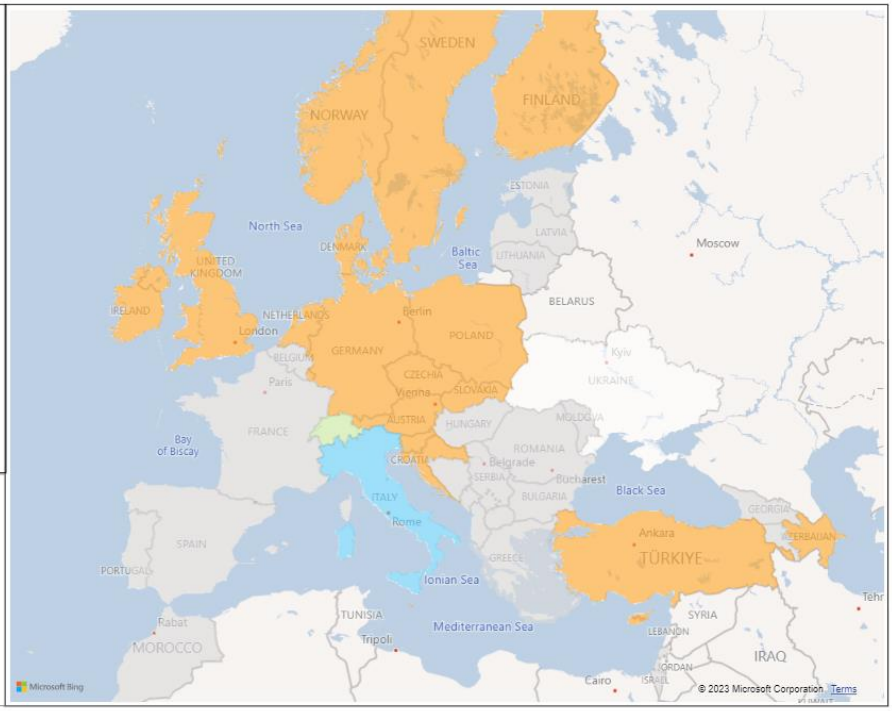
**Progress among non-Completed Airports**




Currently, 1 State has reported the implementation as "Ongoing", while 2 States in the applicability area are in the planning phase. Others do not have concrete plans yet.








- Being a new (local) Objective, monitored for the first time in 2022, it has quite a limited applicability area, as many stakeholders are still assessing the implementation needs.
- The applicability area is expected to evolve and to stabilise over the next 4 years.
- The implementation is depending on datalink using SatCom Class B. One State is currently in a test phase using a connectivity with Inmarsat (Iris Satcom Global Solution, formerly Iris phase 3) to be established during 2023. However, aircraft would need to be equipped with Iris capable avionics.



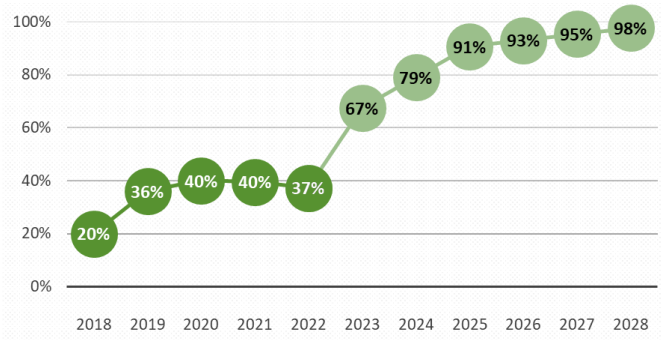
Co-funded by the European Union

CNS infrastructure and services

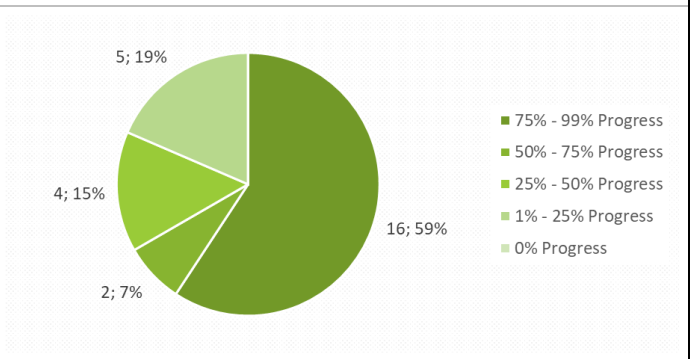
# SESAR Solution – Nil

| ITY-ACID | Aircraft identification | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 02/01/2020 | **OI Steps / Enablers** | GSURV-0101 |
| **Estimated achievement** | 31/12/2025 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Late** | **ICAO ASBU** | - |

**Completion Rate Evolution (%)**

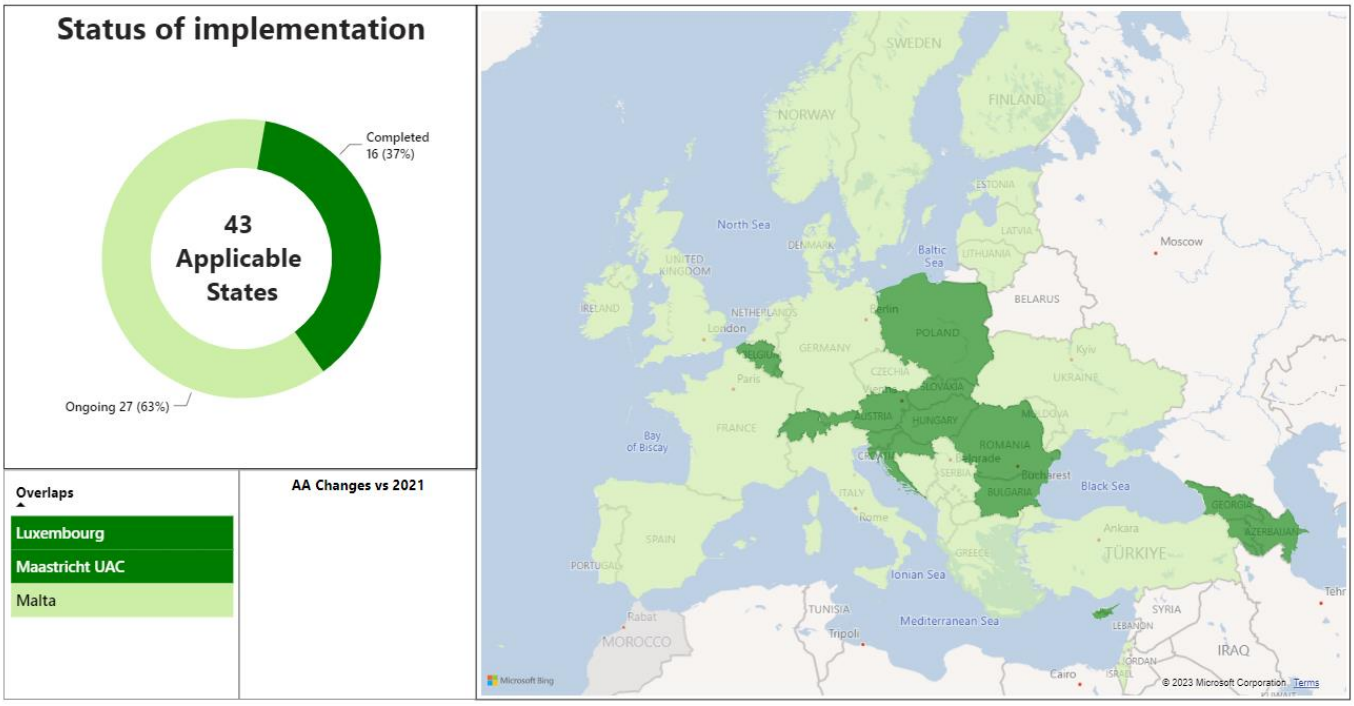



**Progress among non-Completed Countries**




Overall **Completion** went down to **36%** as one State reverted from "Completed" to "Ongoing". Currently 16 States reported completion, while 14 are expected to implement in 2023.

The majority of States is above 75% progress rate.




- Implementation continued, in particular with regard the deployment at lower flight levels and around smaller airports, with several States (e.g. LU, FR, IT) reporting implementation at the level of CTRs.
- 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 but these gaps are being constantly closed).
- 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 7 States (AT, BE, HU, HR, LU, 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).





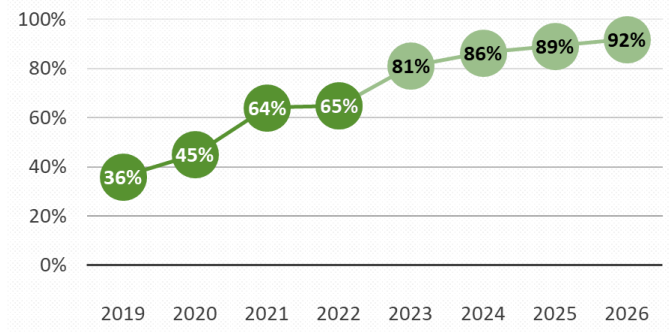
Co-funded by the European Union

# SESAR Solution – Nil

## ITY-AGDL Initial ATC Air-Ground Data Link Services

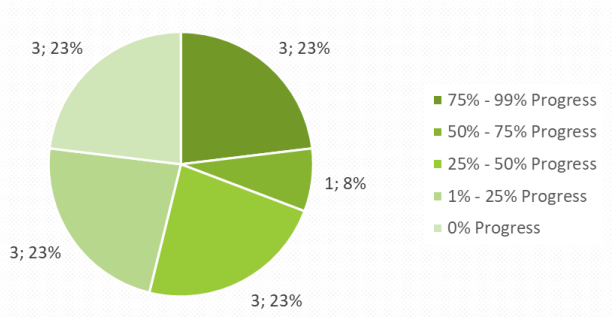
| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs, Airspace Users Industry, Military Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 05/02/2018 | **OI Steps / Enablers** | AUO-0301 |
| **Estimated achievement** | 31/03/2023 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Late** | **ICAO ASBU** | COMI-B0/4, COMI-B1/2 |

**Completion Rate Evolution (%)**



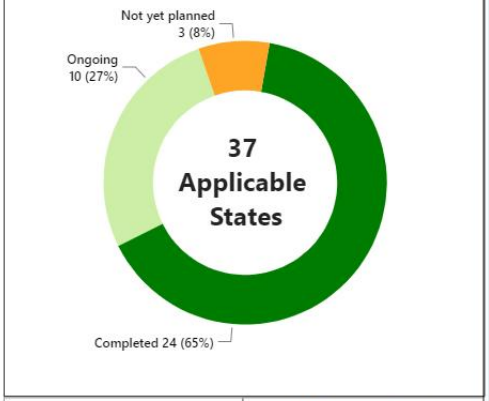

Completion rate reached 65%, with one additional State completing the Objective in 2022 and two States (AM, and AZ) withdrawing from the Applicability Area.

**Progress among non-Completed Countries**

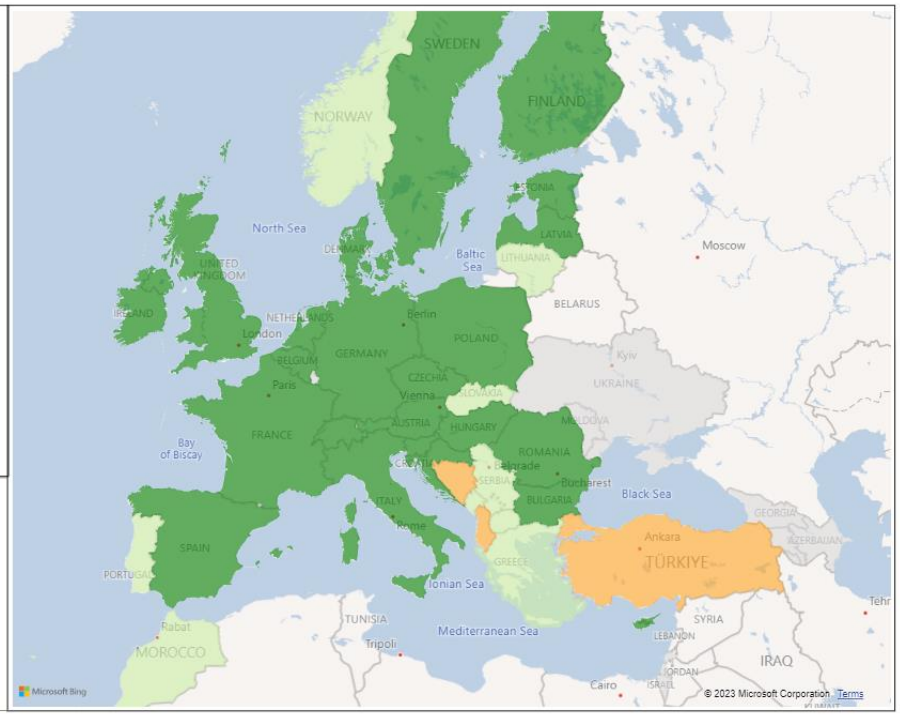



Most of the "Ongoing" States reached a progress higher than 50%, committing to implement by 2023. The others have plans to 2026 at the latest, while only 3 have no plans yet.

**Status of implementation**




| Overlaps | AA Changes vs 2021 |
|---|---|
| Luxembourg | Armenia, Azerbaijan |
| Maastricht UAC | |
| Malta | |




- 5 EU member States (GR, LT, MT, PT and SK) are late in implementing datalink, however committing to do so by 2023.
- One ANSP reports that the full benefits of DLS depend on the interoperability tests with neighbouring ACCs.
- One ANSP reports that work is ongoing to complete the required ground infrastructure.
- Two ANSPs report that LOF and NAN operational usage with neighbouring ACC's is planned in 2023.



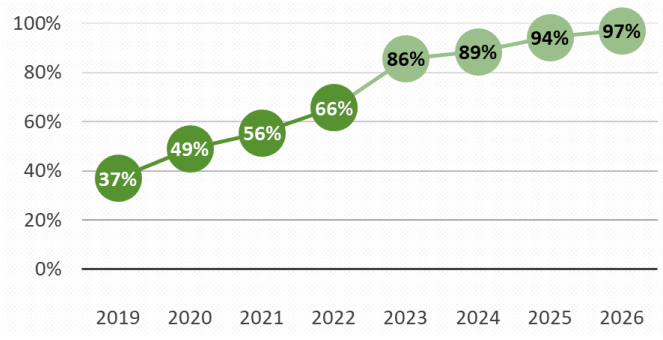


Co-funded by the European Union

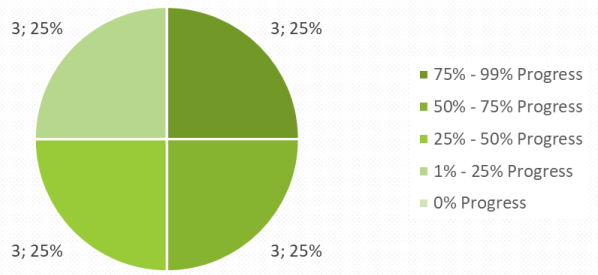
## SESAR Solution – Nil

| ITY-AGVCS2 | Implement AGVCS below FL195 | | |
|---|---|---|---|
| **Stakeholders** | ANSPs, Airport Operators<br>Airspace Users<br>Military, NM<br>Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | Radio equipment: 12/2017<br>Freq. converted: 12/2018<br>State Aircraft: 12/2020 | **OI Steps / Enablers** | CTE-C01a |
| **Estimated achievement** | 31/12/2024 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Late** | **ICAO ASBU** | - |

**Completion Rate Evolution (%)**

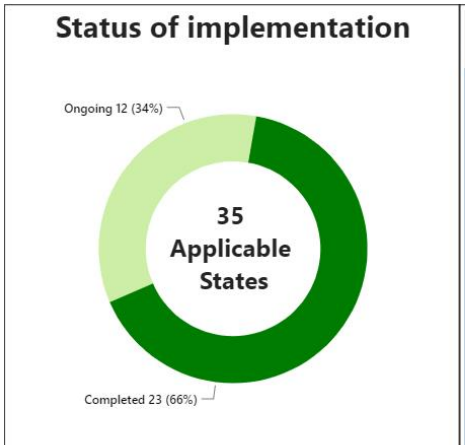



**Progress among non-Completed Countries**

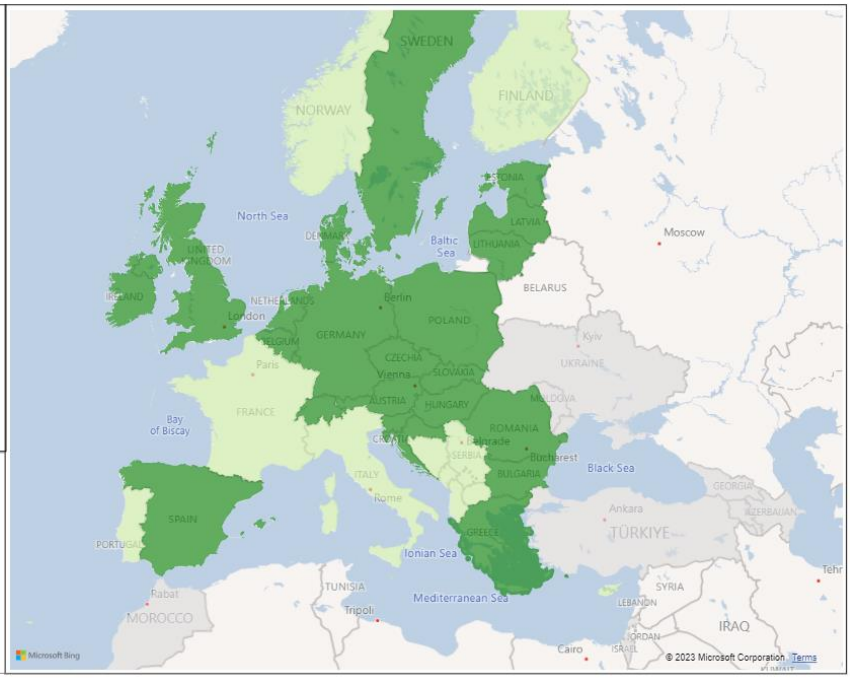



3 States have finalised implementation in 2022, leading to a total of 23 States have reported **completion (66%)**, while another 7 are expected to finalise implementation in 2023.

Half of the States are above 50% progress rate.







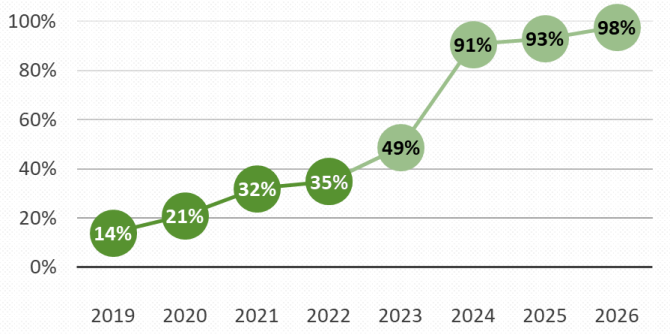

- Roughly 2/3 of all assignments (EU+CH, NO, UK) are already 8.33 kHz confirming the annual increase (out of a grand total of 9169168 assignments, 6592 assignments were 8.33 kHz in 2022, vs. 6413 assignments were 8.33 kHz in 2021, 6259 in 2020 and 5700 in 2019).
- The (temporary) exemptions are mostly 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. Most of them will be converted within the 2027-2028 timeframe.
- 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.

# Solution #103 Approach Procedures with Vertical Guidance

## NAV10 RNP Approach Procedures to instrument RWY

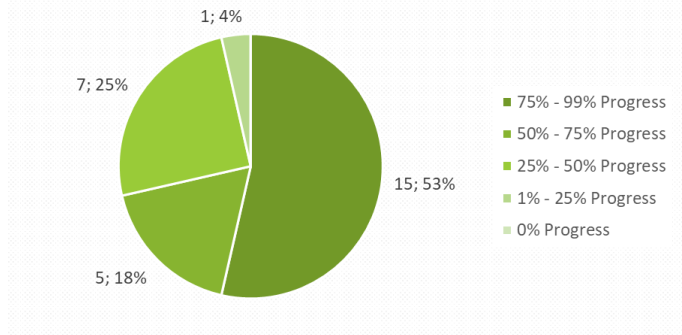
| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 25/01/2024 | **OI Steps / Enablers** | AOM-0602, AOM-0604, CTE-N06a, CTE-N06b |
| **Estimated achievement** | 31/12/2026 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Planned delay** | **ICAO ASBUs** | NAVS-B0/2, APTA-B0/1, APTA-B1/1 |

**Completion Rate Evolution (%)**

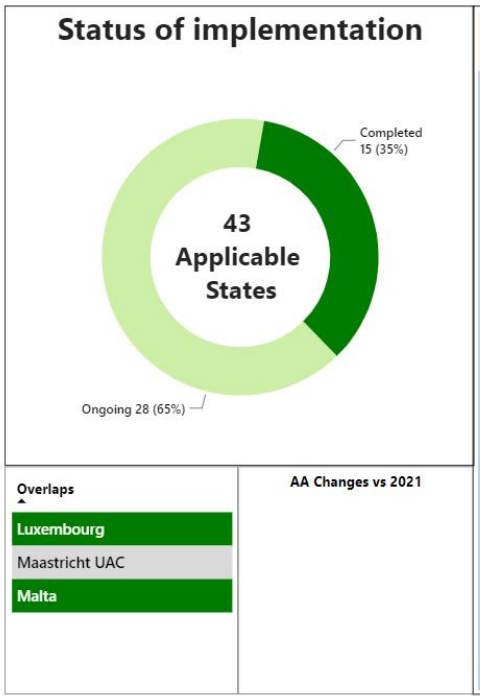


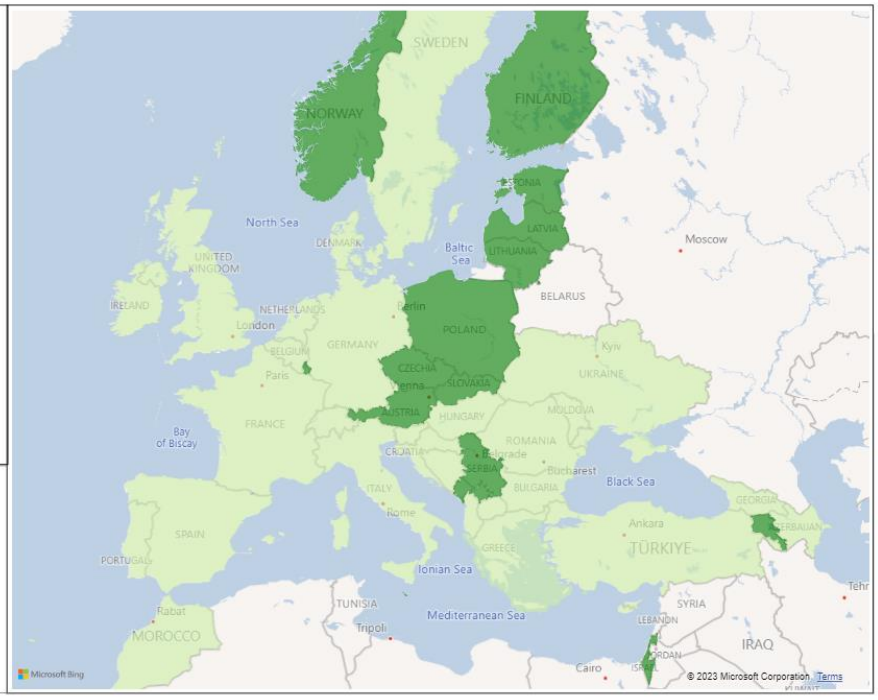

The **completion rate** increased to **35%** in 2022. AT, EE, LV implemented the Objective this year, whilst the remaining State will do so by 2030, late vs the FOC date.

**Progress among non-Completed Countries**




20 out of 28 States which have not completed yet the objective, achieved a progress greater than 50%, with 15 with a progress above 75%.




- 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.
- 15 States have already completed the implementation. In 2022, three States closed the Objective, whilst HR and HU reverted to an "ongoing" status due to the implementation of additional approaches and the review of some regulatory requirements.
- All States in the Applicability Area are implementing RNP Approach Procedures at LPV minima, LNAV/VNAV minima, and LNAV minima served by precision approach, with major airports already having published the procedures in the national AIP.

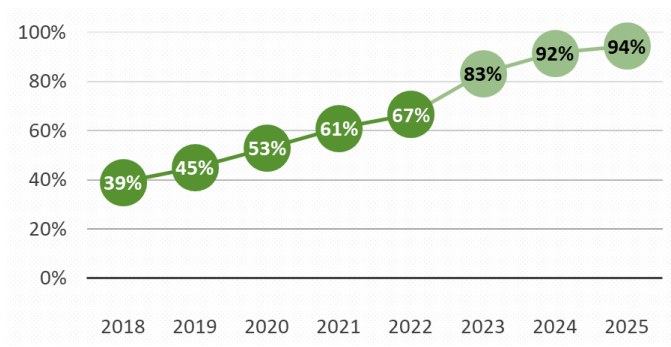


Co-funded by the European Union

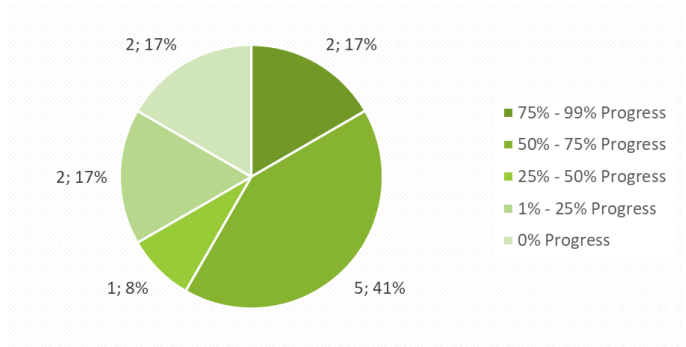
## 4.3 ATM INTERCONNECTED NETWORK

| ATM interconnected network | **SESAR Solution – Nil** | | |
|---|---|---|---|
| **AOM13.1** | **Harmonise OAT and GAT handling** | | |
| **Stakeholders** | ANSPs<br>Military<br>Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2018 | **OI Steps / Enablers** | AOM-0301, AOM-0303 |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Late** | **ICAO ASBU** | - |

**Completion Rate Evolution (%)**

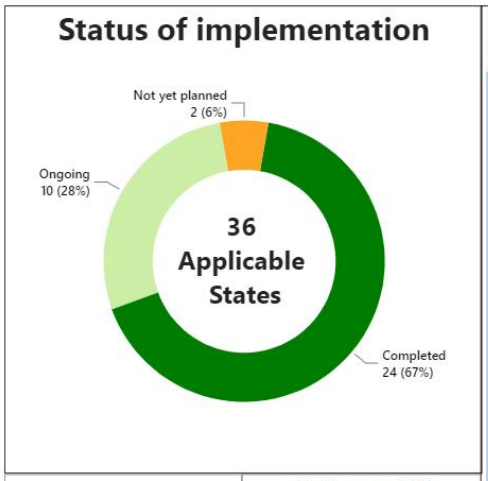


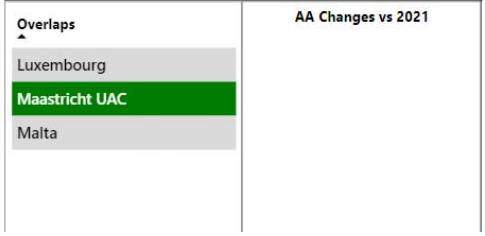

**Progress among non-Completed Countries**

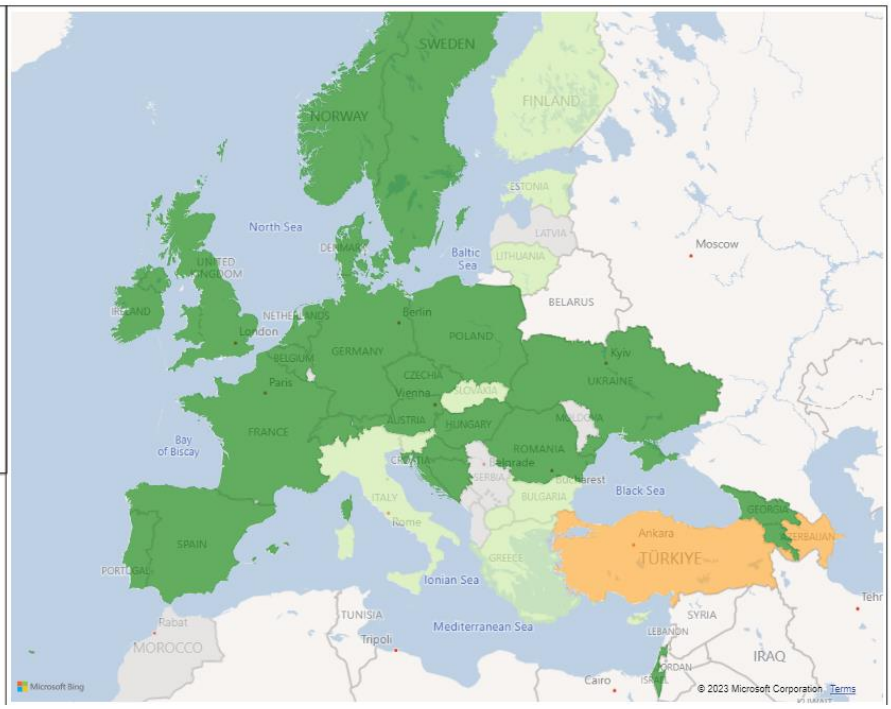



NO and the UK finalised the implementation in 2022, increasing the **completion rate** to **67%**. Seven States delayed the activities closure to 2023, hence the estimated achievement shift.

The progress so far is greater than 50% in most of the remaining States, indicating to achieve the implementation by the end of 2023.




- As some States reported delay of implementation, the estimated achievement is now expected for 2023. In general, States did not give clear indication for the delay (except SK due to situation in UA).
- Significant progress is expected during second half of 2023, with another 9 States planning to finalize the implementation within next cycle.





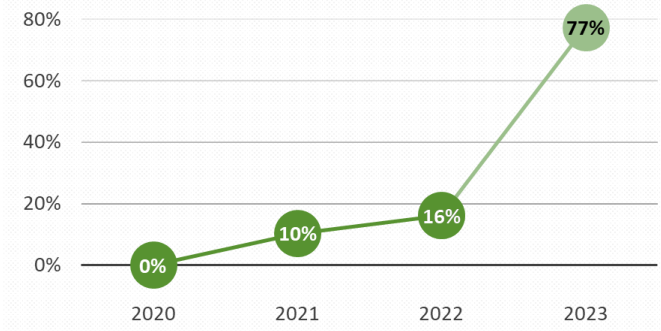
Co-funded by the European Union

# Solution #21 AOP and AOP-NOP seamless integration

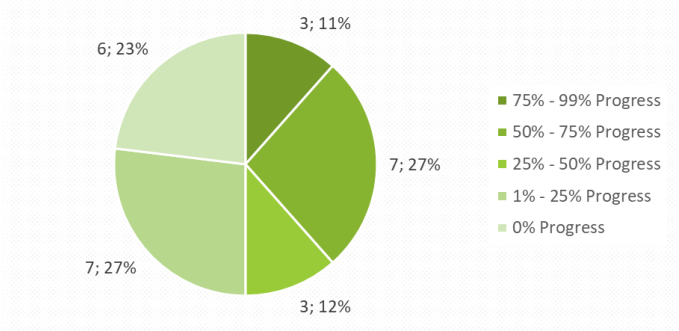
## AOP11.1 Initial Airport Operations Plan

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

**Completion Rate Evolution (%)**



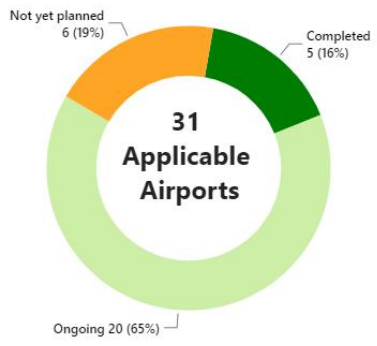

**Progress among non-Completed airports**




Two more Airports completed Initial AOP, with a total of five Airports, reaching a **16% progress**. The achievement is expected for 2023, however with some uncertainty due to the spike in the completion rate on the FOC year.

At the end of 2022, most airports with status "Ongoing" reported implementation close to 50%. To be noted the impressive progression of 18 Airports across the network.

**Status of implementation**




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| London Stansted Airport |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

**AA Changes vs 2021**

LCLK
LTFM


- All CP1 regulated Airports committed to implement Initial AOP by its FOC, 2023. Of these, 3 already achieved the Objective.
- EKCH and LIRF reported the Objective as "Completed" during this reporting cycle.
- LTFM joined the Applicability Area and implementation is foreseen after A-CDM (AOP05).
- All "Ongoing" Airports reported an expected implementation date by FOC date, except LPPT.





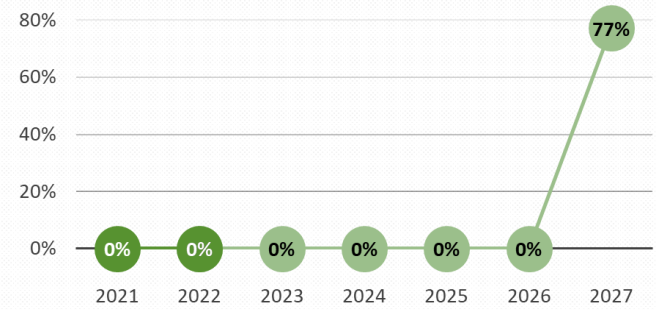
Co-funded by the European Union

# Solution #21 AOP and AOP-NOP seamless integration

## AOP11.2 Extended Airport Operations Plan

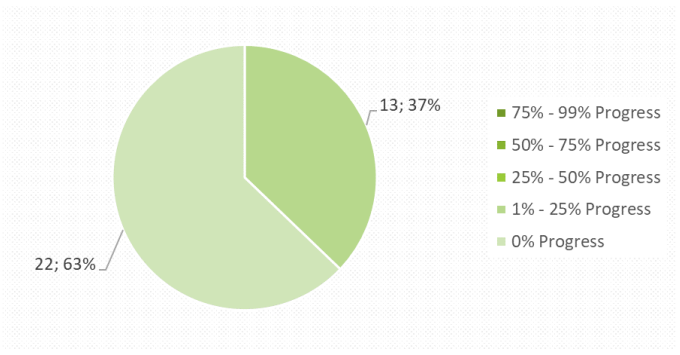
| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators | **Expected Benefits** | Capacity, Operational efficiency, Cost efficiency, Safety, Environment, Security | |
| **FOC** | 31/12/2027 | **OI Steps / Enablers** | AO-0801-A, AO-0802-A, AO-0803, DCB-0310 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF2 | 2.2.2 |
| **Status** | **Not Available** | **ICAO ASBU** | ACDM-B1/1 | |

**Completion Rate Evolution (%)**



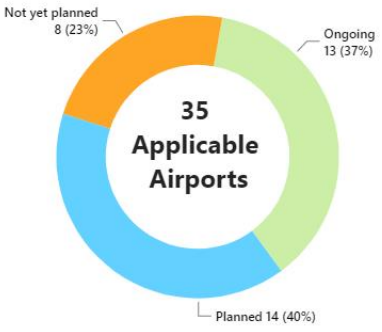

An evolution view will become available later in the future. It will highly depend on the progress of implementation of the initial AOP. As of today, no Airports completed the Objective.

**Progress among non-Completed airports**




22 airports have not achieved any progress, whilst the other 13 are “Ongoing” with a small progress, up to 3%. Slight progress was reported for EPWA, LKRP, LPPT and LSGG.

**Status of implementation**




| Overlaps |
|---|
| London Heathrow Airport |
| Milan Linate |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

**AA Changes vs 2021**

LCLK
LTFM


- 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. As such, its progress depends 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.
- LCLK and LTFM joined the Applicability Area, changing status from “Not Applicable” to “Not yet planned”.





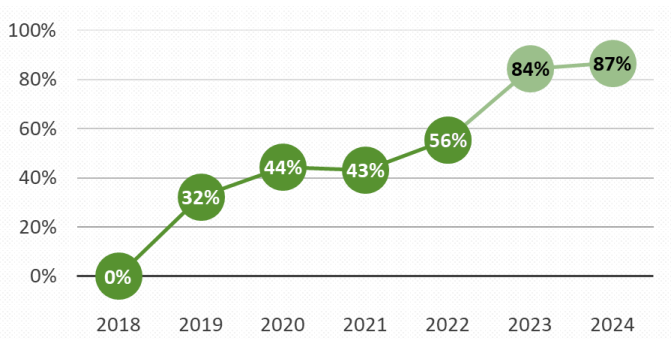
Co-funded by the European Union

# Solution #61 CWP airport – Low-cost simple DEP entry panel

## AOP17 Provision/integration of departure planning Information to NMOC

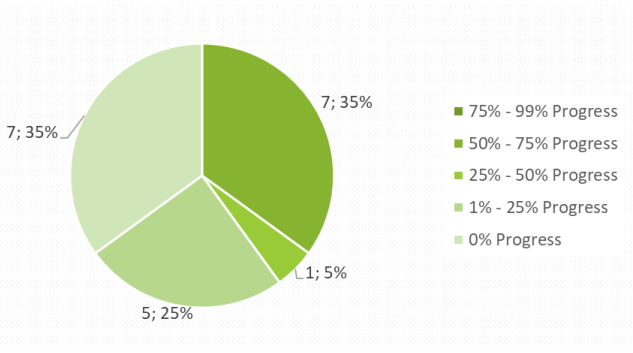
| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>NM | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | DCB-0304 |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Applicable** | **ICAO ASBU** | NOPS-B0/4 |

**Completion Evolution**

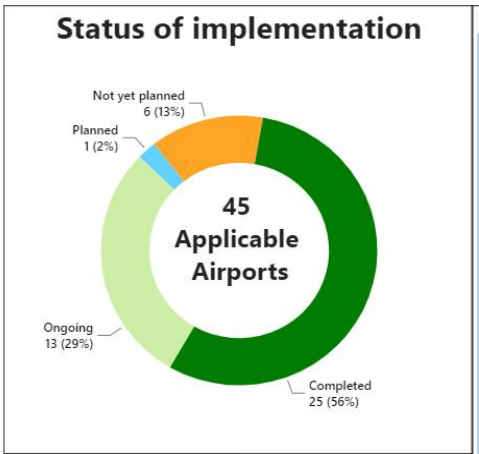



Six airports completed the implementation in 2022: LFML, LFBO, LGRP, LGSM, LGTS and LGMT Airports, reaching a total of **25 Airports** having **implemented AOP17**.

**Progress among non-Completed Airports**



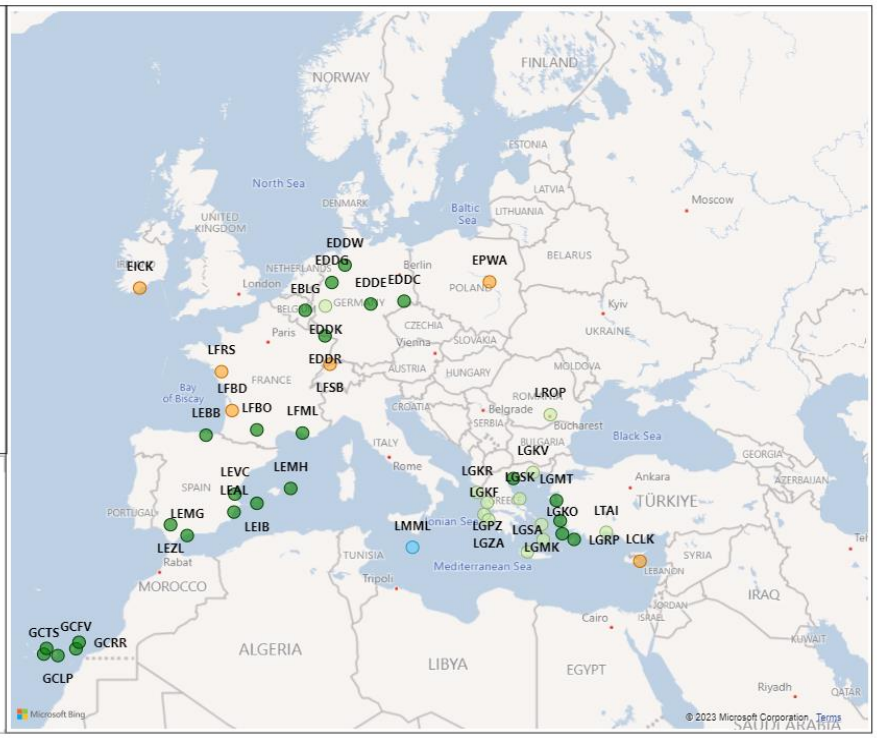

In one third of the remaining airports in the applicability area, the progress achieved so far is greater than 50%




Overlaps

AA Changes vs 2021

EPWA ESPA
LCLK LQSA




- This functionality aims to improve the integration of medium or small-size airports into the Network through the provision of accurate pre-departure information to the NM.
- AOP17 is considered as “Not Applicable” for the airports that deployed 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” in particular in the core area of ECAC.
- This year 3 airports changed their statuses to “NA”, having the intention to deploy A-CDM and 4 to “Not Yet Planned” considering the possibility to implement AOP17, along with 3 other airports that changed from “Planned” to “Ongoing”.



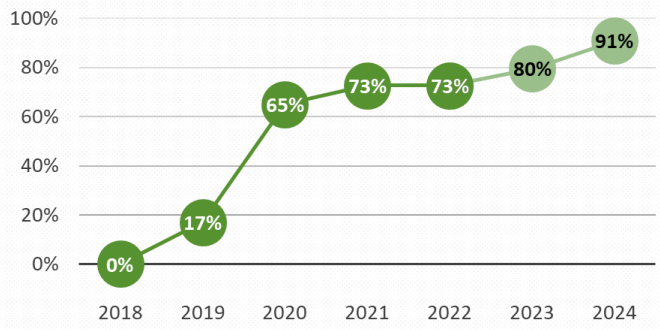
Co-funded by the European Union

# SESAR Solution – Nil

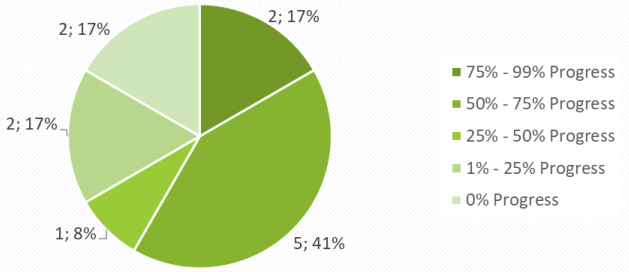
## COM12 New Pan-European Network Service (NewPENS)

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators<br>Airspace Users<br>NM | **Expected Benefits** | Capacity, Operational efficiency, Cost efficiency, Safety, Environment, Security |
| **FOC** | 31/12/2024 | **OI Steps / Enablers** | CTE-C06b |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | - / - |
| **Status** | **On Time** | **ICAO ASBU** | COMI-B1/1 |

**Completion Rate Evolution (%)**

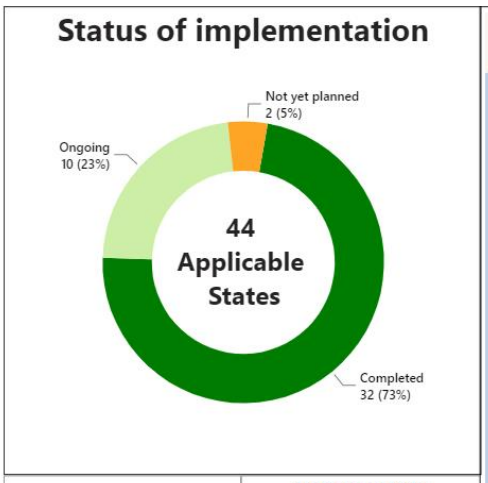


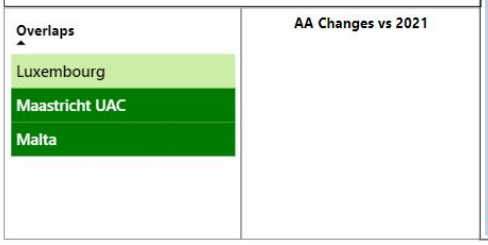

**Progress among non-Completed Countries**

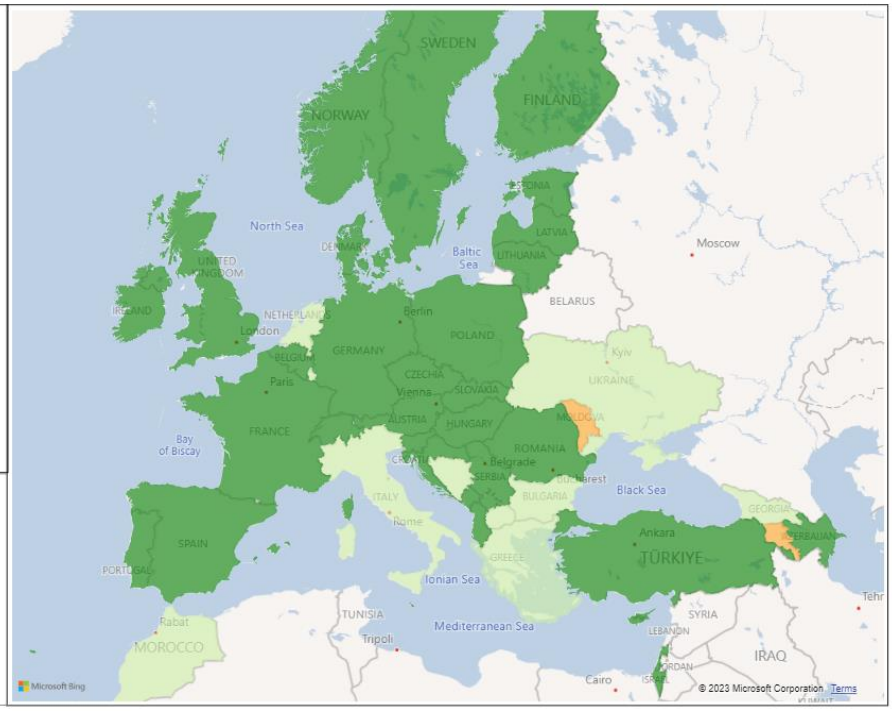



**Progress** has not evolved, stagnating at **73%**. 32 States reported completion, while 4 are expected to implement in 2023. All States (except 2 not having plans yet) are expected to complete COM12 by the FOC.

The majority of States are above 50% progress rate, with only two States still not having any plans for implementation.




- NewPENS Common Procurement Agreement has been signed in 2018, leading to a major boost in implementation.
- The objective is expected to be achieved (reaching 80% of completion) in the next reporting cycle.
- NewPENS connectivity infrastructure has been installed and put into service in 85% of the States.
- Ongoing activities are mainly related to the implementation at airports, as well as migration of more services to NewPENS.
- In the vast majority of States, the migration to NewPENS at airports is not considered beneficial at this point.
- Two States have not yet planned the implementation (AM and MD).





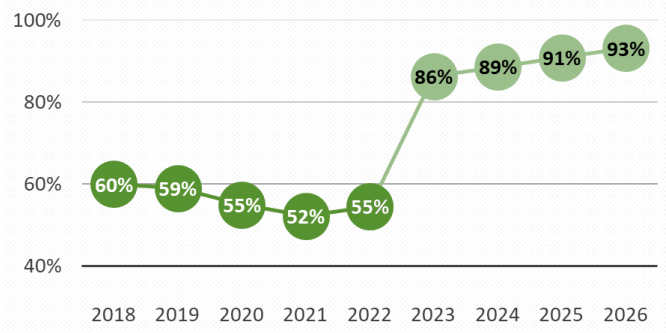
Co-funded by the European Union

# SESAR Solution – Nil

## FCM03 Collaborative Flight Planning

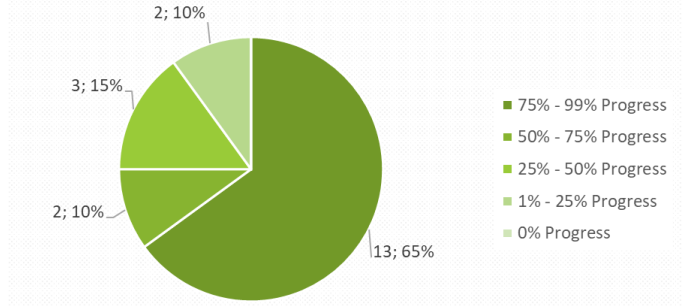
| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>NM | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2022 | **OI Steps / Enablers** | IS-0102 |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Late** | **ICAO ASBU** | NOPS-B0/2 |

**Completion Rate Evolution (%)**

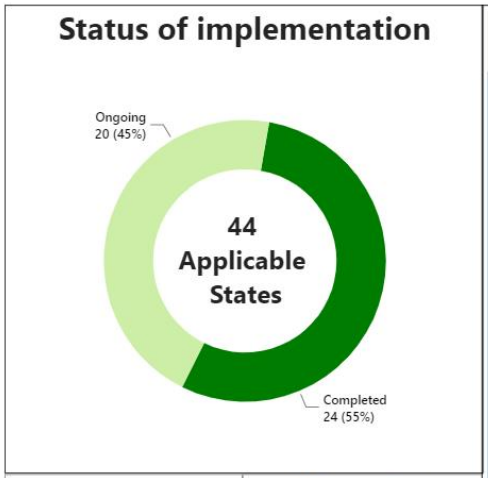


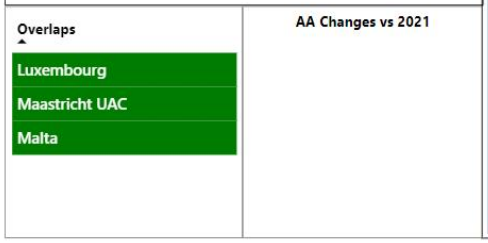

Two States finalised implementation in 2022 (PT and LU) while one State (FI) reverted from "Completed" to "Ongoing", hence the slight increase in the **completion rate** to **55%**.

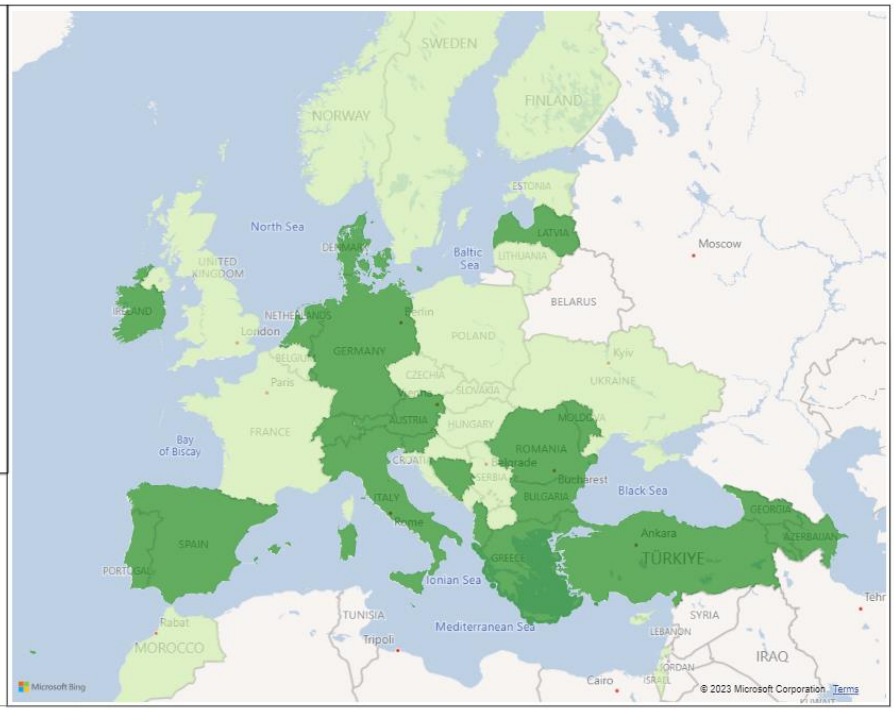
**Progress among non-Completed Countries**




More than half of the States in the applicability area have an implementation progress above 75%.




- Implementation continues to stagnate, with virtually no progress over the last years.
- It is expected that the changes brought to the IFPS Users Manual in 2020 will facilitate the completion of the Objective, now expected for 2023.
- The automatic generation of AFP messages for missing flight plans has a better progress (69%) than the overall objective.
- Some of the States reporting completion have not yet finalised the testing with the NM for all theirs ACCs so might not be fully compliant.



