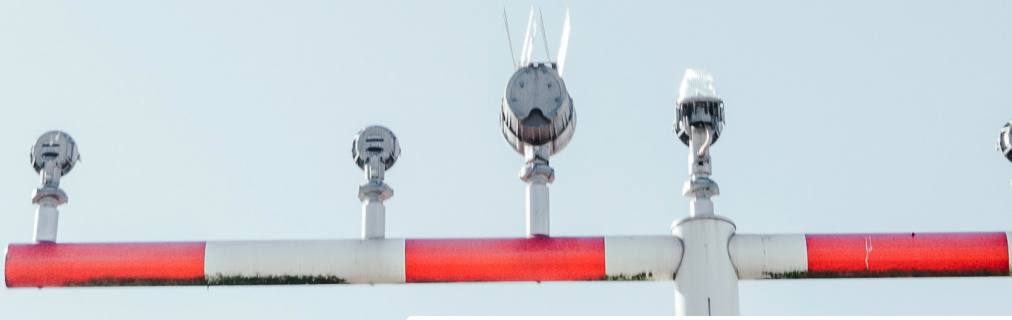
EUROCONTROL

ASBU Implementation Monitoring Report

ICAO EUR States

Reference Period 2022



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Addressing Growth and Realizing the Promise of Twenty-first Century Air Traffic Management (ATM)

Air transport today plays a major role in driving sustainable economic and social development. It directly and indirectly supports the employment of 56.6 million people, contributes over $2.2 trillion to global Gross Domestic Product (GDP), and carries over 2.9 billion passengers and $5.3 trillion worth of cargo annually.

A fully harmonised global air navigation system built on modern performance-based procedures and technologies is a solution to the concerns of limited air traffic capacity and unnecessary gas emissions being deposited in the atmosphere.

The Global Air Navigation Plan (GANP) represents a rolling, long term strategic methodology which leverages existing technologies and anticipates future developments based on State/industry agreed operational objectives. The GANP's Aviation System Block Upgrades (ASBU) methodology is a programmatic and flexible global system's engineering approach that allows all Member States to advance their Air Navigation capacities based on their specific operational requirements. The Block Upgrades will enable aviation to realise the global harmonization, increased capacity, and improved environmental efficiency that modern air traffic growth now demands in every region around the world.

The GANP's Block Upgrades have been initially organised in five-year time increments starting in 2013 and continuing through 2028 and beyond. The GANP ASBU planning approach also addresses airspace user needs, regulatory requirements and the needs of Air Navigation Service Providers and Airports. This ensures a single source for comprehensive planning. This structured approach provides a basis for sound investment strategies and will generate commitment from States, equipment manufacturers, operators and service providers. A first updated version of the GANP, with a new planning horizon from 2016 to 2031 and the introduction of 6-year time increments so that they would be aligned with the ICAO Assembly cycles, was endorsed at the 39th ICAO Assembly in October 2016. The significantly revised sixth edition of the GANP was presented at the 13th Air Navigation Conference in 2018 and had been endorsed at the 40th ICAO Assembly in September 2019. The seventh edition of the GANP, which is only a minor update to the ASBU frameworks and Basic Building Blocks (BBBs) was endorsed at the 41st ICAO Assembly in October 2022.

This resultant framework is intended primarily to ensure that the aviation system will be maintained and enhanced, that ATM improvement programmes are effectively harmonised, and that barriers to future aviation efficiency and environmental gains can be removed at a reasonable cost. In this sense, the adoption of the ASBU methodology significantly clarifies how the ANSP and airspace users should plan for future equipage.

Although the GANP has a worldwide perspective, it is not intended that all Block Elements be required to be applied in every State and Region. Many of the Block Upgrade Elements contained in the GANP are specialised packages that should be applied only where the specific operational requirement exists or corresponding benefits can be realistically projected. The inherent flexibility in the ASBU methodology allows States to implement Elements based on their specific operational requirements. Using the GANP, Regional and State planners should identify those Elements which provide any needed operational improvements. Although the Block Upgrades do not dictate when or where a particular Element is to be implemented, this may change in the future should uneven progress hinder the passage of aircraft from one region of airspace to another.

The regular review of implementation progress and the analysis of potential impediments will ultimately ensure the harmonious transition from one region to another following major traffic flows, as well as ease the continuous evolution towards the GANP's performance targets.