EUROPEAN PARTNERSHIP

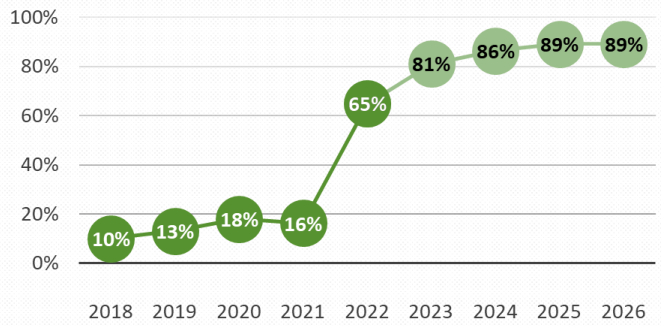
Co-funded by the European Union

# Solution #17 Advanced short-term ATFCM measures (STAMs)

## FCM04.2 Enhanced Short Term ATFCM Measures

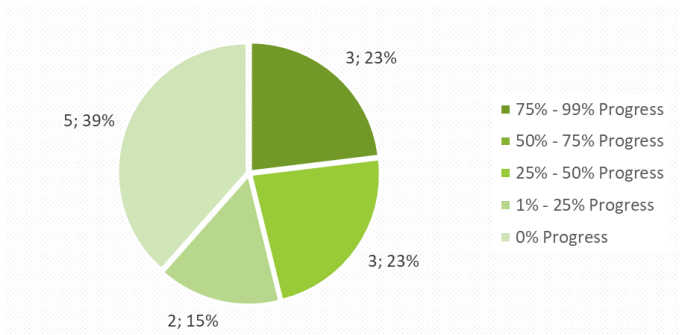
| | | | | | |
|---|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>NM | **Expected Benefits** | Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security |
| **FOC** | 31/12/2022 | **OI Steps / Enablers** | DCB-0308 | | | | |
| **Estimated achievement** | 31/12/2024 | **CP1 AF & SDP Family** | AF4 | 4.1.1 | | | |
| **Status** | **Late** | **ICAO ASBU** | NOPS-B1/1 | | | | |

**Completion Rate Evolution (%)**

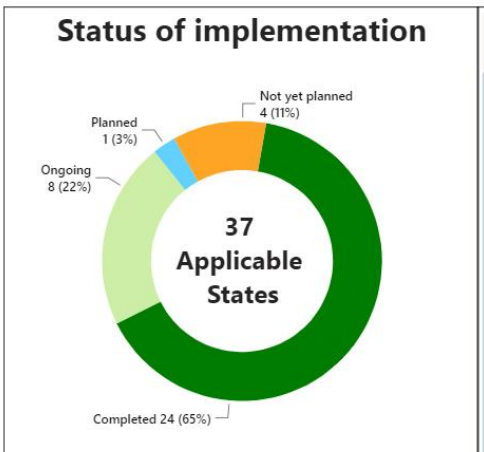



FCM04.2 witnessed a substantial increase of its completion rate, mainly driven by the CP requirements for implementation within the EU. Therefore, the completion rate across the entire applicability area currently stands at **65%.**

**Progress among non-Completed Countries**

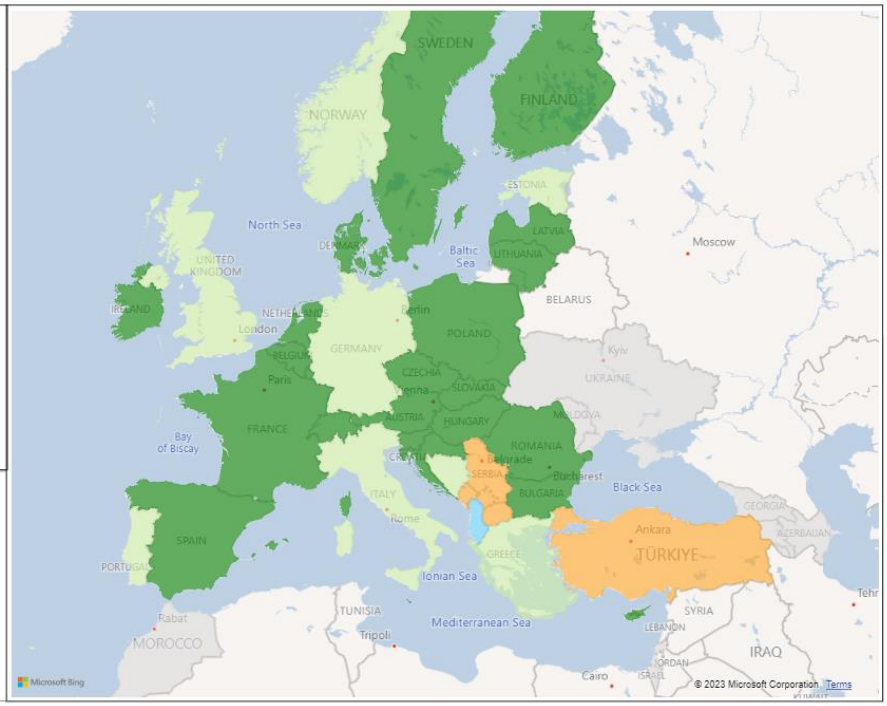



The distribution of progress across the States which have not finalised the implementation is quite even, with roughly half of them having a progress between 50% and 99%.




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

AA Changes vs 2021




- A total of 24 ANSPs have completed the implementation of using a local or the NM STAM tool.
- The deployment progress outside the EU (+CH, NO, MUAC) is not showing a significant progress as most of the implementation is driven by the CP1 Regulation.
- UK's status has changed to "Completed" to "Ongoing" due to NATS' plans to incorporate the NM MCP tool into the NMP, action set to be implemented in April of 2023.
- According to the current plans, DE, EE, GR, IT, PT and UK intend to implement this objective in 2023.



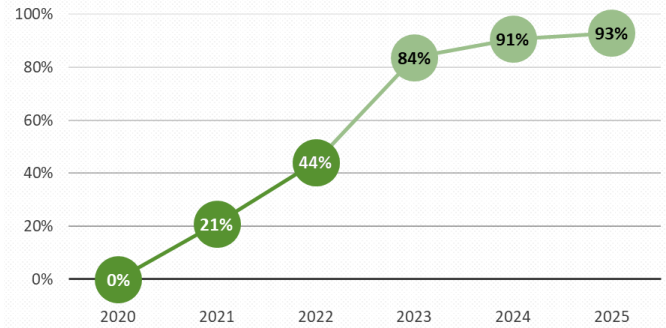


Co-funded by the European Union

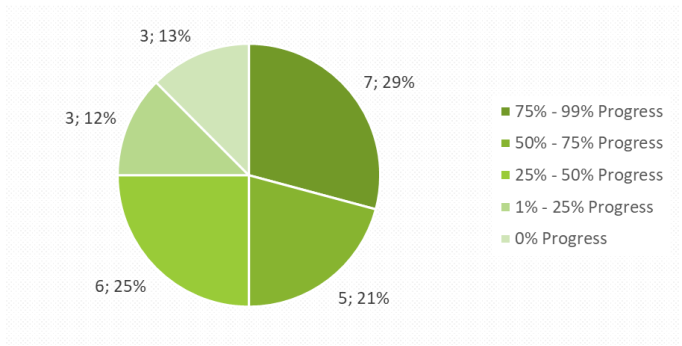
| | |
|---|---|
| ATM interconnected network | **Solution #19 Automated support for Traffic Complexity Detection and Resolution**<br>**Solution #PJ.18-02c eFPL distribution to ATC** |
| **FCM06.1** | **Automated Support for Traffic Complexity Assessment and Flight Planning interfaces** |

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

**Completion Rate Evolution (%)**

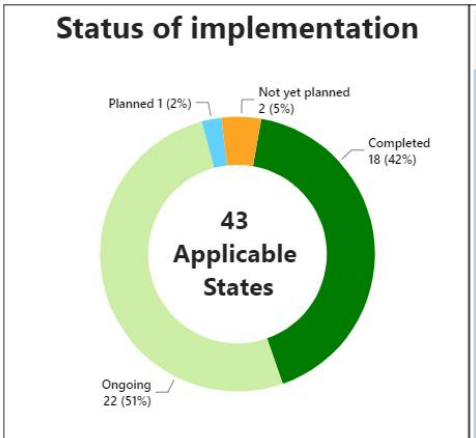


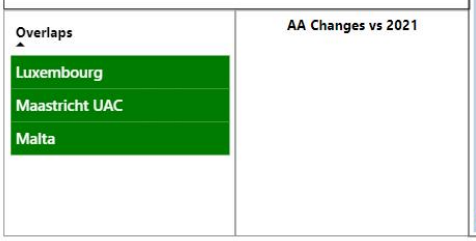

**Progress among non-Completed Countries**

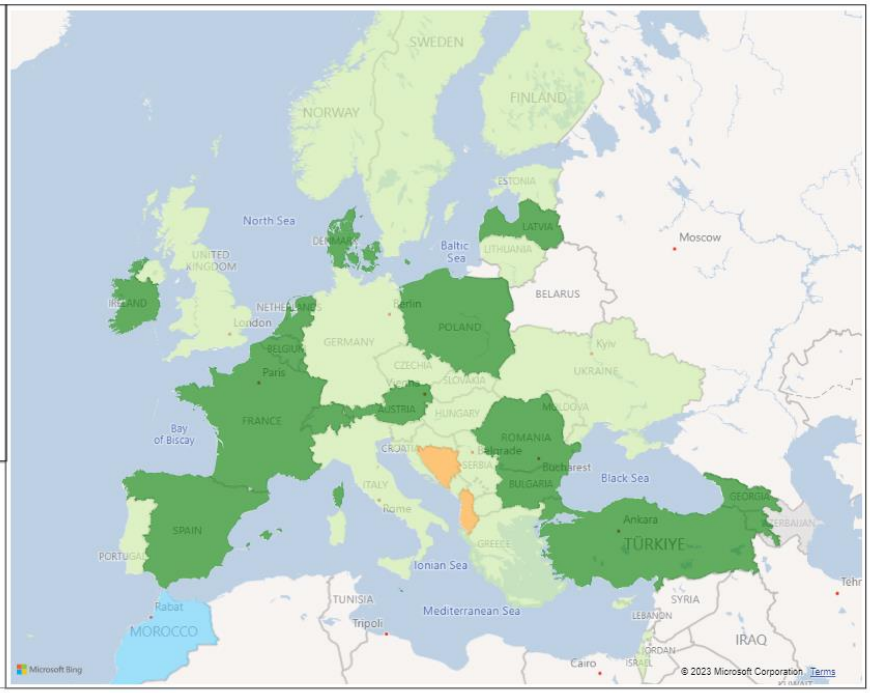



While good progress was recorded in 2022 with a doubled completion rate, a substantial increase in particular within the EU, is expected for 2023.

Half of the States which have not reached completion yet have an implementation progress between 50% and 99% while 3 quarters are above 25%.




- To enhance traffic predictability, the objective includes not only the utilization of traffic complexity tools but also the
- provision of AFP messages and the processing of ATC Flight Plan (APL) and ATC Flight Plan change (ACH) messages.
- AT, BE, DK, ES, FR, IE, LU, NL and RO completed the implementation during 2022.
- In 2023, an 81% completion rate is expected to be attained, while in 2024 GR, HU and SK expect to finalise the implementation.



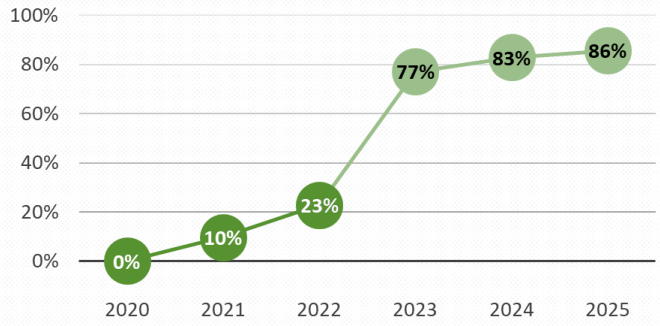
Co-funded by the European Union

# Solution #18 CTOT and TTA
# Solution #20 Collaborative NOP for step 1

## FCM10 Interactive rolling NOP

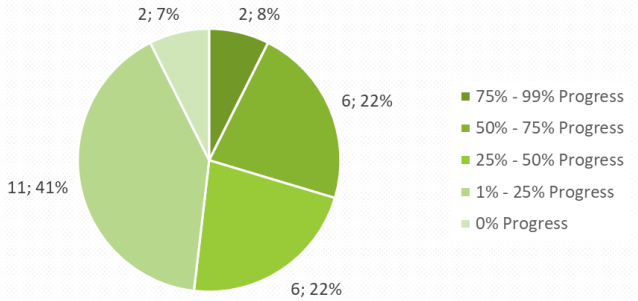
| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>NM | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2023 | **OI Steps / Enablers** | DCB-0102, DCB-0208 |
| **Estimated achievement** | 31/12/2027 | **CP1 AF & SDP Family** | AF4 — 4.2.1 |
| **Status** | **Planned delay** | **ICAO ASBU** | NOPS-B1/2, NOPS-B1/9 |

**Completion Rate Evolution (%)**

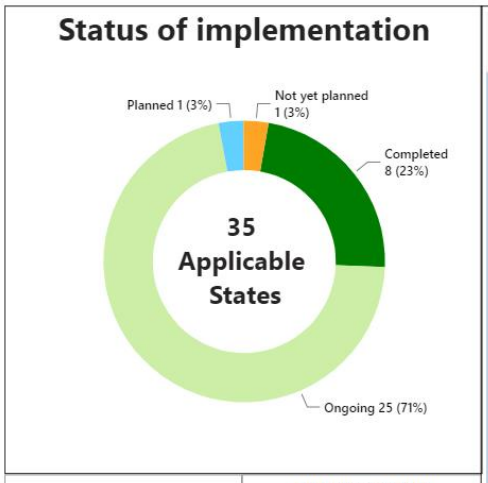



Being a recent objective, the **completion rate** is still low (**23%**) with a completion spike expected for 2023.

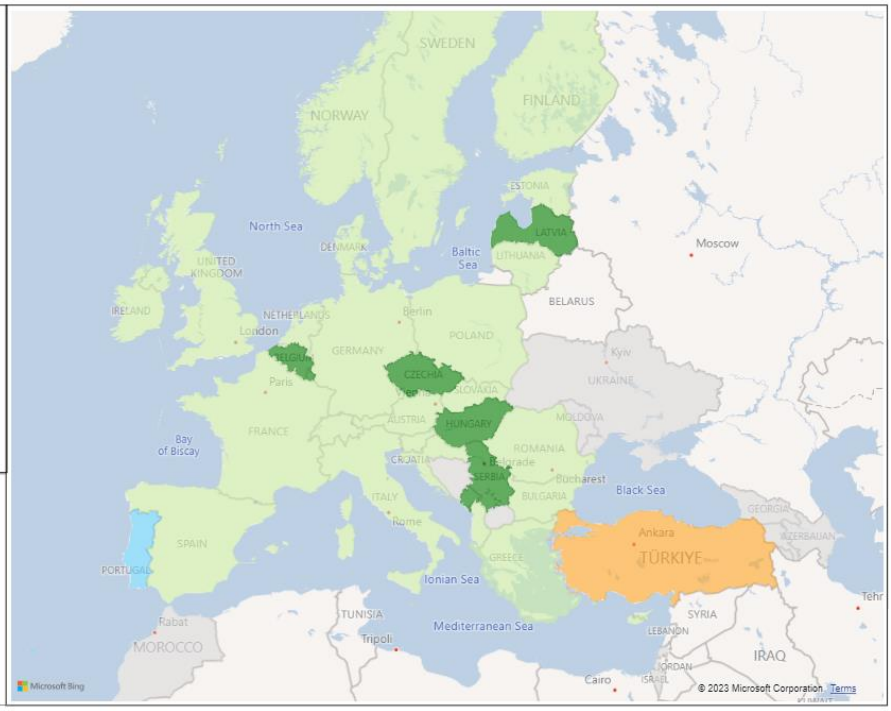
**Progress among non-Completed Countries**




While the implementation is ongoing in almost all States within the applicability area, most of the States report a progress below 50%.




| Overlaps | AA Changes vs 2021 |
|---|---|
| Luxembourg | Albania, Montenegro, Serbia, Türkiye, United Kingdom |
| Maastricht UAC | |
| Malta | Israel |




- 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 NMP (n-CONECT Eco System) platform and the remaining applications (flight, flow and airspace data) are gradually migrated to NMP.
- 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 NMP.
- Airspace Users need to develop procedures and processes to communicate to the pilots the Target Time information received via SAM/SRM messages.
- ANSPs need to adapt the systems, processes and procedures to communicate the Target Time information to ATCOs.



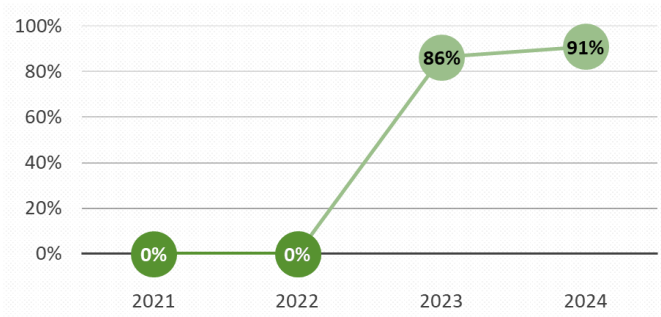
Co-funded by the European Union

# Solution #20 Collaborative NOP for Step 1
# Solution #21 AOP and AOP-NOP seamless integration

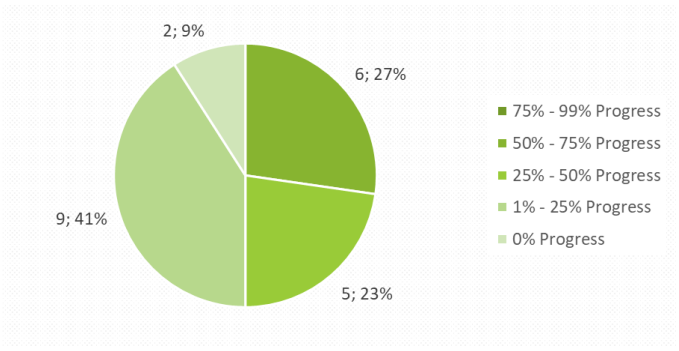
## FCM11.1 Initial AOP/NOP Information Sharing

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators<br>NM | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2023 | **OI Steps / Enablers** | DCB-0103-A, AO-0801-A, AO-0802-A, AO-0803, DCB-0310 |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | AF4 — 4.2.2 |
| **Status** | **On Time** | **ICAO ASBU** | NOPS-B0/4 |

**Completion Rate Evolution (%)**

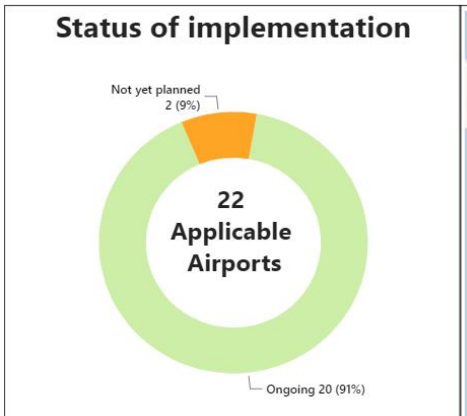



**Progress among non-Completed Airports**




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

Six Airports are reporting more than 50% of progress, whereas the vast majority is still at earlier stages of the implementation, with average progress of 30%. Be noted the significant progress of 17 Airports across the Network in 2022.




| Overlaps |
|---|
| London Heathrow Airport |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

| AA Changes vs 2021 | |
|---|---|
| LCLK | EPWA |


- The six Airports reporting more than 50% progress belong to the CP1 scope (LFMN, LFPG, LFPO, LIMC, LIRF, EKCH).
- LCLK joined the Applicability Area, changing status from “Not Applicable” to “Not yet planned”. EPWA was removed from the Applicability Area as going full scope with AOP/NOP Integration (FCM11.2) as per CP1 Regulation mandate.
- ANSPs reported slightly better progress compared to the Airport Operators. In particular, good progress was reported in systems requirements definition and data validation for P-DPI and G-API.


EUROPEAN PARTNERSHIP
Co-funded by the European Union

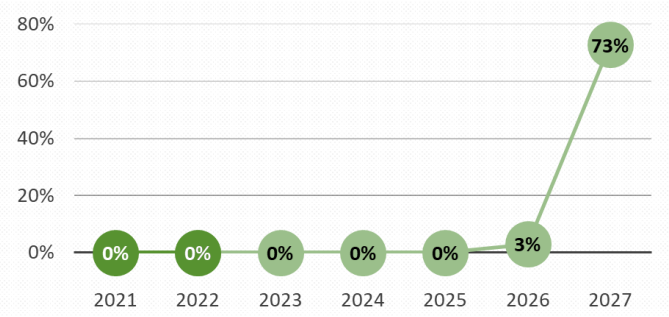
ATM interconnected network

**Solution #18 CTOT and TTA**
**Solution #20 Collaborative NOP for Step 1**
**Solution #21 AOP and AOP-NOP seamless integration**

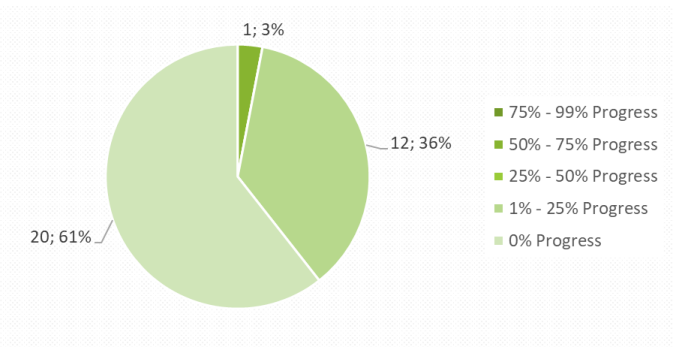
## FCM11.2 AOP/NOP integration

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators<br>NM | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security | |
| **FOC** | 31/12/2027 | **OI Steps / Enablers** | AO-0801–A, AO-0802–A, AO-0803, DCB-0103-A, DCB-0310, DCB-0208 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF4 | 4.4.1 |
| **Status** | **Not Available** | **ICAO ASBU** | NOPS-B1/3 | |

**Completion Rate Evolution (%)**

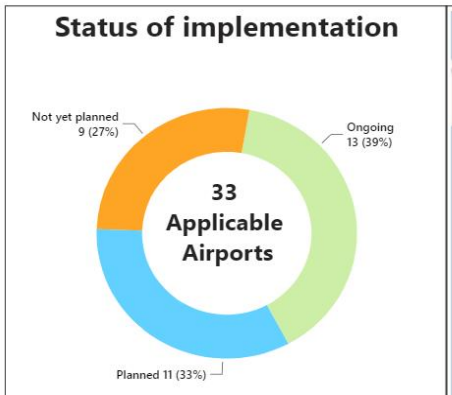



**Progress among non-Completed Airports**




The **completion rate** is **0%** as FCM11.2 is still a rather new objective under the CP1 Regulation. All CP1 Airports committed to finalise the objective by its FOC date.

One Airport reported more than 70% of progress, whereas the vast majority is still at early implementation stage, reporting an average progress of 10%.




| Overlaps |
|---|
| London Heathrow Airport |
| Milan Linate |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

AA Changes vs 2021


- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to 30 Airports across the EU States + CH + NO. Two additional airports are also implementing AOP/NOP integration (LTFM and EGLL).
- Around 73% of "Ongoing" or "Planned" Airports commit to implement AOP / NOP Integration by the FOC date.
- One fourth 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 7% among all the Airports reporting within the Applicability Area. This low figure is coherent with the FOC date.



Co-funded by the European Union

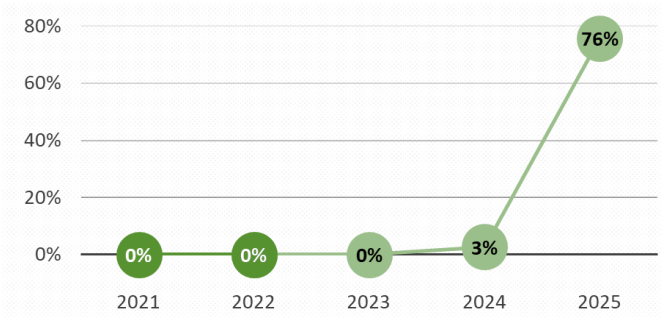
ATM interconnected network

## Solution #46 SWIM Yellow Profile

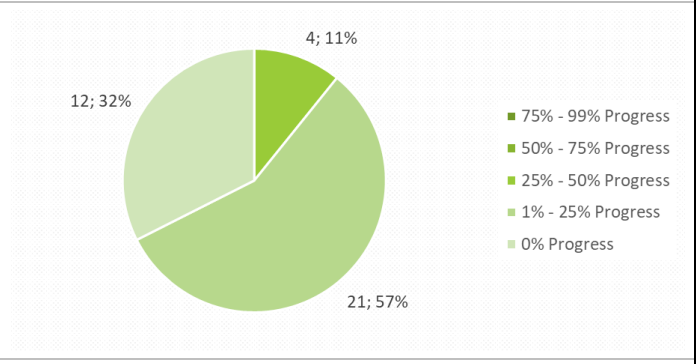
### INF10.2 Stakeholders' SWIM PKI and cybersecurity

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs, Airport Operators, Airspace Users, MET Service Providers, 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 | 5.2.1 |
| **Status** | **On Time** | **ICAO ASBUs** | SWIM-B2/3 | |

**Completion Rate Evolution (%)**

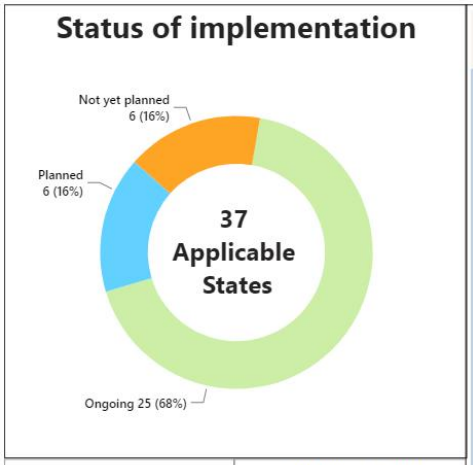


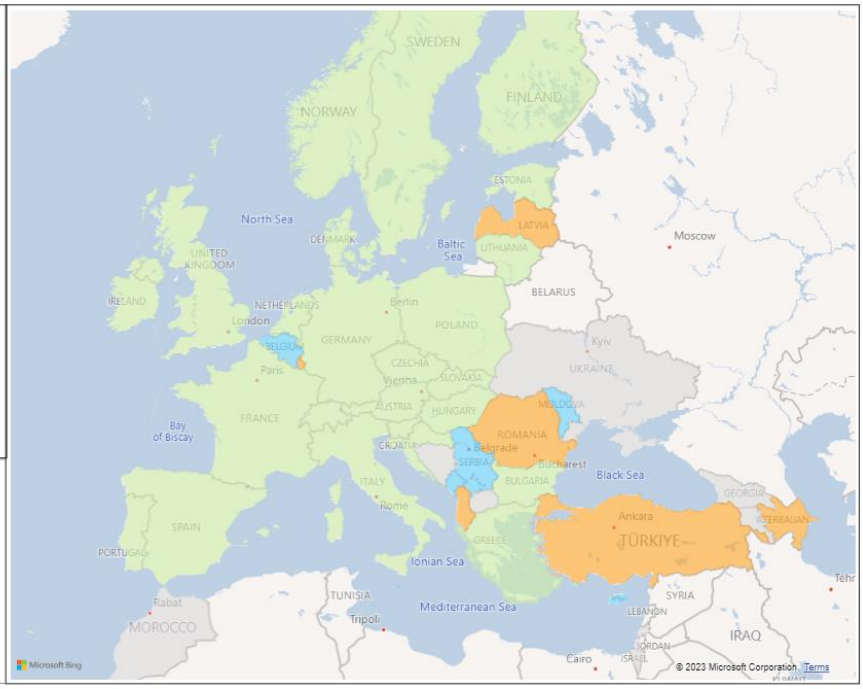

**Progress among non-Completed Countries**




Although subject to a second monitoring cycle, the Objective remains at **0%** completion rate. This rate is only predicted to surge during the FOC year, in 2025.

The implementation is still in its early stages with more than half of the implementing States reporting progress between 1% and 25% while in one third of the implementing States, the implementation has not started yet.




Overlaps
- Luxembourg
- Maastricht UAC
- Malta

AA Changes vs 2021
- Albania, Azerbaijan, Türkiye
- Georgia, Israel

- The CP1 Regulation mandates the implementation to EU States, MUAC, CH and NO.
- No States have yet completed the implementation.
- 25 States reported to be underway with the implementation, while BE, CY, MD, ME, MT, and RS have plans to implement it.
- The remaining States, namely AL, AZ, LV, LU, RO, and TR, have not yet formulated any plans for its implementation, although 3 of them fall under the CP1 regulation.





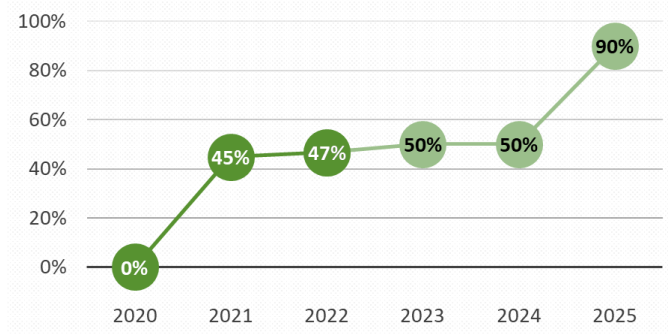
Co-funded by the European Union

# Solution #46 SWIM Yellow Profile

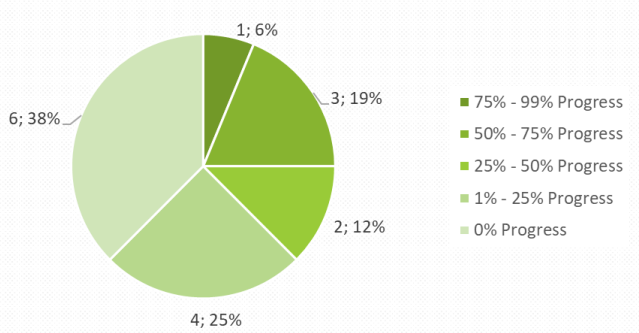
## INF10.3 Aeronautical Information Exchange – Airspace structure service

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>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** | - | |

**Completion Rate Evolution (%)**

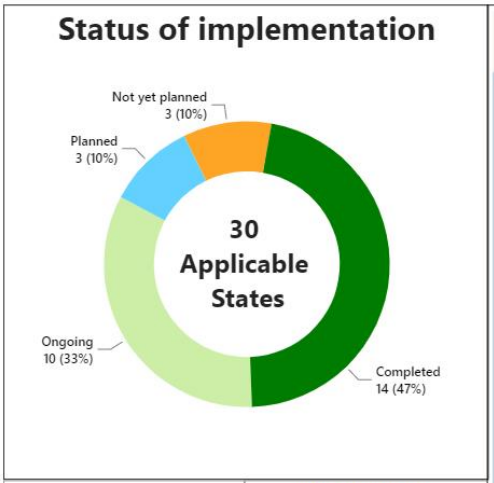


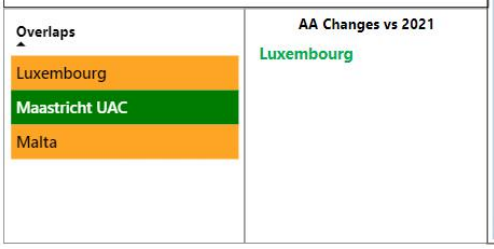

**Progress among non-Completed Countries**

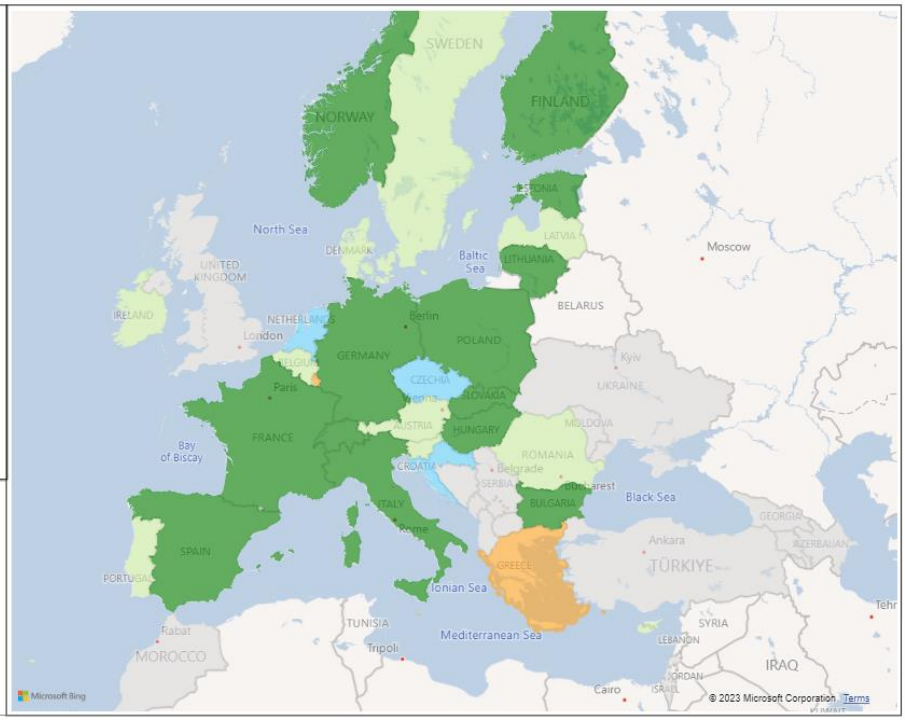



The Objective reached **47% completion rate** so far, having increased by 2 percentage points since 2021. All CP1 States with plans will complete the implementation by its FOC date in 2025.

Roughly two-thirds of the States are evolving towards completion, with an average progress of 42%. The majority of the States reported an achievement between 43% and 68%, with an outlier at 80%.




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO
- 14 States already use the Airspace Structure Service via B2B with the NM, with FI having completed the implementation in 2022.
- 10 States reported to be underway with the implementation, most of them planning to have LARA operational by 2025.
- 3 States have plans to implement, whilst the remaining 3 do not have plans yet.
- LU joined the Applicability Area in 2022.





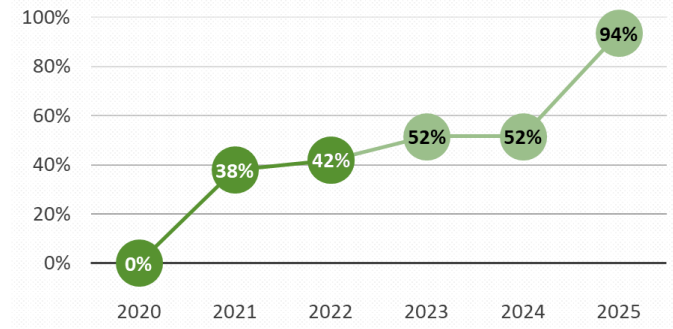
Co-funded by the European Union

## Solution #46 SWIM Yellow Profile

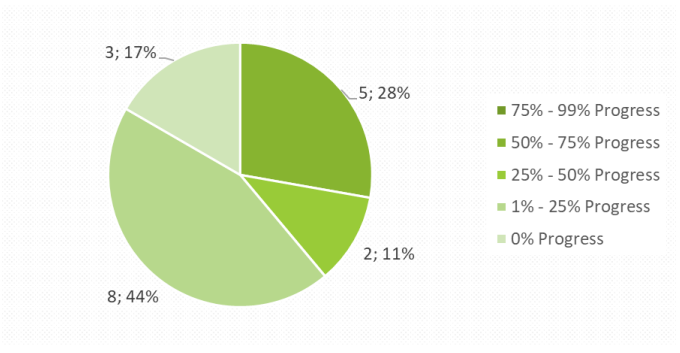
### INF10.4 Aeronautical Information Exchange – Airspace Availability Service

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>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** | - | |

**Completion Rate Evolution (%)**

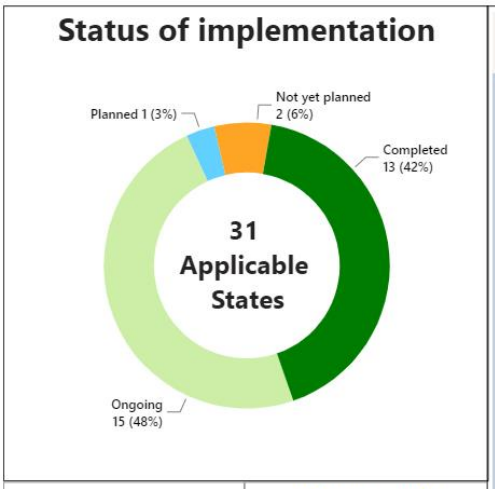


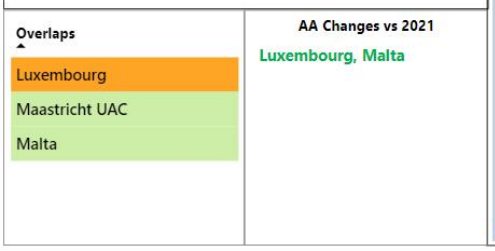

**Progress among non-Completed Countries**




The Objective achieved **42% completion rate** so far, having increased by 4 percentage points vs 2021. All applicable States with plans will complete the implementation by the FOC date.

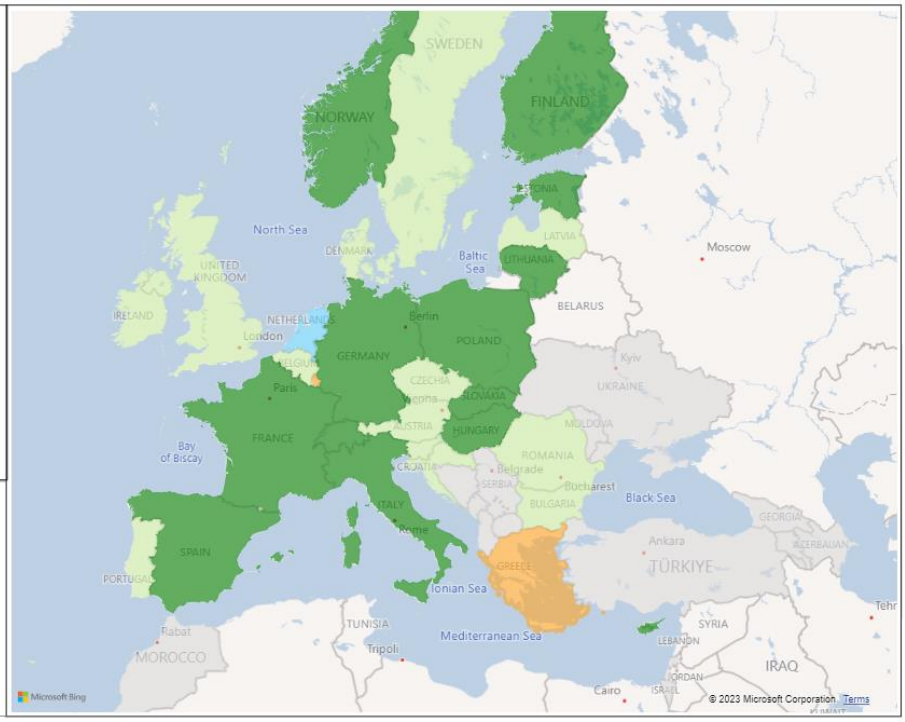
15 States achieved a progress between 1% and 75%, the majority being at 10%, and 5 at 75% completion. The average progress is 36%. 3 States have not yet started the works.










- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- 13 States already use the Airspace Availability Service via B2B with the NM, with FI and EE having completed the Objective in 2022.
- 15 States reported to be “Ongoing”, the majority through the exchange of AUP/UUP information via NM B2B Services.
- One State has plans to implement the Objective via LARA, whilst the remaining two, which joined the Applicability Area in 2022 (LU and MT), do not have plans yet.



Co-funded by the European Union

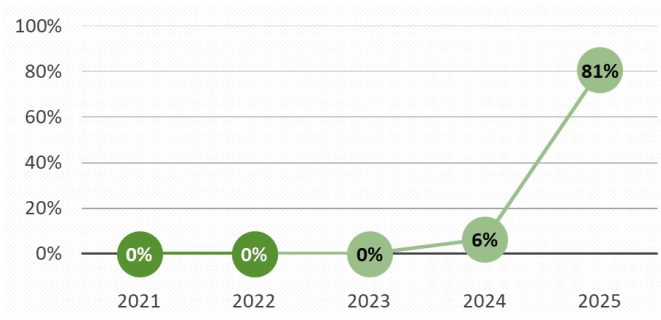
ATM interconnected network

## Solution #46 SWIM Yellow Profile

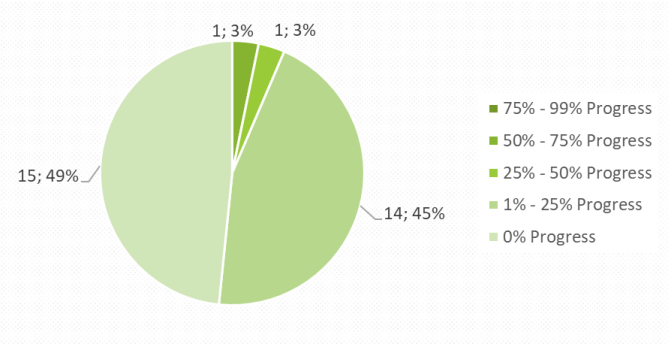
### INF10.5 Aeronautical Information Exchange – Airspace Reservation (ARES) Service

| | | | | |
|---|---|---|---|---|
| **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** | - | |

**Completion Rate Evolution (%)**



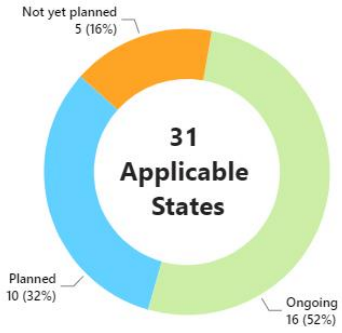

**Progress among non-Completed Countries**




The Objective stayed at **0% completion rate** since its first year of monitoring and it will not evolve in 2023. It is not possible to provide an estimated achievement date due to the lack of plans from few CP1-regulated States.

16 States have started the implementation of the Service; the majority of them having reached a progress between 3% and 28% and one reporting 52% achievement. The average completion is 13%.

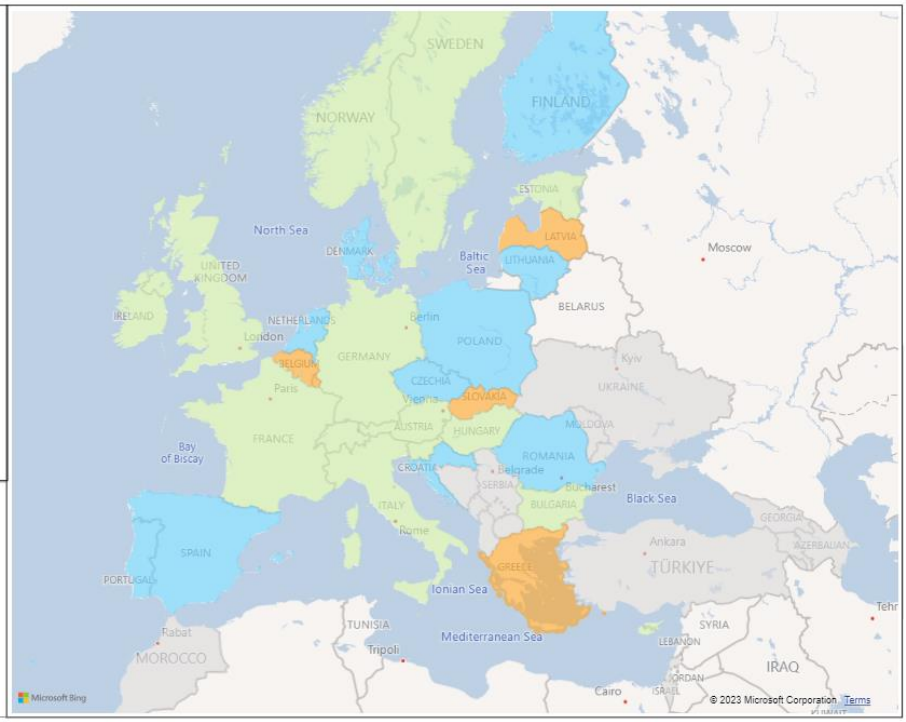
**Status of implementation**




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

**AA Changes vs 2021**

Luxembourg, Malta




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- 16 States started the implementation, the majority through the use of the ARES functionality in LARA.
- 10 States have plans to implement the Service within the FOC date, whilst the remaining five do not have plans yet.
- The Applicability Area grew from 29 to 31 States, with LU and MT joining in 2022.





Co-funded by the European Union

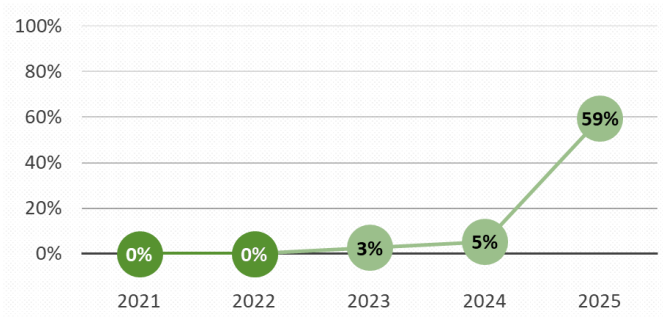
ATM interconnected network

## Solution #46 SWIM Yellow Profile
## Solution #34 Digital Integrated Briefing

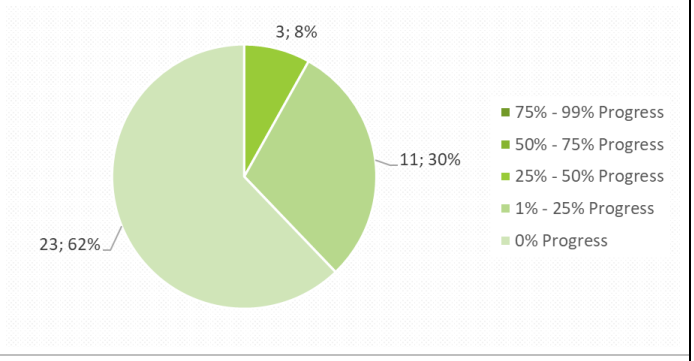
## INF10.6 Aeronautical Information Exchange – Digital NOTAM Service

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | AISPs<br>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, IS-0205 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.3.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | - | |

**Completion Rate Evolution (%)**

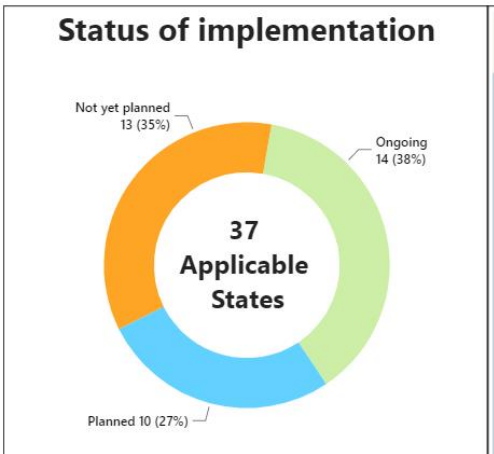


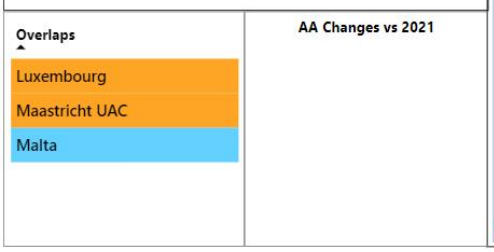

**Progress among non-Completed Countries**




The Objective stayed at **0% completion rate** since its first year of monitoring and it will slightly evolve in 2023. It is not possible to provide an estimated achievement date due to the lack of plans from multiple CP1-regulated States.

More than half of the States have not yet started the implementation of the Service. The vast majority of those that started the works, reported to be at 8% completion rate, whilst 3 declared progress between 50% and 75%.





- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- No States have the Digital NOTAM Service implemented yet.
- 14 States reported to be ongoing with implementation.
- All the CP1 States with declared plans will implement the Service by 2025, however multiple States do not have a date yet.
- 13 States do not have plans, one reason being the need to choose yet between the European and the local certificate.





Co-funded by the European Union

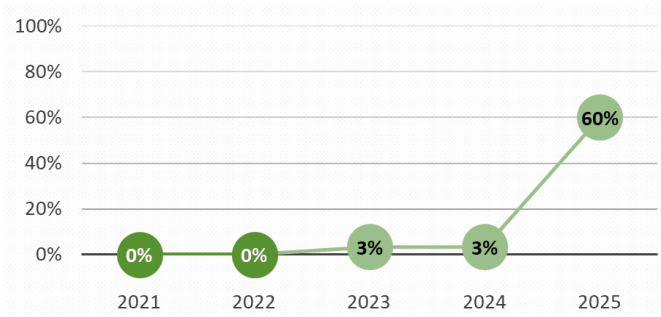
ATM interconnected network

## Solution #46 SWIM Yellow Profile
## Solution #34 Digital Integrated Briefing

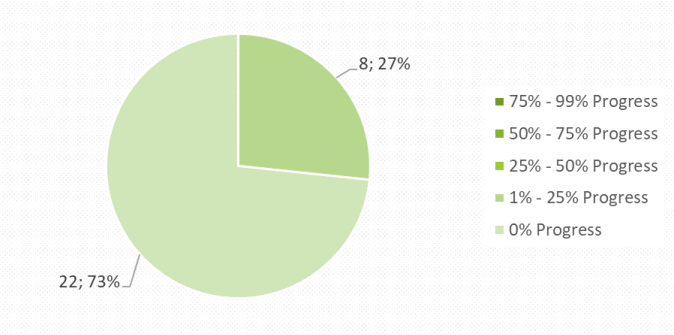
### INF10.7 Aeronautical Information Exchange – Aerodrome Mapping Info Exchange Service

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | AISPs | **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, IS-0205 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.3.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | - | |

**Completion Rate Evolution (%)**

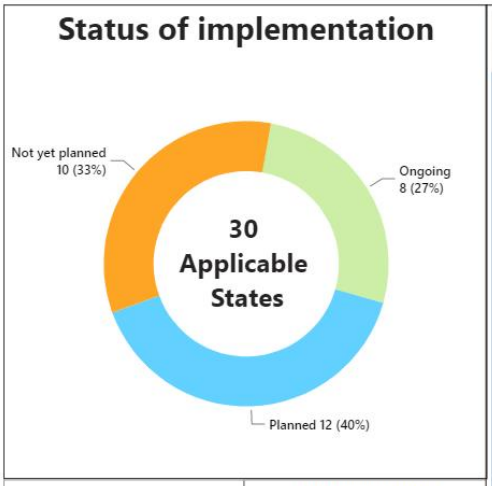



**Progress among non-Completed Countries**




This Objective has **0% completion rate** in its second year of monitoring. The completion rate looks still uncertain due to the number of States, regulated and non, with no plans.

73% of the States have not yet started the implementation of the Service. Only 8 States reported some progress within 10%.

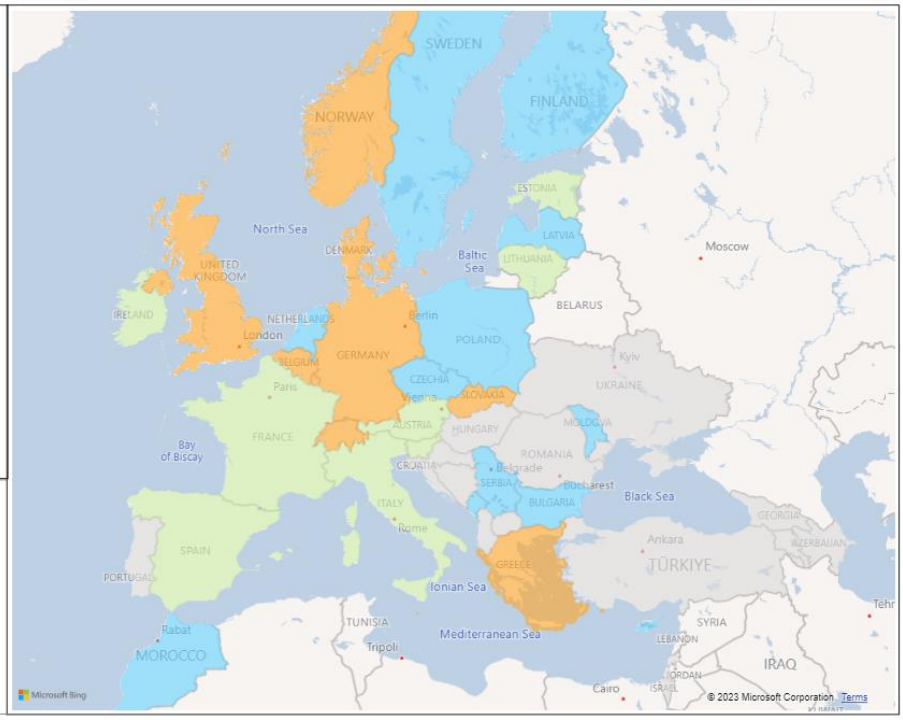



| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

**AA Changes vs 2021**

Estonia

Croatia, Hungary, Israel, Romania




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to the States in which a CP1-regulated Airport is located, as listed in the Annex to the Regulation, Section 1.2.
- 8 States reported to be at the initial stages of the implementation.
- Of the 22 States that have not yet begun the works, 10 have plans to implement within the FOC date and two beyond.
- 10 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.
- HR, HU, PT and RO are CP1 States that declared this Objective as Not Applicable; together with MUAC.

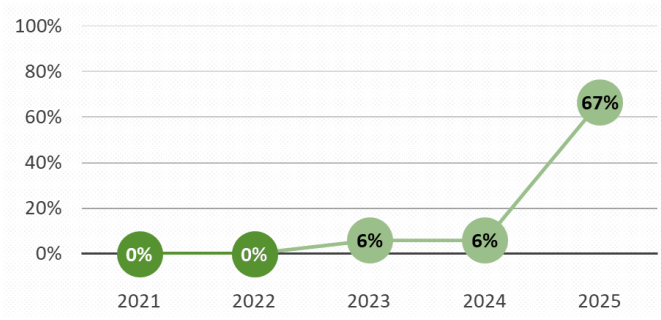
ATM interconnected network

## Solution #46 SWIM Yellow Profile
## Solution #34 Digital Integrated Briefing

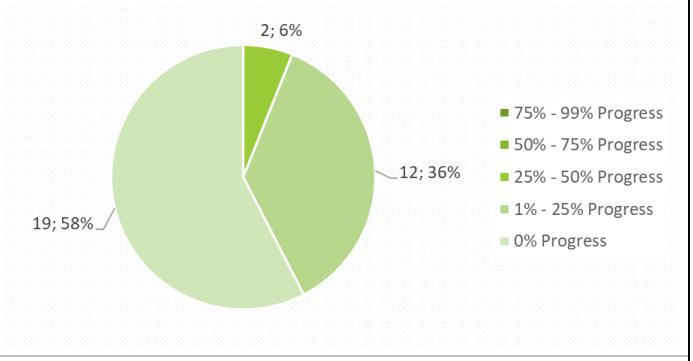
### INF10.8 Aeronautical Information Exchange – Aeronautical Information Features Service

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | AISPs<br>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, IS-0205 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.3.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | - | |

**Completion Rate Evolution (%)**

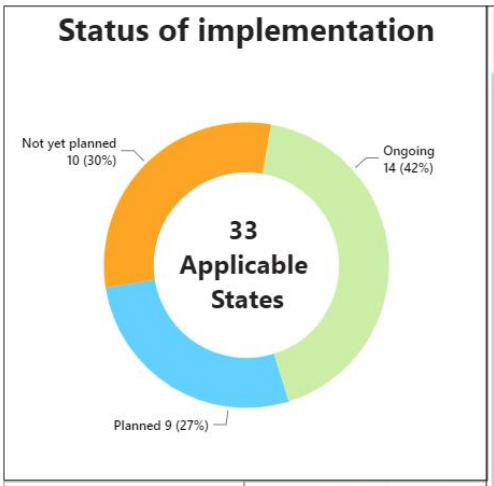


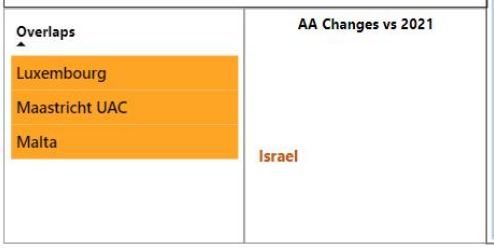

**Progress among non-Completed Countries**

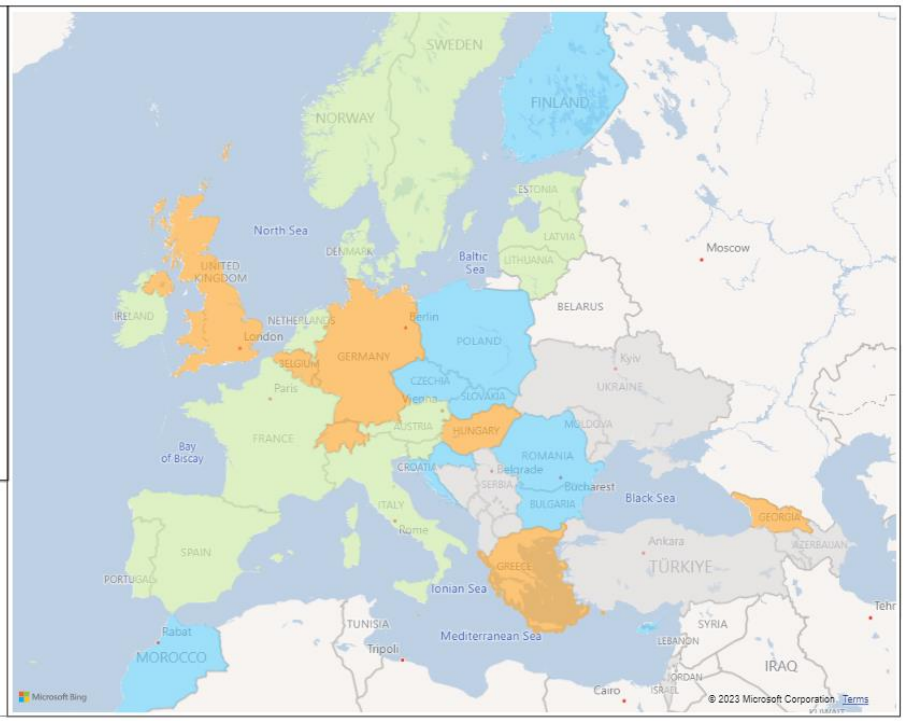



The Objective has **0% completion rate** in its second year of monitoring. The completion rate looks uncertain due to the high number of States with no plans.

More than half of the States have not yet started the implementation of the Service. 11 States reported progress of 8%, whilst another one claimed to have reached 10%. There are two outliers with 64% progress.




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- No States have the Aeronautical Information Feature Service implemented yet.
- 14 States reported to be ongoing with implementation.
- The 9 States that have not yet begun the works have plans to implement within the FOC date.
- 10 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.



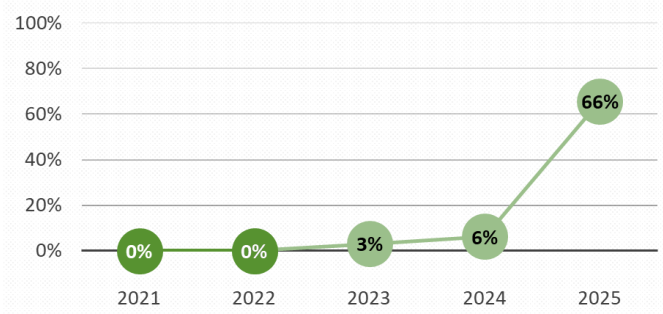


Co-funded by the European Union

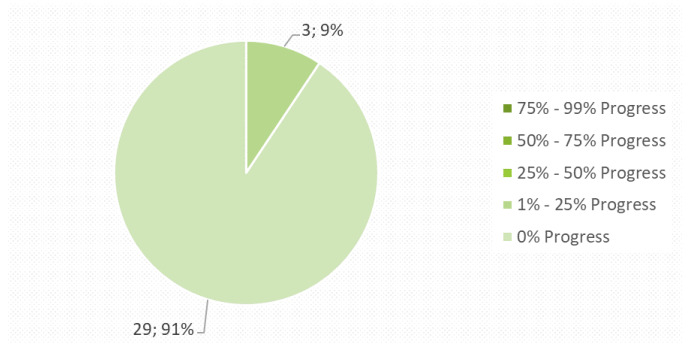
| | |
|---|---|
| ATM interconnected network | **Solution #46 SWIM Yellow Profile**<br>**Solution #34 Digital Integrated Briefing**<br>**Solution #35 MET Information Exchange** |
| **INF10.9** | **Meteorological Information Exchange – Volcanic Ash Mass Concentration information service** |

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>MET Service Providers<br>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, IS-0205, MET-0101 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.4.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | - | |

**Completion Rate Evolution (%)**

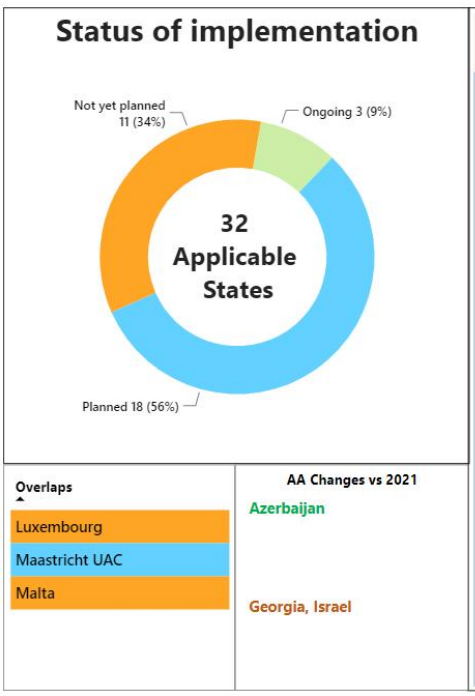


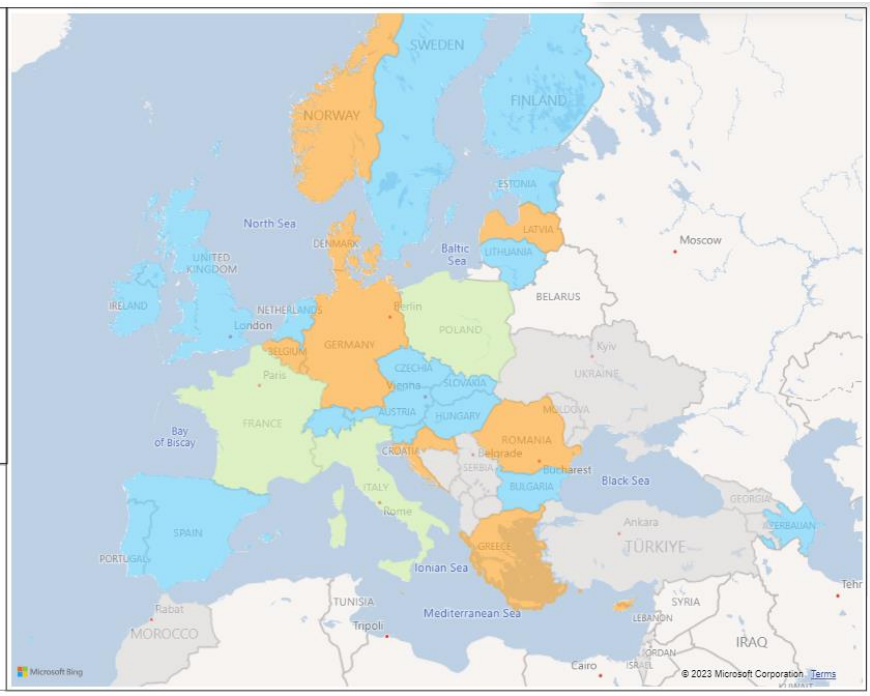

**Progress among non-Completed Countries**




The Objective has not advanced compared to 2021: it still stands at **0% completion rate**. 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.
- 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 29 States that have not yet begun the works, 18 have plans to implement within the FOC date.
- 11 States do not have plans yet, as the majority has not yet started a proper deployment assessment.
- AZ joined the implementing States, while GE and IL dropped the implementation of this service.

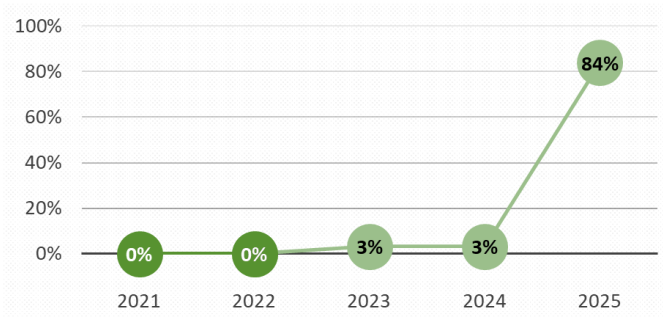


Co-funded by the European Union

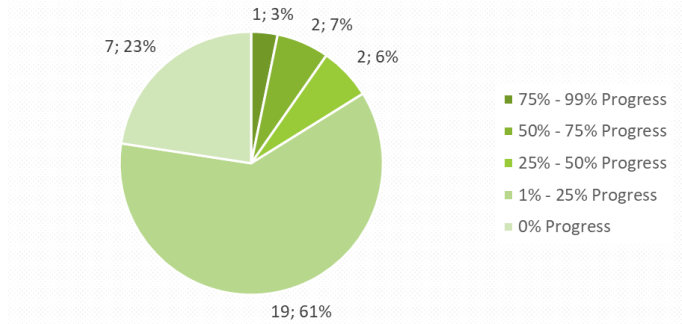
| | |
|---|---|
| iN ATM interconnected network | **Solution #46 SWIM Yellow Profile**<br>**Solution #34 Digital Integrated Briefing**<br>**Solution #35 MET Information Exchange** |
| **INF10.10** | **Meteorological Information Exchange – Aerodrome Meteorological information Service** |

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs, Airport Operators<br>MET Service Providers<br>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, IS-0205, MET-0101 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.4.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | - | |

**Completion Rate Evolution (%)**

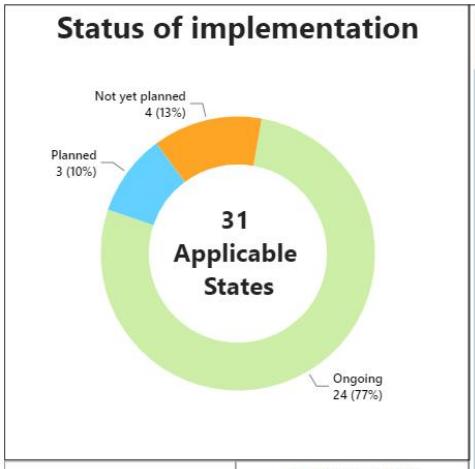


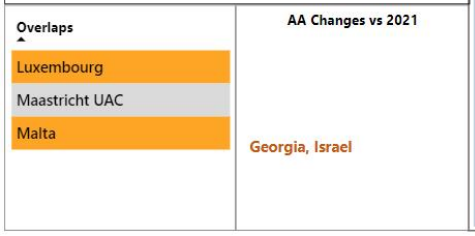

**Progress among non-Completed Countries**




The Objective has not advanced compared to 2021: it still stands at **0% progress**. The completion rate spikes over the FOC year in 2025, reason why the evolution looks uncertain.

24 States started the implementation, the majority reporting between 1% and 25% progress. 7 States are at 0%, of which 3 have plans to implement the Service by the FOC date.





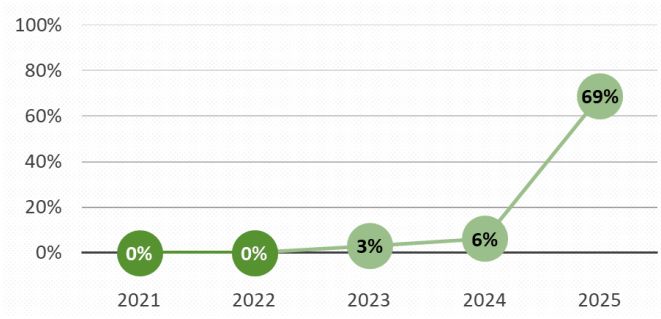
- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- Most States with "ongoing" implementation are at very early stages of the process. Several reported to have point-to-point meteorological exchanges, however yet to be evolved and made available via SWIM Yellow Profile.
- Compared to 2021, only 3 States are planned to implement the Service by its FOC date and 4 have no plans yet.
- GE, IL left the Applicability Area, and the remaining Not Applicable States (but MUAC) do not belong to the CP1 Countries.



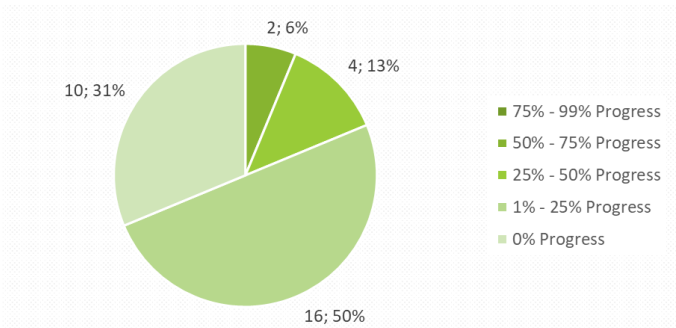
Co-funded by the European Union

| | | | | |
|---|---|---|---|---|
| iN ATM interconnected network | **Solution #46 SWIM Yellow Profile**<br>**Solution #34 Digital Integrated Briefing**<br>**Solution #35 MET Information Exchange** | | | |
| **INF10.11** | **Meteorological Information Exchange – En-Route and Approach Meteorological information service** | | | |
| **Stakeholders** | ANSPs<br>MET Service Providers<br>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, IS-0205, MET-0101 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.4.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | - | |

**Completion Rate Evolution (%)**

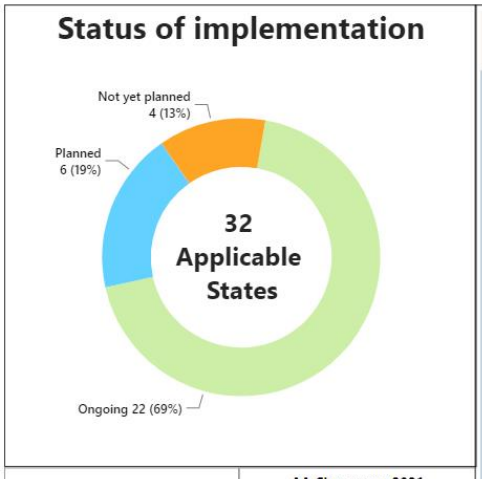



**Progress among non-Completed Countries**




The Objective has not advanced compared to 2021: it still stands at **0% progress**. The completion rate spikes over the FOC year in 2025, reason why the evolution looks uncertain.

BG reached 70% progress, yet compliance with SWIM needs to be ensured. The remaining States are at early implementation stages, 10 have not yet started the works.




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

| AA Changes vs 2021 |
|---|
| Azerbaijan |
| Georgia, Israel |


- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- Most of the "ongoing" States are at very early stages of the implementation. Some have been developing enablers to this Service via previous CEF-funded Projects. Others reported to be part of a multi-Stakeholder initiative submitted via the CEF Call launched in 2022 that will support the achievement of En-route and Approach met information by 2025.
- 6 CP1 States will not be able to finalise the implementation of this Service by the FOC date, whilst the four with no plans committed to implement on time.



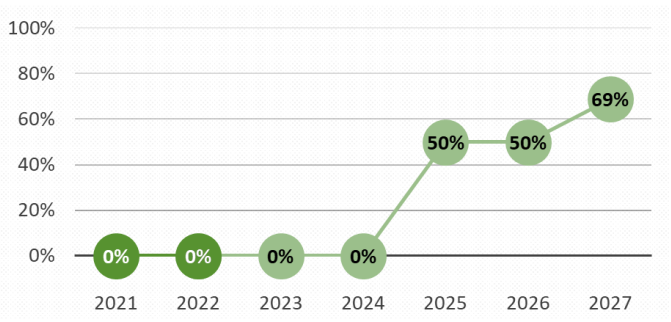
Co-funded by the European Union

| | |
|---|---|
| ATM interconnected network | **Solution #46 SWIM Yellow Profile**<br>**Solution #34 Digital Integrated Briefing**<br>**Solution #35 MET Information Exchange** |

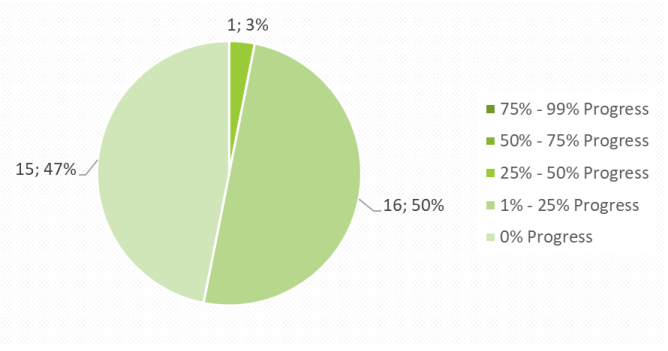
## INF10.12 Meteorological Information Exchange – Network Meteorological Information

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>MET Service Providers<br>NM | **Expected Benefits**<br>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, IS-0205, MET-0101 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.4.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | - | |

**Completion Rate Evolution (%)**

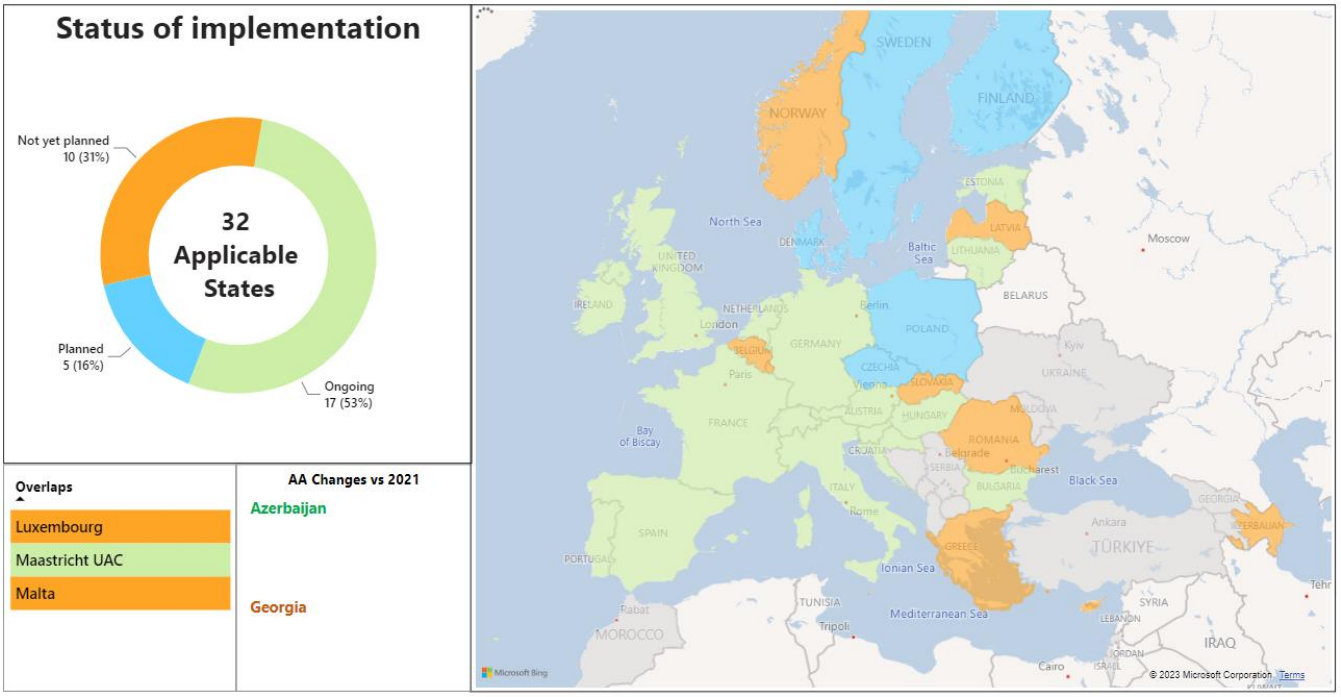



**Progress among non-Completed Countries**




The Objective has not advanced compared to 2021: it still stands at **0% progress**. The completion rate spikes over the FOC year in 2025, reason why the evolution looks uncertain.

UK is the only State having reached a 53% progress thanks to the MET implementation. The remaining Countries reporting a progress do not exceed 25%.




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- Some of the "ongoing" States reported to support the exchange of Network MET information, although yet to be SWIM compliant. The remaining are at very early stages of the implementation, and some cannot commit to compliance by the FOC.
- As for the En-route and Approach MET information service, 6 CP1 Countries will deliver this Service only by 2027.
- 9 of the 10 States with no defined plans belong to the CP1 Applicability Area. Some of them have yet to analyse and define the scope of the work before proceeding further.

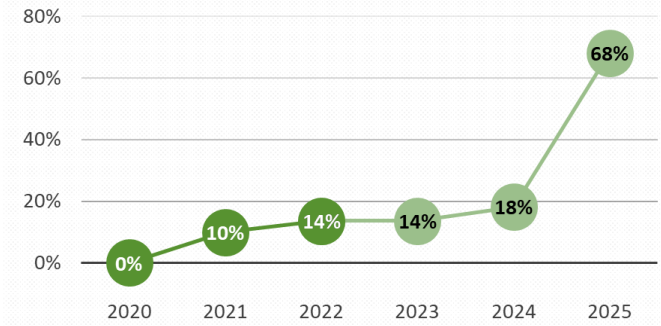


Co-funded by the European Union

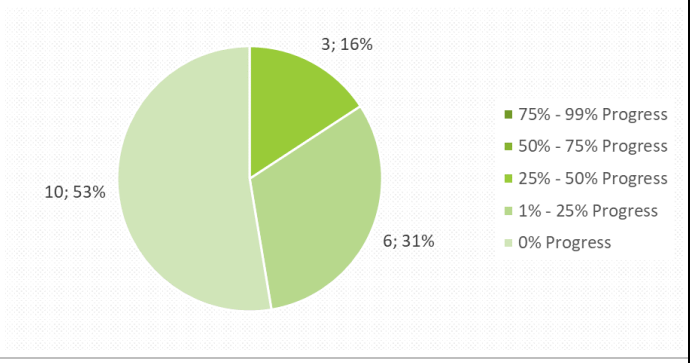
| | |
|---|---|
| ATM interconnected network | **Solution #46 SWIM Yellow Profile** |
| **INF10.13** | **Cooperative Network Information Exchange – ATFCM Tactical Updates Service** |

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>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** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.5.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | - | |

**Completion Rate Evolution (%)**



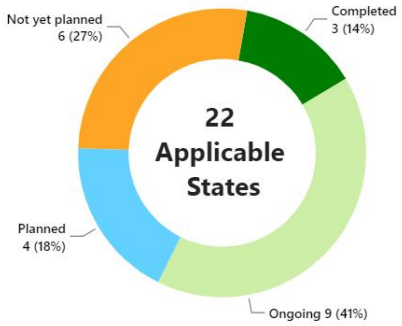

**Progress among non-Completed Countries**




The Objective has **14% progress** so far. Nonetheless, the majority of applicable States are already implementing or planning to implement it by its FOC date.

Almost half of the States in the applicability area reported not having started yet with the implementation, from which only 4 States having plans for it. Meanwhile 9 Countries reported a progress below 50%.

**Status of implementation**

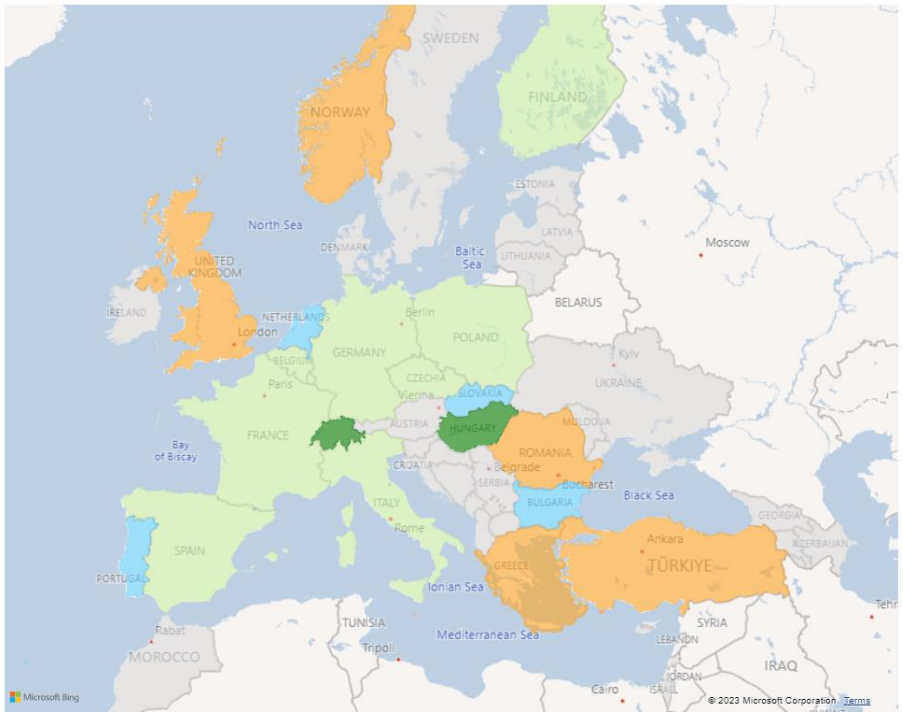



| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

**AA Changes vs 2021**

Finland, Luxembourg, Malta, Türkiye

Croatia, Israel




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- INF10.13 has a link with Objective FCM06.1, creating a direct relation between the reported status of both elements.
- HU, CH and MUAC completed the implementation.
- 9 States reported to be underway with the implementation, while among the other States in the applicability area, 4 States have plans to implement whilst 6 do not have plans yet, despite 4 of them being subject of the CP1.
- 10 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.





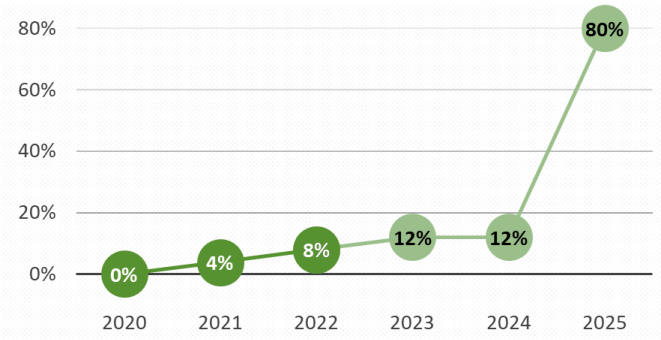
Co-funded by the European Union

# Solution #46 SWIM Yellow Profile

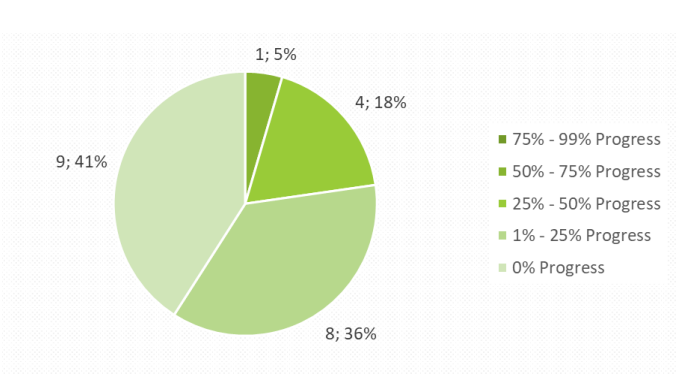
## INF10.14 Cooperative Network Information Exchange – Flight Management Service

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators<br>Airspace Users<br>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** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.5.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | - | |

**Completion Rate Evolution (%)**

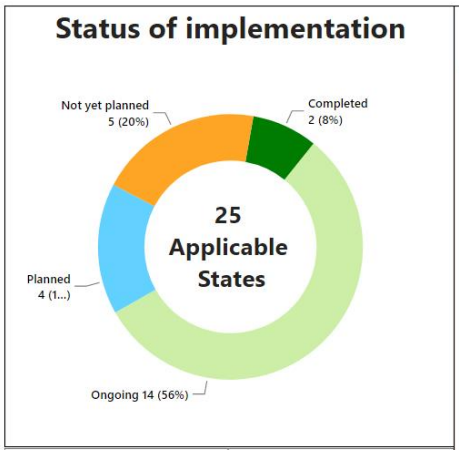


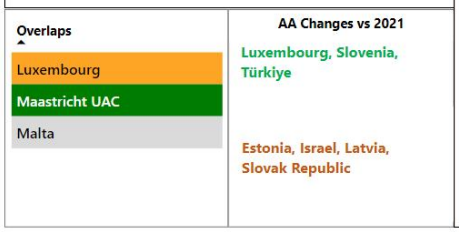

**Progress among non-Completed Countries**

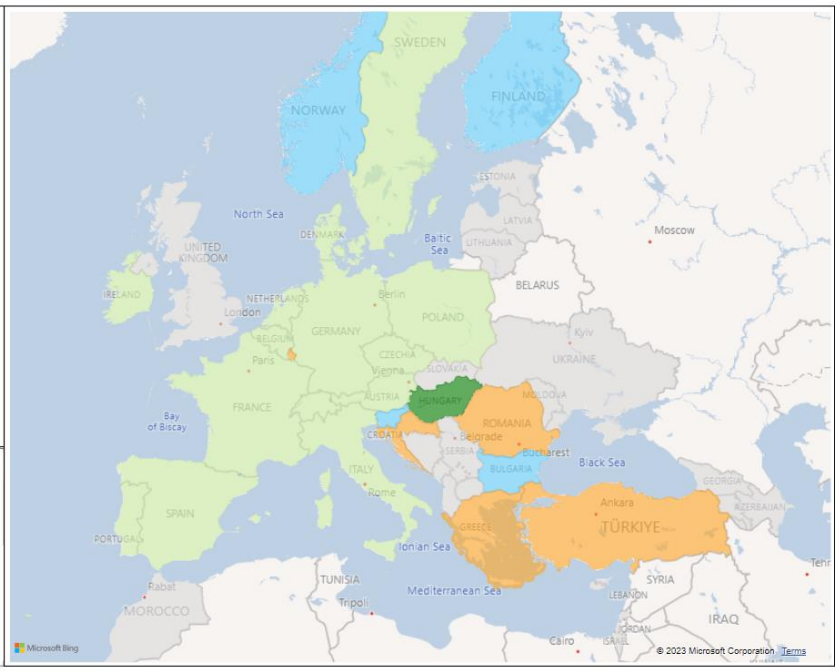



The Objective achieved **8% completion** so far. All States with plans will complete the implementation by its FOC date, Dec 2025.

Roughly, a bit more than half of the States are progressing towards completion, with the vast majority below 50% completion. Only FR is closer to implement it by having a 71% progression and a planned implementation date in 2023.




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- HU and MUAC have completed the implementation.
- 14 States reported to be underway with the implementation.
- 4 States have plans to implement, whilst other 5 do not have plans, 4 of them being within the scope of CP1.
- CY, LT, LV, MT, SI and SK are the only CP1 States that declared this Objective as Not Applicable, as they report that their airports are not affected by iAOP or eAOP.



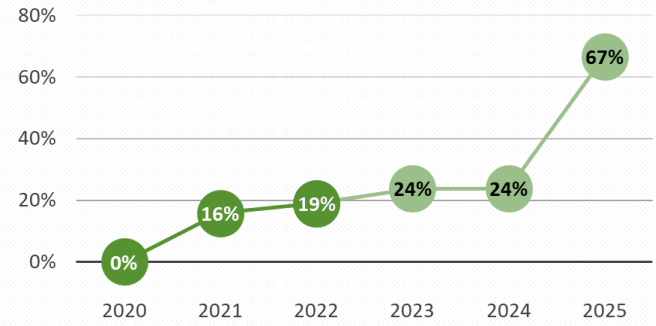


Co-funded by the European Union

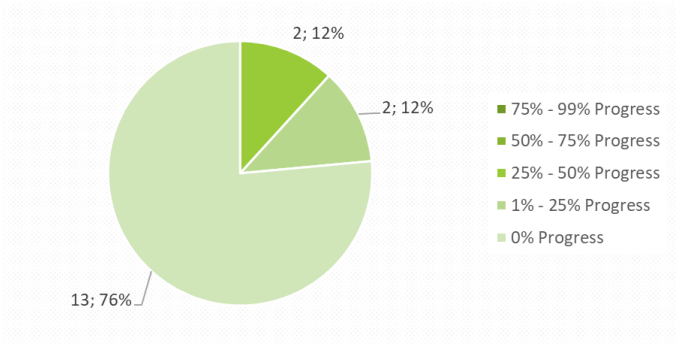
| | |
|---|---|
| ATM interconnected network | **Solution #46 SWIM Yellow Profile** |
| **INF10.15** | **Cooperative Network Information Exchange – Measures Service** |

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>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** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.5.1 |
| **Status** | **Not Available** | **ICAO ASBU** | - | |

**Completion Rate Evolution (%)**



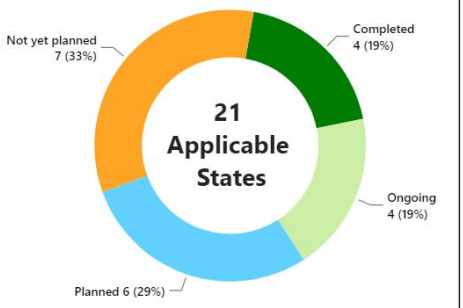

**Progress among non-Completed Countries**



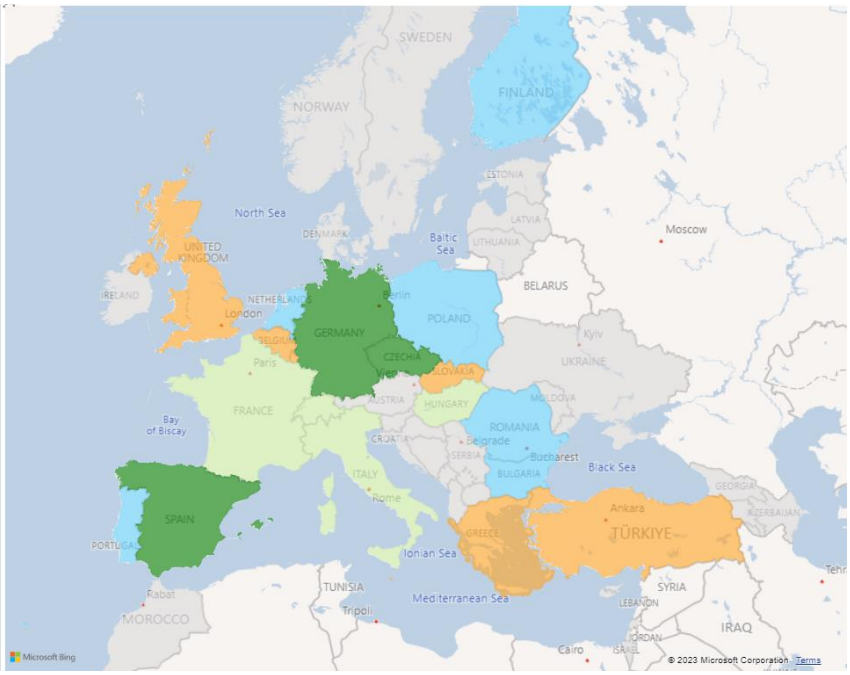

INF10.15 is still a recent Objective, reason for the low achieved **completion** of **19%**. Although the evolution looks uncertain due to the still high number of "Not yet planned" reports, all States with plans will implement the Objective by its FOC date.

The implementation is still in its early stage with more than three quarters of the States in the applicability area at 0% progress. Only 4 CP1 States reported a progress between 5% and 50%.

**Status of implementation**




| Overlaps | AA Changes vs 2021 |
|---|---|
| Luxembourg | Finland, Luxembourg, Malta, Türkiye |
| Maastricht UAC | |
| Malta | Croatia, Norway |




- INF10.15 is linked with objective FCM04.2 (Enhanced STAM).
- Only ES completed the implementation during 2022, joining CZ, DE and MUAC amongst those that have declared the implementation as completed so far.
- The majority of the States 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.

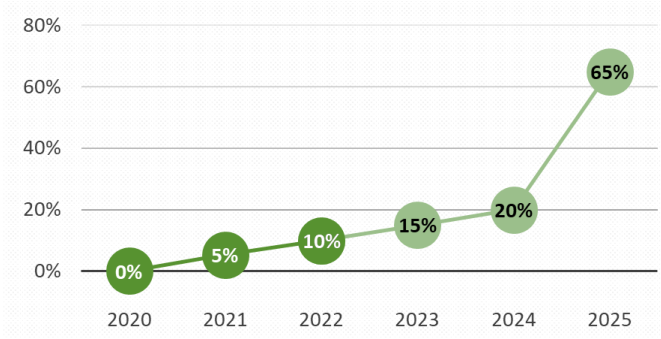


Co-funded by the European Union

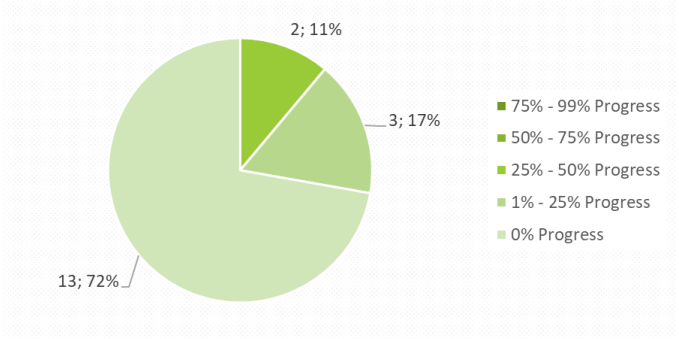
| | |
|---|---|
| ATM interconnected network | **Solution #46 SWIM Yellow Profile** |
| **INF10.16** | **Cooperative Network Information Exchange - Short Term ATFCM Measures services** |

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>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** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.5.1 |
| **Status** | **Not Available** | **ICAO ASBU** | - | |

**Completion Rate Evolution (%)**

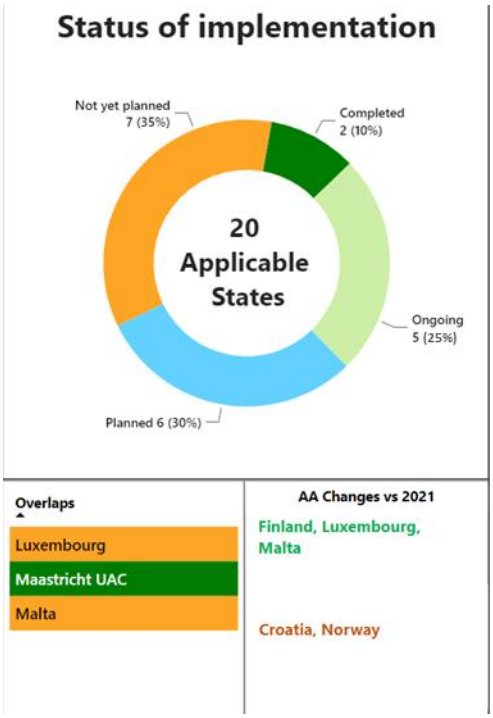


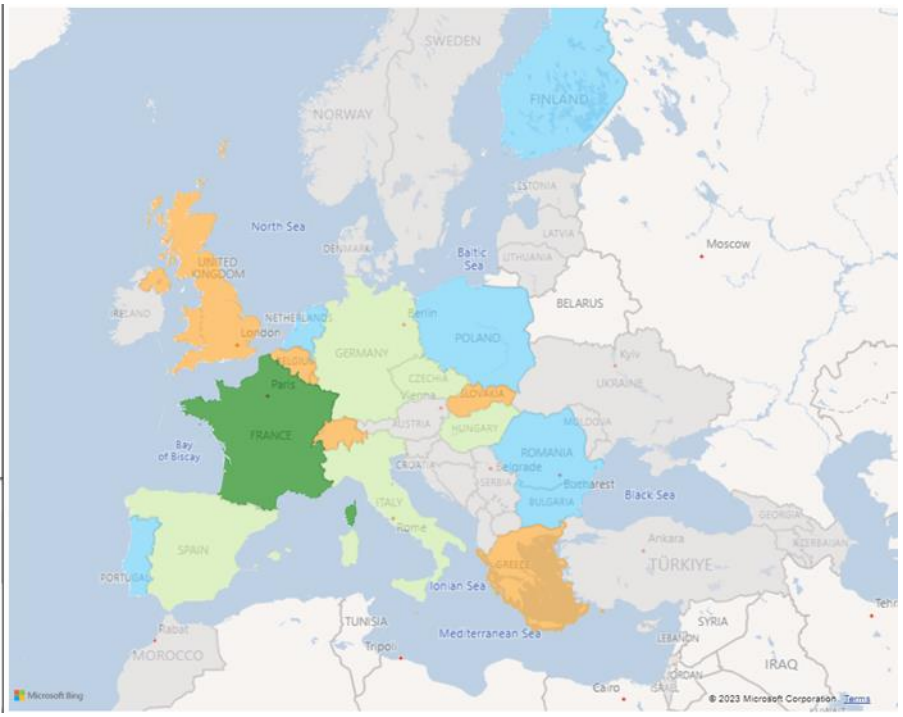

**Progress among non-Completed Countries**




INF10.16 is still a recent Objective, reason for the low achieved **completion** of **10%**. Although the evolution looks uncertain due to the still high number of "Not yet planned" reports, 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 linked with objective FCM04.2 (Enhanced STAM) and it is CP1-regulated for EU States, MUAC, CH, NO.
- Only FR declared the implementation completed in 2022, joining MUAC as the ones completed so far.
- The majority of the States 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.





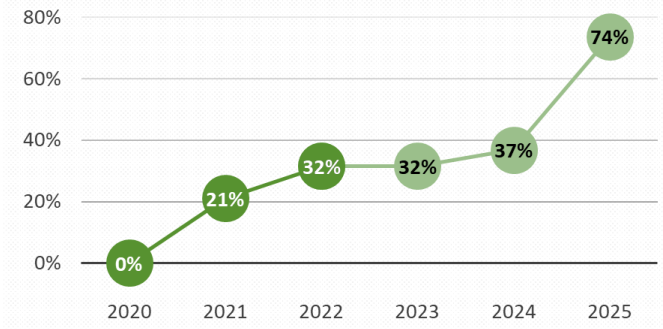
Co-funded by the European Union

# Solution #46 SWIM Yellow Profile

## INF10.17 Cooperative Network Information Exchange – Counts service

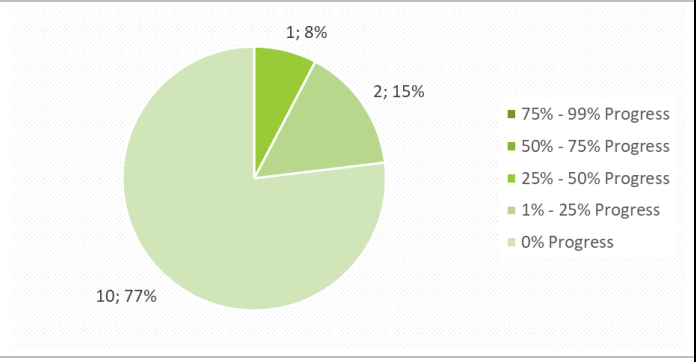
| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>NM | **Expected Benefits** | The benefits are dependent upon the applications that will be run over the SWIM infrastructure. | |
| **FOC** | 31/12/2025 | **OI Steps / Enablers** | IS-0901-A | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.5.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | - | |

**Completion Rate Evolution (%)**



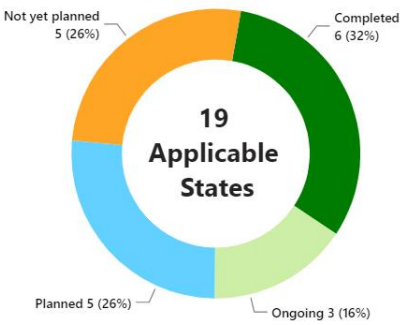

The Objective has reached **32% completion** so far. All States with plans will complete the implementation by its FOC date, Dec 2025.

**Progress among non-Completed Countries**

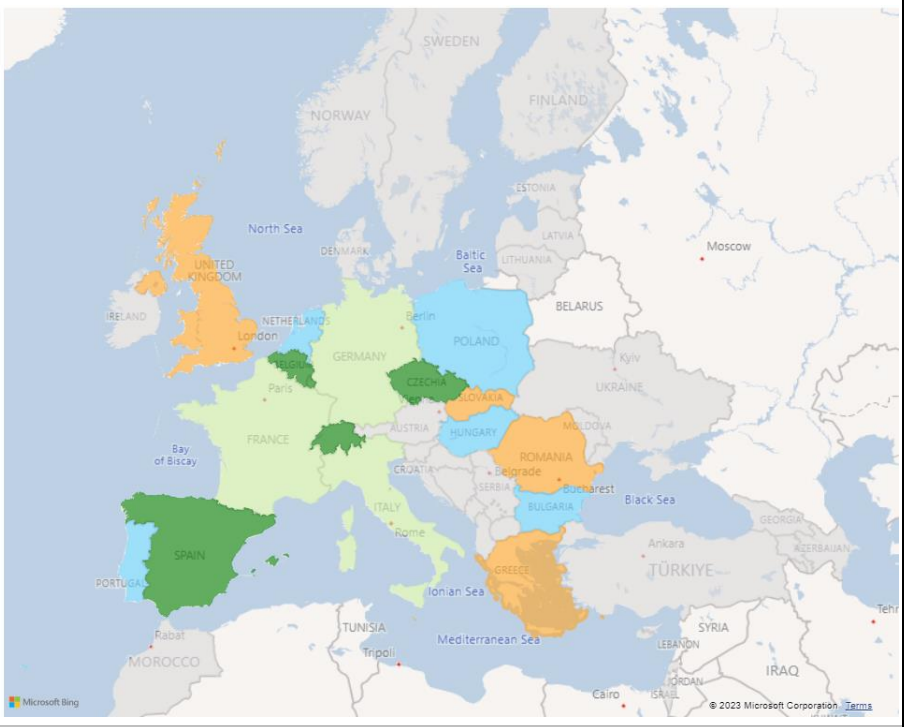



Most of the States have not yet started the implementation of the Service. Only 3 States report a progress between 10% and 50%.

**Status of implementation**




| Overlaps | AA Changes vs 2021 |
|---|---|
| Luxembourg | Luxembourg, Malta |
| Maastricht UAC | |
| Malta | Croatia, Norway |




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- BE, CZ, LU, MUAC, ES and CH already implemented the service.
- 3 States reported to be underway with the implementation.
- 5 States have plans to implement, whilst other 5 do not have plans yet, 4 of them being within the scope of CP1.
- 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.





Co-funded by the European Union

| | | | | |
|---|---|---|---|---|
| ATM interconnected network | **Solution #46 SWIM Yellow Profile** | | | |
| **INF10.18** | **Flight Information Exchange (Yellow Profile) – Filing Service** | | | |
| **Stakeholders** | Airspace Users<br>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-0207 | |
| **Estimated achievement** | 31/12/2025 | **CP1 AF & SDP Family** | AF5 | 5.6.1 |
| **Status** | **On Time** | **ICAO ASBUs** | FICE-B2/2 | |

- 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.
- For the Network Manager, the implementation of the service is considered as completed.
- For Airspace Users, DLH using software by the Lufthansa System (Lido) successfully passed the operational validation for using FF-ICE Filing Service provided by NM (using SWIM Yellow Profile). During December 2022 the first DLH eFPL (FF-ICE flight plan) was submitted to the NM operational system a couple of days later.



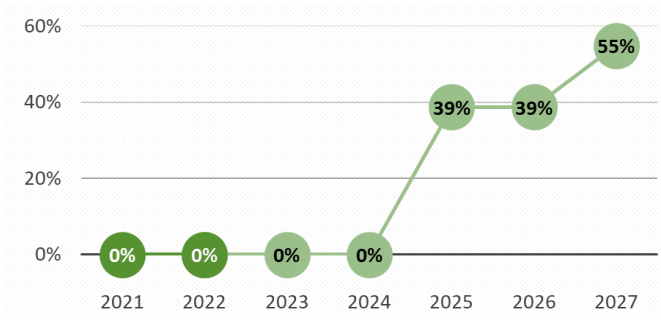
Co-funded by the European Union

## Solution #46 SWIM Yellow Profile

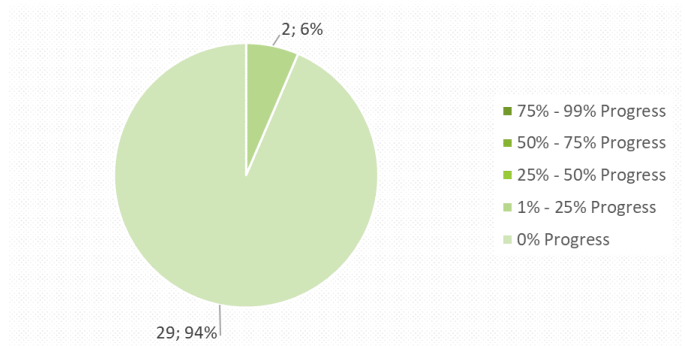
### INF10.19 Flight Information Exchange (Yellow Profile) – Flight Data Request Service

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>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-0207 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.6.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | FICE-B2/4 | |

**Completion Rate Evolution (%)**



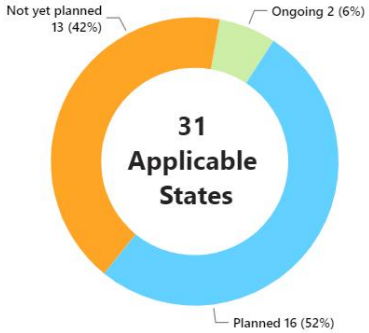

**Progress among non-Completed Countries**




The Objective has **0% completion** so far. The completion rate looks uncertain due to the high number of States with no plans.