Document identification sheet

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Abstract

The ICAO/EUROCONTROL ASBU Monitoring Report presents an overview of progress achieved so far in the implementation of the ICAO ASBU Elements (Block 0 and Block 1) within the ICAO EUR Region during the reference year 2022. This is the 9th edition of the Report, and it is based on the 7th edition of the Global Air Navigation Plan (GANP), endorsed at the 41st ICAO Assembly in October 2022. The report summarizes the implementation progress of 80 ASBU Block 0 and Block 1 Elements and indicates what has been achieved so far, together with the future perspective of implementation in accordance with planning dates reported by States.

The ICAO EUR Region covers 55 States. Two main data sources have been consulted in order to produce the report: EUROCONTROL LSSIP mechanism for 43 States and a dedicated questionnaire for the remaining 9 states outside the LSSIP mechanism.

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Document change record

The following table records the complete history of the successive editions of the present document.

EDITION	DATE	REASON FOR CHANGE	SECTIONS PAGES AFFECTED
0.1	30/06/2023	First draft	All
0.2	16/09/2023	Comments from ICAO EUR/NAT Office integrated	All
0.3	3/11/2023	Final draft (for endorsement by EASPG/5)	All
1.0	5/12/2023	Released version (endorsed by EASPG/5)	All

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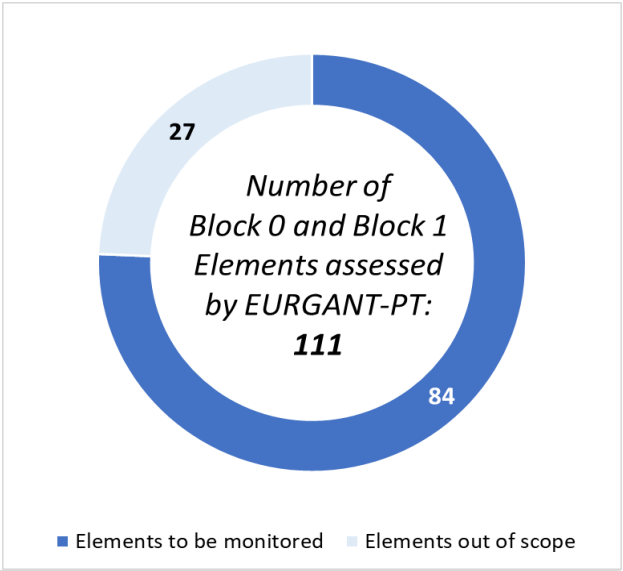
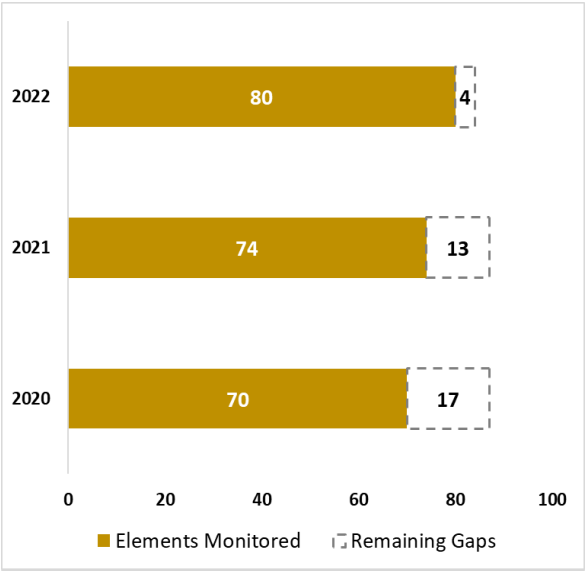
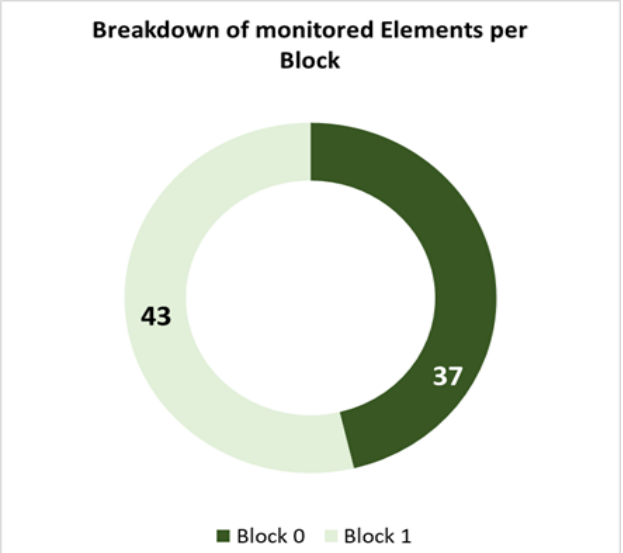
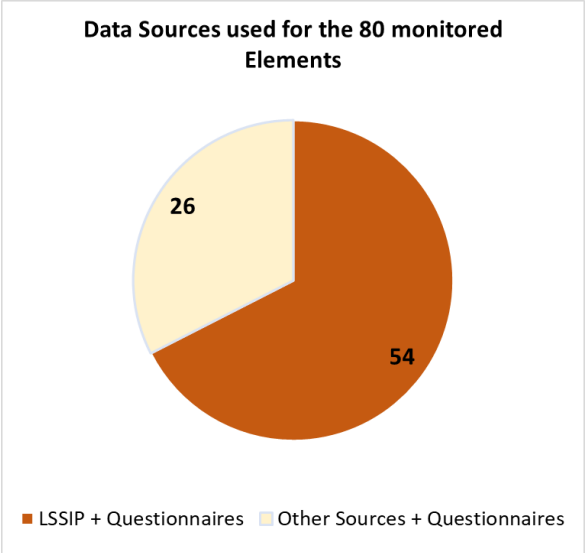
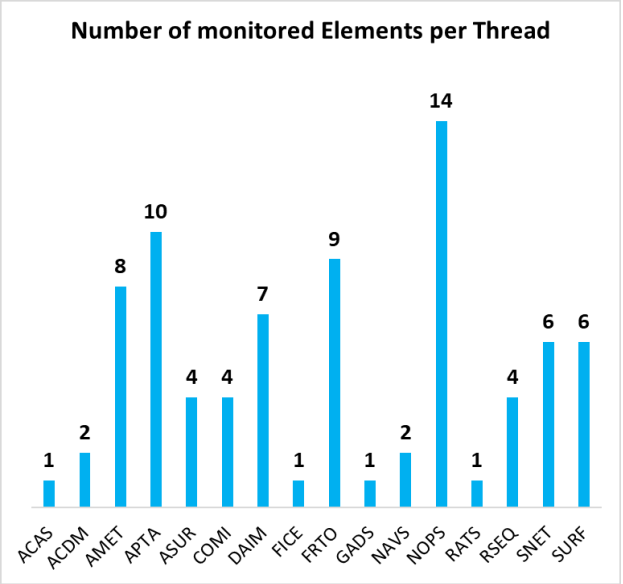
ASBU Implementation Dashboard*