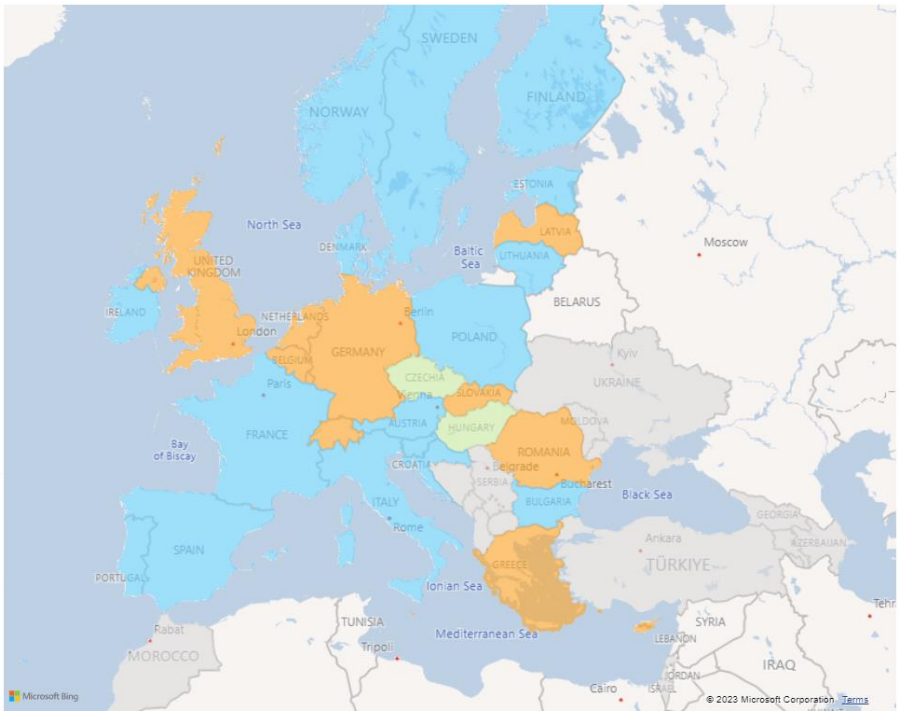
Most of the States have not yet started the implementation of the Service. Only CZ and HU reported some progress within 10%, as they declared having the technical capability for the consumption of the NM FF-ICE/R1 services available.

**Status of implementation**




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

AA Changes vs 2021




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- CZ and HU reported to be at the initial stages of the implementation. Meanwhile, AT reversed their status from Ongoing to Planned.
- Of the 16 States that have not started implementation but have implementation plans, 10 have plans within the FOC date, 6 reported and implementation date beyond the FOC.
- 13 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.





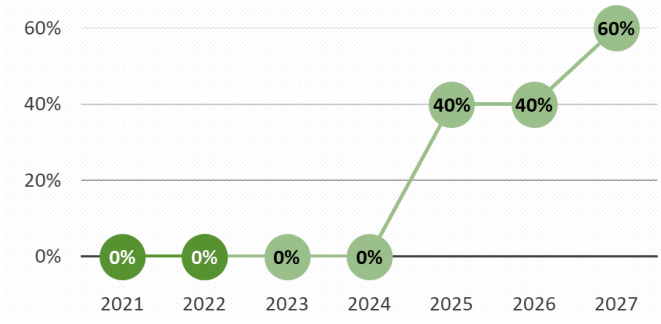
Co-funded by the European Union

## Solution #46 SWIM Yellow Profile

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

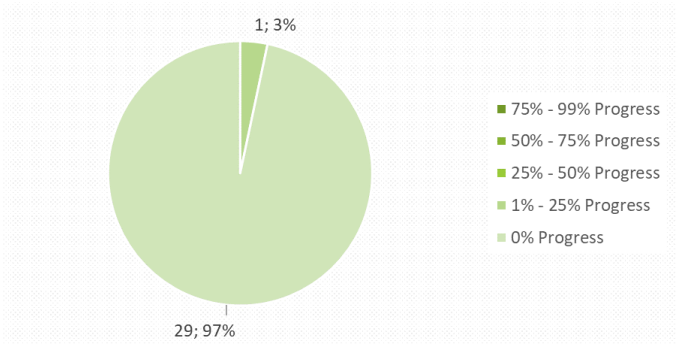
| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>NM | **Expected Benefits** | The benefits are dependent upon the applications that will be run over the SWIM infrastructure. | |
| **FOC** | 31/12/2025 | **OI Steps / Enablers** | AUO-0207 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.6.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | FICE-B2/5 | |

**Completion Rate Evolution (%)**



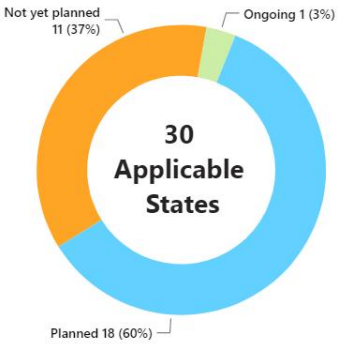

The Objective has **0% completion** so far. The completion rate looks uncertain due to the high number of States with no plans.

**Progress among non-Completed Countries**



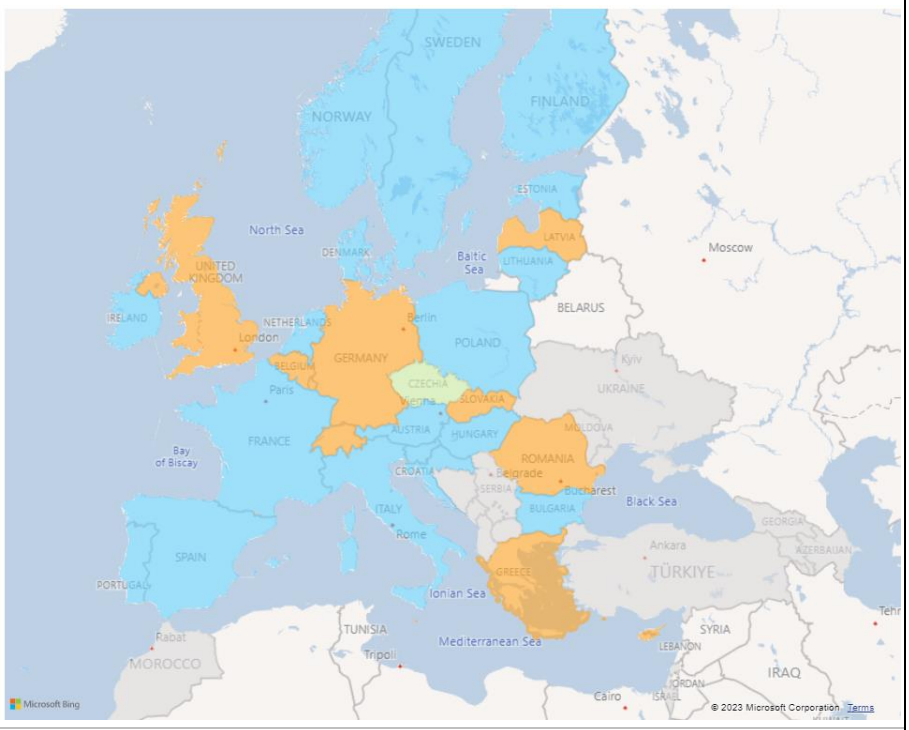

97% of the States have not yet started the implementation of the Service. Only CZ reported some progress within 10%.

**Status of implementation**




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

AA Changes vs 2021




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- Only CZ reported to be at the initial stages of the implementation. Meanwhile, AT reversed their status from Ongoing to Planned.
- Of the 18 States that have not started implementation but have implementation plans, 11 have plans within the FOC date, while other 7 reported an implementation date beyond the FOC
- 11 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.
- MUAC is the only implementer within the scope of CP1 that declared this Objective as Not Applicable due to not having airports in its Area of Responsibility.



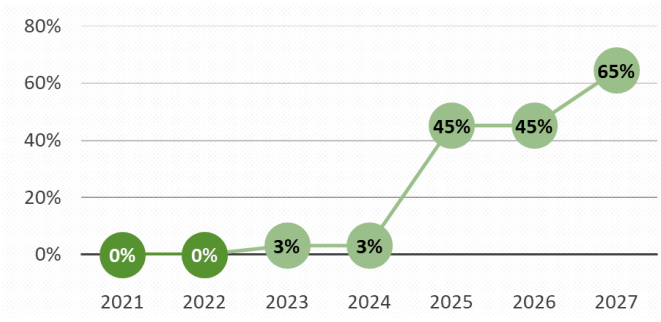
Co-funded by the European Union

## Solution #46 SWIM Yellow Profile

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

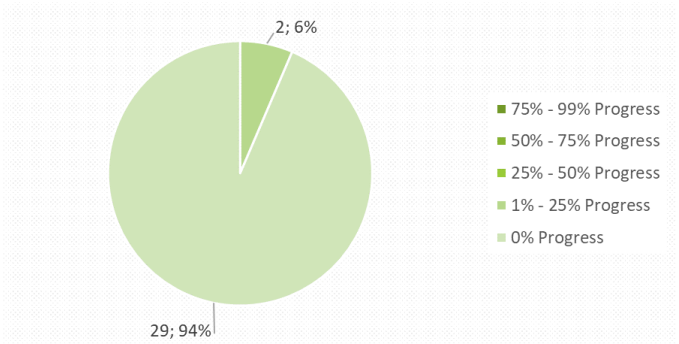
| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>NM | **Expected Benefits** | The benefits are dependent upon the applications that will be run over the SWIM infrastructure. | |
| **FOC** | 31/12/2025 | **OI Steps / Enablers** | AUO-0207 | |
| **Estimated achievement** | Not Available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

**Completion Rate Evolution (%)**



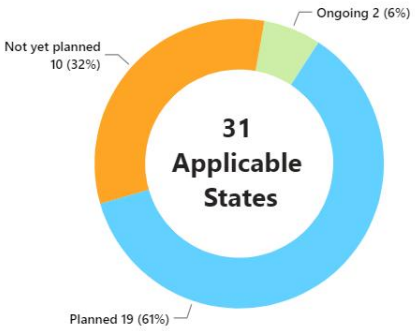

The Objective has **0% completion** so far. The completion rate looks uncertain due to the high number of States with no plans.

**Progress among non-Completed Countries**

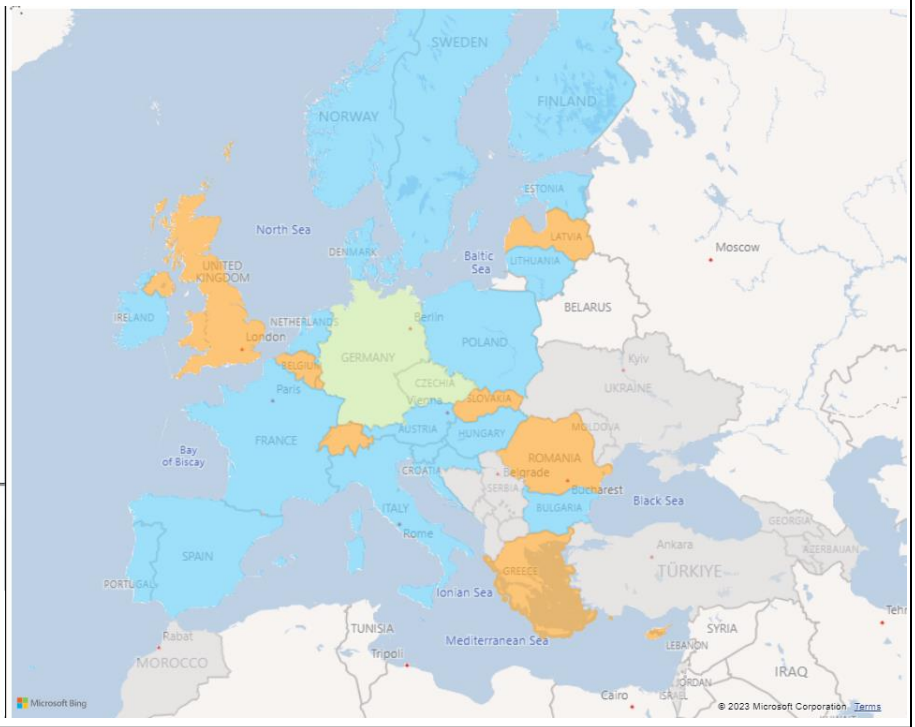



Most of the States have not yet started the implementation of the Service. Only 2 States reported some progress within 10% and 25%.

**Status of implementation**




| Overlaps | AA Changes vs 2021 |
|---|---|
| Luxembourg | |
| Maastricht UAC | |
| Malta | |




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- CZ and DE reported to be at the initial stages of the implementation. Meanwhile, AT and HU reversed their status from Ongoing to Planned.
- Of the 19 States that have not started implementation but have implementation plans, 12 have plans within the FOC date, while 7 reported an implementation date beyond the FOC.
- 10 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.





Co-funded by the European Union

| | | | | |
|---|---|---|---|---|
| ATM interconnected network | **Solution #46 SWIM Yellow Profile** | | | |
| **INF10.22** | **Flight Information Exchange (Yellow Profile) – Trial Service** | | | |
| **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 | |

- 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.
- For the Network Manager the implementation of the service is considered as completed.





Co-funded by the European Union

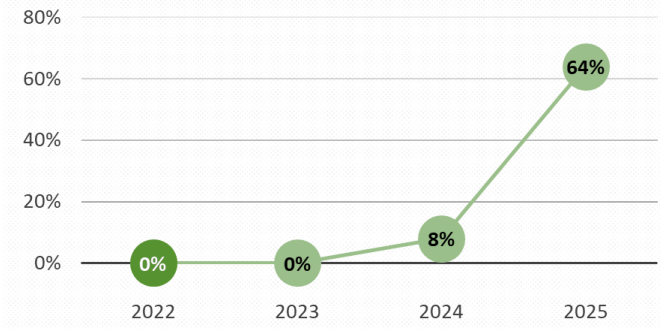
ATM interconnected network

## Solution #46 SWIM Yellow Profile

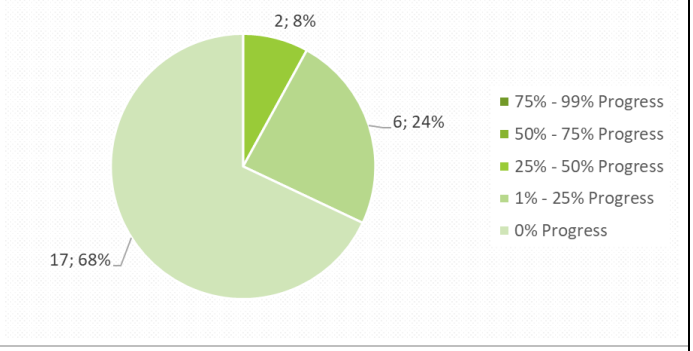
### INF10.23 Flight Information Exchange (Yellow Profile) – Extended AMAN SWIM Service

| | | | | |
|---|---|---|---|---|
| **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** | AUO-0207 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | AF5 | 5.6.1 |
| **Status** | **Not Available** | **ICAO ASBUs** | DAIM-B2/1, SWIM-B3/1 | |

**Completion Rate Evolution (%)**



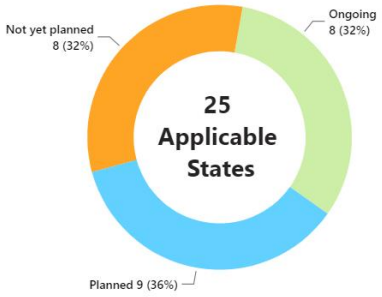

**Progress among non-Completed Countries**




The Objective has **0% completion**. The completion rate looks uncertain due to the high number of States with no plans.

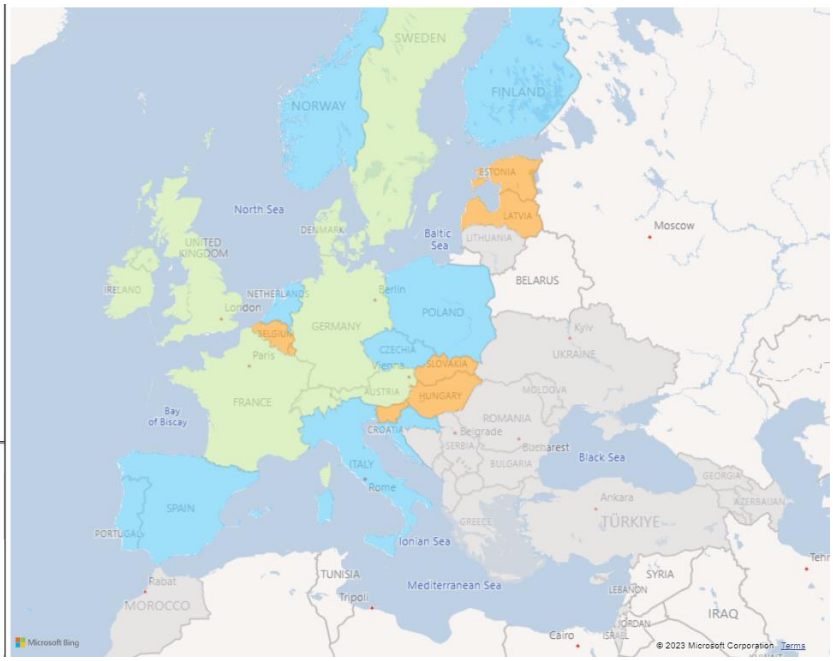
80% of the States have not yet started the implementation of the Service. Only 8 States reported some progress within 3% and 33%.

**Status of implementation**




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

| AA Changes vs 2021 |
|---|
| Hungary, Latvia |
| Cyprus, Greece, Malta, Romania |




- Commission IR (EU) 2021/116 on the establishment of the CP1 mandates the implementation to EU States, MUAC, CH, NO.
- UK and FR reported to have completed the Objective during the last monitoring cycle, but due to the changes in the understanding of how this Objective needs to be reported, they reverted the status to Ongoing.
- 8 States reported to be at the initial stages of the implementation. Meanwhile, HR reversed their progress status from Ongoing to Planned.
- Of the 9 States that have not started implementation but have implementation plans, 8 have plans within the FOC date, while NO reported an implementation date beyond the FOC.
- 8 States do not have plans; the main reasons being the lack of a SWIM infrastructure.
- 6 CP1 States reported “Not Applicable” as they are not within an operationally relevant radius from any of the CP1 Airports mandated by Family 1.1.1 (ATC15.2).



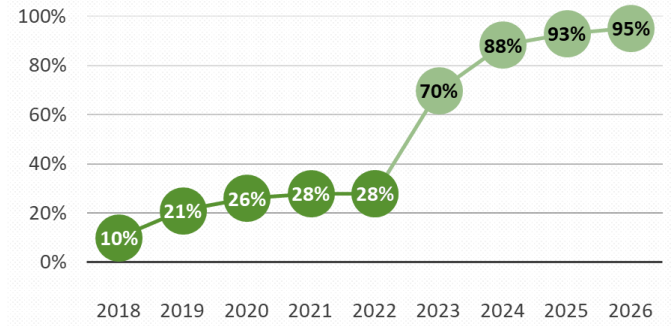


Co-funded by the European Union

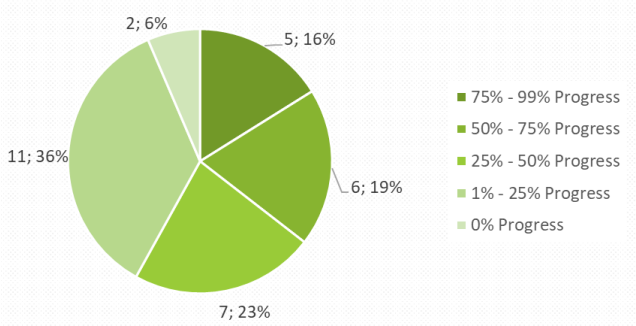
## 4.4 DIGITAL AIM AND MET SERVICES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Digital AIM and MET services | **SESAR Solution – Nil** | | | | | | |
| **INF07** | **Electronic Terrain and Obstacle Data (e-TOD)** | | | | | | |
| **Stakeholders** | ANSPs<br>Airport Operators<br>Regulators | **Expected Benefits** | Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security |
| **FOC** | 31/12/2018 | **OI Steps / Enablers** | AIMS-16 | | | | |
| **Estimated achievement** | 31/12/2024 | **CP1 AF & SDP Family** | - | - | | | |
| **Status** | **Late** | **ICAO ASBU** | DAIM-B1/3, DAIM-B1/4 | | | | |

**Completion Rate Evolution (%)**

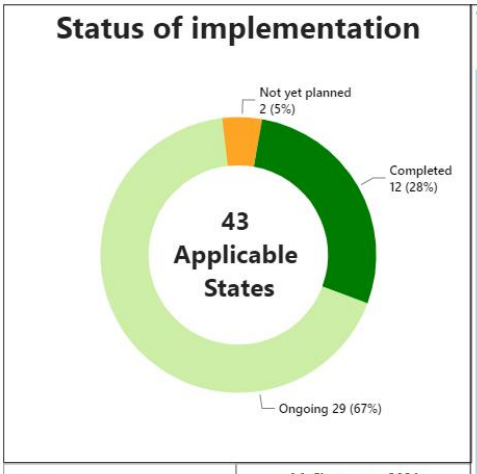


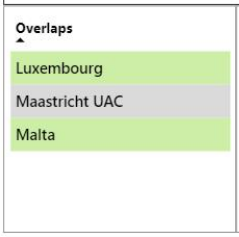

**Progress among non-Completed Countries**

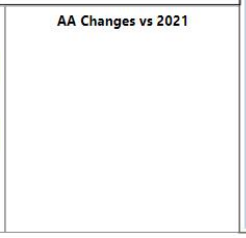


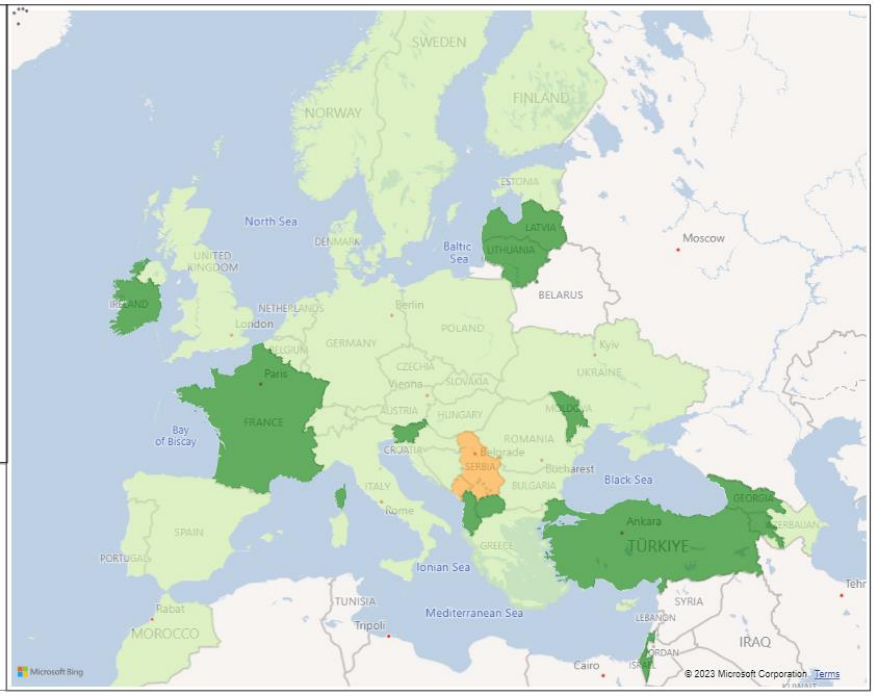

The Objective has not advanced compared to 2021: it still stands at **28% completion**. However, 9 states progressed in implementation progress in 2022.

11 states reached a progress of 50% and more expected to finalise in 2023, the remaining states with progress less than 50% expected to finalise implementation in 2025 the latest.




- The overall status continues to be late, and the estimated achievement is one year later than the previous estimation.
- One more state 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. Also, INF07-ASP01 progressed from 20 to 23 completed.
- 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 2021.

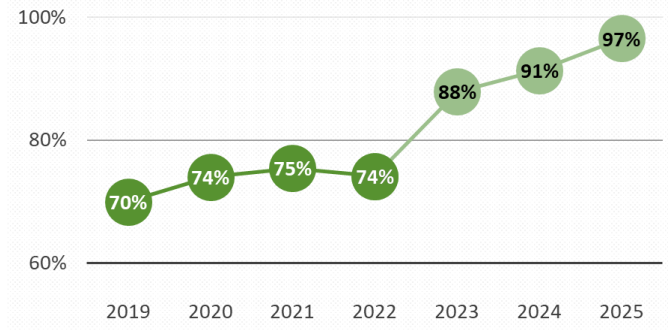


Co-funded by the European Union

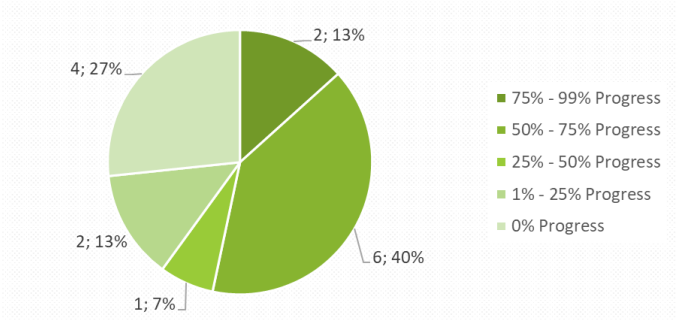
## 4.5 AIRPORT AND TMA PERFORMANCE

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ATp Airport and TMA performance | **Solution #70 Enhanced ground ATCO situation awareness in AWO**<br>**Solution #110 ADS-B surveillance of aircraft in flight and on the surface** | | | | | | |
| **AOP04.1** | **A-SMGCS Surveillance (former Level 1)** | | | | | | |
| **Stakeholders** | ANSPs, Airport Operators<br>Airspace Users<br>International Organisations<br>Regulators | **Expected Benefits** | Capacity | Operational efficiency | Cost efficiency | Safety | Environment / Security |
| **FOC** | 31/12/2020 | **OI Steps / Enablers** | AO-0201, AO-0201-A | | | | |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | - | - | | | |
| **Status** | **Late** | **ICAO ASBU** | SURF-B0/2 | | | | |

**Completion Rate Evolution (%)**

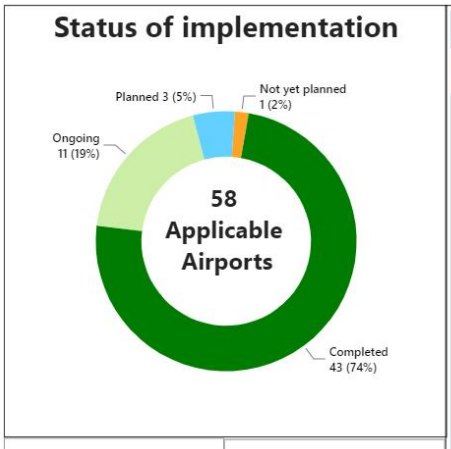



**Progress among non-Completed Airports**




No additional airport implemented the Objective in 2022 and **the completion rate decreased to 74%** as one additional airport joined the applicability area (LCLK). The objective is expected to reach a completion rate of 88% in 2023 and will be considered achieved.

**Eight airports** will implement this objective **in 2023** of which 7 achieved a progress of more than 50% (LGAV, LROP, LIMC, LIRF, EGCC, LGTS and LFBO).




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| London Stansted Airport |
| Milan Linate |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

| AA Changes vs 2021 |
|---|
| LCLK |


- 14 airports are in the planning or the ongoing phase of implementation. The latest planned dates of implementation are for LFML (2025), LIPZ (2025), GMMN (2025), LYBE (2027).
- GMMN report progress from 'ongoing 3%' in 2021 to 'planned' in 2022.





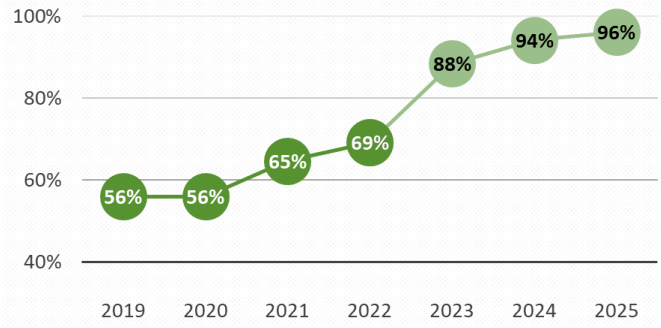
Co-funded by the European Union

# SESAR Solution – Nil

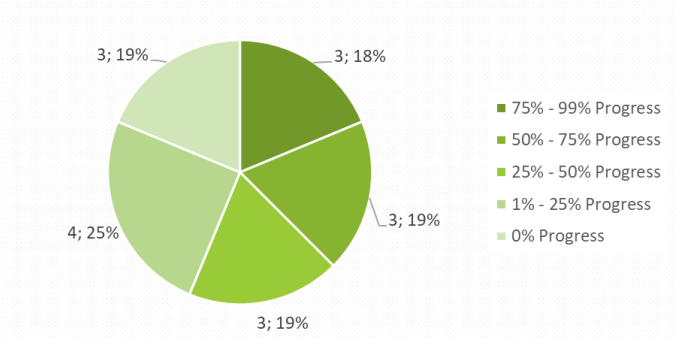
## AOP04.2 A-SMGCS RMCA (former Level 2)

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators<br>International Organisations<br>Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2025 | **OI Steps / Enablers** | AO-0102 |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | - / - |
| **Status** | **On Time** | **ICAO ASBU** | SURF-B0/3 |

**Completion Rate Evolution (%)**

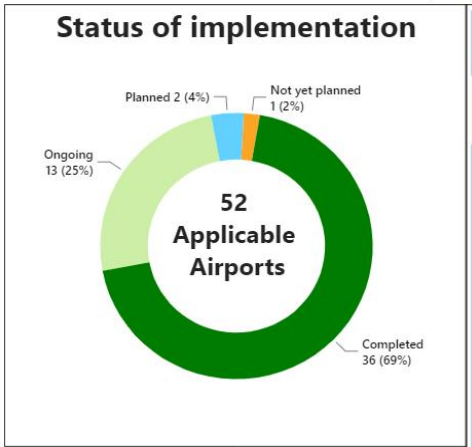



**Progress among non-Completed Airports**




The **completion rate** slightly increased to **69%** in 2022 with the implementation of the Objective by LFLL, LUKK, LROP. In 2022, **36/52 airports are having this functionality operational**. The objective should reach a completion of 88% in 2023.

The majority of the airports that have started the implementation have progress achieved so far greater than 50%.




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| London Stansted Airport |
| Paris Charles de Gaulle |
| Paris Orly |

| AA Changes vs 2021 |
|---|
| LCLK |


- LCLK entered in the Applicability Area, reporting the status 'Not Yet Planned'.
- All airports but one are planning to implement at least one year before the FOC 2025 date. LYBE is planning it for 2027.





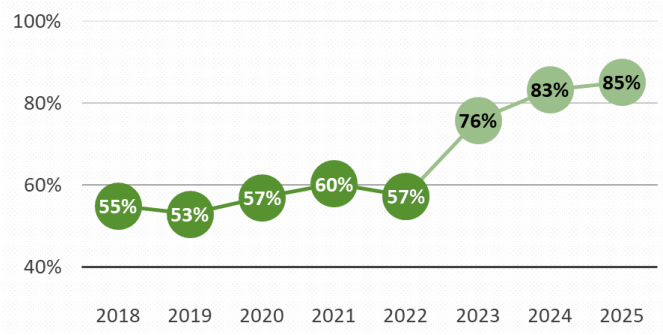
Co-funded by the European Union

# SESAR Solution – Nil

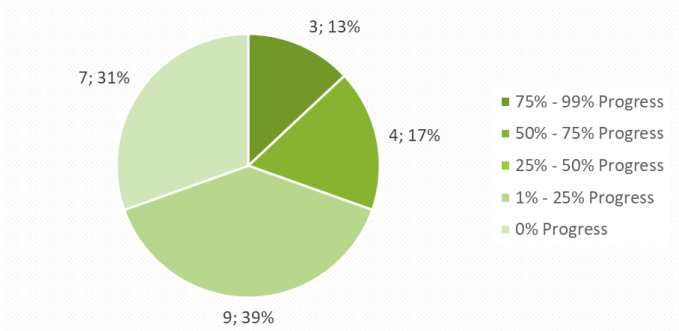
## AOP05 Airport CDM

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

**Completion Rate Evolution (%)**

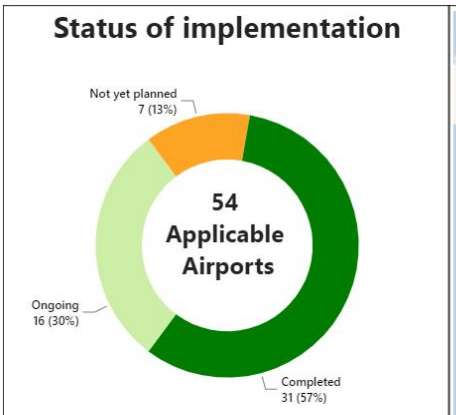



**Progress among non-Completed Airports**




The **completion rate** decreased to **57%** due to ESSA re-opening the Objective and few airports postponing the implementation to 2023. LOWW fully implemented A-CDM in 2022. A more reliable evolution rate will be available after the next cycle, with estimated achievement by 2024.

LATI and LDZA, "Not Applicable" and "Not yet Planned" in 2021, have started the implementation in 2022 by declaring "Ongoing". Furthermore, LTAI started internal discussions to begin the planning of A-CDM implementation. To be noted the progression for EGCC, EGSS, LGAV and LTFM during 2022.




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| London Stansted Airport |
| Milan Linate |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

| AA Changes vs 2021 | |
|---|---|
| LATI | EGBB |
| LCLK | LTBA |
| LTAI | |


- Three more airports joined the Applicability Area: LATI, LCLK and LTAI.
- LTBA is no longer part of the scope of this objective as it ceased all operations in 2022.
- EGBB might not implement A-CDM in the future, thus the change of status from "Not yet planned" to "Not Applicable".



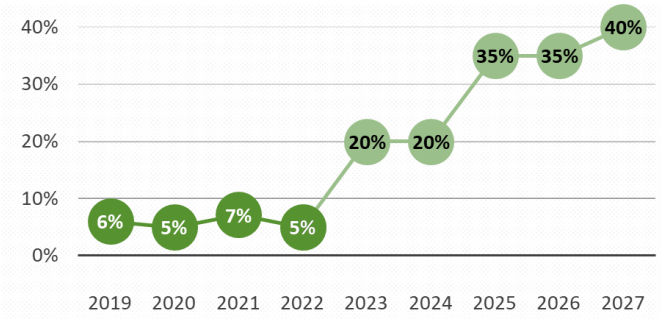


Co-funded by the European Union

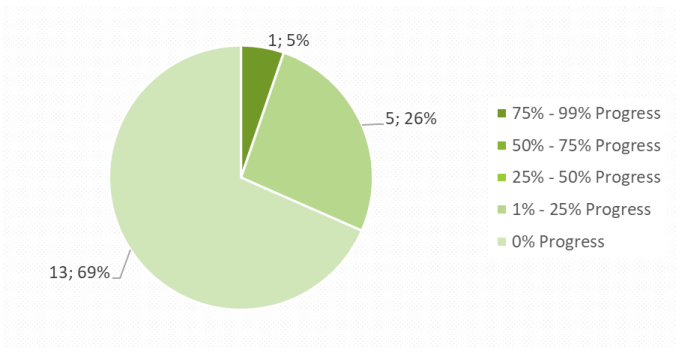
# Solution #64 Time-based separation

| AOP10 | Time Based Separation | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2023 | **OI Steps / Enablers** | AO-0303 |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Available** | **ICAO ASBU** | WAKE-B2/7 |

**Completion Rate Evolution (%)**

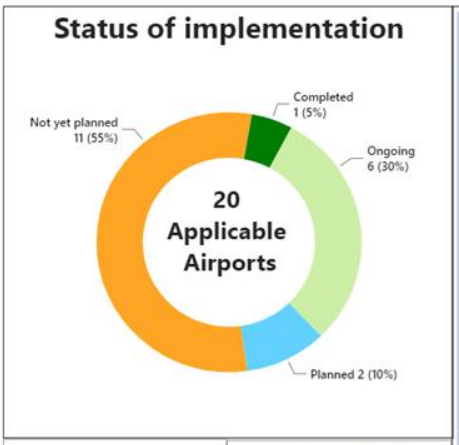



**Progress among non-Completed Airports**



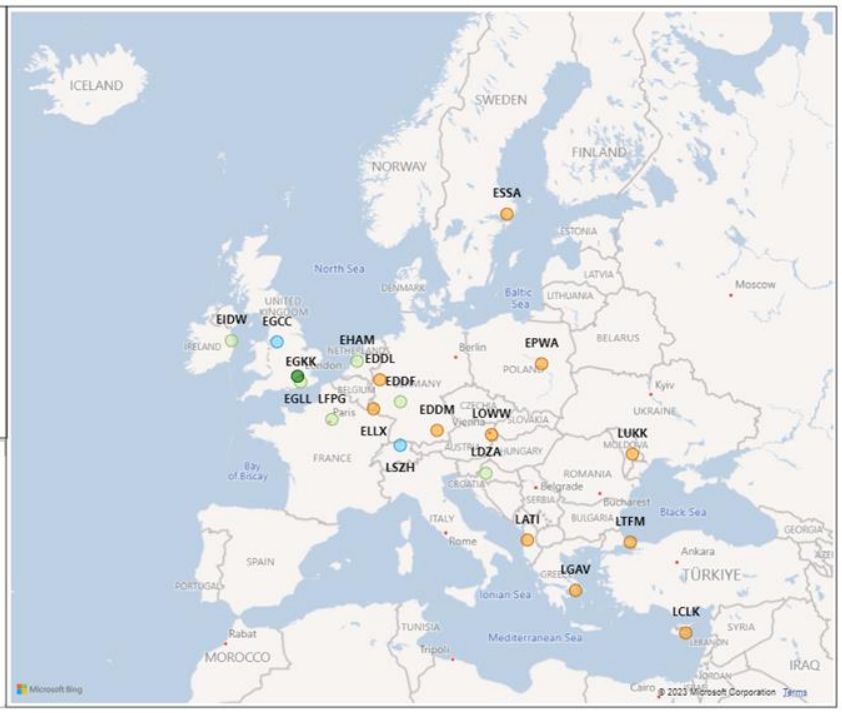

**The completion rate** of this Objective slightly decreased in 2022, to reach **5%**. This is due to the enlargement of the applicability area and one airport leaving it. A spike is expected in 2023.

Based on what is reported, six airports have actively pursued implementation in 2022 with EHAM reaching 89% progress.




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| Paris Charles de Gaulle |

| AA Changes vs 2021 | |
|---|---|
| ELLX | EKCH |
| ESSA | |
| LATI | |
| LCLK | |
| LGAV | |
| LUKK | |
| LFPG | |




- The applicability area increased from 14 to 20 airports in 2022. 7 airports joined (majority of the status is 'Not Yet Planned' and pending feasibility study) and 1 airport left the applicability area because it does not yet have a decision to implement this objective in the next few years.
- LOWW switched from "Ongoing" to "Not Yet Planned" as the project has been put on hold indefinitely.
- The objective is currently implemented only at EGLL.
- 3 airports will reach completion by the FOC date, including EDDF, EIDW and EHAM.



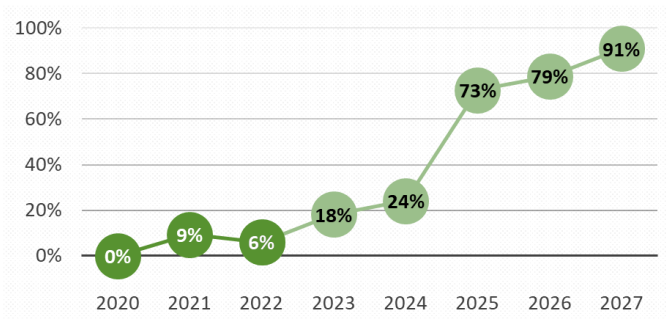
Co-funded by the European Union

# Solution #02 Airport Safety Nets

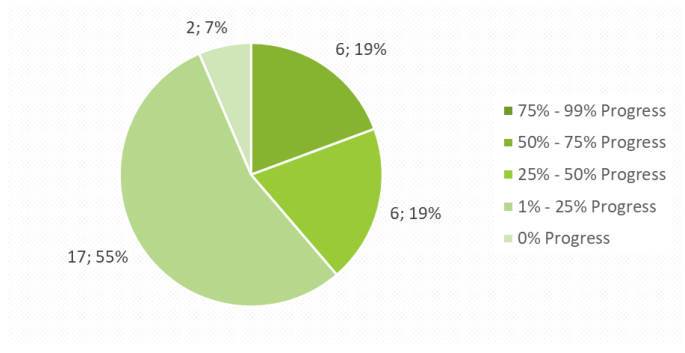
## AOP12.1 Airport Safety Nets

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2025 | **OI Steps / Enablers** | AO-0104-A |
| **Estimated achievement** | 31/12/2025 | **CP1 AF & SDP Family** | AF2 — 2.3.1 |
| **Status** | **On Time** | **ICAO ASBU** | SURF-B1/3 |

**Completion Rate Evolution (%)**



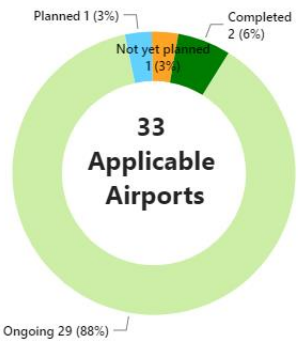

**Progress among non-Completed Airports**




AOP12.1 was substantially changed in the previous cycle, and the applicability area is still unstable, hence there the **completion rate very low.** Implementation is foreseen by 2025.

Due to the changes to the objective, most Stakeholders are still at an early implementation phase. The majority of the airports are reporting a progress of less than 50%.

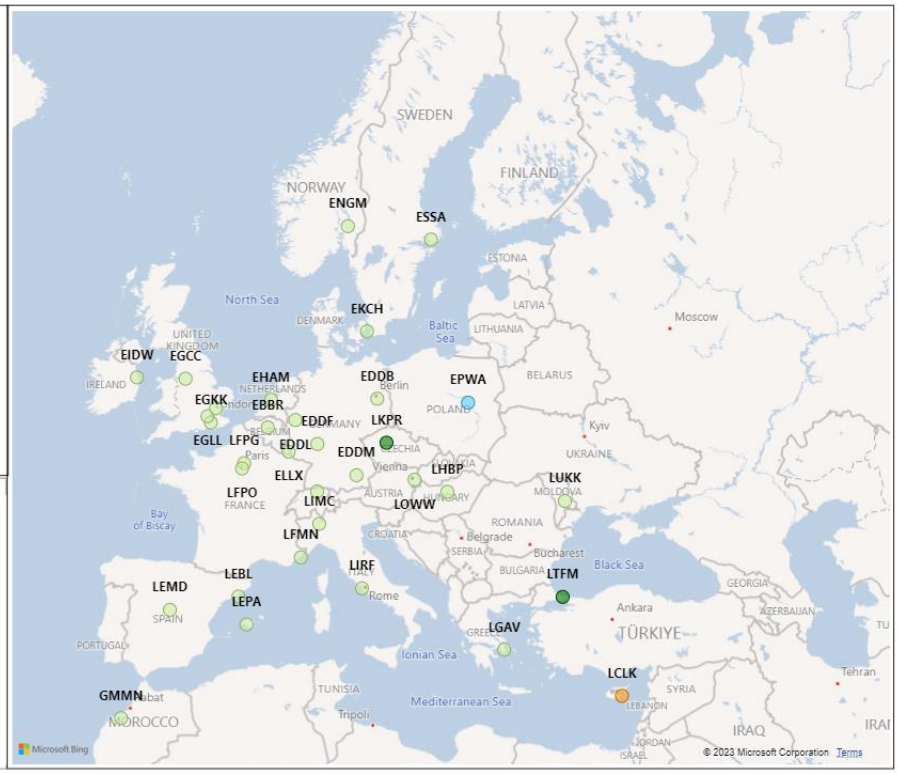
**Status of implementation**




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| London Stansted Airport |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

**AA Changes vs 2021**

LCLK
LGAV
UBBB




- The functionality of Objective AOP04.2 (RMCA) is a pre-requisite for the implementation of CATC and CMAC in this objective therefore the that functionality is embedded in AOP12.1 as well.
- All airports on the CP1 AF2 list are reporting the implementation as “Ongoing”.
- In 2022, 2 additional airports LCLK and EGAV (pending feasibility study) and 1 left: UBBB (implementing only RMCA reported in AOP04.2).





Co-funded by the European Union

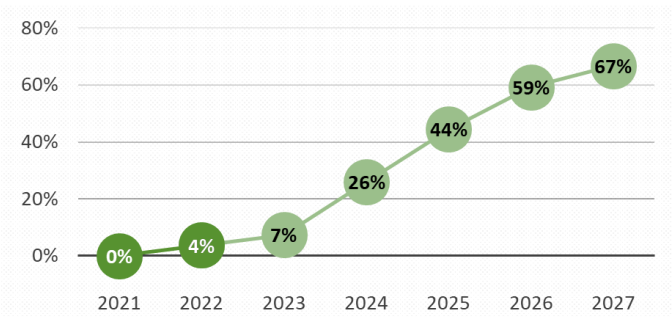
ATp Airport and TMA performance

# Solution #22 Auto. assist ATCO for surface movement planning and routing
# Solution #53 Pre-DEP sequencing supported by route planning

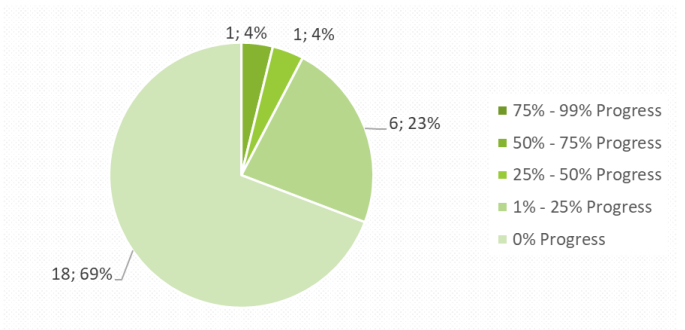
## AOP13 Automated Assistance to ATCO for Surface movement plan & routing.

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2025 | **OI Steps / Enablers** | AO-0205, TS-0202 |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Available** | **ICAO ASBU** | SURF-B1/4 |

**Completion Rate Evolution (%)**

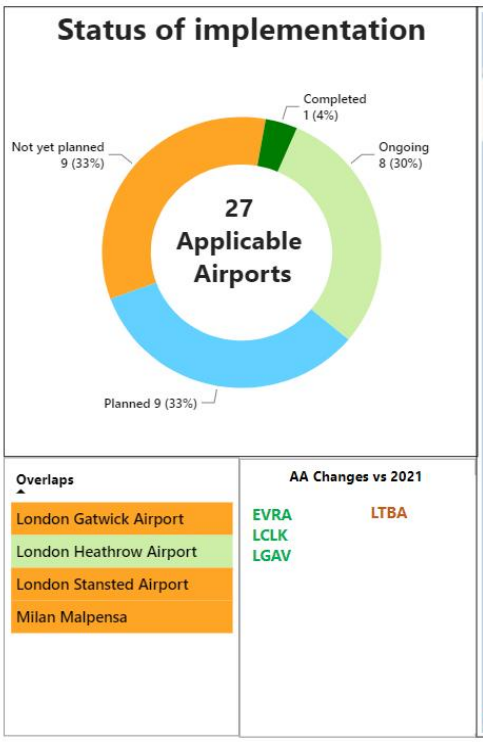



**Progress among non-Completed Airports**




EVRA reported this cycle that the objective has been implemented in 2021. It is not possible to provide a reliable date for an estimated achievement due to the still high number of airports reporting "Not Yet Planned".

From the airports with Status 'Ongoing', LTFM reports a progress of 73%, all the others report a progress below 30%. Türkiye and Hungary postponed their implementation: LTFM by 01-06-23, LHBP by 30-06-24.




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| London Stansted Airport |
| Milan Malpensa |

**AA Changes vs 2021**

EVRA
LCLK
LGAV
LTBA


- LCLK and LGAV have changed their status from 'Not Applicable' to 'Not Yet Planned' (main reason provided is that there is not yet a decision to implement or not this objective (feasibility study) and EVRA from 'Not Applicable' to 'Completed'. LTBA has left the Applicability Area.
- Overall the objective is considered as 'Not Applicable' for 28 airports.
- The majority of the airports with status 'Planned' estimates implementation by the FOC date. However, 3 Airports (LOWW, ENGM, LSZH) postponed their implementation date after 2025.





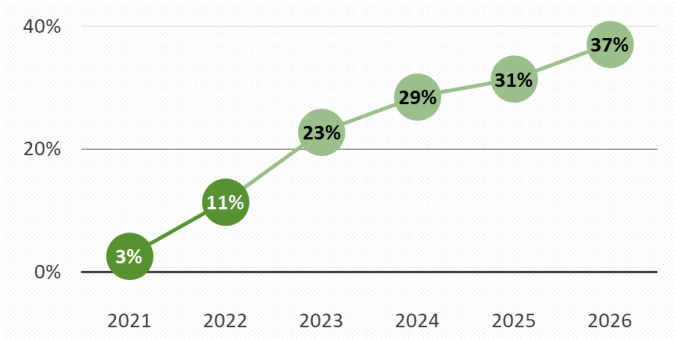
Co-funded by the European Union

# Solution #04 Enhanced sit. awareness and APO SNET for vehicle drivers

## AOP15 Safety Nets for vehicle drivers

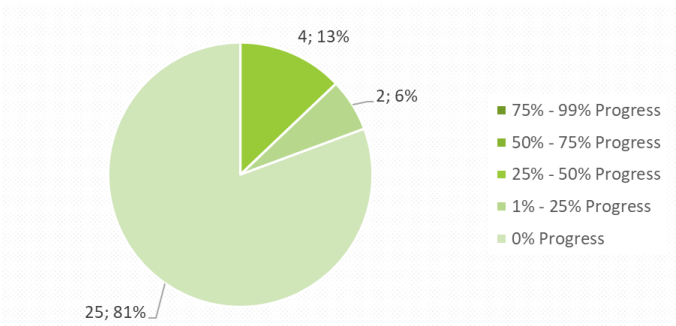
| | | | |
|---|---|---|---|
| **Stakeholders** | Airport Operators<br>International Organisations<br>Regulators | **Expected Benefits** | Capacity · Operational efficiency · Cost efficiency · **Safety** · Environment · Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | AO-0105,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

**Completion Evolution**

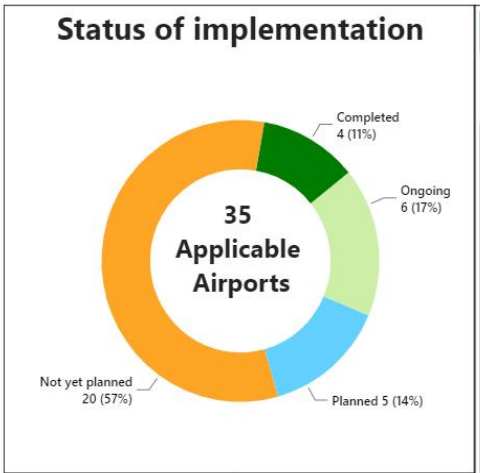


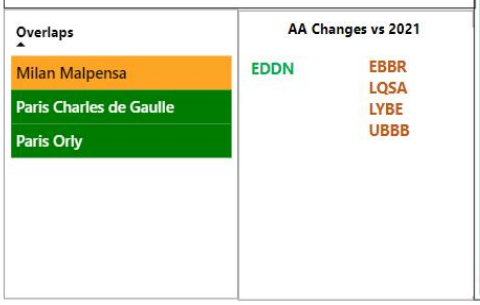

In 2022, **the completion rate increased by 8%** as 3 additional airports implemented this objective (LFPG, LFPO, LIRF). The majority of airports in the applicability area still reports "Not Yet Planned" or "Planned" as status, thus it is not possible to provide a reliable date for an estimated achievement.

**Progress among non-Completed Airports**




Four additional airports expect to implement this local objective in 2023: LTFM, LEMD, EDDS (which achieved a progress of 50%) and EKCH (reporting 25% implementation progress).





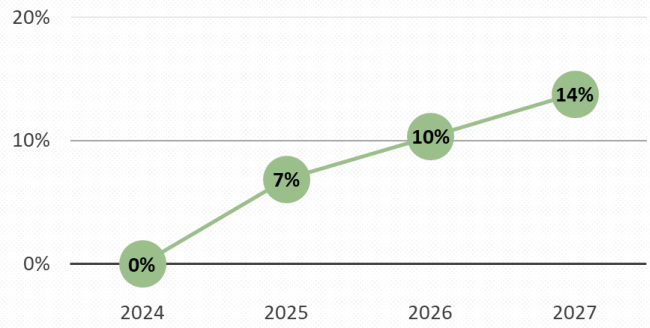
- In 2022, EDDN entered in the Applicability Area and reported this objective as 'Not Yet Planned' and 4 Airports left the Applicability Area (EBBR, LQSA, LYBE and UBBB), the main reason provided for this change is that there is no current local operational needs.


EUROPEAN PARTNERSHIP
Co-funded by the European Union

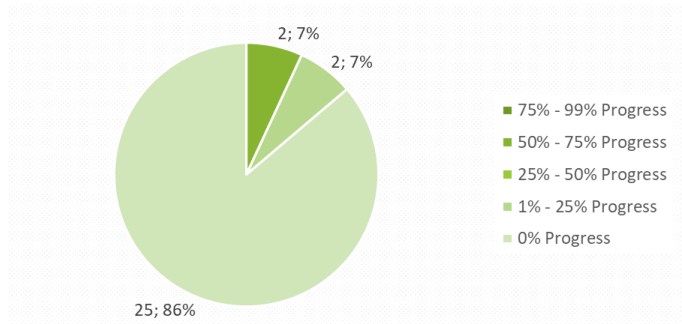
# Solution #47 Guidance assistance through AGL

| AOP16 | Guidance assistance through airfield ground lighting (AGL) | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators<br>Airspace Users<br>International Organisations | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | AO-0222-A |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Applicable** | **ICAO ASBU** | SURF-B1/1 |

**Completion Evolution**

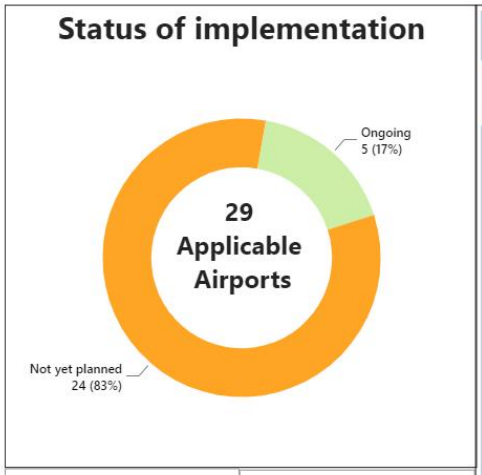



**Progress among non-Completed Airports**




**No airport** has currently implemented this local objective and the 5 airports that have reported implementation as ongoing foresee to reach completion between 2025 and 2030.

Only two airports (EHAM and LTFM) are reporting a progress higher than 50%.




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| London Stansted Airport |
| Milan Malpensa |

| AA Changes vs 2021 | |
|---|---|
| EDDS | ESSA |


- ESSA left the Applicability Area in 2022 and EDDS entered in the Applicability Area with no implementation date decided yet.
- In addition to the 5 airports reporting ongoing implementation of the objective, 24 airports in the Applicability Area have no plans yet to implement it.



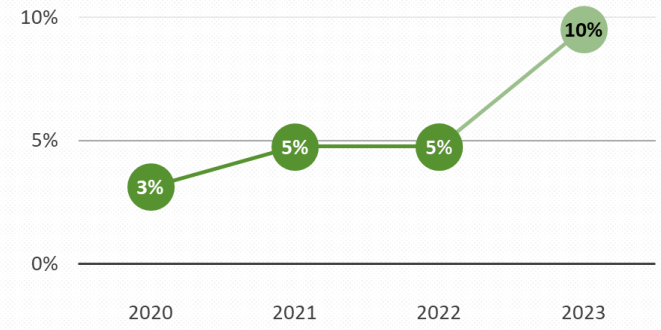


Co-funded by the European Union

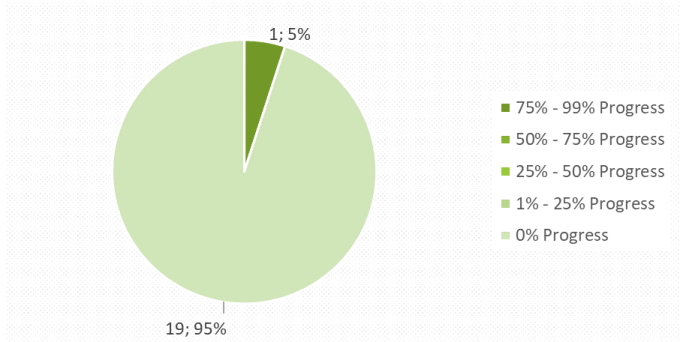
# Solution #01 Runway status lights

| AOP18 | Runway Status Lights | | |
|---|---|---|---|
| **Stakeholders** | ANSPs, Airport Operators<br>Airspace Users<br>International Organisations<br>Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | AO-0209 |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Applicable** | **ICAO ASBU** | SURF-B2/2, SURF-B2/3 |

**Completion Evolution**

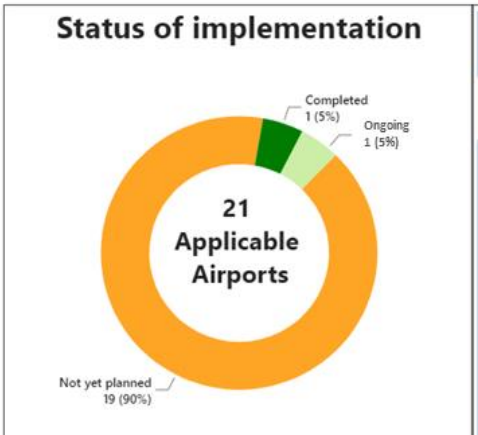



**Progress among non-Completed Airports**



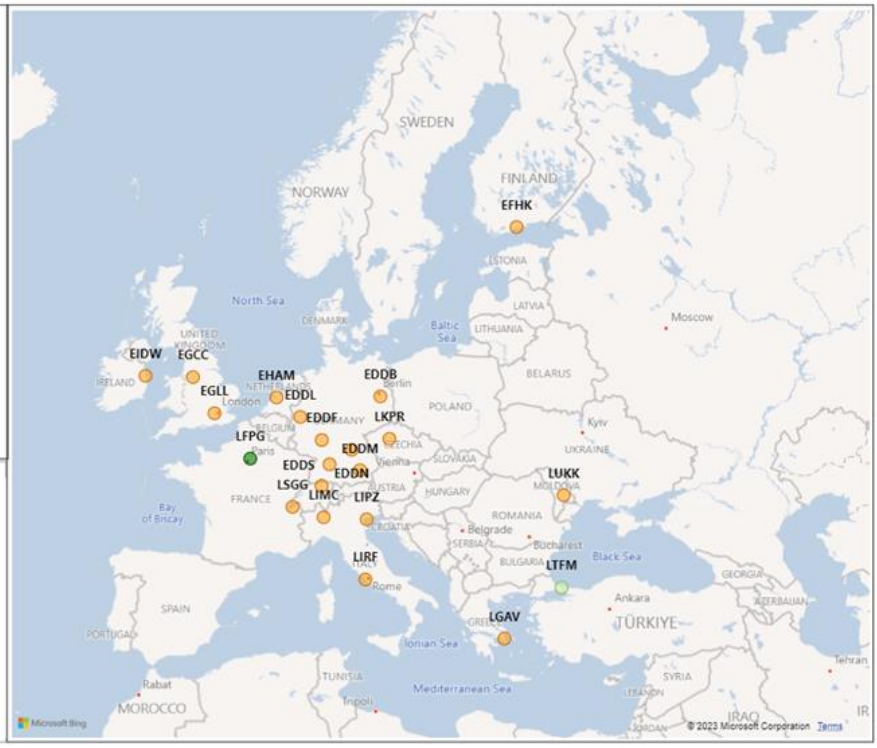

No implementation of this objective in 2022. **The completion rate** remained at **5%** as LTFM postponed its implementation to 2023.

The progress achieved so far by LTFM is **80%,** giving confidence in positive outlook for the implementation in 2023. The remaining 19 airports in the applicability area have still no implementation date to report.




| Overlaps |
|---|
| London Heathrow Airport |
| Milan Malpensa |
| Paris Charles de Gaulle |

| AA Changes vs 2021 | |
|---|---|
| EDDL | EGSS |
| EDDN | EKCH |
| EDDS | EVRA |
| EHAM | LCLK |




- Airports need to implement first AOP04.1 A-SMGCS Surveillance objective as a dependency.
- Up to now, only 1 airport reported it as “completed” (LFPG).
- This year, 4 airports changed their status to “Not Applicable” (LCLK, EKCH, EVRA, EGSS) and 4 changed their status from ‘Not Applicable’ to ‘Not Yet Panned’ (EDDL, EDDN, EDDS, EHAM).





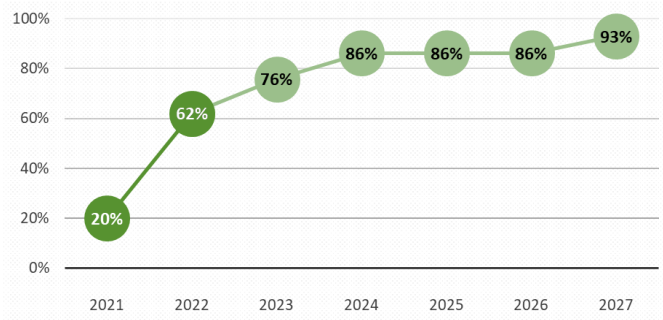
Co-funded by the European Union

# Solution #53 Pre-Departure Sequencing supported by Route Planning
# Solution #106 DMAN Baseline for integrated AMAN DMAN

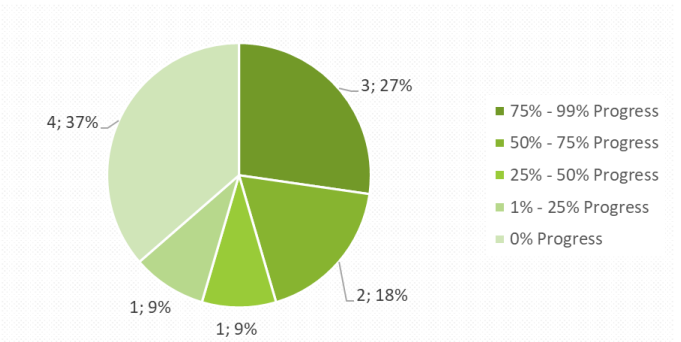
## AOP19 Departure Management Synchronised with Pre-departure sequencing

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2022 | **OI Steps / Enablers** | AO-0602, TS-0201 |
| **Estimated achievement** | 31/07/2027 | **CP1 AF & SDP Family** | AF2 — 2.1.1 |
| **Status** | **Late** | **ICAO ASBU** | RSEQ-B0/2 |

**Completion Rate Evolution (%)**




**Progress among non-Completed Airports**




The overall **completion evolution** shows good progress compared to 2021, with an increase to **62%**. 13 Airports completed the activities in 2022.

The majority of "Ongoing" Airports reported a progress above 60%, while 4 Airports plan to implement in 2023. CP1-regulated Airports will finalise the implementation by 2027.

**Status of implementation**


| Overlaps |
|---|
| London Heathrow Airport |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

**AA Changes vs 2021**

LCLK
LGAV
LYBE
UBBB


- All CP1-regulated Airports should have achieved the Objective in 2022. However, four Airports still need to finalise the implementation, at the latest by 2027.
- Of these, EIDW experienced some delays in the implementation due to the introduction of a new tower in 2021, ENGM is still assessing the acquisition of DMAN, ESSA is being delayed due to DMAN.



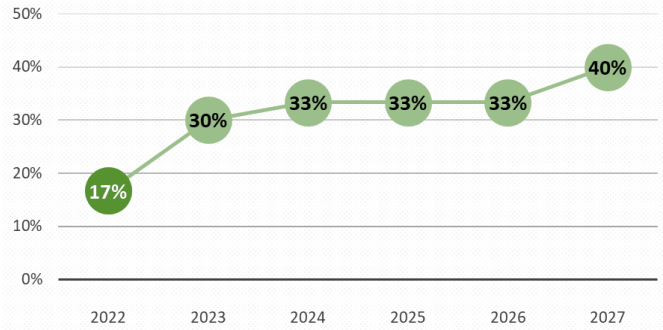


Co-funded by the European Union

# Solution #116 De-icing management tool

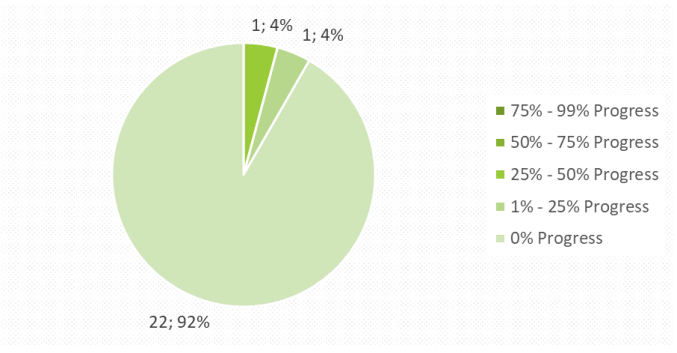
| AOP25 | De-icing management tool | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | POI-0070-AO |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Applicable** | **ICAO ASBU** | - |

**Completion Rate Evolution (%)**

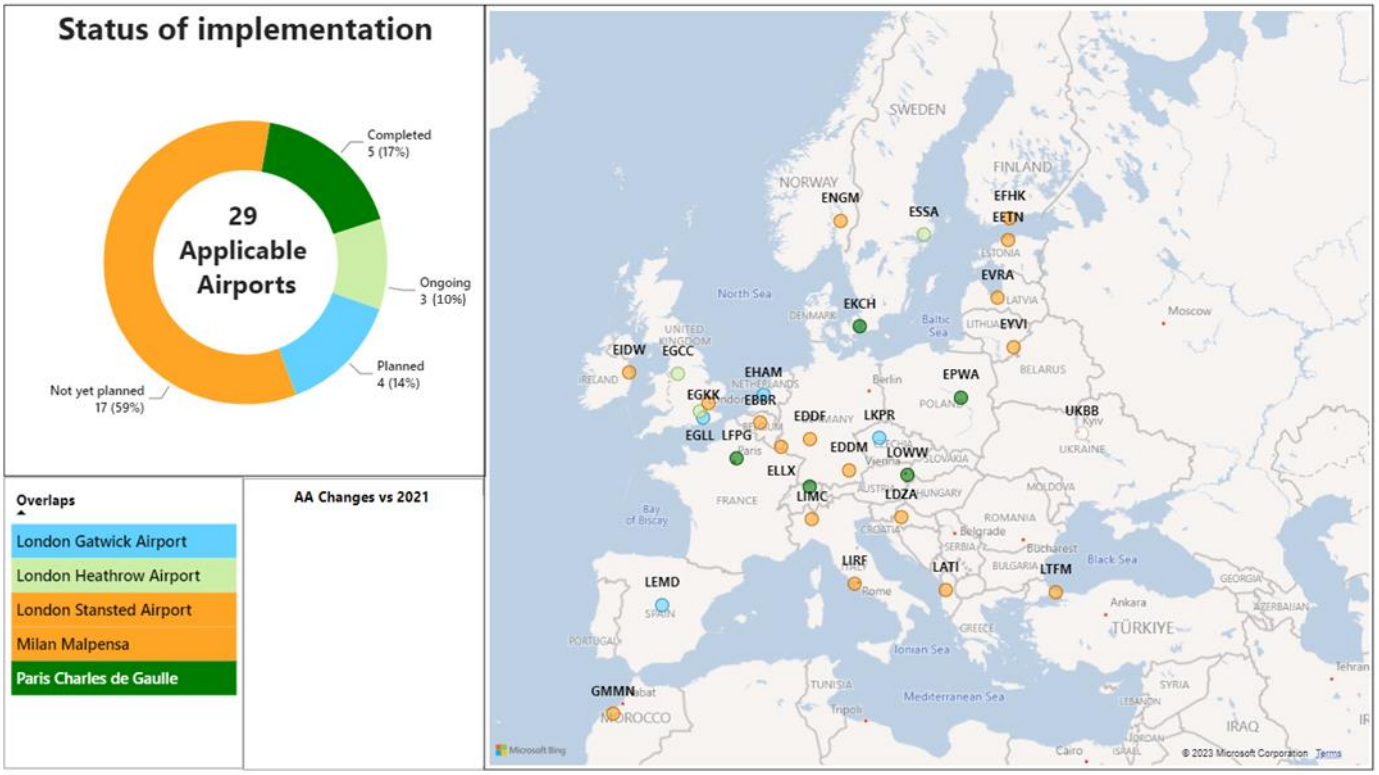



As this is a new Objective, monitored for the first time in 2022, the completion rate is still low (17%), with 5 airports having reported the implementation.

**Progress among non-Completed Airports**




Currently 3 airports have reported the implementation as "Ongoing", with 2 reporting a progress as much as 50%. All others are either "Planned" or mostly "Not yet planned".




- Being a new (local) Objective, monitored for the first time in 2022, it has quite a limited applicability area, as many stakeholders are still assessing the implementation needs.
- The applicability area is expected to evolve and to stabilise over the next 2-3 years.
- The implementation pace is expected to be constant over the next years with roughly one airport deploying every year up to 2030, the next implementers being ESSA, EGCC, EGLL and LEMD in 2023 followed by EGKK in 2024.





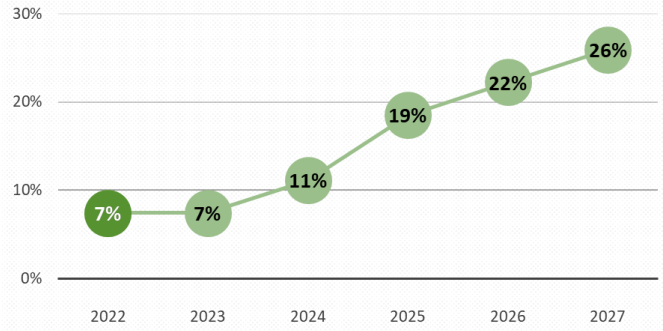
Co-funded by the European Union

# Solution #PJ.02-08-03 Reduced separation based on local Runway Occupancy Time characterisation

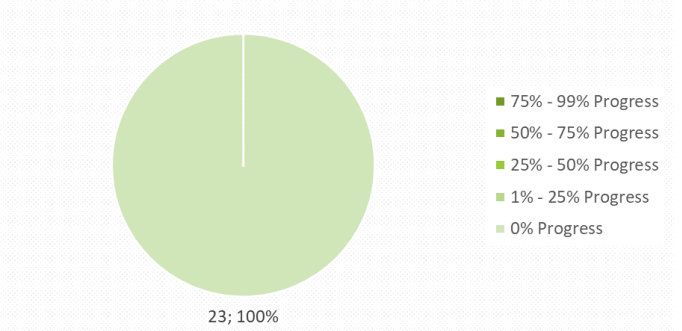
## AOP26 Reduced separation based on local Runway Occupancy Time characterisation

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs | **Expected Benefits** | Capacity; Safety | Operational efficiency; Cost efficiency; Environment; Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | AO-0337 | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - | - |
| **Status** | **Not Applicable** | **ICAO ASBU** | - | |

**Completion Rate Evolution (%)**



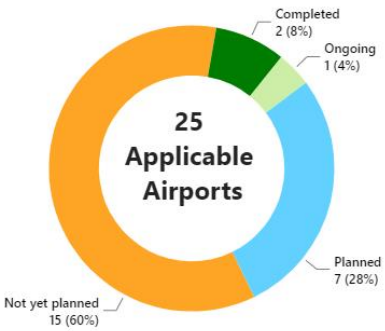

**Progress among non-Completed Airports**




As this is a new Objective, monitored for the first time in 2022, the completion rate is still low (7%), with only 2 airports (EGLL and EFHK) having reported implementation.

Currently only one airport has reported the implementation as ongoing (with zero progress), while the others in the applicability area are only in the planning phase or do not have concrete plans yet.

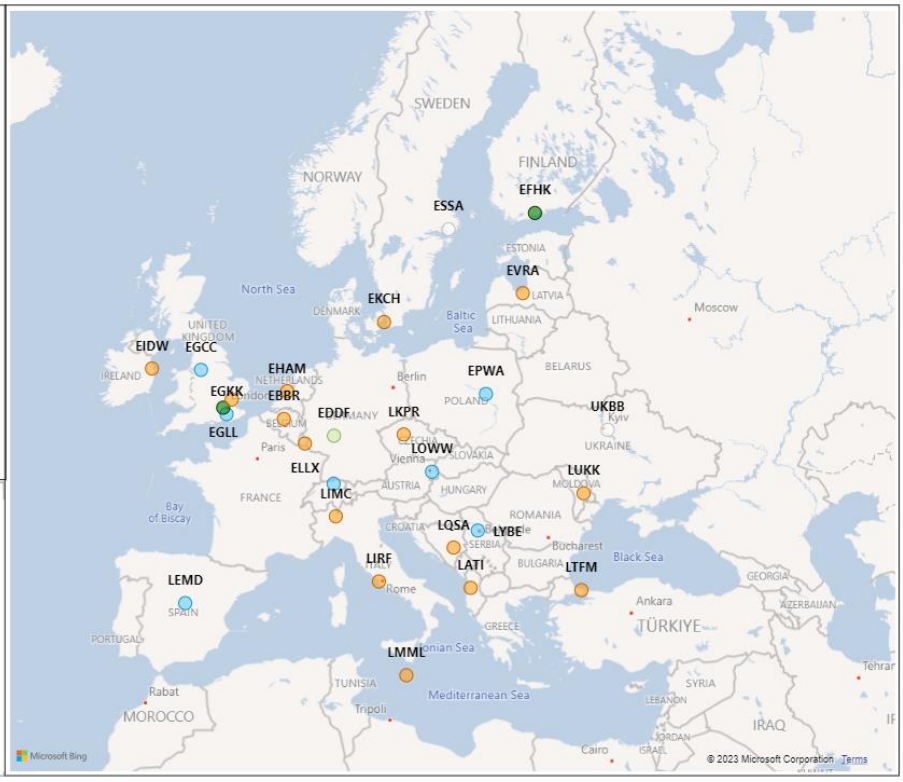
**Status of implementation**




Overlaps

- London Gatwick Airport
- London Heathrow Airport
- London Stansted Airport
- Milan Malpensa

AA Changes vs 2021




- Being a new (local) Objective, monitored for the first time in 2022, it has quite a limited applicability area, as many stakeholders are still assessing the implementation needs.
- The applicability area is expected to evolve and to stabilise over the next 2-3 years.
- The expected implementation pace will be constant over the next years with roughly one airport deploying every year up to 2030, the next implementers being EGKK in 2024 followed by LEMD and EGCC in 2025.



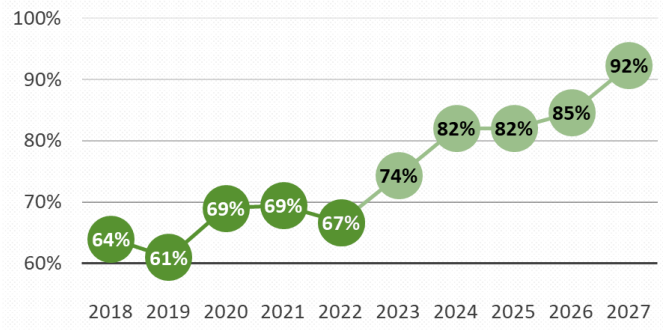


Co-funded by the European Union

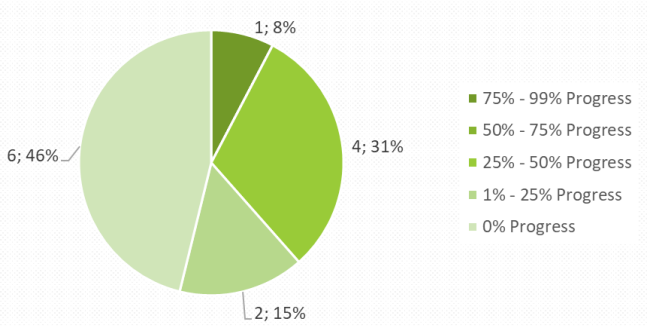
| | |
|---|---|
| ATp Airport and TMA performance | **SESAR Solution – Nil** |
| **ATC07.1** | **AMAN tools and procedures** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Stakeholders** | ANSPs | **Expected Benefits** | | | | | |
| | | Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security |
| **FOC** | 31/12/2019 | **OI Steps / Enablers** | | | TS-0102 | | |
| **Estimated achievement** | 31/12/2024 | **CP1 AF & SDP Family** | | | - | - | |
| **Status** | **Late** | **ICAO ASBU** | | | RSEQ-B0/1 | | |

**Completion Rate Evolution (%)**



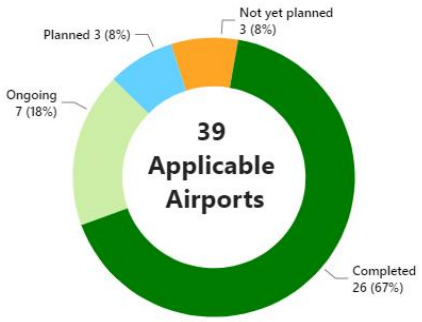

**Progress among non-Completed Airports**




The slight overall decrease of **completion rate to 67%** is due to the addition of LGAV, LCLK, and UBBB to the applicability area.

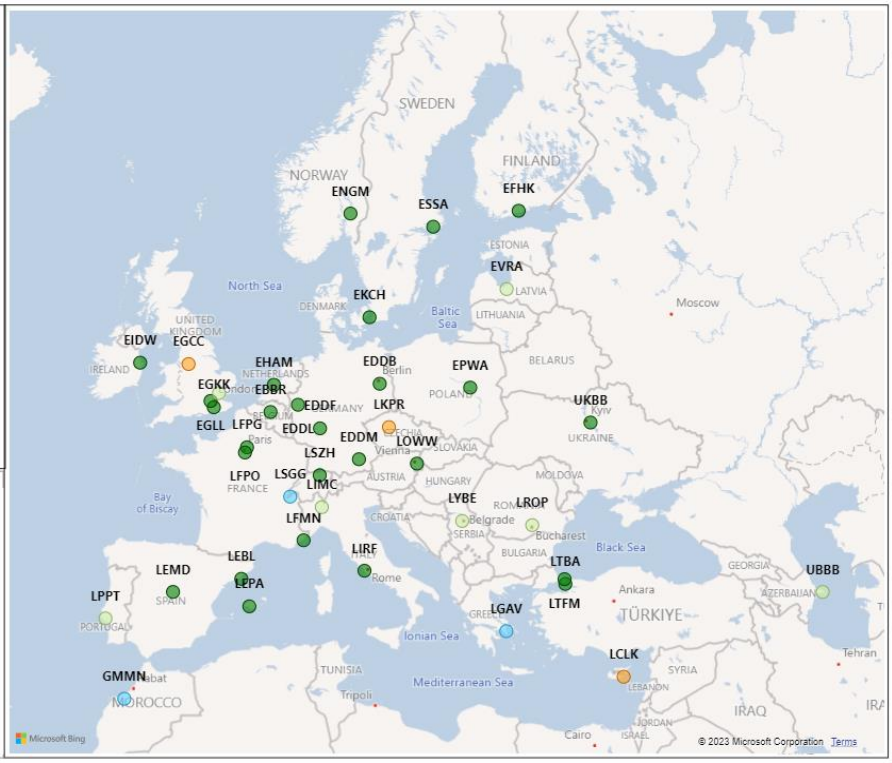
LYBE is near completion with a progress at 85%. LPPT(49%), LIMC (48%) and EVRA (40%) are well underway. UBBB shows a 28% progress.

**Status of implementation**




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| London Stansted Airport |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

| AA Changes vs 2021 |
|---|
| LCLK |
| LGAV |
| UBBB |




- The number of airports taking up the implementation of Basic AMAN has grown further in 2022 with three additional airports in the Applicability Area.
- LIRF completed the implementation in 2022, while another 4 Airports are planned to do so between 2023 and 2024.





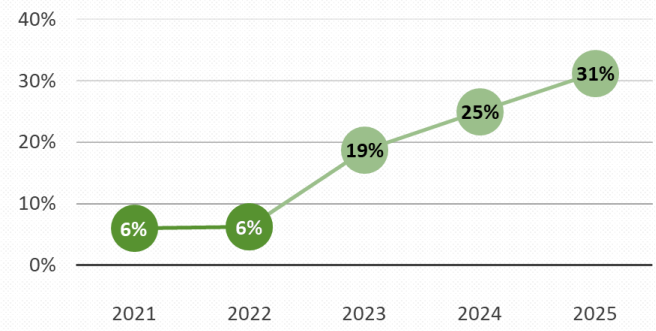
Co-funded by the European Union

# Solution #54 Flow based Integration of Arrival and Departure Management

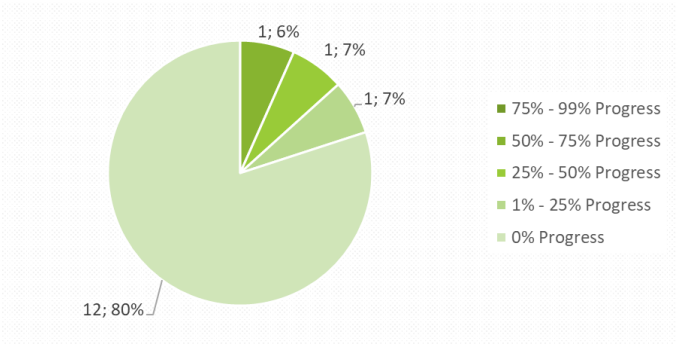
## ATC19 Enhanced AMAN-DMAN integration

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

**Completion Rate Evolution (%)**

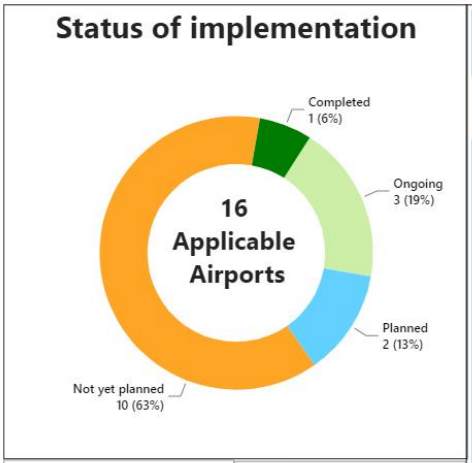



**Progress among non-Completed Airports**




**One airport** (LSZH) has so far **completed** the objective, prior to 2022. Note that the implementation is compulsory by 31/12/2027 for 6 European airports (including ENGM as of 2022), as specified in the CP1 Regulation.

Three airports report an "Ongoing" status: EGLL at 58% , LTFM at 26% (3% in 2021), and UBBB at 4%. All other airports are at 0%, as either "Planned" or "Not Yet Planned". All CP1-mandated airports are "Not Yet Planned".




| Overlaps |
|---|
| London Heathrow Airport |
| Milan Malpensa |
| Paris Charles de Gaulle |

| AA Changes vs 2021 | |
|---|---|
| LCLK | EHAM |
| LGAV | LHBP |
| UBBB | |


- This objective is regulated by IR (EU) 2021/116 – Common Project 1. Within the CP1-Regulated area, EDDB, EDDL, LFMN, FPG and ENGM have no firm plans yet. LIMC changed its status from "Planned" to "Not Yet Planned" in 2022.
- LSZH is the only airport having completed AMAN DMAN Integration.
- The deployed at EGLL, while plans for deployment at Swanwick Terminal Control have been delayed from late 2022 to mid-2023.



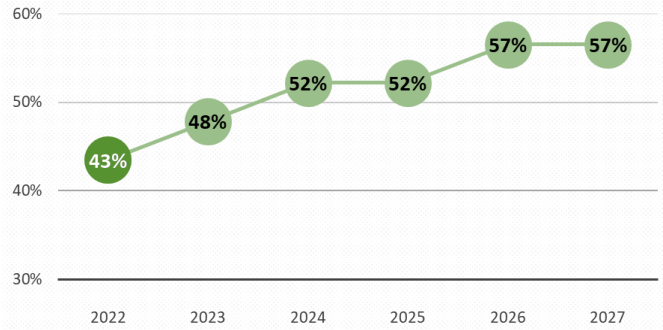


Co-funded by the European Union

# Solution #107 Point Merge in complex TMA

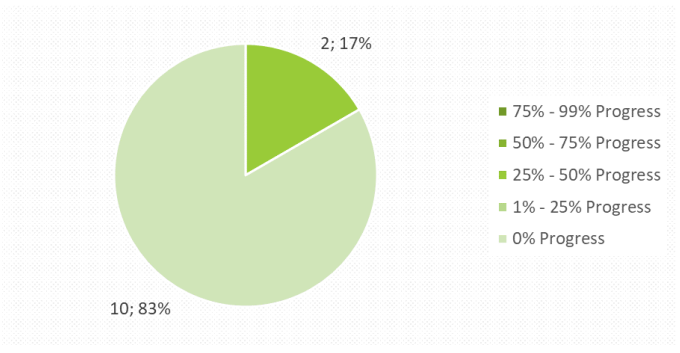
| ATC26 | Point Merge in complex TMA | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users | **Expected Benefits** | | | | | | |
| | | Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security | |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | | | AOM-0601 | | | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | | | - | - | | |
| **Status** | **Not Applicable** | **ICAO ASBU** | | | RSEQ-B0/3 | | | |

**Completion Rate Evolution (%)**

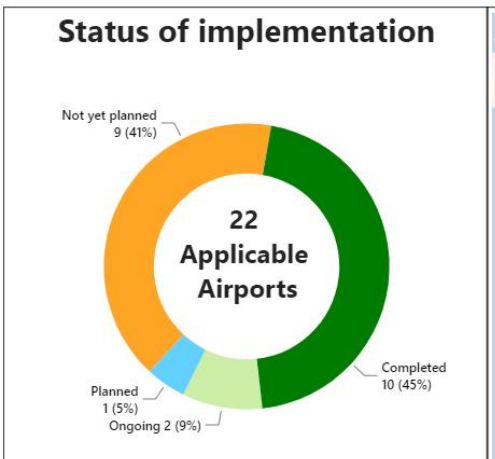


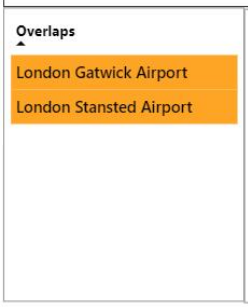

Even if this a new Objective, monitored for the first time this cycle, it benefits of a good start as 10 Airports have finalised implementation in the previous years, leading to a **completion rate** of **43%** across the current applicability area.

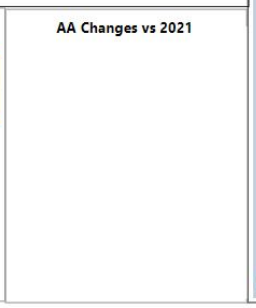
**Progress among non-Completed Airports**

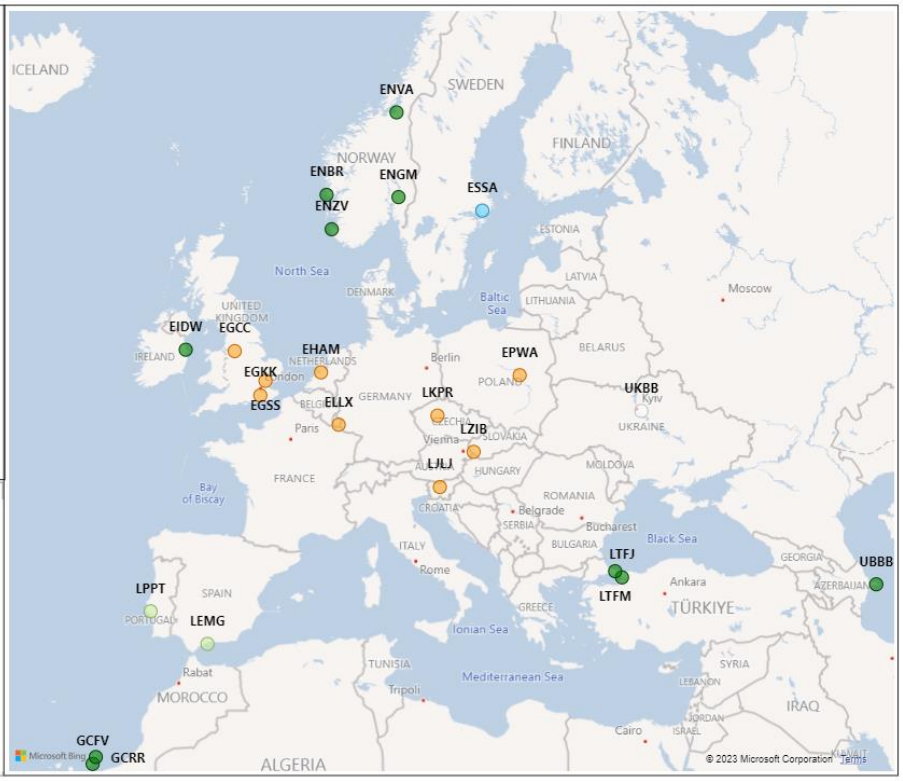



Among the non-completed airports currently in the applicability area. The progress is quite modest for the time being, as only 2 Airports (LEMG and LPPT) are actively engaged in deployment while another one has reported concrete plans (ESSA).




- Even is the Objective was monitored for the first time this cycle, 10 Airports widely distributed across the ECAC area are already reporting completion.
- Beside the 10 Airports shown on the map, LIME Airport has also implemented the Point Merge functionality in 2019, however it has chosen not to report on the implementation therefore its status is not reflected in the statistics.
- Among the airports pursuing implementation, LEMG is expected to complete it in 2023, to be followed by LPPT in 2024 and ESSA in 2026.



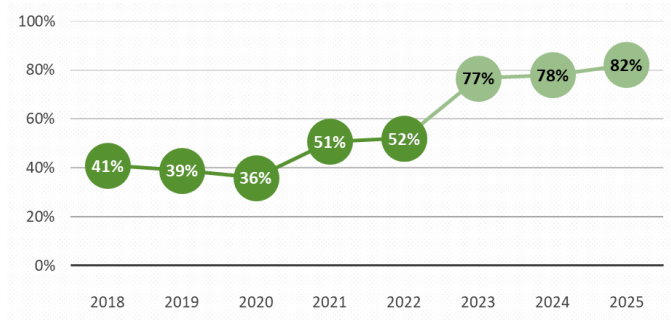
Co-funded by the European Union

# Solution #11 Continuous Descent Operations (CDO)

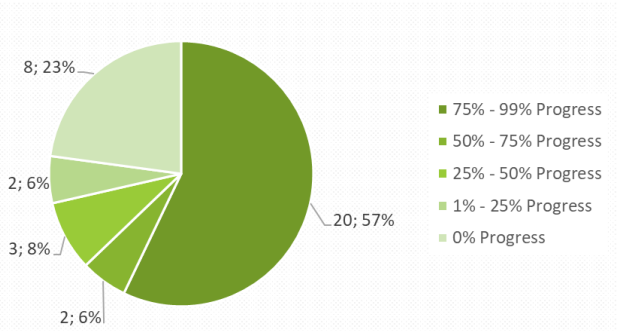
## ENV01 Continuous Descent Operations (CDO)

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators<br>Airspace Users | **Expected Benefits** | Capacity, Operational efficiency, Cost efficiency, Safety, Environment, Security |
| **FOC** | 31/12/2023 | **OI Steps / Enablers** | AOM-0701, AOM0702-A |
| **Estimated achievement** | 31/12/2025 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Planned delay** | **ICAO ASBU** | APTA-B0/4, APTA-B1/4 |

**Completion Rate Evolution (%)**



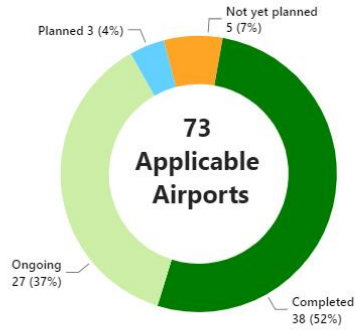

**Progress among non-Completed Airports**




Completion rate reached **52%** in 2022. Despite 5 additional Airports completing the activities, the enlargement of the Applicability Area resulted into a modest progress growth.

Although the implementation was delayed due to COVID-19 impacts, it can be expected that most airports will implement this Objective by end of 2023.

**Status of implementation**




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| London Stansted Airport |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

| AA Changes vs 2021 | |
|---|---|
| LCLK | GMMX |
| LGAV | |
| LUKK | |
| LWSK | |


- Some ANSPs report that, due to low traffic, a systematic collection and analysis of data does not take place.
- Some ANSPs report that further training for ATCOs is needed to fully implement CDO.
- Some ANSPs report that the procedures for monitoring and measurement of CDO execution are still in development.
- One ANSP reports a lower capacity when combining RNAV1/RNP1 approaches with CDO, therefore CDO is only possible during low density hours.





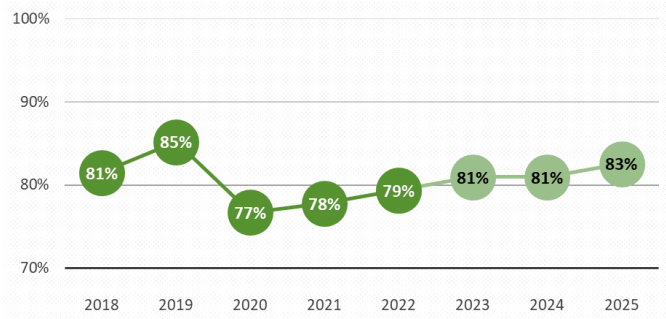
Co-funded by the European Union

# SESAR Solution – Nil

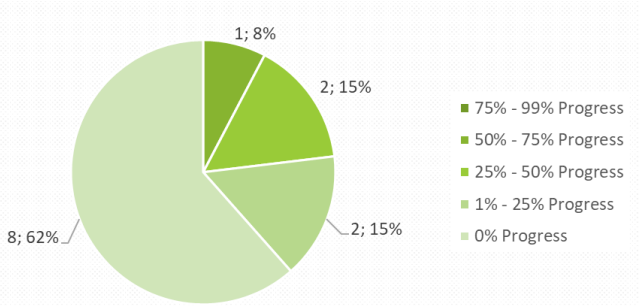
## ENV02 Airport Collaborative Environmental Management

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators<br>Airspace Users<br>EUROCONTROL | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; **Environment**; Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | AO-0703, AO-0705; AO-0706 |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Applicable** | **ICAO ASBU** | - |

**Completion Evolution**



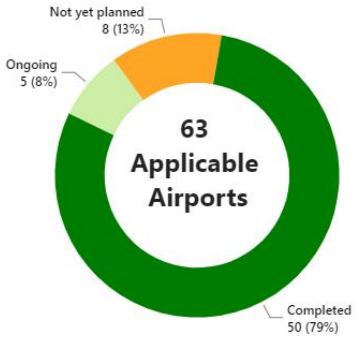

**Progress among non-Completed Airports**




**Completion rate** reached **79%** in 2022, with only LEPA) completing this Objective this year. One more airport is planning the completion by end of 2023.

The progress is in the low margins due to very few Airports not having completed the Objective, of which the majority with no clear plans for implementation at the moment.

### Status of implementation




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| London Stansted Airport |
| Milan Linate |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

**AA Changes vs 2021**


- Some Airports report that the CEM Working Arrangement still needs to be finalised.
- For some others 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.



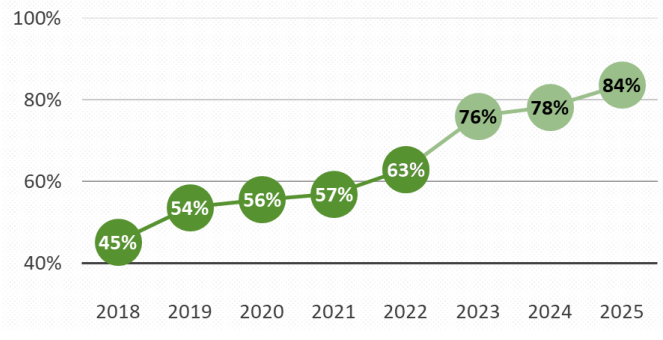


Co-funded by the European Union

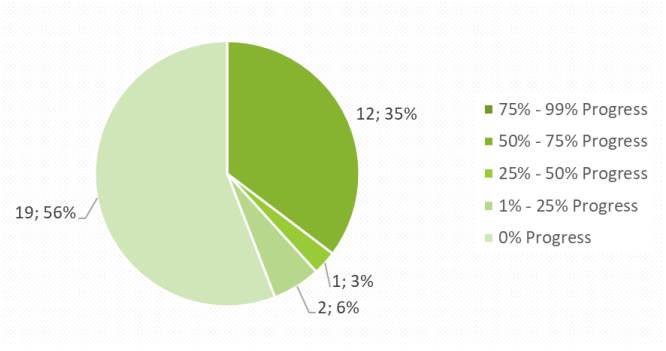
| | |
|---|---|
| ATp Airport and TMA performance | **SESAR Solution – Nil** |
| **ENV03** | **Continuous Climb Operations (CCO)** |

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airport Operators<br>Airspace Users | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; **Environment**; Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | AOM-0703 |
| **Estimated achievement** | 31/12/2025 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Applicable** | **ICAO ASBU** | APTA-B0/5, APTA-B1/5 |

**Completion Evolution**

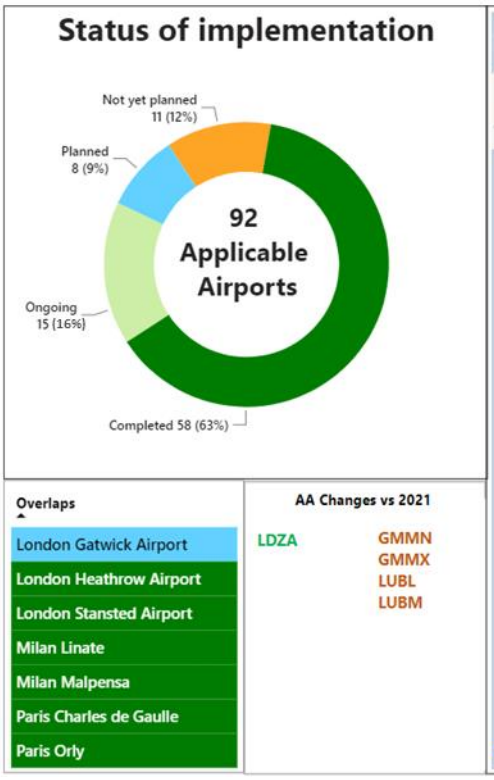



**Progress among non-Completed Airports**




**Completion rate** reached **63%**, with EGBB and LYBE finalising the activities in 2022. Eleven Airports plan to complete the Objective in 2023, while several changed their plans in 2022 on the completion date.

The progress is in the low margins, due to the Airports that have not reported yet implementation plans. However, it can be expected that most Airports will have implemented this Objective by end of 2023.




| Overlaps |
|---|
| London Gatwick Airport |
| London Heathrow Airport |
| London Stansted Airport |
| Milan Linate |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

| AA Changes vs 2021 | |
|---|---|
| LDZA | GMMN |
| | GMMX |
| | LUBL |
| | LUBM |


- Two Airports report that high terrain is presenting an obstacle for CCO.
- Several Airports report that they will implement CCO after an Airspace reorganisation.
- Several Airports report that CCO will follow the implementation of the National Performance Navigation Plan.
- One Airport reports that CCO applies where OPS conditions allow it.
- Several Airports report that CCO implementation still depends on the acceptance of the CAA's Airspace Change Proposal.



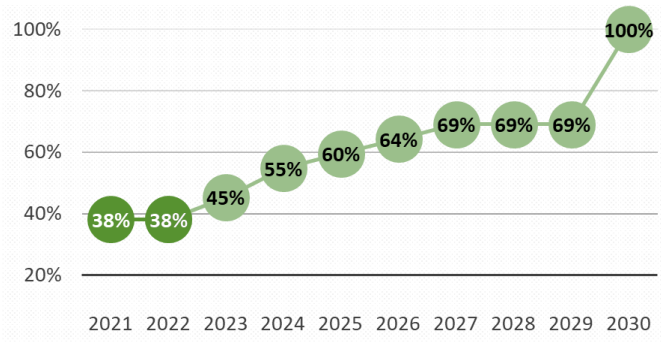
Co-funded by the European Union

# Solution #62 P-RNAV in a complex TMA

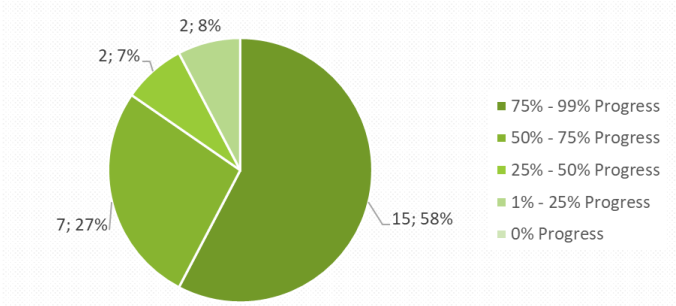
## NAV03.1 RNAV1 in TMA Operations

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 06/06/2030 | **OI Steps / Enablers** | AOM-0601, *CTE-N08* |
| **Estimated achievement** | 06/06/2030 | **CP1 AF & SDP Family** | - / - |
| **Status** | **On Time** | **ICAO ASBUs** | APTA-B0/2 |

**Completion Rate Evolution (%)**



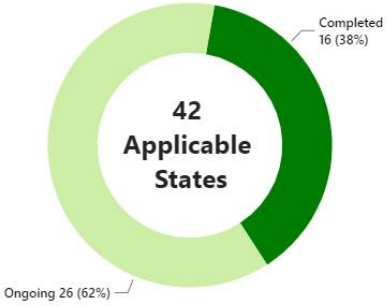

**Progress among non-Completed Countries**




The **completion rate** remained at **38%**, as no State closed the Objective this year. RNAV1 implementation, by Regulation, will likely be deployed by the FOC date, in 2030.

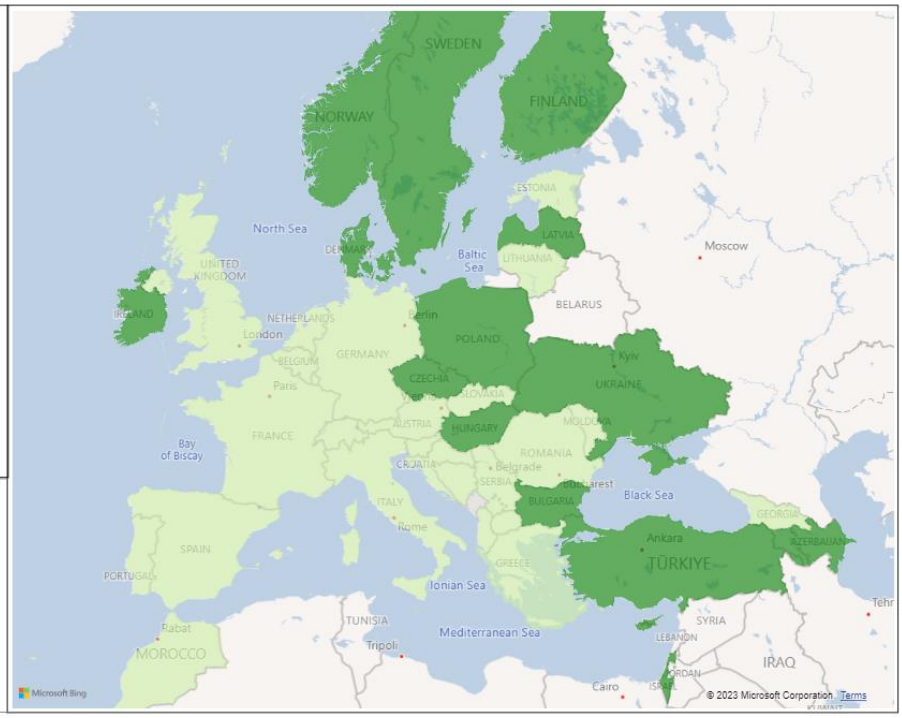
Around 85% of the States achieved at least a 50% progress, making NAV03.1 well underway towards full implementation. The remaining 4 States span between 9% and 48% completion.

**Status of implementation**




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

AA Changes vs 2021




- As of 2021, the IR on PBN (EU) 2018/1048 is the only applicable regulation for RNAV / RNP1 implementations. The IR gives Stakeholders the choice to decide on the need for SIDs and STARs, and on the applicable specifications, RNAV1 or RNP1.
- The large majority of the "Ongoing" States defined their PBN Transition Plan and had it verified with the NSAs, in accordance with the IR requirements.
- Most States implemented at least one RNAV1 SID and STAR per runway. Most claim to have implemented RNAV1 procedures in every major Airport TMA and more than half will finalise the implementation by early 2024.