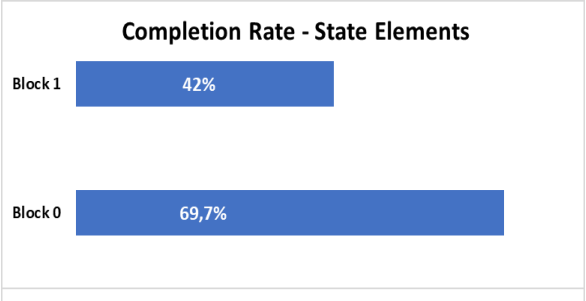


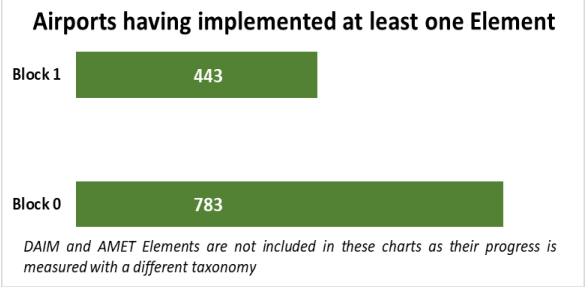












DAIM and AMET Elements are not included in these charts as their progress is measured with a different taxonomy

* Based on the ASBU Elements included in the edition 7 of the GANP.

Executive Summary

The ICAO/EUROCONTROL ASBU Implementation Monitoring Report represents a key document for the European Aviation System Planning Group (EASPG) to monitor and analyse the implementation within the ICAO EUR Region. It presents an overview of the currently achieved progress, as well as an outlook of the implementation for the ICAO ASBU Block 0 and Block 1 Elements within the entire ICAO EUR Region during the **Reference year 2022**.