Co-funded by the European Union

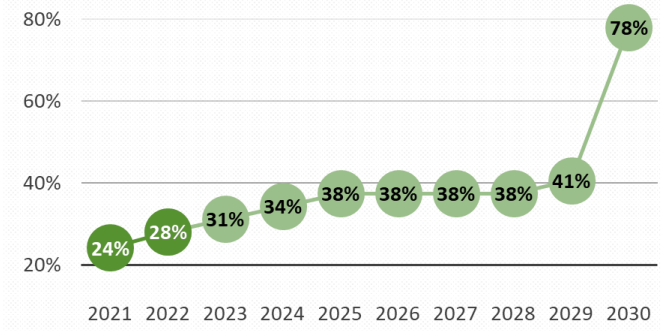
ATp Airport and TMA performance

# Solution #09 Enhanced TMA ops with auto RNP transit to ILS
# Solution #51 Enhanced TMA operations with LPV procedures

## NAV03.2 RNP1 in TMA Operations

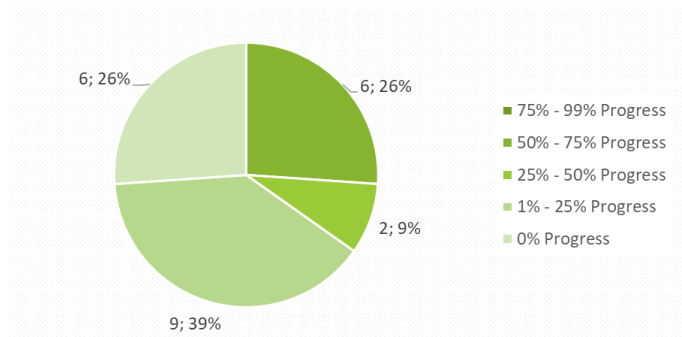
| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 06/06/2030 | **OI Steps / Enablers** | AOM-0603, AOM-0605 |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Available** | **ICAO ASBUs** | APTA-B1/2 |

**Completion Rate Evolution (%)**

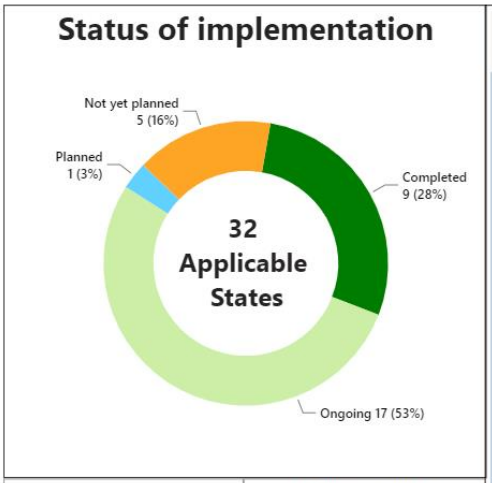



The **completion rate** increased by 4 percentage points, reaching **28%** in 2022. The full achievement of the Objective is uncertain due to the spike visible on FOC year date.

**Progress among non-Completed Countries**



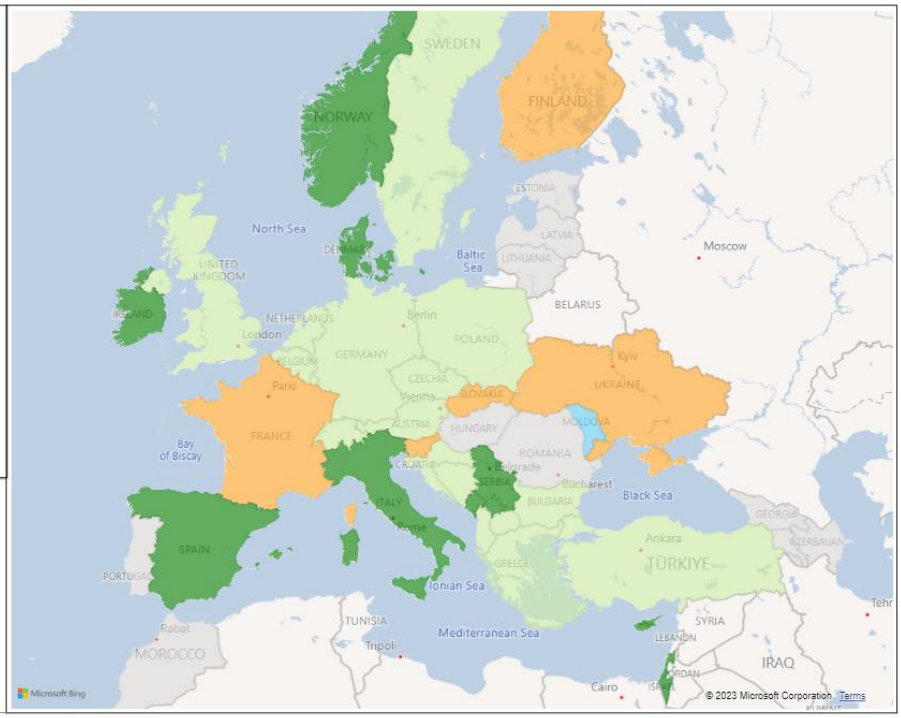

17 States achieved a progress between 1% and 75%. Most States at 0% do not have plans to implement RNP1 procedures due to the lack of operational need.




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

AA Changes vs 2021

Lithuania




- As of 2021, the IR on PBN (EU) 2018/1048 is the only applicable regulation for RNAV / RNP1 implementations. The IR gives Stakeholders the choice to decide on the need for SIDs and STARs, and on the applicable specifications, RNAV1 or RNP1.
- As of today, multiple Airports across Europe have implemented RNP1 Procedures.
- Given the non-mandatory nature of the PBN IR with regards to RNP1, several States are still investigating on the need to implement these procedures. Most States with no plans declared that RNAV1 procedures are sufficient at the moment.





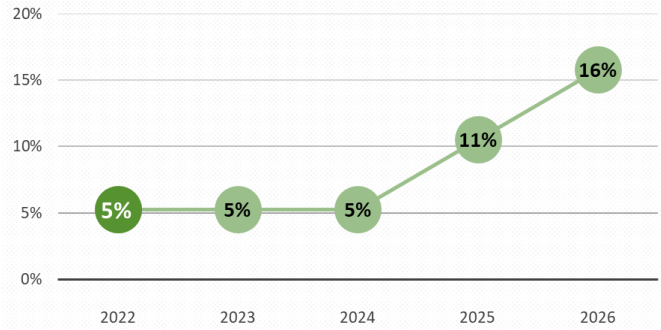
Co-funded by the European Union

# Solution #119 GLS CAT II operations using GBAS GAST-C

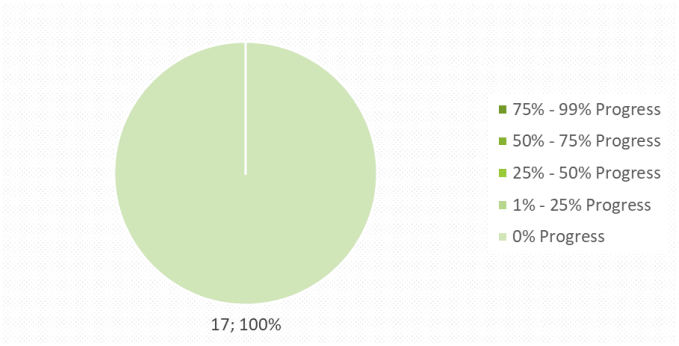
## NAV11.1 Implement precision APCH procedures using GBAS CAT II based on GAST-C

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>Regulators | **Expected Benefits** | Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | | | | AO-0506 | | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | | | | - | - | |
| **Status** | **Not Applicable** | **ICAO ASBU** | | | | NAVS-B1/1 | | |

**Completion Rate Evolution (%)**

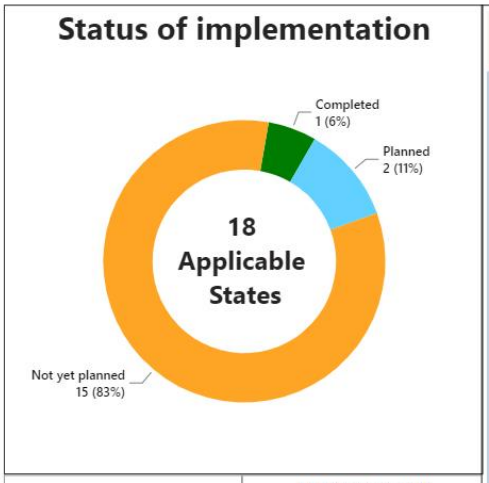



**Progress among non-Completed Airports**



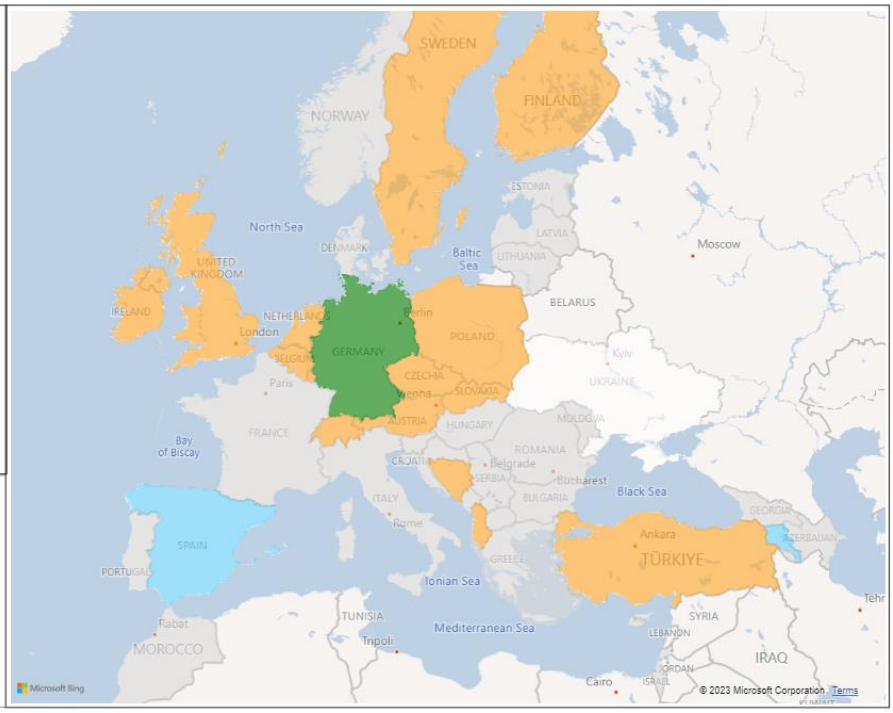

The implementation of GBAS CAT II based on GAST-C translated into a new local Objective in 2022. The completion rate is at **5%,** with only DE having implemented it at Frankfurt Airport.

Two States have plans to implement GBAS CAT II based on GAST-C. The remaining 16 are either analysing the business case or do have no plans to implement for the moment.




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

AA Changes vs 2021




- This local Objective was created in 2022 to monitor the implementation of GBAS CAT II using GAST-C.
- After the first year of monitoring, the Stakeholders' interest in the implementation does not seem to be spread across Europe, with only a few Countries showing some market uptake.
- DE published GBAS CAT II procedures and GLS Cat I/II obstacle clearance heights for EDDF in 2022.
- ES declared plans to implement GBAS at LEMD, whilst AM will procure the GBAS system in 2026.





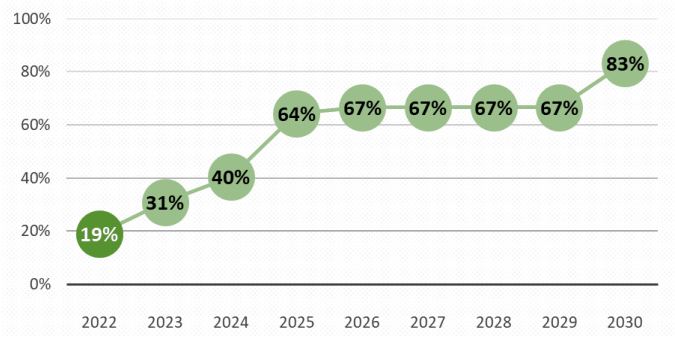
Co-funded by the European Union

## SESAR Solution – Nil

### SAF11.1 Improve Runway Safety by Preventing Runway Excursions

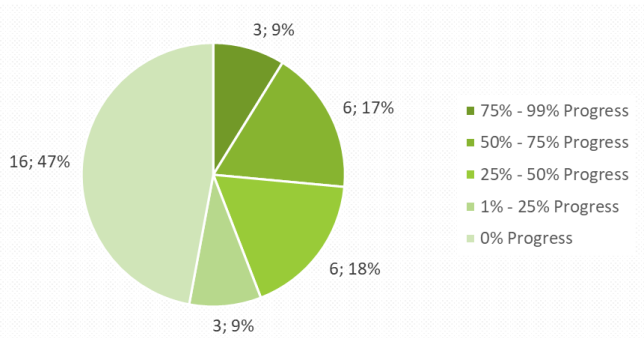
| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs, Airport Operators<br>Airspace Users<br>NM, Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; **Safety**; Environment; Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | - |
| **Estimated achievement** | 31/12/2030 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Applicable** | **ICAO ASBU** | - |

**Completion Rate Evolution (%)**

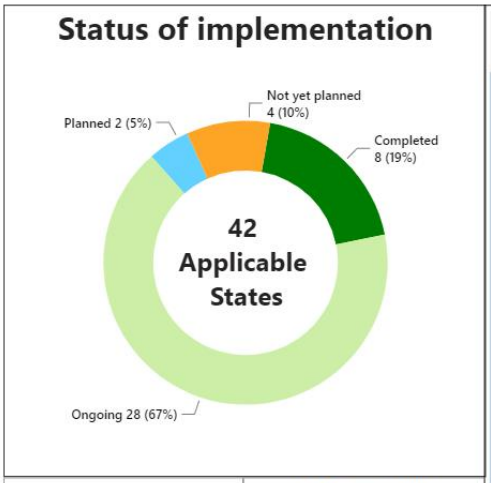


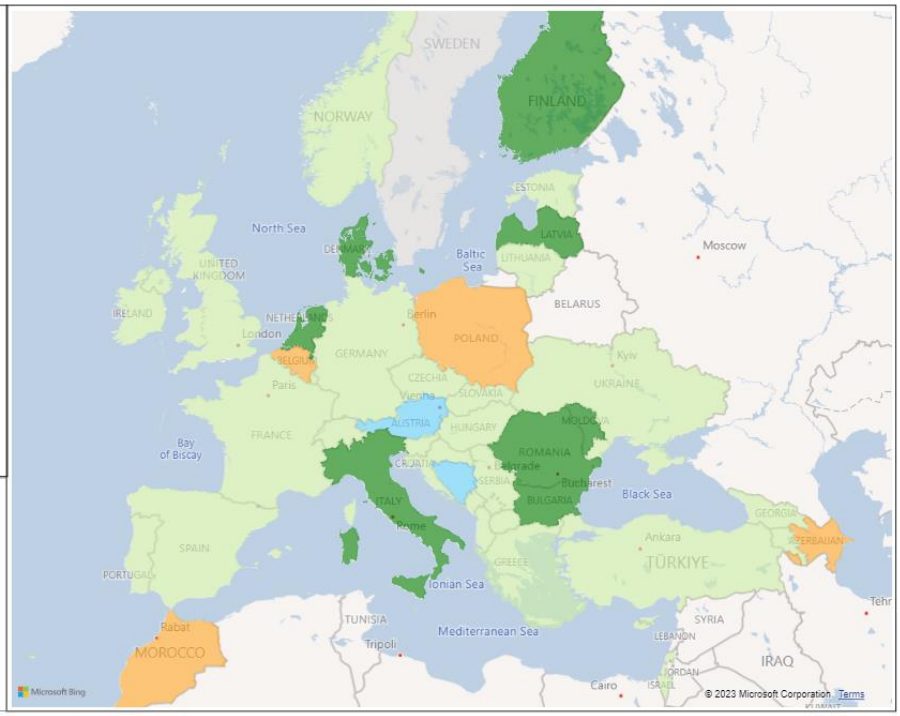

As this is a newly monitored local Objective, the **completion rate** is only at **19%**, with 8 States having completed the activities in 2022.

**Progress among non-Completed Countries**




Currently 30 States have reported the implementation as "Ongoing" or "Planned", while 4 States do not have concrete plans yet.




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

**AA Changes vs 2021**

- This newly monitored Objective is implemented based on the recommendations of the Global Action Plan for the Prevention of Runway Excursions (GAPPRE) applicable to national circumstances.
- Eight States reported completion in 2022, however for the vast majority the implementation is "Ongoing", and recommendations are being implementation based on the local situation.
- For more information on the national status, it is advised to consult the national LSSIP Documents, where the information is available to the public, or contact the national Focal Points.



Co-funded by the European Union

## 4.6 Fully Dynamic and Optimized Airspace Organisation

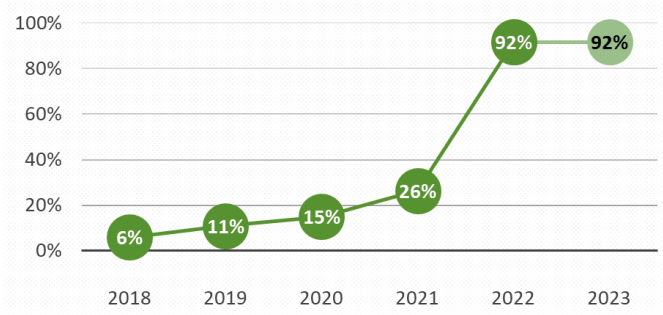
dA Fully dynamic and optimised airspace

**Solution #31 Variable profile military reserved areas and enhanced (further automated) civil-military collaboration**
**Solution #66 Automated Support for Dynamic Sectorisation**

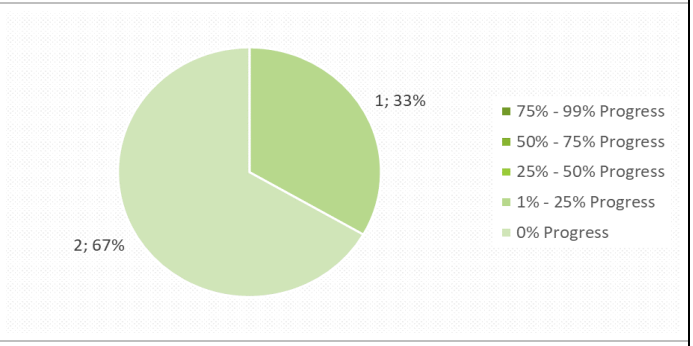
**AOM19.4 Management of Pre-defined Airspace Configurations**

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>NM | **Expected Benefits** | Capacity, Operational efficiency, Cost efficiency, Safety, Environment, Security | |
| **FOC** | 31/12/2022 | **OI Steps / Enablers** | Under definition | |
| **Estimated achievement** | 31/12/2022 | **CP1 AF & SDP Family** | AF3 | 3.1.2 |
| **Status** | Achieved (CP1 States) | **ICAO ASBU** | NOPS-B1/6, FRTO-B1/4 | |

**Completion Rate Evolution (%)**

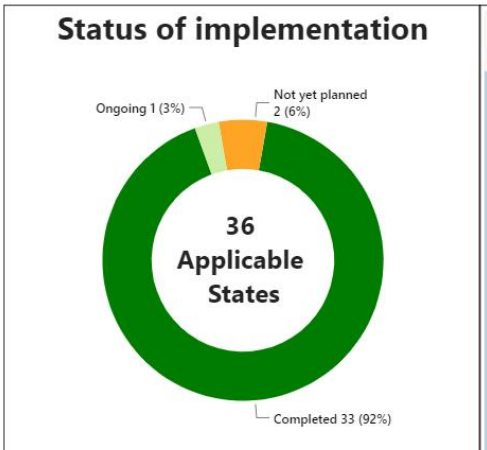



**Progress among non-Completed Countries**




Following the substantial changes in 2021, 24 States reported completion in 2022, bringing up the **completion rate** to **92%**. The Objective is achieved in the CP1 Applicability Area.

Two States remain as NYP, while UA remains with the status "Ongoing". No updates were provided for this cycle due to the current situation.




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

**AA Changes vs 2021**
Azerbaijan, Luxembourg


- This functionality, as part of Commission IR (EU) 2021/116 on CP1, is achieved as all CP1 Regulated States are compliant to the Regulation.
- UA did not provide any input during the cycle due to the current situation.



Co-funded by the European Union

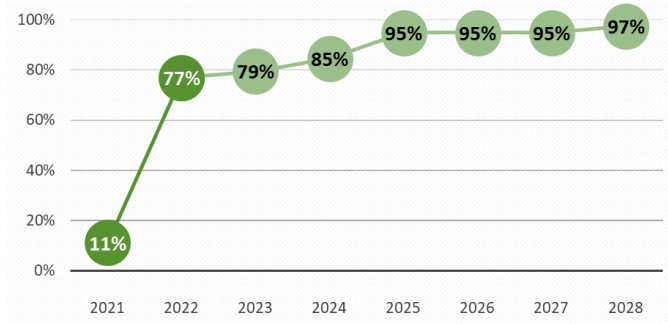
dA Fully dynamic and optimised airspace

**Solution #31 Variable profile military reserved areas and enhanced (further automated) civil-military collaboration**
**Solution #66 Automated Support for Dynamic Sectorisation**

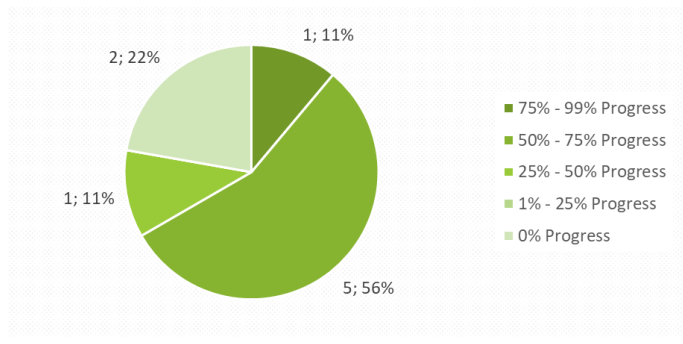
## AOM19.5 ASM and A-FUA

| | | | | |
|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>NM | **Expected Benefits** | Capacity, Operational efficiency, Cost efficiency, Safety, Environment, Security | |
| **FOC** | 31/12/2022 | **OI Steps / Enablers** | AOM-0202, AOM-0202-A, AOM-0206-A | |
| **Estimated achievement** | 31/12/2025 | **CP1 AF & SDP Family** | AF3 | 3.1.1 |
| **Status** | **Late** | **ICAO ASBU** | NOPS-B1/5, NOPS-B0/1, FRTO-B1/3, FRTO-B0/2 | |

**Completion Rate Evolution (%)**



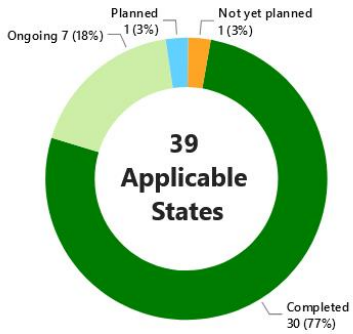

**Progress among non-Completed Countries**



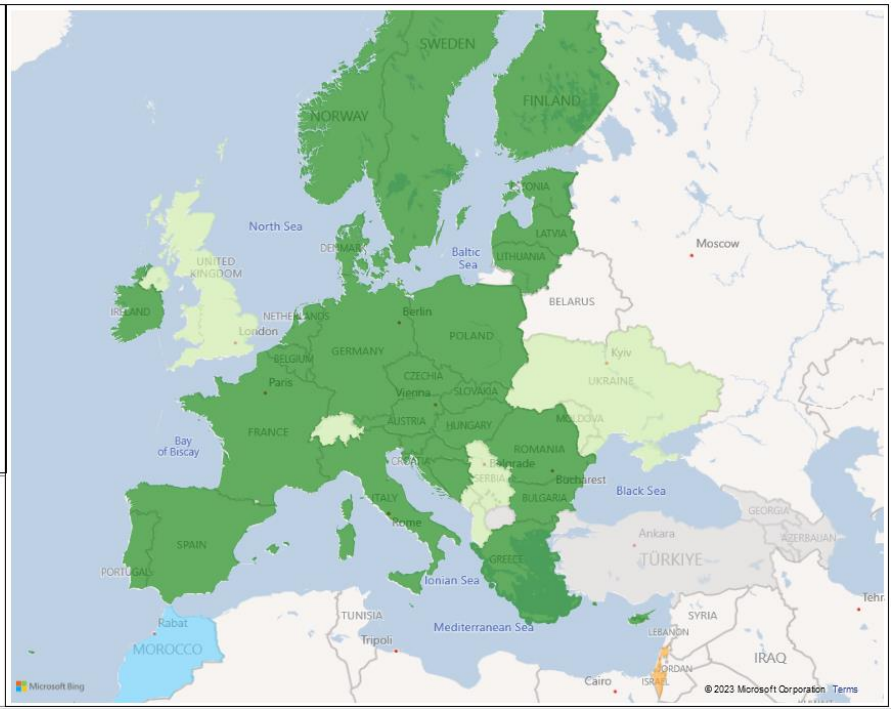

Good progress is reported by 27 States in 2022; including, completion for 25 States. The completion rate for 2022 is 74%.

8 States reported to be "Ongoing", with the majority already advanced in the implementation.

**Status of implementation**




| Overlaps | AA Changes vs 2021 |
|---|---|
| Malta | Montenegro, Netherlands, Serbia |
| Maastricht UAC | |
| Luxembourg | |




- This recent objective, part of the Commission IR (EU) 2021/116 on CP1, covers the solution for dynamical managing airspace users' demands in various operating environment, and showing good gradual progress.
- All CP1 Applicable States achieved the Objective, but CH[6]. Nonetheless, although compliant with the Regulation, some States are still finalising the deployment of automated ASM support systems (LARA or equivalent).

[6] After the closure of the LSSIP cycle, EUROCONTROL was informed that Switzerland completed the implementation of AOM19.5.



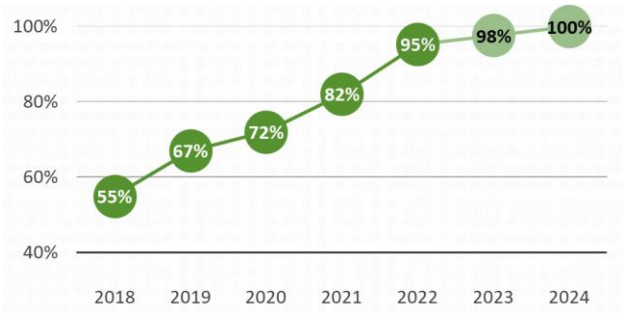
Co-funded by the European Union

**Solution #32 DCT FRA in cruise and vertically evolving in cross ACC/FIR**
**Solution #33 FRA for flights in cruise and vertically above a specified FL**
**Solution #66 Automated Support for Dynamic Sectorisation**

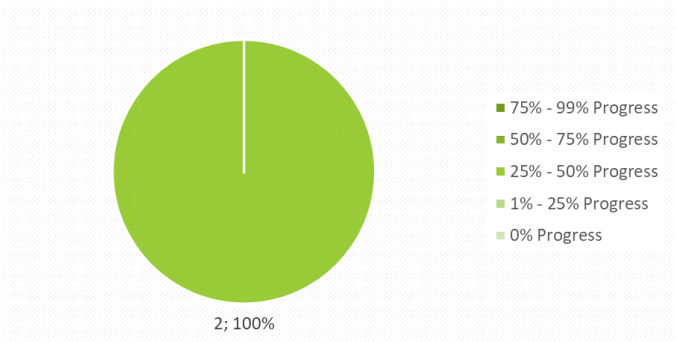
## AOM21.2 Initial Free Route Airspace

| | | | | | |
|---|---|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>NM | **Expected Benefits** | Capacity | Operational efficiency | Cost efficiency / Safety / Environment / Security |
| **FOC** | 31/12/2022 | **OI Steps / Enablers** | AOM-0401, AOM-0402, AOM-0501, AOM-0505, CM-0102-A | | |
| **Estimated achievement** | 31/12/2022 | **CP1 AF & SDP Family** | AF3 | 3.2.1 | |
| **Status** | Achieved (CP1 States) | **ICAO ASBU** | FRTO-B1/1 | | |

**Completion Rate Evolution (%)**



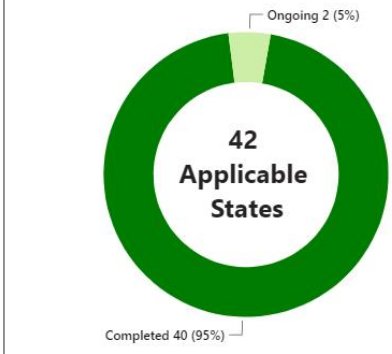

**Progress among non-Completed Countries**




The **completion rate** spiked to **95%**, with 8 States reporting the full completion of Initial Free Route. The Objective is achieved in the CP1 Applicability Area.

Full achievement has been reached for the CP1 States, and only TR and MA remain "Ongoing". Whilst their progress is still below 50%, TR expects implementation by end of 2023, MA by 2024.

**Status of implementation**




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

**AA Changes vs 2021**

Belgium, Luxembourg, Netherlands


- All CP1 States have implemented the Initial Free Route Airspace.
- Only 2 non CP1 States report Status "Ongoing" with implementation by end of 2024.
- Although in the Applicability Area, responsibilities for BE, LU, and NL are taken up by MUAC.



Co-funded by the European Union

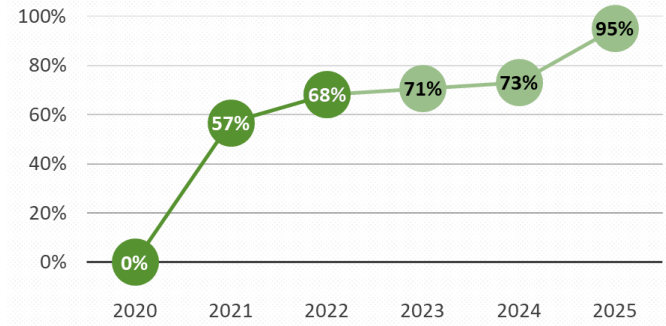
dA Fully dynamic and optimised airspace

# Solution #PJ.06-01 Optimised traffic management to enable Free Routing in high and very high complexity cross border environments

## AOM21.3 Enhanced Free Route Airspace Operations

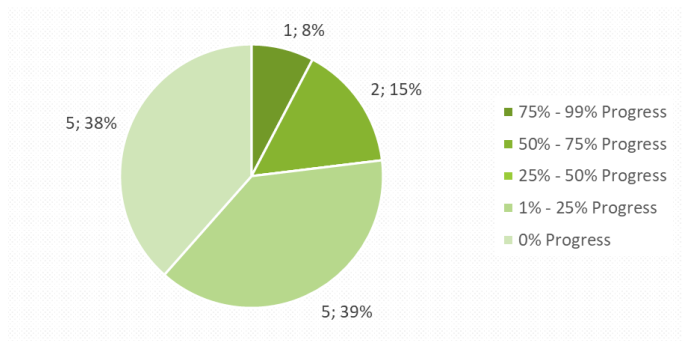
| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>NM | **Expected Benefits** | Capacity, Operational efficiency, Cost efficiency, Safety, Environment, Security |
| **FOC** | 31/12/2025 | **OI Steps / Enablers** | AOM-0401, AOM-0402, AOM-0501, AOM-0505 |
| **Estimated achievement** | 31/12/2025 | **CP1 AF & SDP Family** | AF3 / 3.2.2 |
| **Status** | **On Time** | **ICAO ASBU** | FRTO-B2/3 |

**Completion Rate Evolution (%)**



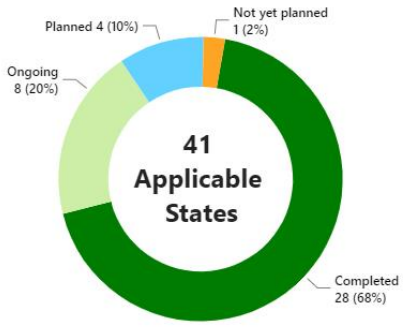

This relative new Objective reached a **68% completion rate** in its 2nd year of reporting, with 7 States having finalised the activities in 2022.

**Progress among non-Completed Countries**




The 8 States with status reported as "Ongoing" in 2022 remain confident with implementation by end of 2025, even if progress currently is below 25 %.

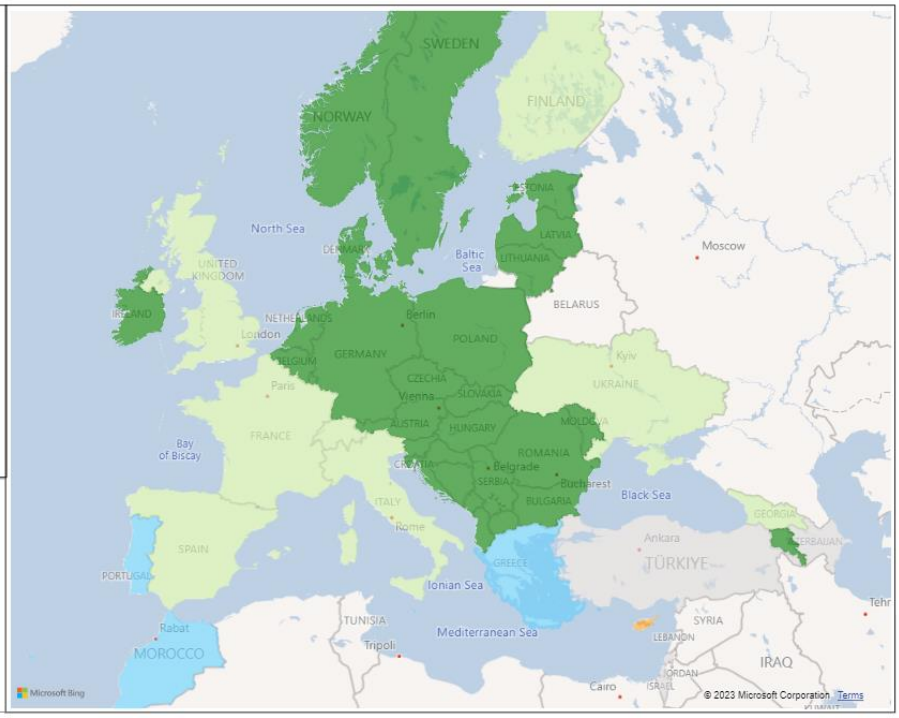
**Status of implementation**




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

**AA Changes vs 2021**

Armenia, Belgium, Luxembourg, Netherlands




- Objective AOM21.3 provides a better view of the complex part of the FRA implementation, and 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).
- All CP1 States are confident to finalise the implementation by 2025, but CY which has not yet reported concrete plans.





Co-funded by the European Union

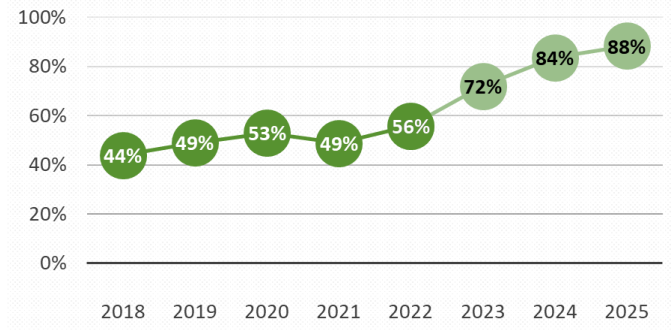
Fully dynamic and optimised airspace

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

### ATC12.1 MONA, TCT and MTCD

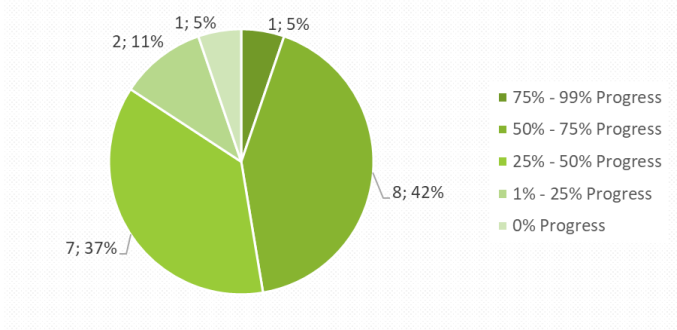
| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2021 | **OI Steps / Enablers** | CM-0202, CM-0203, CM-0205, CM-0207-A |
| **Estimated achievement** | 31/12/2023 | **CP1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

**Completion Rate Evolution (%)**

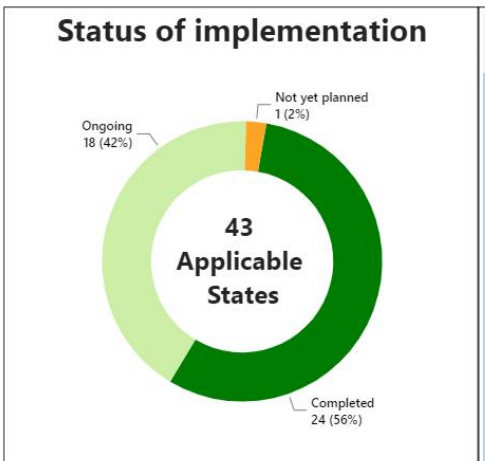



3 States have finalised implementation in 2022, leading to a total of 24 States have reported **Completion (56%)**. The exception are 2 State reporting a 0% "NYP" (BE), "NA" (LU).

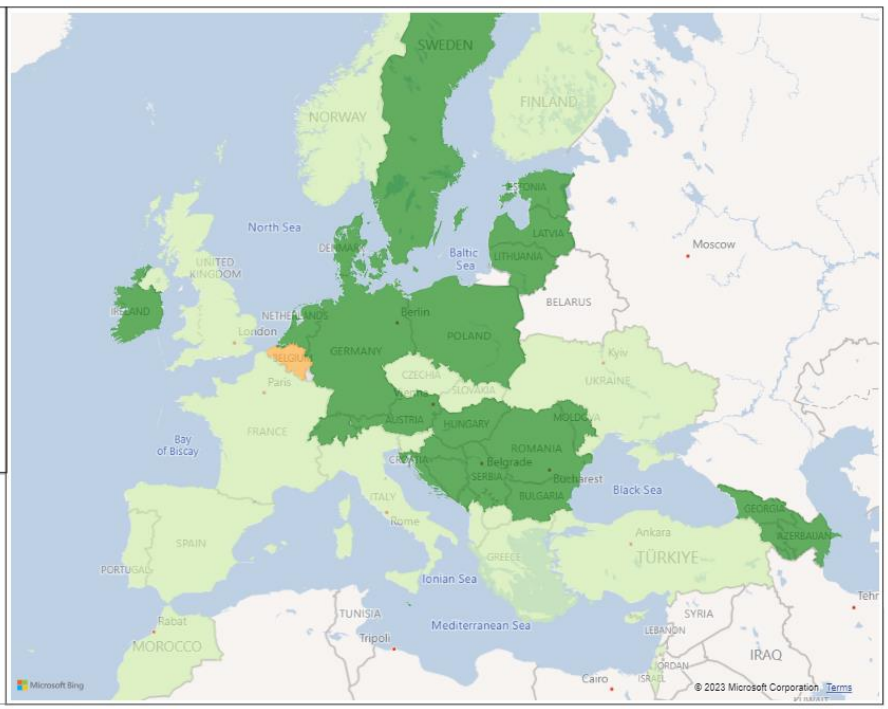
**Progress among non-Completed Countries**




Remaining States split into two groups with progress 50-75% expected to finalise implementation in 2023-2024 and 25-50% expected to finalise implementation in 2027 the latest.




| Overlaps | AA Changes vs 2021 |
|---|---|
| Luxembourg | |
| Maastricht UAC | |
| Malta | |




- The number of "Completed" States increased to 24 in 2022 comparing to 21 in 2021. EE, ME and RS finalised the implementation of the objective.
- BE has the MTCD tool available in their system, but this is not yet used operationally.
- Of the 4 functionalities addressed by the Objective, MTCD is completed by 44 ACCs and ongoing in 20. Conformance Monitoring is implemented in 38 ACCs and ongoing in 26. Resolution Support is implemented in 28 and ongoing in 23. TCT is implemented in 18 ACCs and ongoing in 26. This function is declared N/A for another 23 ACCs.





Co-funded by the European Union

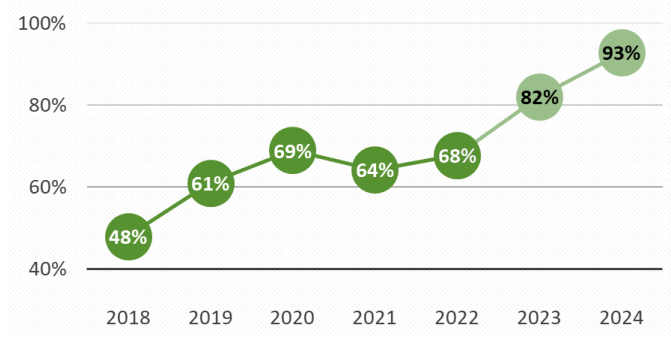
dA Fully dynamic and optimised airspace

# SESAR Solution – Nil

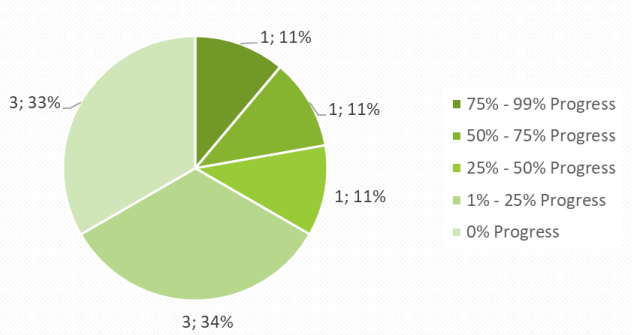
## ATC15.1 Implement, in en-route operations, information exchange mechanisms, tools and procedures in support of basic AMAN

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2019 | **OI Steps / Enablers** | TS-0305 |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Late** | **ICAO ASBU** | - |

**Completion Rate Evolution (%)**

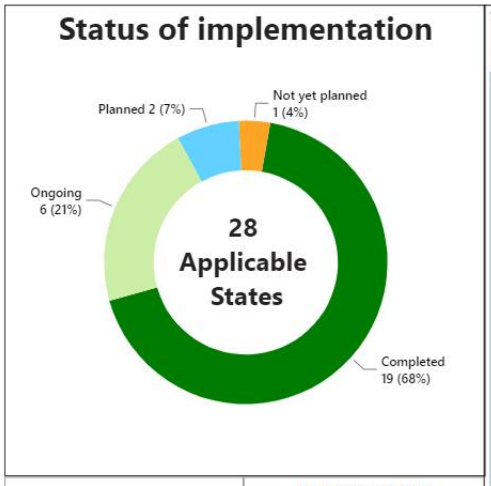


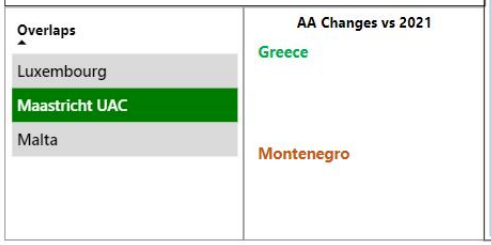

**Progress among non-Completed Countries**

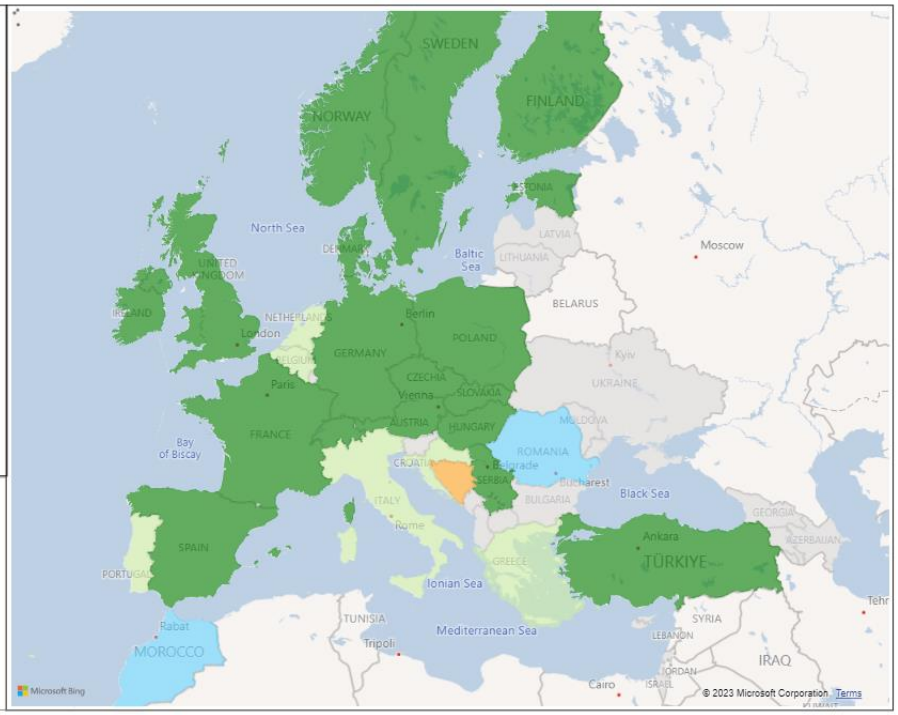



In 2022, operational use was achieved in Belgrade and Rome ACCs. The States having completed the implementation moved from 18 in 2021, to 19 (Serbia) in 2022.

PT reports a progress of 81% for Lisbon ACC; IT of 74% for Milan ACC; NL of 50% at Amsterdam ACC. Most plans are for completion in the period 2023-2024.




- Implementation across the applicability area should pass the 80% threshold during 2023, allowing to declare the objective as "Completed". No specific criticalities identified.
- The Applicability Area saw GR joining the implementation, whilst ME declaring the Objective Not Applicable.
- Its progress is also linked to the implementation of Extended AMAN up to 180 nm (ATC15.2).





Co-funded by the European Union

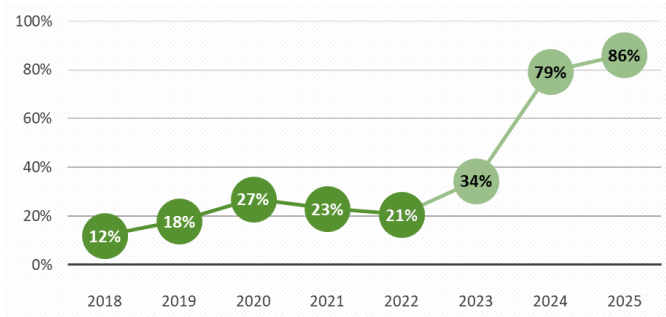
dA Fully dynamic and optimised airspace

# Solution #05 Extended Arrival Management (AMAN) horizon

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

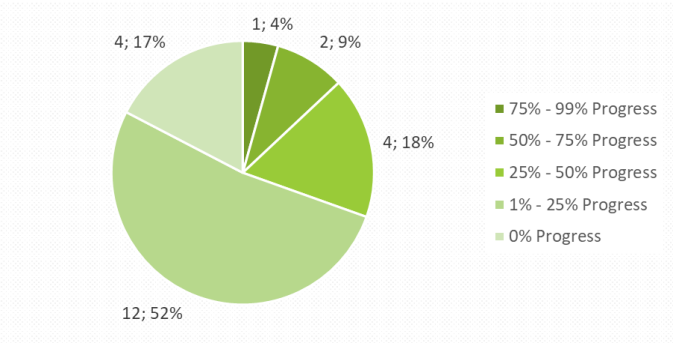
| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>NM | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2024 | **OI Steps / Enablers** | TS-0305-A |
| **Estimated achievement** | 31/12/2024 | **CP1 AF & SDP Family** |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

**Completion Rate Evolution (%)**

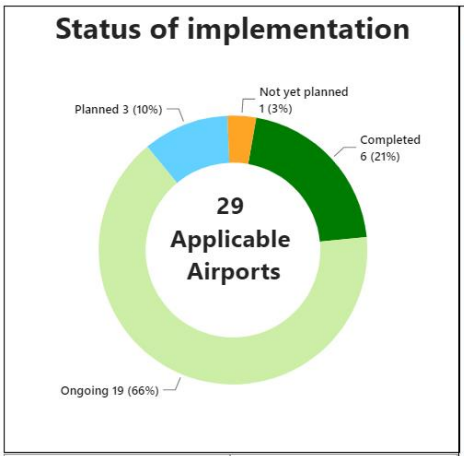



The completion rate **decreased to 21%** because the progress considers the status of the cross-border connections (up to 180NM) of each applicable Airport. EKCH and LOWW completed the objective in 2022, as well as LYBE and LKPR outside the CP1 scope.

**Progress among non-Completed Airports**




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.




| Overlaps |
|---|
| London Heathrow Airport |
| Milan Malpensa |
| Paris Charles de Gaulle |
| Paris Orly |

| AA Changes vs 2021 |
|---|
| EFHK |
| LCLK |
| LGAV |


- ATC15.2 provides a view on the implementation of Extended AMAN, up to 180NM, serving the arrivals into 18 EU Airports as per Commission IR (EU) 116/2021 (CP1), plus LSZH and ENGM (bilateral agreements to adopt the CP1 Regulation). 9 additional airports are implementing Extended AMAN on a voluntary basis.
- A more comprehensive view per each airport, including the progress across the border in upstream control centres within a 180NM radius, is provided in the Annex D to this document.





Co-funded by the European Union

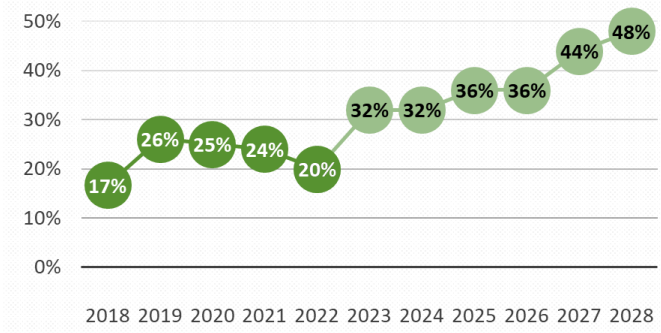
dA Fully dynamic and optimised airspace

# Solution #63 Multi Sector Planning
# Solution #118 Basic EAP (Extended ATC Planning) function

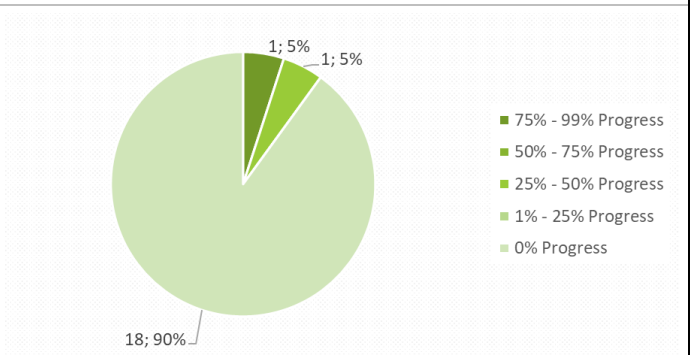
## ATC18 Multi Sector Planning En-route – 1P2T

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | CM-0301 |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Applicable** | **ICAO ASBU** | FRTO-B1/6 |

**Completion Evolution**

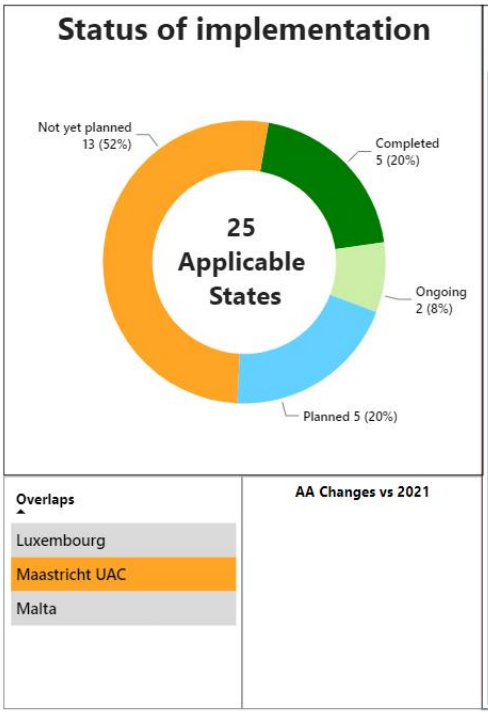


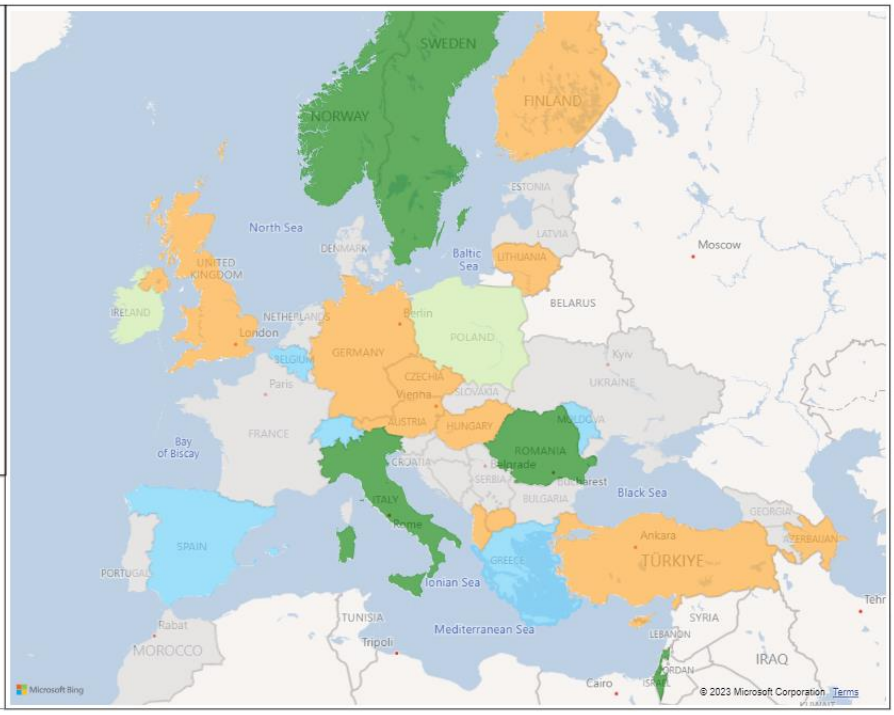

**Progress among non-Completed Countries**




The objective is implemented in 5 Countries with a drop to **20%** in the **completion rate** due to PL moving back to "Ongoing" because awaiting for final plans for operational use. There has been no progress in the last three years.

Only 2 States report the objective as "Ongoing": PL (80% and IE (50%). In 2022, FI changed its progress from "Planned" into "Not Yet Planned", awaiting results of a feasibility study.




- In its sixth year of monitoring, its implementation is similar to 2019, if not lower: 5 ANSPs have already deployed multi-sector planning (IL, IT, NO, RO, and SE), while PL and IE declared the implementation as "Ongoing". This functionality is also part of the "NM Operational Excellence Programme" (OEP).
- Five States report plans for implementation (CH, ES, GR, MK, and MD), with potential target dates in the 2027-2028 period.





Co-funded by the European Union

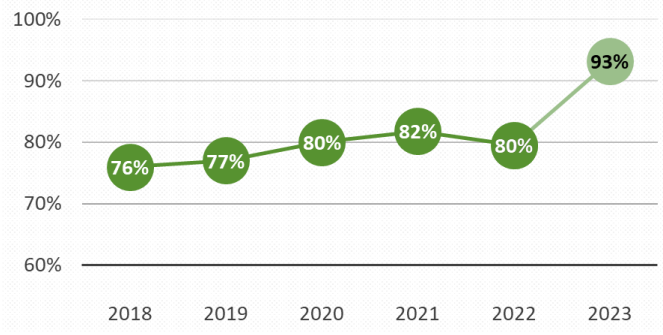
Fully dynamic and optimised airspace

# SESAR Solution – Nil

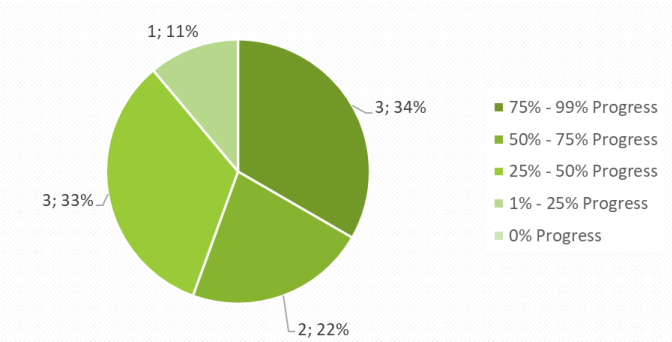
## ITY-FMTP Common Flight Message Transfer Protocol

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Military | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 31/12/2014 | **OI Steps / Enablers** | CTE-C06 |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | - / - |
| **Status** | **Late** | **ICAO ASBU** | - |

**Completion Rate Evolution (%)**

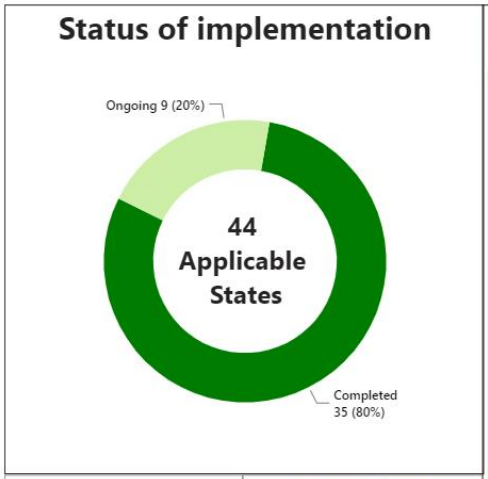



**Progress among non-Completed Countries**



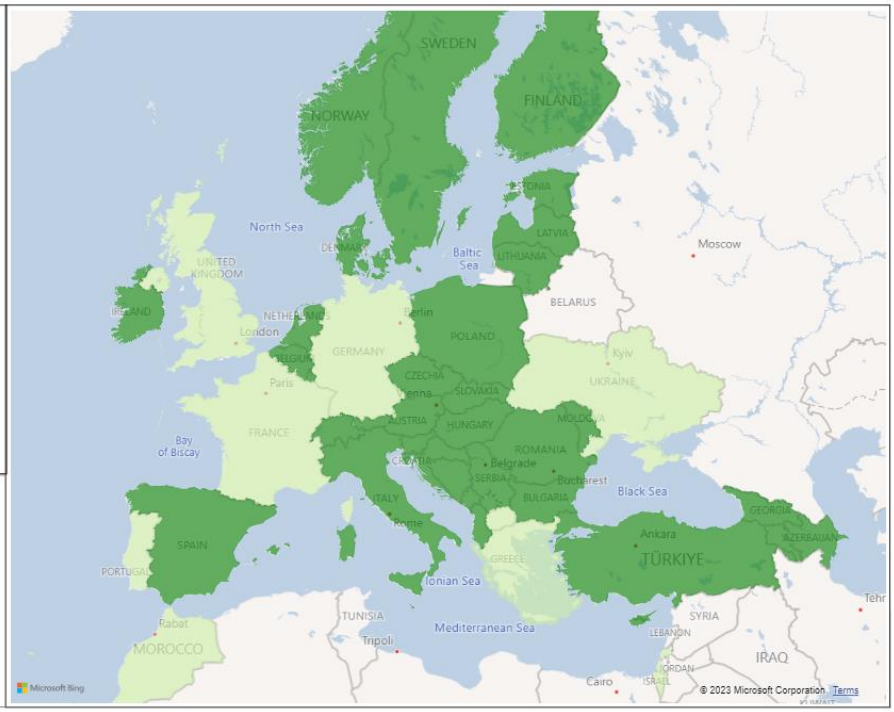

**Completion progress decreased to 80%** in 2022 due to MA reverting from "Completed" to "Ongoing". In most cases, plans have been delayed for completion to be achieved in the course of 2023.

FR and PT are very close to completion. IL reports a progress of 10%. The others are in the range of 41 to 50%. In UK (41%), NATS achieved the Objective many years ago, while the Military has plans for 2026. Similar situation in DE, with DFS completed and the military procuring a new system by 2023.




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

AA Changes vs 2021




- The overall progress slightly regressed in 2022, as MA changed its progress report from Completed to Ongoing as their inter-centre communication is still done via IPv4, instead of the required IPv6.
- The majority of the remaining States (FR, DE, GR, PT, UA, UK) plans to complete implementation in the course of 2023.
- It is important to note that the civil ANSPs in UK and DE have already achieved completion, whilst their military counterparts are planning to do so by 2026 and 2023, respectively.





Co-funded by the European Union

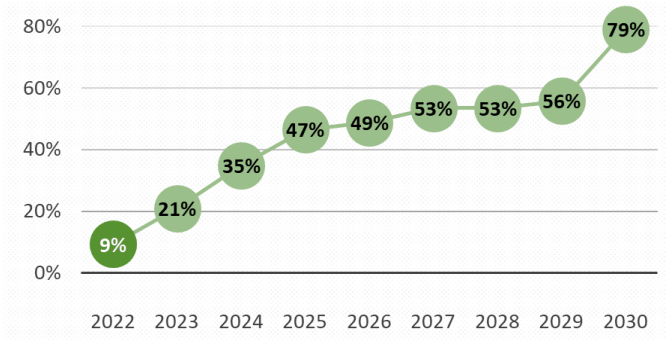
dA Fully dynamic and optimised airspace

# SESAR Solution – Nil

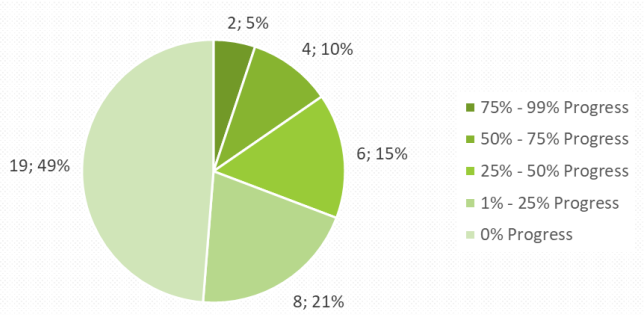
## SAF10.1 Implement measures to reduce the risk to aircraft operations caused by airspace infringements

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Stakeholders** | ANSPs, AISPs<br>Airspace Users<br>Regulators | **Expected Benefits** | Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | - | | | | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - | - | | | |
| **Status** | **Not Applicable** | **ICAO ASBU** | - | | | | |

**Completion Rate Evolution (%)**

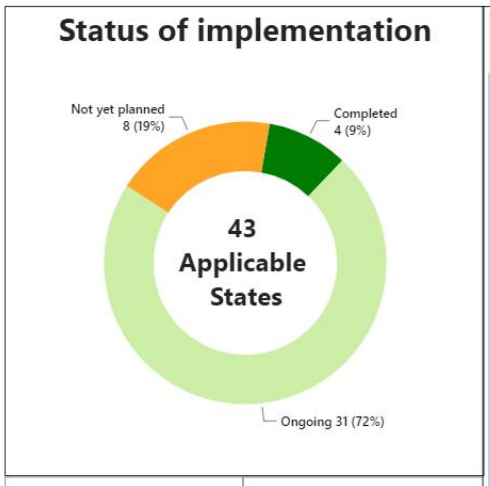



**Progress among non-Completed Airports**



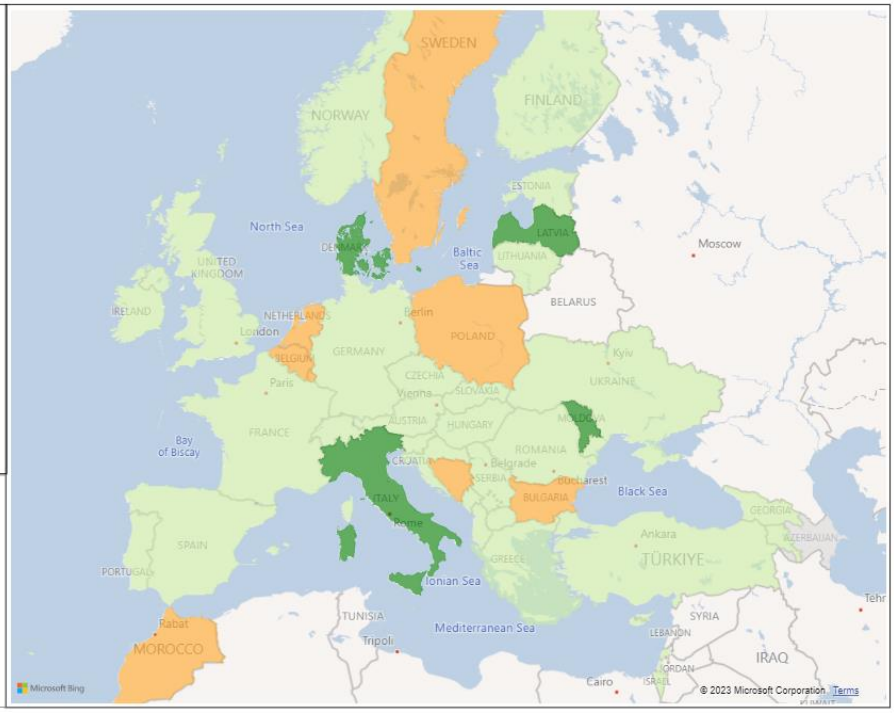

As this is a newly monitored Objective, the **completion rate** is still low **at 9%.** Four States reported the completion of this Objective in 2022.

31 States reported the implementation as ongoing, while 8 do not have plans yet. The high number of 0% progress is linked to "Ongoing" States not having declared a progress.




| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

AA Changes vs 2021




- This newly monitored Objective is implemented based on the recommendations of the European Action Plan for Airspace Infringement Risk Reduction applicable to national circumstances.
- For the vast majority of States, the implementation is "Ongoing", and recommendations are being implementation based on the local situation.
- For more information on the national status, it is advised to consult the national LSSIP Documents, where the information is available to the public, or contact the national Focal Points.



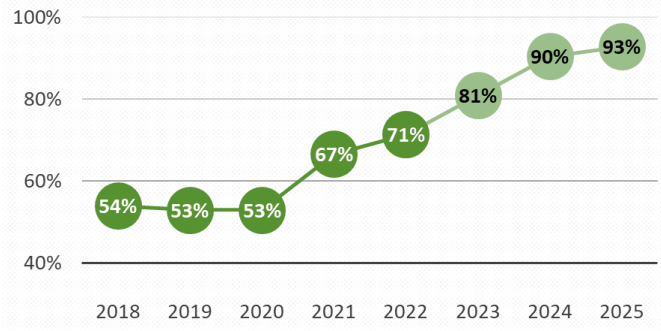


Co-funded by the European Union

## 4.7 Trajectory Based Operations

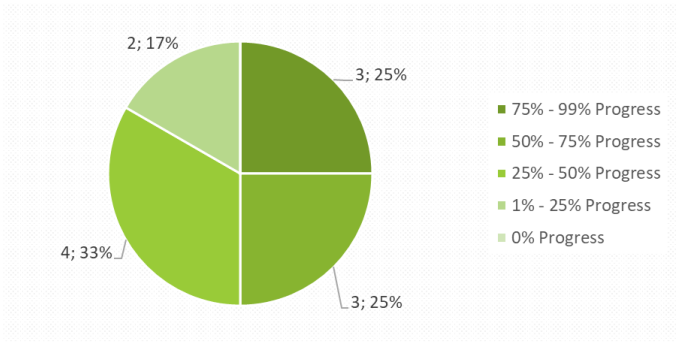
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TBO Trajectory -based operations | **SESAR Solution – Nil** | | | | | | |
| **ATC02.8** | **Ground-based Safety Nets** | | | | | | |
| **Stakeholders** | ANSPs | **Expected Benefits** | Capacity | Operational efficiency | Cost efficiency | **Safety** | Environment | Security |
| **FOC** | 31/12/2021 | **OI Steps / Enablers** | CM-0801 | | | | |
| **Estimated achievement** | 31/12/2023 | **CP1 AF & SDP Family** | - | - | | | |
| **Status** | **Late** | **ICAO ASBU** | SNET-B0/2, SNET-B0/3, SNET-B0/4 | | | | |

**Completion Rate Evolution (%)**

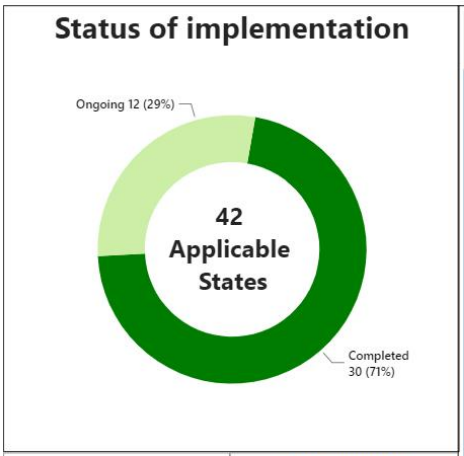


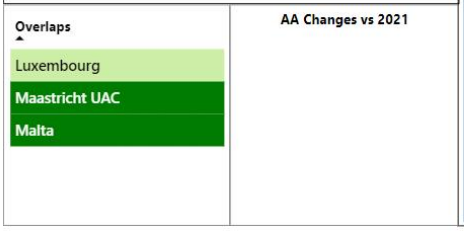

30 States completed the implementation of Ground Based Safety Nets, while 12 States finalise implementation beyond the FOC date.

**Progress among non-Completed Countries**




The progress among the non-completed States is quite equally spread across the quartiles.





- This objective refers to the implementation of Area Proximity Warning (APW); Minimum Safe Altitude Warning (MSAW) and Approach Path Monitoring (APM).
- The deployment of APW has been effectively carried out in 58 ACCs, covering 92% of the applicability area coverage area.
- The MSAW has been successfully deployed in 52 ACCs, representing 83% of its applicability area.
- The APM is currently in progress, with 59 units having achieved it, covering approximately 69% of the applicability area.
- Implementation progress is dictated by the scheduled deployment of new ATM Systems in the individual States.



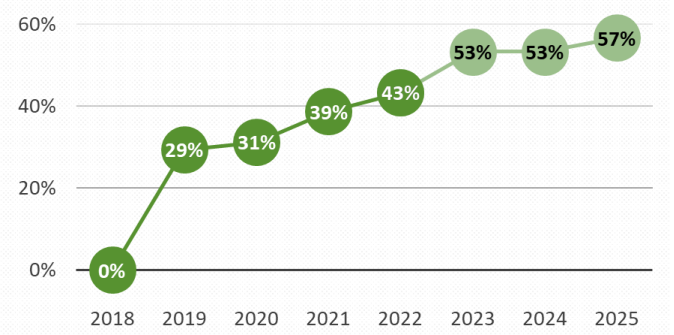
Co-funded by the European Union

# Solution #69 Enhanced STCA with down-linked parameters

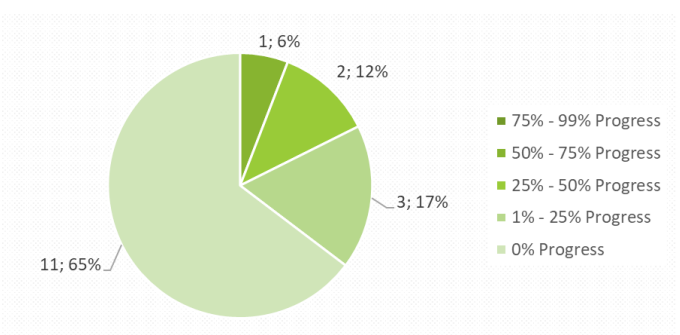
## ATC20 Enhanced STCA with down-linked parameters via Mode S EHS

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; **Safety**; Environment; Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | CM-0807-A |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Applicable** | **ICAO ASBU** | SNET-B1/1 |

**Completion Evolution**

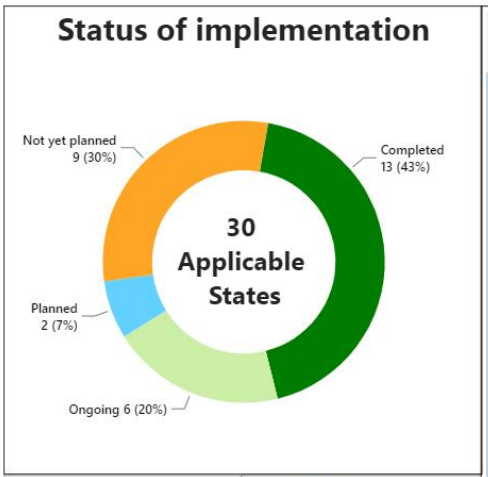



**Progress among non-Completed Countries**

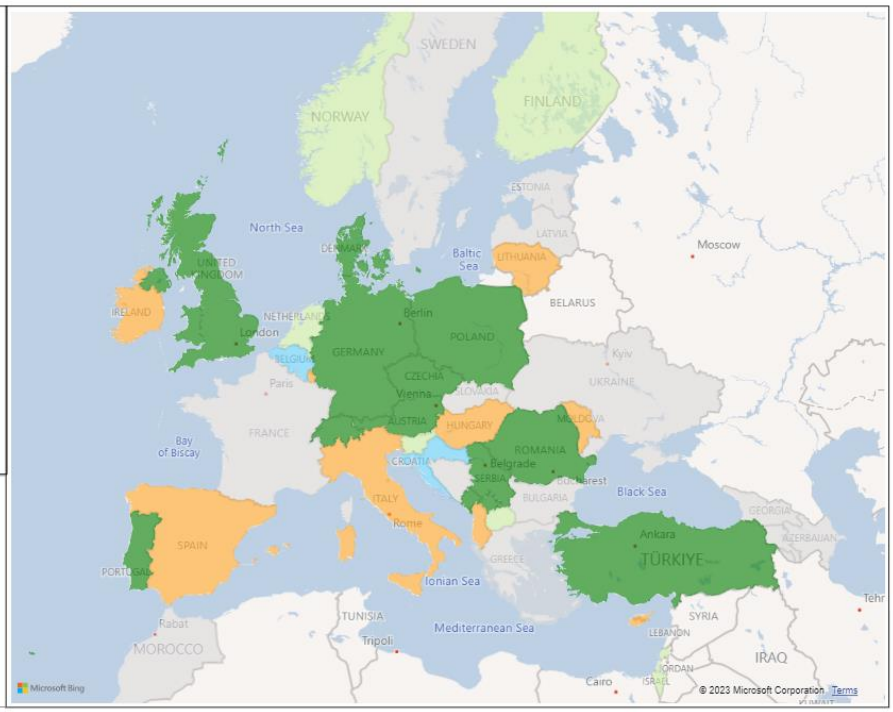



PT have completed the objective in 2022, leading to a total of **13 States** have reported **completion (43%)**.

Six States with "Ongoing" status are between 10 to 60% progress rate. The remaining ones are "Planned" and "Not Yet Planned", i.e. 0% progress.




| Overlaps | AA Changes vs 2021 |
|---|---|
| Luxembourg | North Macedonia |
| Maastricht UAC | |
| Malta | Greece, Sweden |




- In its fourth year of monitoring, it shows a steady increase in the number of States having completed its implementation, with the addition of Portugal.
- 6 States (FI, IL, NL, MK, NO and SI) are "Ongoing" and expect to complete implementation by 2025.
- BE and HR advanced from "Not Yet Planned" to "Planned", meanwhile NL and MK switched to "Ongoing".
- Due to the local considerations, GR and ES changed from "Planned" to "Not Applicable" or "Not Yet Planned" during this reporting cycle.





Co-funded by the European Union

## 4.8 Multimodal Mobility and Integration of all Airspace Users

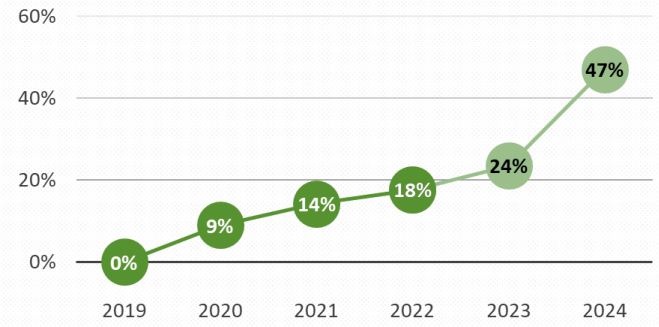
M3 Multimodal mobility and integration of all airspace users

### Solution #113 Optimised low-level IFR routes for rotorcraft

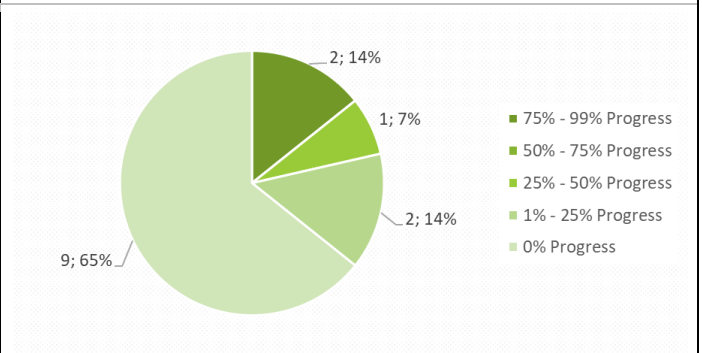
**NAV12 ATS IFR Routes for Rotorcraft Operations**

| | | | |
|---|---|---|---|
| **Stakeholders** | ANSPs<br>Airspace Users<br>Regulators | **Expected Benefits** | Capacity; Operational efficiency; Cost efficiency; Safety; Environment; Security |
| **FOC** | 06/06/2030 | **OI Steps / Enablers** | AOM-0810 |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - / - |
| **Status** | **Not Available** | **ICAO ASBUs** | APTA-B0/6 |

**Completion Rate Evolution (%)**

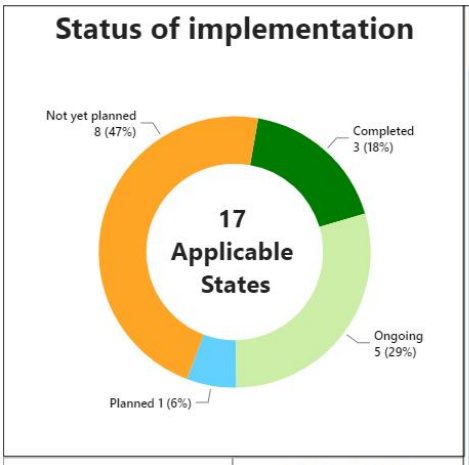



**Progress among non-Completed Countries**




The **completion rate** increased to 18% vs 2021 due to the downsizing of the Applicability Area from 21 to 17 States.

Out of the few "ongoing" States, DK and IT reached 80% progress, whilst the rest is below 40%. FI has plans to implement, whilst the rest of the States are at 0% with no plans.

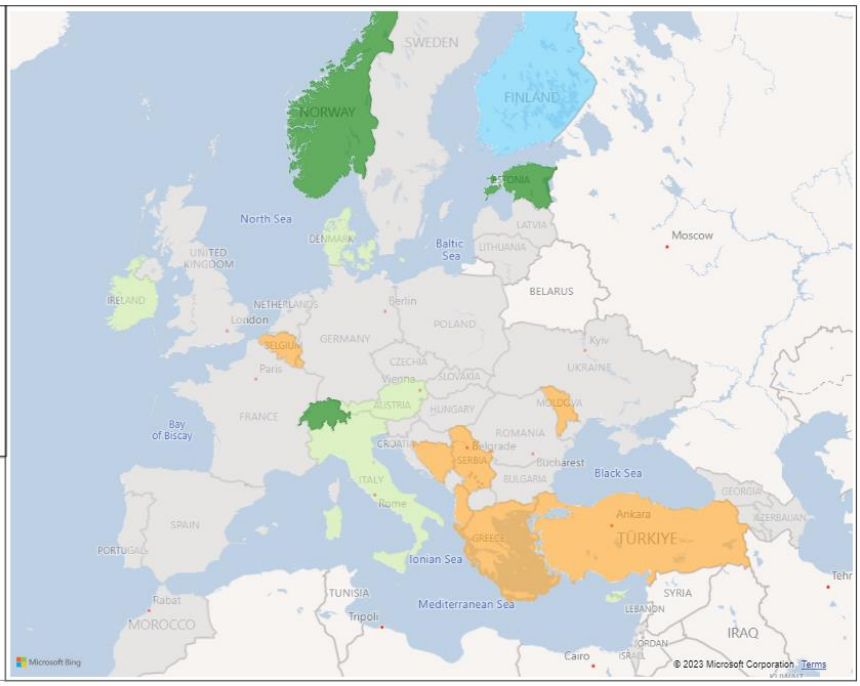



| Overlaps |
|---|
| Luxembourg |
| Maastricht UAC |
| Malta |

**AA Changes vs 2021**

Bosnia and Herzegovina, Serbia, Türkiye

Bulgaria, Czech Republic, Georgia, North Macedonia, Poland, Slovak Republic, Spain




- The PBN IR (EU) 2018/1048 gives stakeholders the choice to decide on the need for SID/STAR, ATS routes for rotorcraft implementation, and on applicable specifications RNP0.3, RNP1, or RNAV1.
- 3 States have already implemented ATS IFR Routes for Rotorcraft Operations, with no change vs 2021.
- Few States are implementing LLR and PinS procedures for rotorcraft to support, among others, medical or oil rig operations.
- A shy 50% of States are Not Yet Planned due to the lack of operational need to implement the procedures.



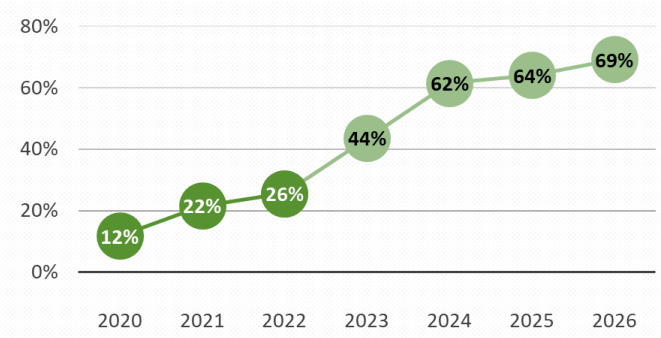


Co-funded by the European Union

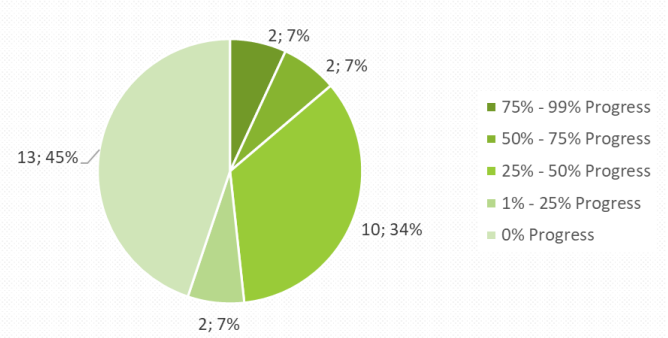
## 4.9 VIRTUALISATION OF SERVICE PROVISION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| vS Virtualisation of service provision | **Solution #12 Single remote TWR operations for medium traffic volumes**<br>**Solution #13 Remotely provided TWR services for contingency at ADs (contingency)**<br>**Solution #52 Remote TWR for two low density aerodromes (two aerodromes)**<br>**Solution #71 ATC and AFIS at single low density AD from a remote CWP (one aerodrome)** | | | | | | |
| **AOP14.1** | **Remote Tower Services** | | | | | | |
| **Stakeholders** | ANSPs<br>Airport Operators<br>Regulators | **Expected Benefits** | Capacity | Operational efficiency | Cost efficiency | Safety | Environment | Security |
| **FOC** | Open (Local Objective) | **OI Steps / Enablers** | SDM-0201, SDM-0204, SDM-0205 | | | | |
| **Estimated achievement** | Not Available | **CP1 AF & SDP Family** | - | - | | | |
| **Status** | **Not Applicable** | **ICAO ASBU** | RATS-B1/1 | | | | |

**Completion Evolution**

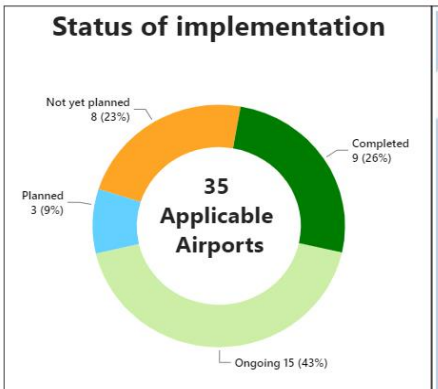



**Progress among non-Completed Airports**




Up to In 2022, 10 remote/digital Towers have been put into service, 3 of them in 2022 (EDDR, ENRC, LIBR).

More than 50% of remaining airports are in ongoing phase with implementation progress between 25% and 90%. Within 2023 at least 4 (up to 14) airports are expected to be finalized.





- 16 Airports were “Ongoing” in 2022. LRBV went from “Planned” to “Ongoing”, LHBP from “Completed” to “Ongoing”.
- In several instances, the implementation is not reported in relation to an airport ICAO code (e.g. Bodo, Brindisi) therefore the implementation does not appear on the map and in the statistics.
- The same for several locations were RTS are provided showing the need to streamline the reporting methodology.
- Belgium finalised plans for the implementation of the the Objective at EBLG and EBCI Airports by the end of 2026.



Co-funded by the European Union

# ANNEXES

## ANNEX A – TERMINOLOGY USED IN THE MASTER PLAN LEVEL 3 IMPLEMENTATION 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.

Based on the links to Implementation Objectives, a SESAR Solution in implementation can be:

- **Committed**, hence linked to Implementation Objective(s) and, in turn, implemented in a regulated or voluntary way.
- **Orphan**, implemented by Stakeholders in a voluntary way without coordination at European level. The evolution of the Committed Solutions can be derived from the progress of the objective itself. Orphan Solutions, instead, are monitored thanks to a dedicated questionnaire included in the LSSIP+ process. This exercise aims at collecting information on whether a Solution has been implemented or if there are any plans for implementation.

Based on its implementation status, a Solutions can be further classified as:

- **Achieved,** if it has been completed by at least 80% of the States / Airports in its applicability area or 100% of the States / Airports in its applicability area in case of a Regulated Solution.
- **No market uptake,** which within the LSSIP Applicability Area, has either:
  - not raised any interest from States/Airports, i.e., no States/Airports implemented or declared plans for implementation.
  - raised low interest from States/Airports, i.e., less than 5% of States/Airports implemented or declared plans for implementation.

A SESAR Solution with **no market uptake**.

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

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

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


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

**AOM** = Airspace Organisation and Management
**AOP** = Airport Operations
**ATC** = Air Traffic Control
**COM** = Communications
**ENV** = Environment
**FCM** = Flow and Capacity Management
**INF** = Information Management
**ITY** = Interoperability
**NAV** = Navigation
**SAF** = Safety Management

The Implementation Objectives set out the operational, technical and institutional improvements that contribute to meet the performance requirements for the key performance areas. They also reflect the outcomes of the Planning and Architecture level (Level 2) when it comes to the integration of operationally and technically mature operational changes, supported by common agreement for their inclusion in the plan and, where applicable, their deployment. It is the case for Objectives derived from existing (EU) Regulations in ATM, such as the Common Project One (CP1).

Implementation Objectives 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



Co-funded by the European Union

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 2 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.

**31 CP1 Airports,** as identified in the CP1 Regulation: Vienna, Brussels, Prague, Berlin Brandenburg, Düsseldorf, Frankfurt am Main, Hamburg, Munich, Stuttgart, Copenhagen, Barcelona El Prat, Madrid Barajas, Málaga Costa del Sol, Oslo Gardermoen, 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.



Co-funded by the European Union

# ANNEX B – RELEVANT MAPPINGS OF THE MASTER PLAN LEVEL 3

Mapping of the L3 implementation Objectives to corresponding SESAR Essential Operational Changes, SESAR Solutions, SESAR Deployment Programme Families, ICAO ASBU, EASA EPAS, the Network Strategy Plan, the Airspace Architecture Study Transition Plan (AAS TP) Milestones and the SESAR Key Features.

CNS infrastructure and services

| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/ *Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **COM10.2** – Extended AMHS | - | - | CTE-C06c | COMI-B0/7 | - | SO7/4 | - | EAI |
| **COM11.1** – Voice over Internet Protocol (VoIP) in En-Route | - | - | *CTE-C05a*<br>*CTE-C05b* | COMI-B2/1 | - | SO8/4 | AM-1.3 | EAI |
| **COM11.2** – Voice over Internet Protocol (VoIP) in Airport/Terminal | - | - | *CTE-C05a*<br>*CTE-C05b* | COMI-B2/1 | - | SO8/4 | - | EAI |
| **COM13** – Air Traffic Services (ATS) datalink using SatCom Class B | #109 | - | POI-0018-COM | COMI-B1/3 | - | - | AM-1.16 | EAI |
| **ITY-ACID** – Aircraft identification | - | - | *GSURV-0101* | - | - | SO8/2 | - | EAI |
| **ITY-AGDL** – Initial ATC air-ground data link services | - | - | AUO-0301 | COMI-B0/4<br>COMI-B1/2 | RMT.0524 | SO4/1<br>SO8/3 | AM-1.1 | EAI |
| **ITY-AGVCS2** – 8.33 kHz Air-Ground Voice Channel Spacing below FL195 | - | - | *CTE-C01a* | - | - | SO8/1 | - | EAI |
| **NAV10** – RNP Approach Procedures to instrument RWY | #103 | - | AOM-0602<br>AOM-0604<br>CTE-N06a<br>CTE-N06b | APTA-B0/1<br>APTA-B1/1<br>NAVS-B0/2 | RMT.0445<br>RMT.0643 | SO6/5 | - | AATS |





Co-funded by the European Union

| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **AOM13.1** – Harmonise OAT and GAT handling | - | - | AOM-0301<br>AOM-0303 | - | - | SO6/2 | - | OANS |
| **AOP11.1** – Initial Airport Operations Plan | #21 | 2.2.1 | AO-0801-A | ACDM-B1/1 | - | SO6/2 | - | HPAO |
| **AOP11.2** – Extended Airport Operations Plan | #21 | 2.2.2 | AO-0801-A,<br>AO-0802-A,<br>AO-0803, DCB-0310 | ACDM-B1/1 | - | SO5/2 | - | HPAO |
| **AOP17** – Provision/integration of DPI to NMOC | #61 | - | DCB-0304 | NOPS-B0/4 | - | - | - | HPAO |
| **COM12** – NewPENS | - | - | *CTE-C06b* | COMI-B1/1 | - | SO2/3, SO2/4,<br>SO8/3, SO8/4 | - | EAI |
| **FCM03** – Collaborative flight planning | - | - | IS-0102 | NOPS-B0/2 | - | SO4/3 | AM-1.14 | OANS |
| **FCM04.2** – Enhanced Short Term ATFCM Measures | #17 | 4.1.1 | DCB-0308 | NOPS-B1/1 | - | SO4/5 | AM-1.11 | OANS |
| **FCM06.1** – Automated Support for Traffic Complexity Assessment and Flight Planning interfaces | #19<br>PJ.18-02c | 4.3.1 | CM-0101<br>CM-0103-A<br>IS-0102 | NOPS-B0/2<br>NOPS-B1/4 | - | SO4/3<br>SO4/5 | AM-1.13 | OANS |
| **FCM10** – Interactive rolling NOP | #18<br>#20 | 4.2.1 | DCB-0102 | NOPS-B1/2<br>NOPS-B1/9 | - | SO2/2, SO4/2,<br>SO4/5 | AM-1.9<br>AM-1.12 | OANS |
| **FCM11.1** – Initial AOP/NOP Information Sharing | #20<br>#21 | 4.2.2 | DCB-0103-A<br>AO-0801-A | NOPS-B0/4 | - | SO4/4, SO4/5,<br>SO5/2 | AM-1.12 | OANS |
| **FCM11.2** – AOP/NOP integration | #18<br>#20<br>#21 | 4.4.1 | AO-0801–A, AO-0802–A, AO-0803, DCB-0310, DCB-0103-A, DCB-0208 | NOPS-B1/3 | - | SO4/4, SO4/5,<br>SO5/2 | AM-1.12 | OANS |
| **INF10.2** – Stakeholders' SWIM PKI and cyber security | #46 | 5.2.1 | IS-0901-A | SWIM-B2/3 | RMT.0720 | SO2/4 | AM-1.5 | EAI |





Co-funded by the European Union

| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **INF10.3** – Aeronautical Information Exchange - Airspace structure service | #46 | 5.3.1 | IS-0901-A | - | - | SO2/4 | AM-1.5 | EAI |
| **INF10.4** – Aeronautical Information Exchange - Airspace availability service | #46 | 5.3.1 | IS-0901-A | - | - | SO2/4 | AM-1.5 | EAI |
| **INF10.5** – Aeronautical Information Exchange - Airspace Reservation (ARES) service | #46 | 5.3.1 | IS-0901-A | - | - | SO2/4 | AM-1.5 | EAI |
| **INF10.6** – Aeronautical Information Exchange - Digital NOTAM service | #34<br>#46 | 5.3.1 | IS-0901-A<br>IS-0205 | - | - | SO2/4 | AM-1.5 | EAI |
| **INF10.7** – Aeronautical Information Exchange - Aerodrome Mapping information exchange service | #34<br>#46 | 5.3.1 | IS-0901-A<br>IS-0205 | - | - | SO2/4 | AM-1.5 | EAI |
| **INF10.8** – Aeronautical Information Exchange - Aeronautical Information Features service | #34<br>#46 | 5.3.1 | IS-0901-A<br>IS-0205 | - | - | SO2/4 | AM-1.5 | EAI |
| **INF10.9** – Meteorological Information Exchange - Volcanic ash concentration service | #34<br>#35<br>#46 | 5.4.1 | IS-0901-A<br>IS-0205<br>MET-0101 | - | - | SO2/4 | AM-1.5 | EAI |
| **INF10.10** – Meteorological Information Exchange - Aerodrome Meteorological information Service | #34<br>#35<br>#46 | 5.4.1 | IS-0901-A<br>IS-0205<br>MET-0101 | - | - | SO2/4 | AM-1.5 | EAI |
| **INF10.11** – Meteorological Information Exchange - En-Route and Approach Meteorological information service | #34<br>#35<br>#46 | 5.4.1 | IS-0901-A<br>IS-0205<br>MET-0101 | - | - | SO2/4 | AM-1.5 | EAI |
| **INF10.12** – Meteorological Information Exchange - Network Manager Meteorological Information | #34<br>#35<br>#46 | 5.4.1 | IS-0901-A<br>IS-0205<br>MET-0101 | - | - | SO2/4 | AM-1.5 | EAI |


EUROPEAN PARTNERSHIP
Co-funded by the European Union

| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **INF10.13** – Cooperative Network Information Exchange - ATFCM Tactical Updates Service | #46 | 5.5.1 | IS-0901-A | - | - | SO2/4 | AM-1.5 | EAI |
| **INF10.14** – Cooperative Network Information Exchange - Flight Management Service | #46 | 5.5.1 | IS-0901-A | - | - | SO2/4<br>SO5/2 | AM-1.5 | EAI |
| **INF10.15** – Cooperative Network Information Exchange - Measures Service | #46 | 5.5.1 | IS-0901-A | - | - | SO2/4<br>SO4/5 | AM-1.5 | EAI |
| **INF10.16** – Cooperative Network Information Exchange - Short Term ATFCM Measures services | #46 | 5.5.1 | IS-0901-A | - | - | SO2/4<br>SO4/5 | AM-1.5 | EAI |
| **INF10.17** – Cooperative Network Information Exchange - Counts service | #46 | 5.5.1 | IS-0901-A | - | - | SO2/4 | AM-1.5 | EAI |
| **INF10.18** – Flight Information Exchange -Filing Service | #46 | 5.6.1 | AUO-0207 | FICE-B2/2 | - | SO2/4 | AM-1.5 | EAI |
| **INF10.19** – Flight Information Exchange - Flight Data Request Service | #46 | 5.6.1 | AUO-0207 | FICE-B2/4 | - | SO2/4 | AM-1.5 | EAI |
| **INF10.20** – Flight Information Exchange - Notification Service | #46 | 5.6.1 | AUO-0207 | FICE-B2/5 | - | SO2/4 | AM-1.5 | EAI |
| **INF10.21** – Flight Information Exchange - Publication Service | #46 | 5.6.1 | AUO-0207 | FICE-B2/6 | - | SO2/4 | AM-1.5 | EAI |
| **INF10.22** – Flight Information Exchange - Trial Service | #46 | 5.6.1 | AUO-0219 | FICE-B2/3 | - | SO2/4 | AM-1.5 | EAI |
| **INF10.23** – Flight Information Exchange - Extended AMAN SWIM Service | #46 | 5.6.1 | AUO-0207 | DAIM-B2/1<br>SWIM-B3/1 | - | SO2/4 | AM-1.5 | EAI |


EUROPEAN PARTNERSHIP
Co-funded by the European Union

dS Digital AIM and MET services

| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **INF07** – Electronic Terrain and Obstacle Data (e-TOD) | - | - | *AIMS-16* | DAIM-B1/3<br>DAIM-B1/4 | RMT.0703<br>RMT.0722 | SO2/5 | - | EAI |

ATp Airport and TMA performance

| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **AOP04.1** – A-SMGCS Surveillance Service (former ICAO Level 1) | #70<br>#110 | - | AO-0201<br>AO-0201-A<br>POI-0071-SUR | SURF-B0/2 | MST.0029 | SO6/6 | - | HPAO |
| **AOP04.2** – A-SMGCS RMCA (former ICAO Level 2) | - | - | AO-0102 | SURF-B0/3 | MST.0029 | SO6/6 | - | HPAO |
| **AOP05** – Airport CDM | - | - | AO-0501, AO-0601, AO-0602, AO-0603, TS-0201 | ACDM-B0/1<br>ACDM-B0/2<br>NOPS-B0/4 | - | SO6/4 | - | HPAO |
| **AOP10** – Time Based Separation | #64 | - | AO-0303 | WAKE-B2/7 | - | SO6/5 | - | HPAO |
| **AOP12.1** – Airport Safety Nets | #02 | 2.3.1 | AO-0104-A | SURF-B1/3 | MST.0029 | SP6/6 | - | HPAO |
| **AOP13** – Automated assistance to Controller for Surface Movement planning and routing | #22<br>#53 | - | AO-0205<br>TS-0202 | SURF-B1/4 | MST.0029 | SO6/6 | - | HPAO |
| **AOP15** – Safety Nets for vehicle drivers | #04 | - | AO-0105<br>AO-0204 | SURF-B2/2 | MST.0029 | - | - | HPAO |





Co-funded by the European Union

| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **AOP16** – Guidance assistance through airfield lighting | #47 | - | AO-0222-A | SURF-B1/1 | MST.0029 | - | - | HPAO |
| **AOP18** – Runway Status Lights | #01 | - | AO-0209 | SURF-B2/2, SURF-B2/3- | MST.0029 | - | - | HPAO |
| **AOP19** – Departure Management Synchronised with Pre-departure sequencing | #53 #106 | 2.1.1 | AO-0602 TS-0201 | RSEQ-B0/2 | - | | - | HPAO |
| **AOP25** – De-icing Management Tool | #116 | - | POI-0070-AO | - | - | - | - | HPAO |
| **AOP26** – Reduced separation based on local Runway Occupancy Time (ROT) characterisation | PJ.02-08-03 | - | AO-0337 | - | - | - | - | HPAO |
| **ATC07.1** – Arrival management tools | - | - | TS-0102 | RSEQ-B0/1 | - | SO4/1 | - | AATS |
| **ATC19** – Enhanced AMAN-DMAN integration | #54 | 1.2.1 | TS-0308 | RSEQ-B2/1 | - | SO6/5 SO4/1 | - | EAI |
| **ATC26** – Point Merge in complex TMA | #107 | - | AOM-0601 | RSEQ-B0/3 | - | - | - | AATS |
| **ENV01** – Continuous Descent Operations | #11 | - | AOM-0701 AOM-0702-A | APTA-B0/4 APTA-B1/4 | - | SO6/5 | - | AATS |
| **ENV02** – Airport Collaborative Environmental Management | - | - | AO-0703, AO-0705, AO-0706 | - | - | - | - | HPAO |
| **ENV03** – Continuous Climb Operations | - | - | AOM-0703 | APTA-B0/5 APTA-B1/5 | - | SO6/5 | - | AATS |
| **NAV03.1** – RNAV1 in TMA Operations | #62 | - | AOM-0601 *CTE-N08* | APTA-B0/2 | RMT.0445 | SO6/5 | - | AATS |


EUROPEAN PARTNERSHIP
Co-funded by the European Union

ATp Airport and TMA performance

| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **NAV03.2** – RNP1 in TMA Operations | #09<br>#51 | - | AOM-0603<br>AOM-0605 | APTA-B1/2 | RMT.0445 | SO6/5 | - | AATS |
| **NAV11.1** – GLS CAT II operations using GBAS GAST-C | #119 | - | AO-0506 | NAVS-B1/1 | RMT.0682<br>RMT.379 | - | - | HPAO |
| **SAF11.1** – Improve runway safety by preventing runway excursions | - | - | - | - | - | - | - | HPAO |

dA Fully dynamic and optimised airspace

| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **AOM19.4** – Management of Pre-defined Airspace Configurations | #31<br>#66 | 3.1.2 | AOM-0202-A<br>AOM-0206-A<br>CM-0102-A | FRTO-B1/4,<br>NOPS-B1/6 | - | SO3/2<br>SO3/3 | AM-1.10<br>AM-1.8- | OANS |
| **AOM19.5** – ASM and A-FUA | #31<br>#66 | 3.1.1 | AOM-0202<br>AOM-0202-A<br>AOM-0206-A | | - | SO3/2<br>SO3/3 | AM-1.10<br>AM-1.8 | OANS |
| **AOM21.2** – Initial Free Route Airspace | #32<br>#33<br>#66 | 3.2.1 | AOM-0501<br>AOM-0505<br>CM-0102-A | FRTO-B1/1 | - | SO3/1<br>SO3/4 | AM-1.10<br>AM-5.1 | AATS |
| **AOM21.3** – Enhanced Free Route Airspace Operations | #33<br>PJ.06-01 | 3.2.2 | AOM-0501<br>AOM-0505 | FRTO-B2/3 | - | SO3/1<br>SO3/4 | AM-1.6<br>AM-1.7 | AATS |
| **ATC12.1** – MONA, TCT and MTCD | #27<br>#104 | - | CM-0202, CM-0203,<br>CM-0205, CM-0207-A | FRTO-B0/4<br>FRTO-B1/5 | - | SO3/1<br>SO4/1 | AM-1.15<br>AM-5.1 | AATS |
| **ATC15.1** – Initial Extension of AMAN to En-route | - | - | TS-0305 | - | - | SO4/1 | - | AATS |





Co-funded by the European Union

dA Fully dynamic and optimised airspace

| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **ATC15.2** – Arrival Management Extended to En-route Airspace | #05 | 1.1.1 | TS-0305-A | RSEQ-B1/1<br>NOPS-B1/8 | - | SO4/1 | AM-1.3 | AATS |
| **ATC18** – Multi Sector Planning En-route – 1P2T | #63<br>#118 | - | CM-0301 | FRTO-B1/6 | - | SO4/1 | AM-4.3<br>AM-5.1 | AATS |
| **ITY-FMTP** – Apply a common flight message transfer protocol (FMTP) | - | - | *CTE-C06* | - | - | SO8/3 | AM-1.3 | EAI |
| **SAF10.1** – Implement measures to reduce the risk to aircraft operations caused by airspace infringements | - | - | - | - | SI.2025 | - | - | AATS |

TBO Trajectory -based operations

| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **ATC02.8** – Ground based safety nets | - | - | CM-0801 | SNET-B0/2<br>SNET-B0/3<br>SNET-B0/4 | - | SO4/1 | - | AATS |
| **ATC20** – Enhanced STCA with DAP via Mode S EHS | #69 | - | CM-0807-A | SNET-B1/1 | MST.0030 | SO7/2 | - | AATS |





Co-funded by the European Union


| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **NAV12** – ATS IFR Routes for Rotorcraft Operations | #113 | - | AOM-0810 | APTA-B0/6 | MST.0031 | SO6/5 | - | AATS |


| Level 3 Implementation Objective | SESAR Solution | SDP Family | OI Steps/*Enablers* | ICAO ASBUs | EPAS | NSP | AAS TP | KF |
|---|---|---|---|---|---|---|---|---|
| **AOP14.1** – Remote Tower Services | #12 #13<br>#52 #71 | - | SDM-0201<br>SDM-0204<br>SDM-0205 | RATS-B1/1 | RMT.0624 | SO6/5 | - | HPAO |





Co-funded by
the European Union

## ANNEX C – CONSOLIDATED PROGRESS AND IMPLEMENTATION STATUS

Consolidated progress of implementation in 2022 and the implementation status at the end of 2022 of all monitored, active Implementation Objectives.

| Objective Code | Solution Reference | Δ Completed States / Airports in 2022 vs 2021 | States / Airports completing the Objective in 2022 | 2022 Completion Rate (Δ vs 2021) | Estimated achievement |
|---|---|---|---|---|---|
| AOM13.1 | - | 2 | NO, UK | 67% (6 pp) | 2023 |
| AOM19.4 | #31, #66 | 24 | 20 EU States, CH, NO, BA, AZ | 92% (65 pp) | 2022 |
| AOM19.5 | #31, #66 | 26 | 25 EU States, NO | 77% (66 pp) | 2025 |
| AOM21.2 | #32, #33, #66 | 8 | BE, CY, GR, LU, NL, ES, CH, UK | 95% (13 pp) | 2022 |
| AOM21.3 | #33, PJ.06-01 | 7 | AM, BE, CZ, LT, LU, NL, PL | 68% (12 pp) | 2025 |
| AOP04.1 | #110, #70 | 0 | - | 74% (-1 pp) | 2023 |
| AOP04.2 | - | 3 | LFLL, LUKK, LROP | 69% (5 pp) | 2023 |
| AOP05 | - | -1 | LOWW, (ESSA), (LTBA) | 57% (-3 pp) | 2024 |
| AOP10 | #64 | 0 | - | 5% (-2 pp) | Not Available |
| AOP11.1 | #21 | 2 | EKCH, LIRF | 16% (6 pp) | 2023 |
| AOP11.2 | #21 | 0 | - | 0% (0 pp) | Not Available |
| AOP12.1 | #02 | -1 | (UBBB) | 6% (-3 pp) | 2025 |
| AOP13 | #22, #53 | 1 | EVRA | 4% (4 pp) | Not Available |
| AOP14.1 | #12, #13, #52, #71 | 2 | EDDE, ENRC, ESKS, (LHBP) | 26% (4 pp) | Not Available |
| AOP15 | #04 | 3 | LFPG, LFPO, LIRF | 11% (9 pp) | Not Available |
| AOP16 | #47 | 0 | - | 0% (0 pp) | Not Available |
| AOP17 | #61 | 6 | LFBO, LFML, LGMT, LGRP, LGSM, LGTS | 56% (12 pp) | 2023 |
| AOP18 | #01 | 0 | - | 5% (0 pp) | Not Available |
| AOP19 | #53, #106 | 13 | EBBR, EDDB, EDDF, EDDL, EHAM, EDDH, EDDS, LEBL, LEMD, LEPA, LIMC, LIRF, LOWW | 62% (42 pp) | 2027 |
| AOP25 | #116 | 5 | LOWW, EKCH, LFPG, EPWA, LSZH | 17% (17 pp) | Not Available |
| AOP26 | PJ.02-08-03 | 2 | EFHK, EGLL | 7% (7 pp) | Not Available |
| ATC02.8 | - | 2 | CZ, EE, ME, (MK) | 71% (5 pp) | 2023 |
| ATC07.1 | - | 1 | LIRF | 67% (-3 pp) | 2024 |
| ATC12.1 | #104, #27 | 3 | EE, ME, RS | 56% (7 pp) | 2023 |





Co-funded by the European Union

| Objective Code | Solution Reference | Δ Completed States / Airports in 2022 vs 2021 | States / Airports completing the Objective in 2022 | 2022 Completion Rate (Δ vs 2021) | Estimated achievement |
|---|---|---|---|---|---|
| ATC15.1 | - | 1 | RS | 68% (4 pp) | 2023 |
| ATC15.2 | #05 | 0 | LKPR, LYBE, (EDDF), (EDDM) | 21% (-2 pp) | 2024 |
| ATC18 | #63, #118 | -1 | (PL) | 20% (-4 pp) | Not Available |
| ATC19 | #54 | 0 | - | 6% (0 pp) | Not Available |
| ATC20 | #69 | 1 | PT | 43% (5 pp) | Not Available |
| ATC26 | #107 | 10 | EIDW, ENZV, ENBR, ENGM, ENVA, GCFV, GCRR, LTFJ, LTFM, UBBB | 43% (43 pp) | Not Available |
| COM10.2 | - | 0 | - | 77% (0 pp) | 2023 |
| COM11.1 | - | 3 | IE, MA, TR | 33% (8 pp) | 2025 |
| COM11.2 | - | 0 | - | 22% (0 pp) | 2025 |
| COM12 | - | 0 | - | 73% (0 pp) | 2023 |
| COM13 | #109 | 0 | - | 0% (0 pp) | Not Available |
| ENV01 | #11 | 3 | EKCH, EIDW, EYVI, LSZH, LTFM, (EDDH), (EDDV) | 52% (1 pp) | 2025 |
| ENV02 | - | 1 | LEPA | 79% (2 pp) | 2023 |
| ENV03 | - | 1 | EGBB, LDZA, LYBE, (LUBL), (LUBM) | 63% (6 pp) | 2025 |
| FCM03 | - | 1 | LU, PT, (FI) | 55% (2 pp) | 2023 |
| FCM04.2 | #17 | 18 | 19 EU States, (UK) | 65% (49 pp) | 2024 |
| FCM06.1 | #19, PJ.18-02c | 10 | AT, BE, DK, FR, IE, LU, NL, RO, ES, UK | 44% (23 pp) | 2024 |
| FCM10 | #18, #20 | 5 | BE, CZ, HU, LU, ME, RS, (DK) | 23% (13 pp) | 2027 |
| FCM11.1 | #20, #21 | 0 | - | 0% (0 pp) | 2023 |
| FCM11.2 | #18, #20, #21 | 0 | - | 0% (0 pp) | Not Available |
| INF07 | - | 0 | - | 28% (0 pp) | 2024 |
| INF10.2 | #46 | 0 | - | 0% (0 pp) | 2025 |
| INF10.3 | #46 | 1 | FI, NO, CH, (CZ), (PT) | 47% (2 pp) | 2025 |
| INF10.4 | #46 | 2 | EE, FI, NO, CH, (CZ), (PT) | 42% (4 pp) | 2025 |
| INF10.5 | #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.6 | #34, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.7 | #34, #46 | 0 | - | 0% (0 pp) | Not Available |





Co-funded by the European Union

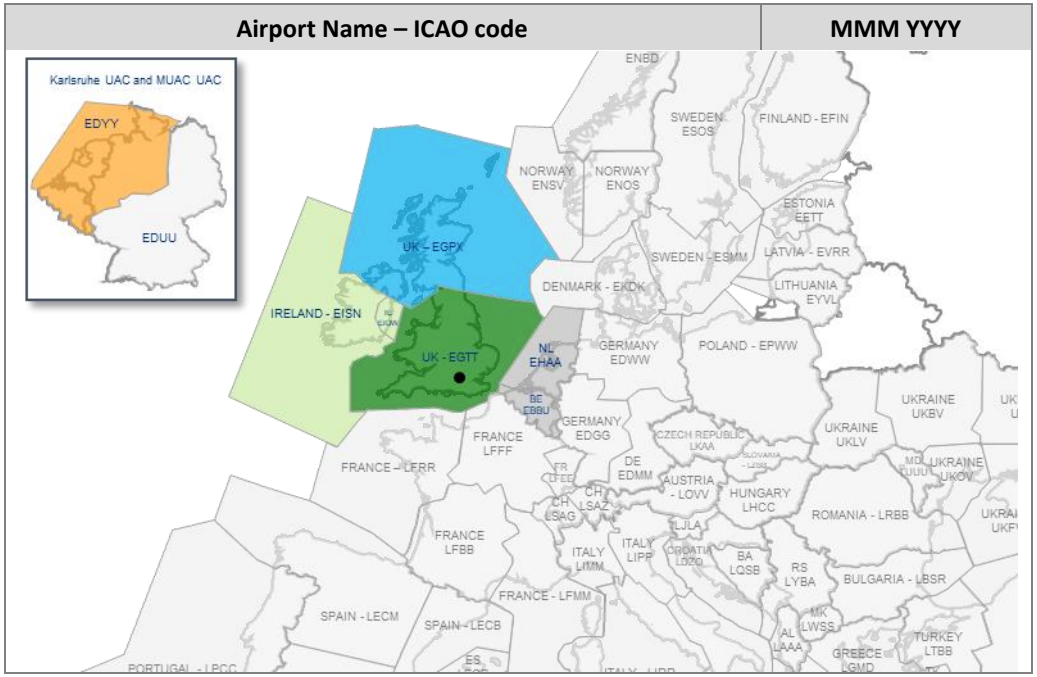
| Objective Code | Solution Reference | Δ Completed States / Airports in 2022 vs 2021 | States / Airports completing the Objective in 2022 | 2022 Completion Rate (Δ vs 2021) | Estimated achievement |
|---|---|---|---|---|---|
| INF10.8 | #34, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.9 | #34, #35, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.10 | #34, #35, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.11 | #34, #35, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.12 | #34, #35, #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.13 | #46 | 1 | HU | 14% (4 pp) | Not Available |
| INF10.14 | #46 | 1 | HU | 8% (4 pp) | Not Available |
| INF10.15 | #46 | 1 | ES | 19% (3 pp) | Not Available |
| INF10.16 | #46 | 1 | FR | 10% (5 pp) | Not Available |
| INF10.17 | #46 | 2 | BE, LU | 32% (11 pp) | Not Available |
| INF10.18 | #46 | 0 | - | 50% (0 pp) | 2025 |
| INF10.19 | #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.20 | #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.21 | #46 | 0 | - | 0% (0 pp) | Not Available |
| INF10.22 | #46 | 0 | - | 100% (0 pp) | 2021 |
| INF10.23 | #46 | -2 | (FR), (UK) | 0% (-7 pp) | Not Available |
| ITY-ACID | - | -1 | LU, (BA), (LT) | 37% (-2 pp) | 2025 |
| ITY-AGDL | - | -1 | CY, (AZ), (MT) | 65% (1 pp) | 2023 |
| ITY-AGVCS2 | - | 3 | BE, HU, PL | 66% (10 pp) | 2024 |
| ITY-FMTP | - | -1 | (MA) | 80% (-2 pp) | 2023 |
| NAV03.1 | #62 | 0 | - | 38% (0 pp) | 2030 |
| NAV03.2 | #09, #51 | 1 | IT, ES, (CH) | 28% (4 pp) | Not Available |
| NAV10 | #103 | 1 | AT, EE, LV, (HR), (HU) | 35% (3 pp) | 2026 |
| NAV11.1 | #119 | 1 | DE | 5% (5 pp) | Not Available |
| NAV12 | #113 | 0 | - | 18% (3 pp) | Not Available |
| SAF10.1 | - | 4 | DK, IT, LV, MD | 9% (9 pp) | Not Available |
| SAF11.1 | - | 8 | BG, DK, FI, IT, LV, MD, NL, RO | 19% (19 pp) | 2030 |

# 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 2022 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.

The Annex reports the information available in the LSSIP+ Tool, as Stakeholders reported during the 2022 Monitoring Cycle. Moreover, the information related to the CP1-mandated Airports matches the data reported in the SDP Monitoring View 2022.

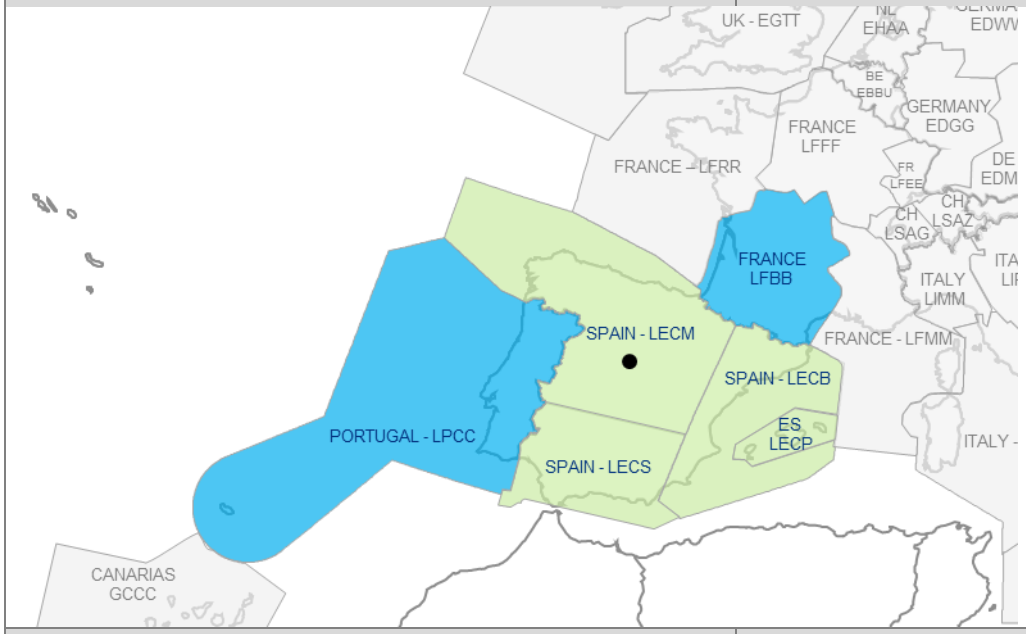
Here below some additional explanation on how to read each map.



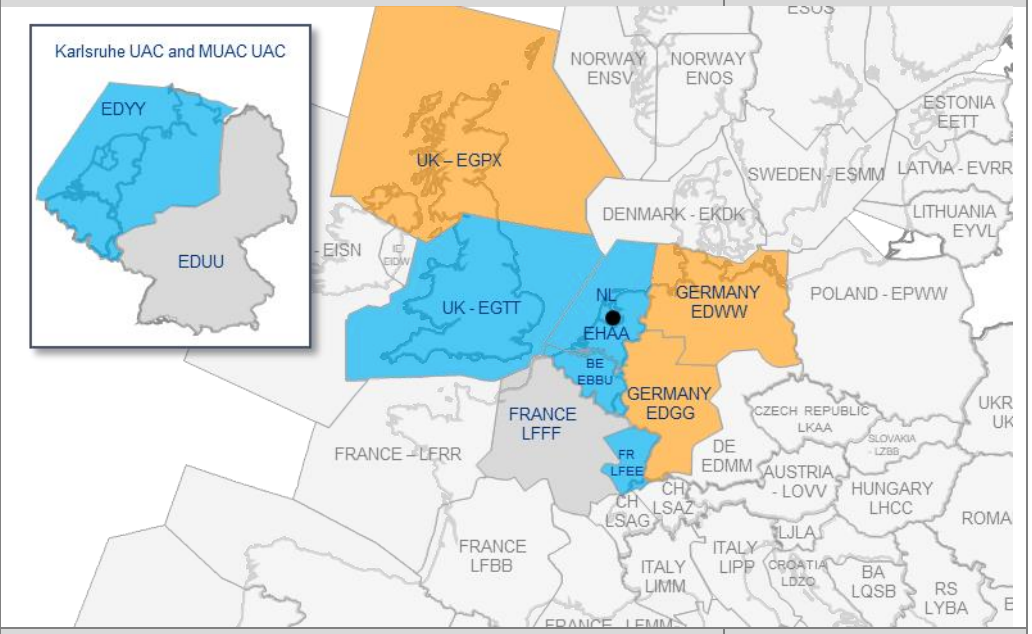

- The grey bar on top of the map reports the Airport name, the ICAO code, and the Objective's implementation date.
- Each map focuses on the relevant Airport, and affected ACCs.
- A black dot marks the Airport location.
- Each ACC features the Country and the ACC code.
- Each ACC is identified with a 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 2022 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.


EUROPEAN PARTNERSHIP
Co-funded by the European Union

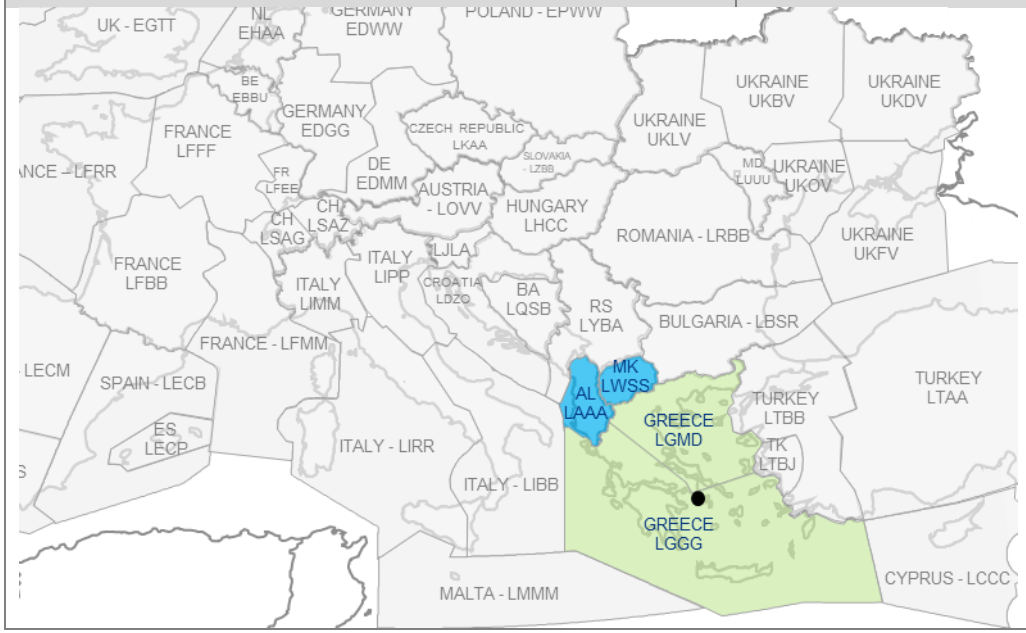
| Adolfo Suarez Madrid Barajas – LEMD | Dec 2024 |
|---|---|



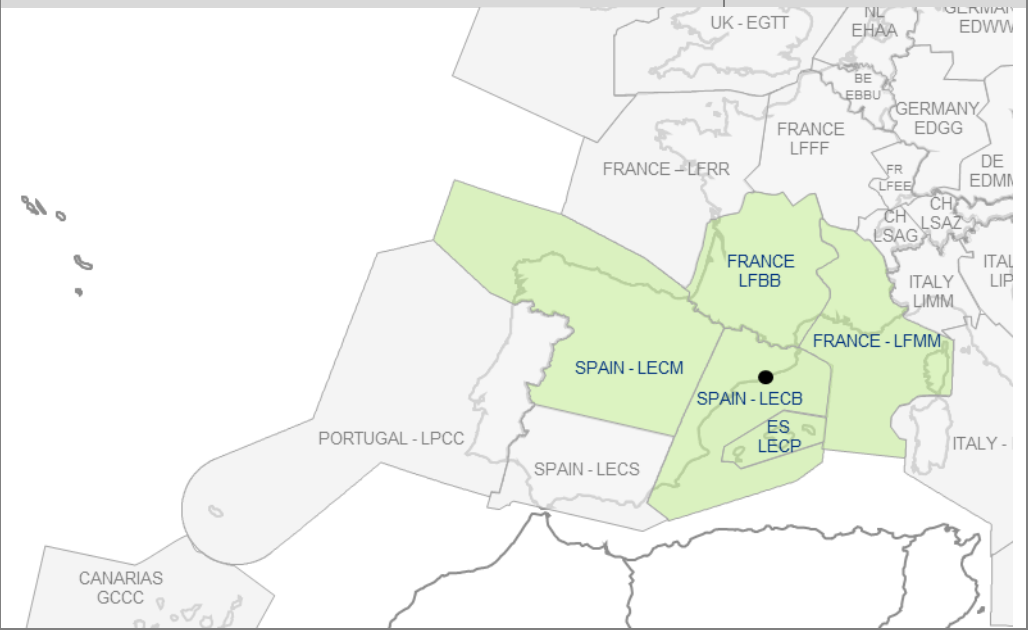

| Amsterdam Schiphol – EHAM | Dec 2024 |
|---|---|




| Athens International Airport – LGAV | Dec 2025 |
|---|---|




| Barcelona El Prat – LEBL | Dec 2024 |
|---|---|

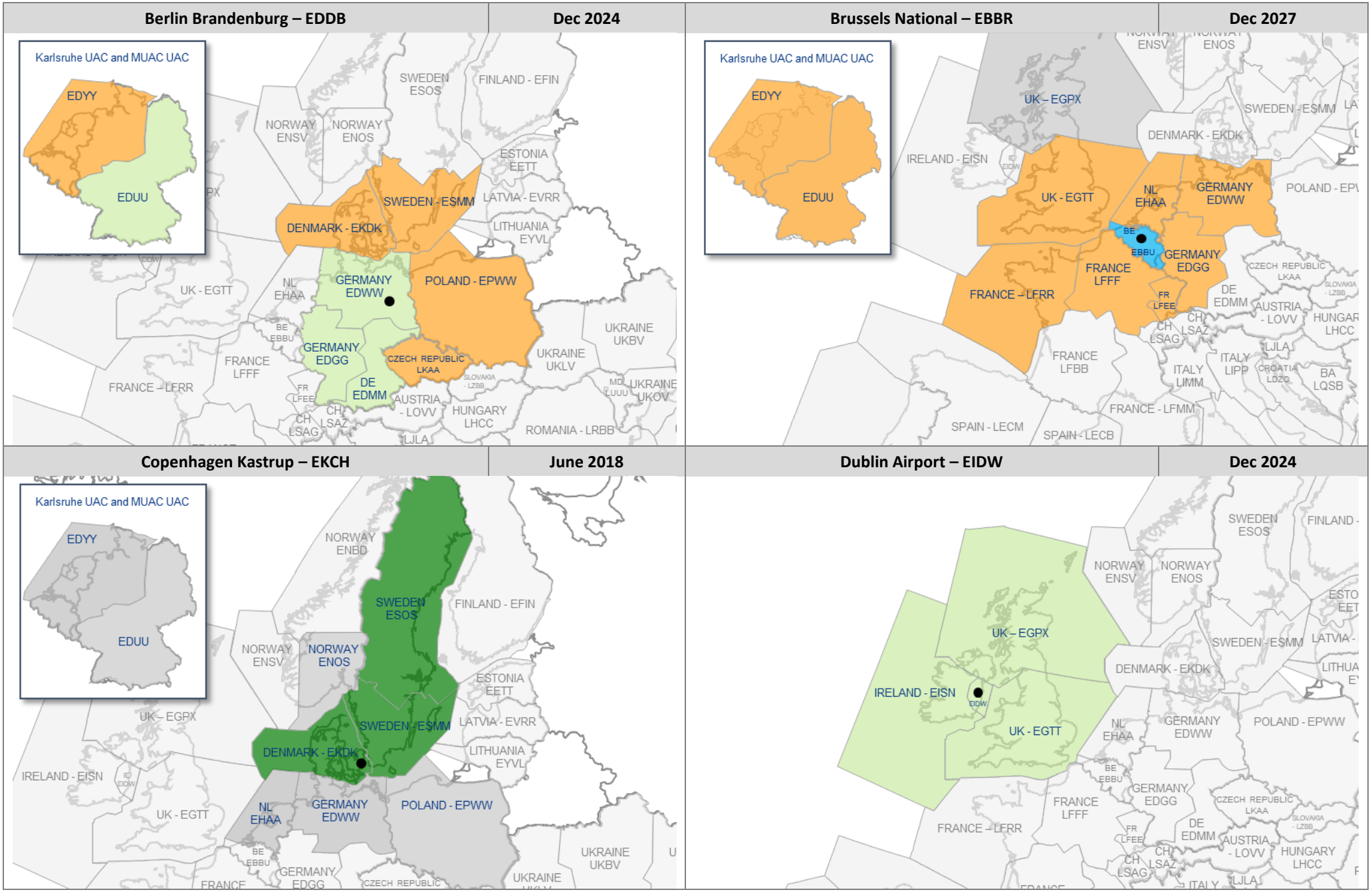







Co-funded by the European Union

| Berlin Brandenburg – EDDB | Dec 2024 | Brussels National – EBBR | Dec 2027 |
|---|---|---|---|
| Copenhagen Kastrup – EKCH | June 2018 | Dublin Airport – EIDW | Dec 2024 |

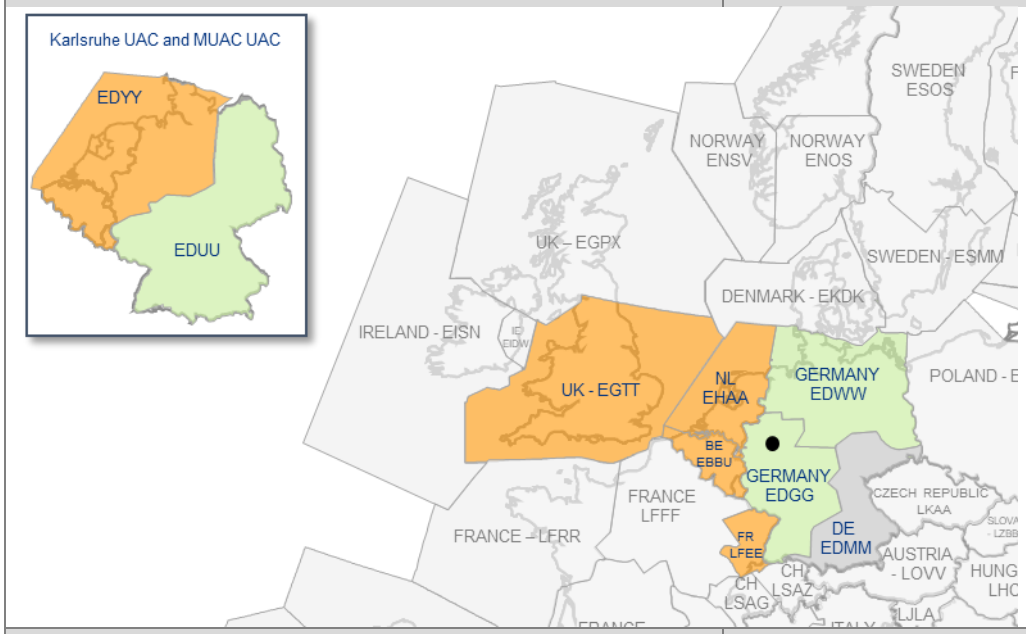


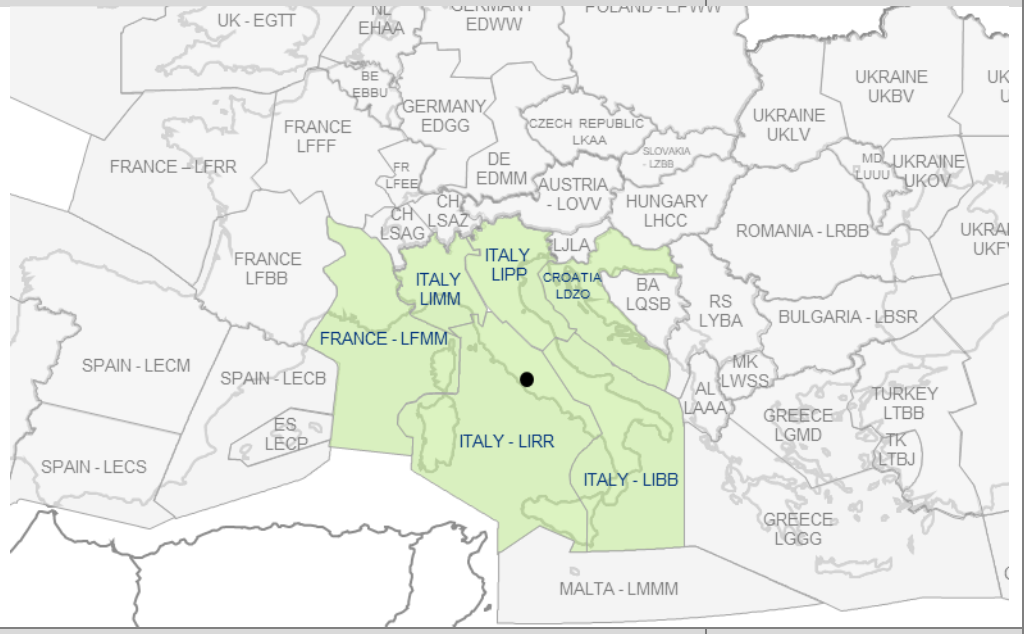



EUROPEAN PARTNERSHIP

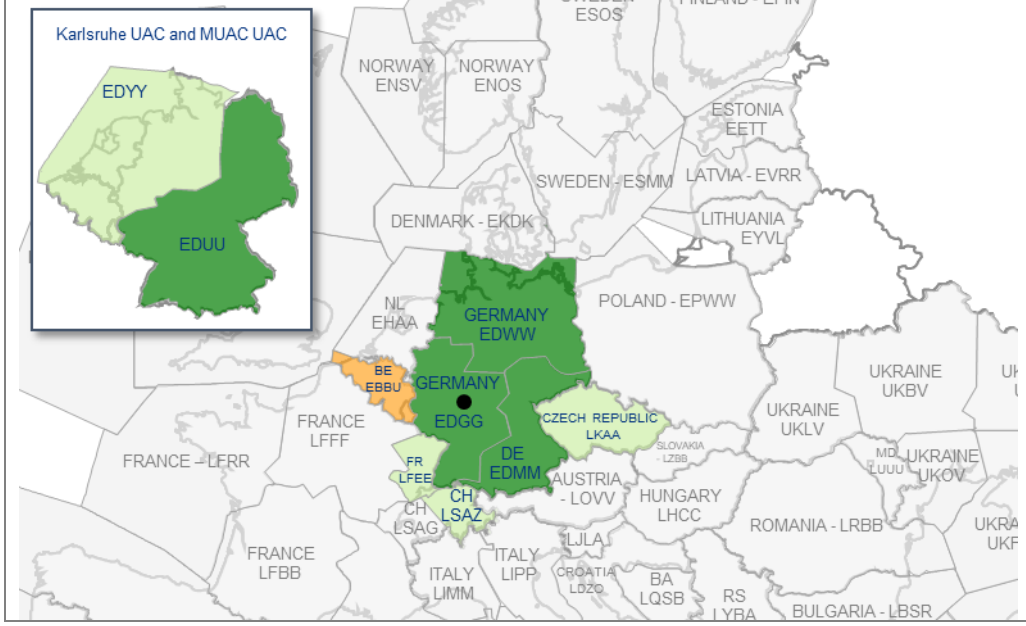
Co-funded by the European Union

| Dusseldorf Airport – EDDL | Dec 2024 | Fiumicino Leonardo da Vinci – LIRF | Dec 2023 |
|---|---|---|---|




| Frankfurt am Main – EDDF | Dec 2024 | Helsinki Airport – EFHK | Dec 2024 |
|---|---|---|---|

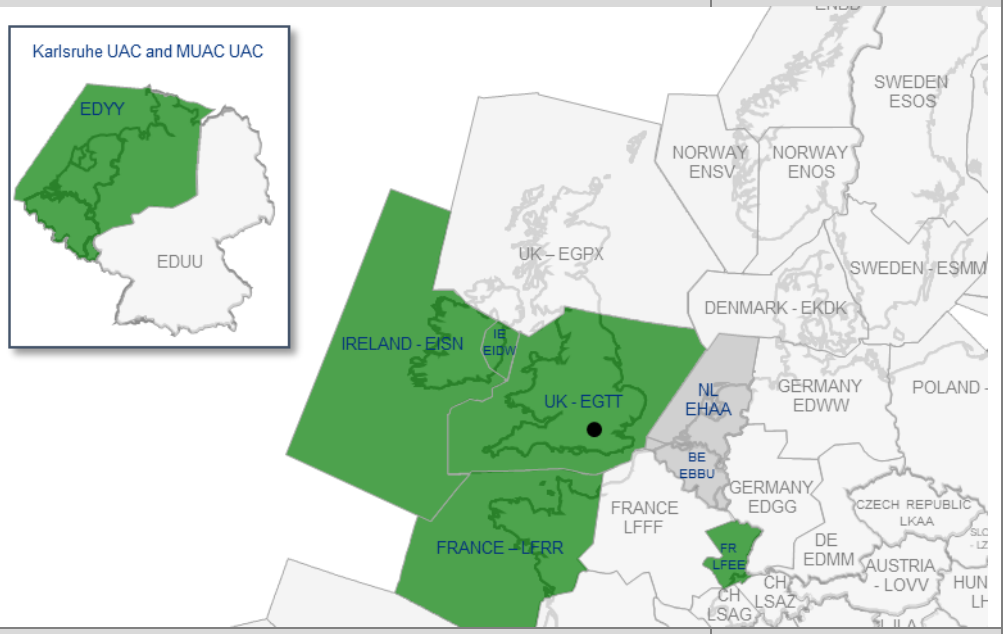


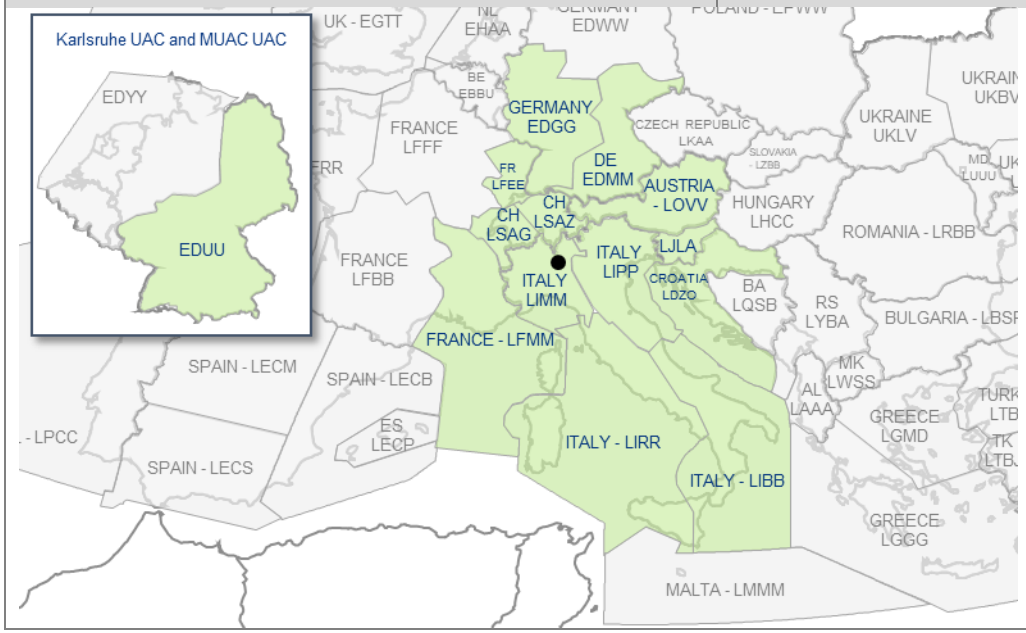


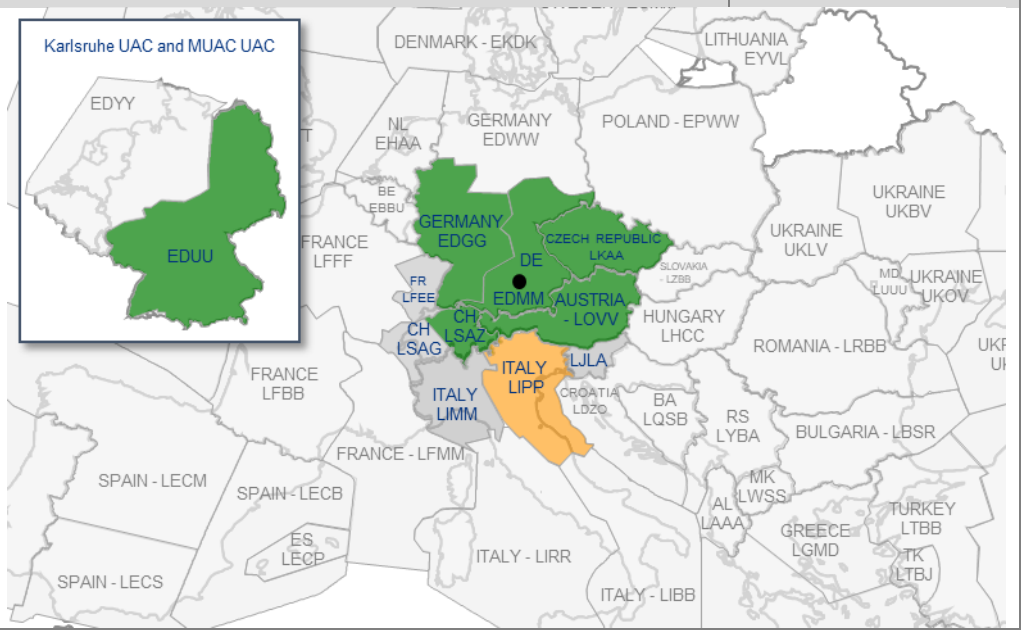


EUROPEAN PARTNERSHIP
Co-funded by the European Union

| Istanbul Airport – LTFM | Jan 2024 | London Heathrow – EGLL | Apr 2015 |
|---|---|---|---|
| Milano Malpensa – LIMC | Dec 2023 | Munich Airport – EDDM | - |

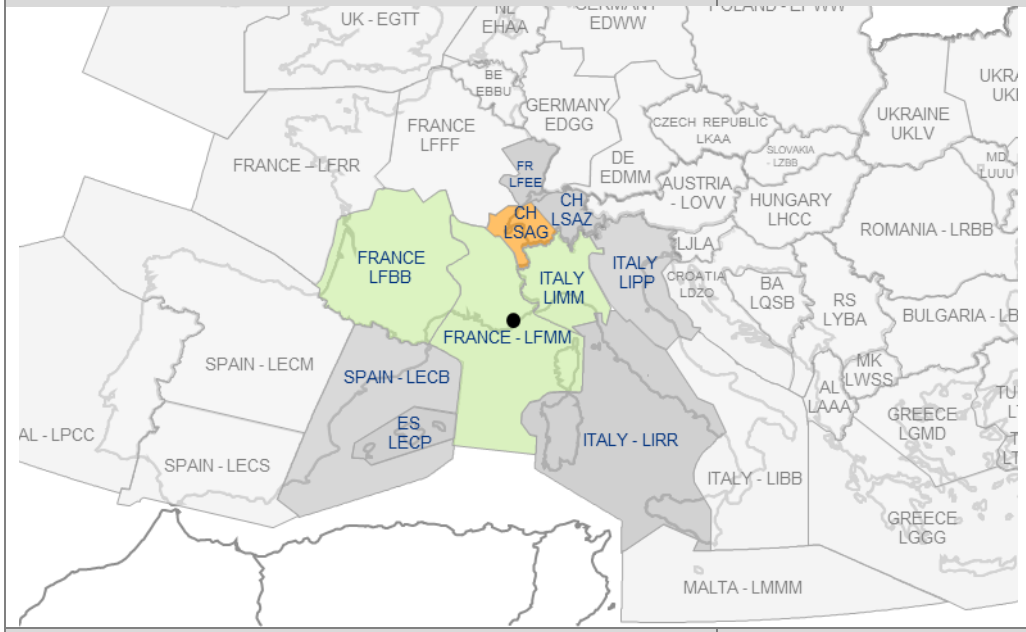





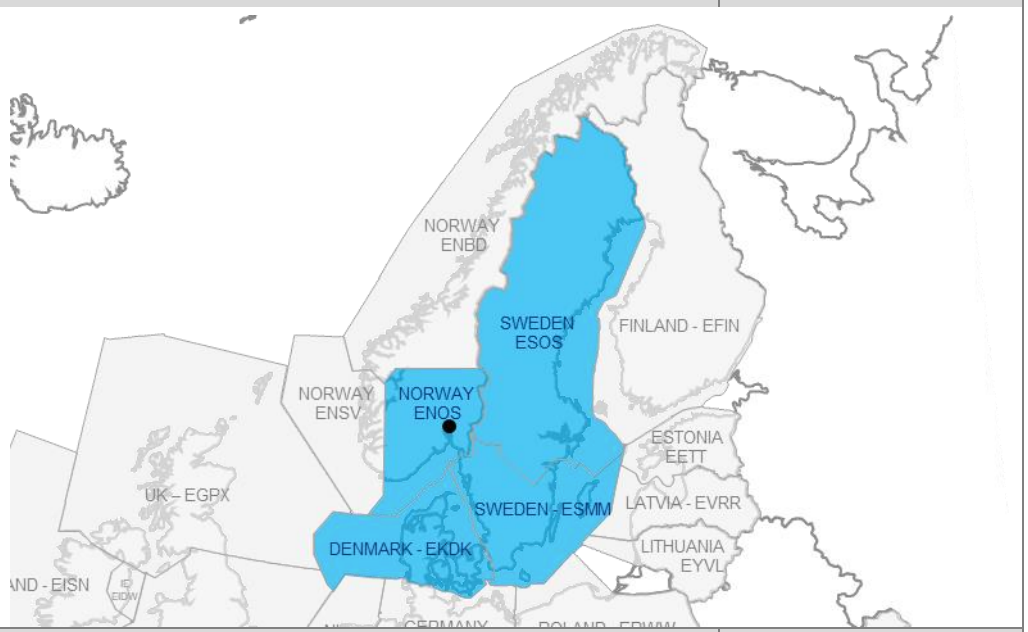

EUROPEAN PARTNERSHIP

Co-funded by the European Union

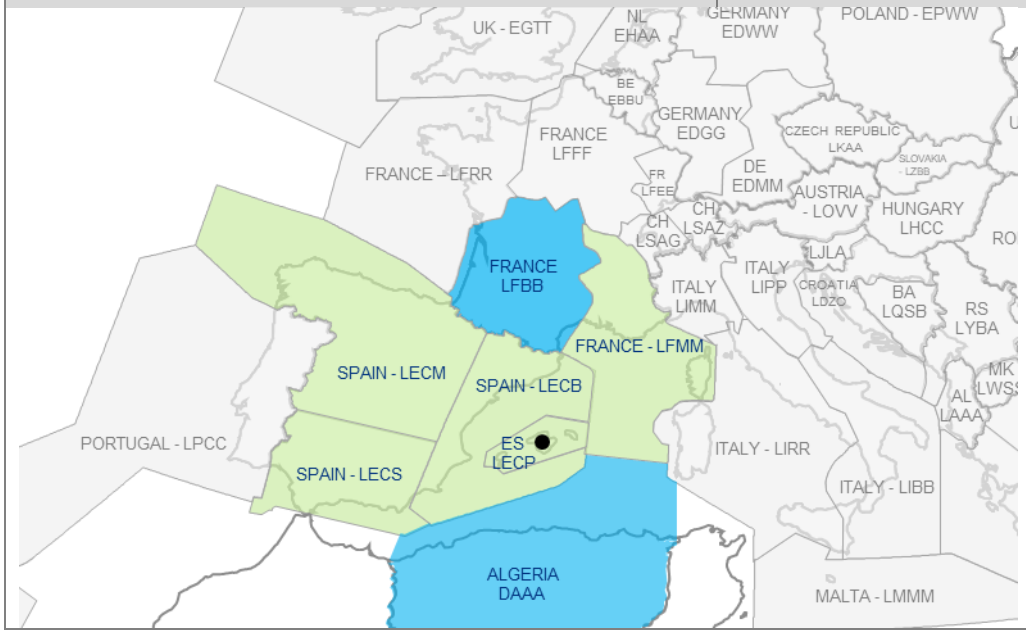
| Nice Cote d'Azur – LFMN | Dec 2024 |
|---|---|



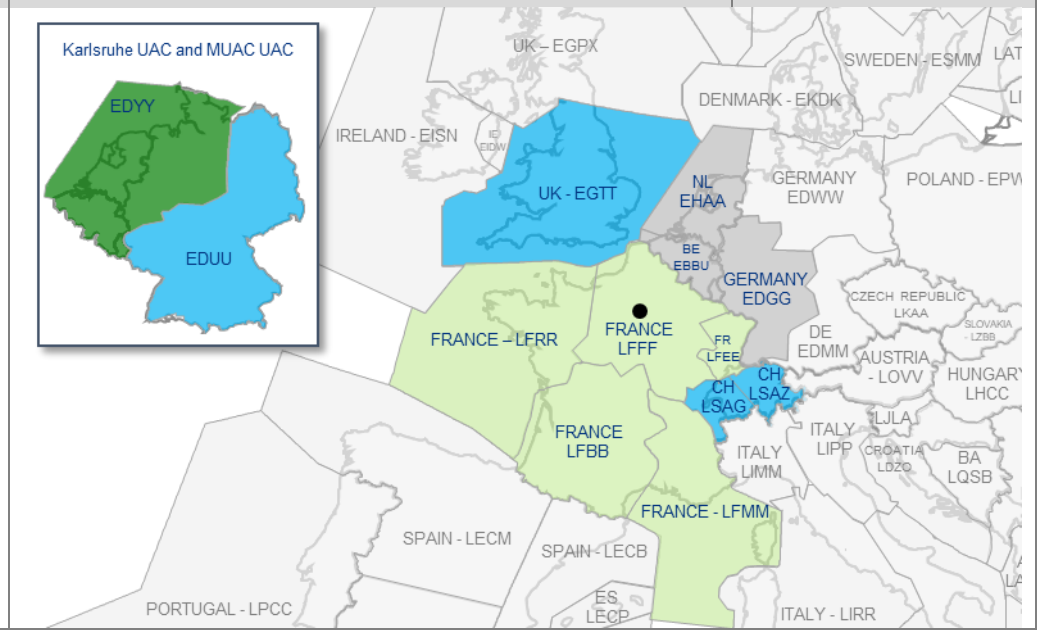

| Oslo Gardermoen – ENGM | Dec 2025 |
|---|---|




| Palma de Mallorca – LEPA | Dec 2024 |
|---|---|




| Paris Charles de Gaulle – LFPG | Dec 2024 |
|---|---|

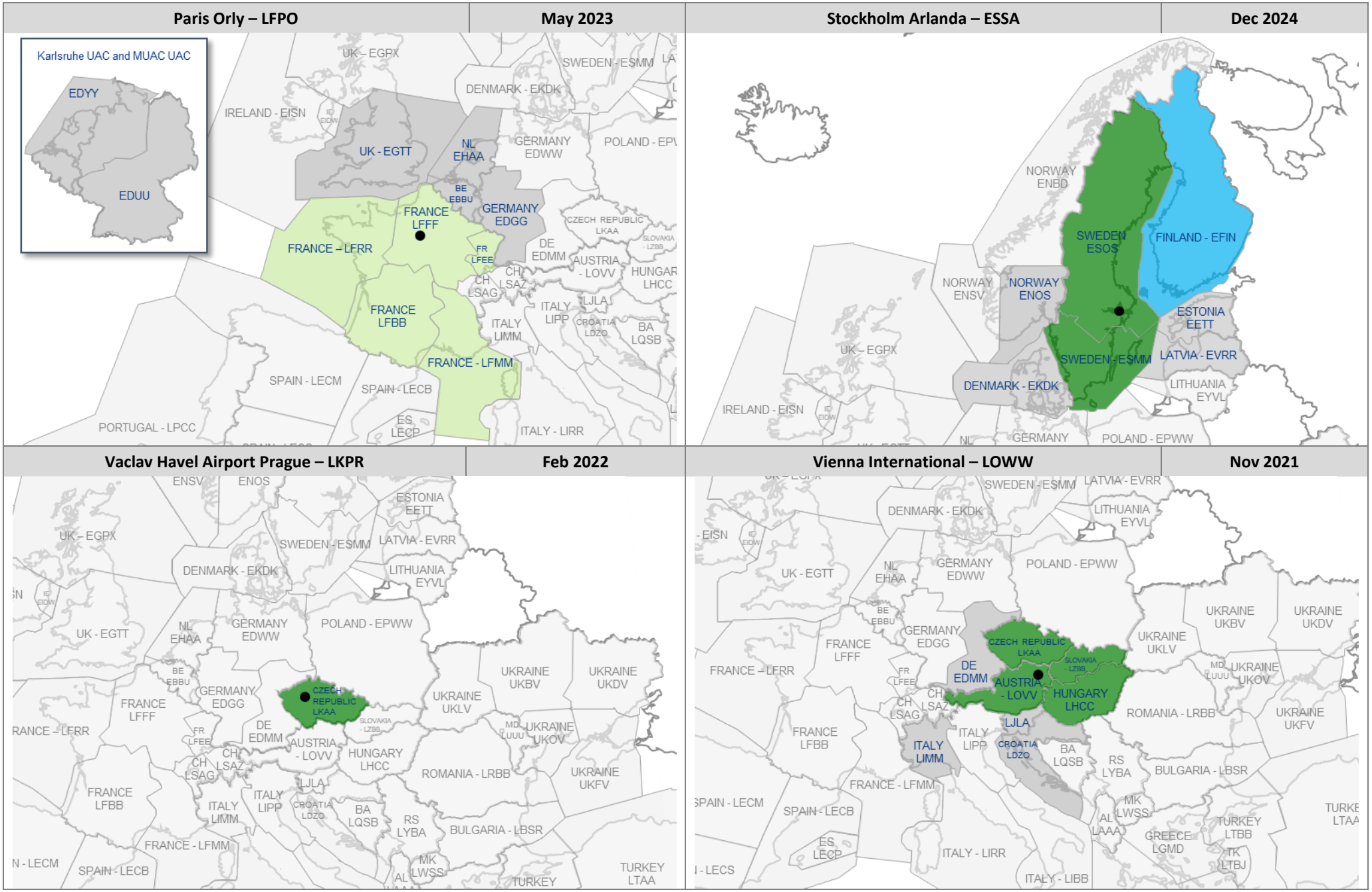







Co-funded by the European Union

| Paris Orly – LFPO | May 2023 | Stockholm Arlanda – ESSA | Dec 2024 |
|---|---|---|---|
| Vaclav Havel Airport Prague – LKPR | Feb 2022 | Vienna International – LOWW | Nov 2021 |

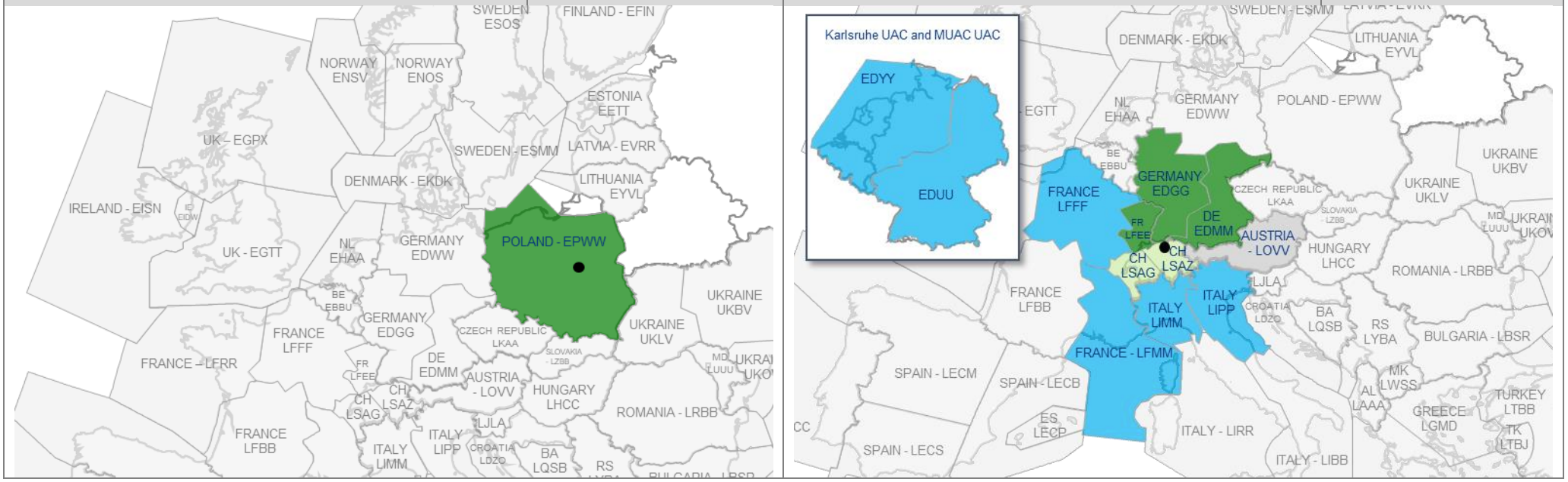





EUROPEAN PARTNERSHIP

Co-funded by the European Union

| Warsaw Chopin – EPWA | Nov 2018 | Zurich Airport – LSZH | Dec 2024 |
|---|---|---|---|








Co-funded by the European Union

# ANNEX E – ACRONYMS

| | |
|---|---|
| **A** | |
| 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** | |
| BA | Bosnia Herzegovina |
| BE | Belgium |
| BG | Bulgaria |
| B2B | Business-to-Business |
| **C** | |
| 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 |

| | |
|---|---|
| **D** | |
| 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) |
| **E** | |
| 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 |
| **F** | |
| 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 |
| **G** | |
| GAT | General Air Traffic |
| GBAS | Ground Based Augmentation System |
| GE | Georgia |
| GNSS | Global Navigation Satellite System |
| GR | Greece |
| **H** | |
| HPAO | High-performing airport operations |
| HR | Croatia |
| HU | Hungary |
| **I** | |
| 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 |
| **K** | |
| KF | Key Feature |
| KPI | Key Performance Indicators |
| **L** | |
| LARA | Local And sub-Regional Airspace Management |
| LT | Lithuania |
| LSSIP | Local Single Sky ImPlementation |
| LU | Luxembourg |
| LV | Latvia |
| LVC | Low Visibility Conditions |
| **M** | |
| 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 |





Co-funded by the European Union

| | |
|---|---|
| MUAC | Maastricht Upper Area Control (Centre) |
| **N** | |
| 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 |
| **O** | |
| OANS | Optimised ATM network services |
| OAT | Operational Air Traffic |
| OC | Operational Change |
| OI | Operational improvements |
| OLDI | On Line Data Interchange |
| **P** | |
| 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 |
| **R** | |
| REG | Regulatory Authorities |
| RNAV | Area Navigation |
| RNP | Required Navigation Performance |
| RO | Romania |
| RP | Reference Period |
| RPAS | Remotely Piloted Aircraft Systems |
| RS | Serbia |
| RWY | Runway |
| **S** | |
| 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 |
| **T** | |
| 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 |
| **U** | |
| UA | Ukraine |
| UDPP | Users Driven Prioritisation Process |
| UK | United Kingdom |
| UUP | Update Airspace Use Plan |
| **V** | |
| VCCS | Voice Communication and Control System |
| VoIP | Voice over Internet Protocol |
| **W** | |
| WAM | Wide Area Multilateration |
| WP | Work Package |





Co-funded by the European Union