The current edition is the 9th edition of the Report in a series of ASBU Implementation Monitoring Reports for the ICAO EUR Region and it is the first one **based on the 7th edition of the Global Air Navigation Plan (GANP)**, endorsed at the 41st ICAO Assembly in October 2022.

Given the scope and complexity of the changes introduced by the latest major update of the GANP (the 6th edition, endorsed in 2019), the **EUR Region GANP Transition Project Team (EURGANT – PT)** has been established by EASPG Decision 2/7 at the EASPG/02 meeting in December 2020 (*see Section 1.3 for more details*). The main task of the PT was to identify the differences between 5th and 6th edition of the GANP and deliver a proposal for ASBU Block 0 & Block 1 Elements which shall be monitored in the upcoming ASBU Implementation Monitoring Reports.

Based on a thorough review of the new GANP ASBU framework, the EURGANT-PT came up with a list of **87 ASBU Elements** (40 for Block 0 and 47 for Block 1) that should be monitored in the ICAO EUR Region. The results and proposals of EURGANT-PT have been submitted and subsequently approved by an EASPG written consultation procedure in April 2021.

This set of Elements has been reassessed with the **7th Edition of the GANP**, representing a minor update of the 6th Edition[*]. Out of the 87 Block 0 and Block 1 ASBU Elements, identified by the EURGANT-PT for monitoring, 3 Block 1[†] Elements (ACDM-B1/1, ACDM-B1/2, APTA-B1/3) have been moved to Block 2 in the 7th Edition of the GANP and are therefore out of the scope of this Report[‡].

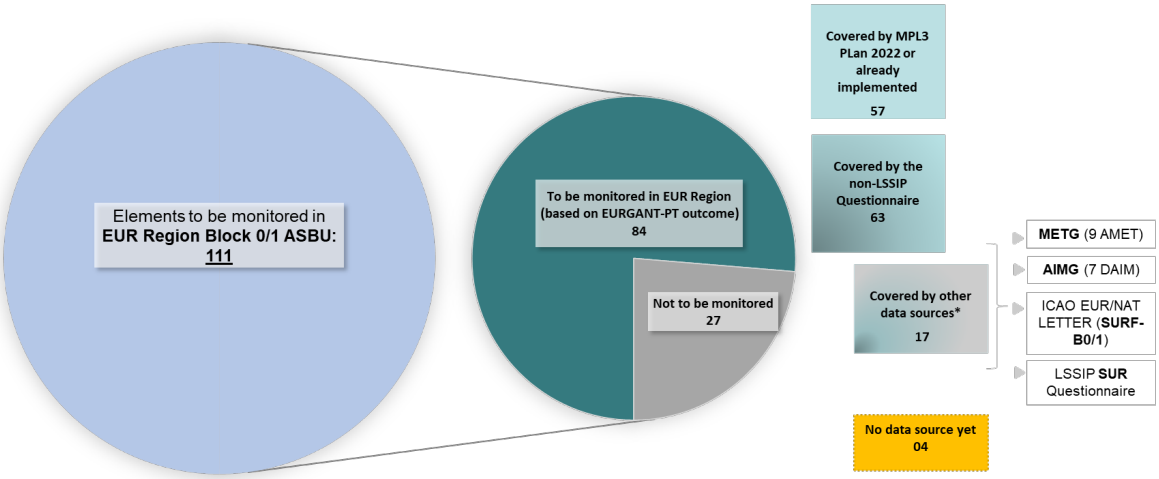
This edition of the Report includes information on **80 out of the 84 ASBU Elements** representing the amended EURGANT-PT list. The monitoring of the missing 4 Elements is not yet possible, mainly because of the unavailability of implementation progress information. However it should be noted that, thanks to the contributions of all involved stakeholders across the EUR Region, the coverage of the ASBU Implementation Monitoring Report has substantially improved over the years, growing from the monitoring of 70 out of 87 Elements in 2021, 74 out of 87 Elements in 2022 and reaching 80 out of 84 Elements in the current edition of the Report[§].

[*] A summary of the changes brought by edition 7 of the GANP to Block 0 and 1 Elements is also presented in Annex A.

[†] See also the ASBU Implementation Dashboard – the Breakdown of monitored Elements per Block.

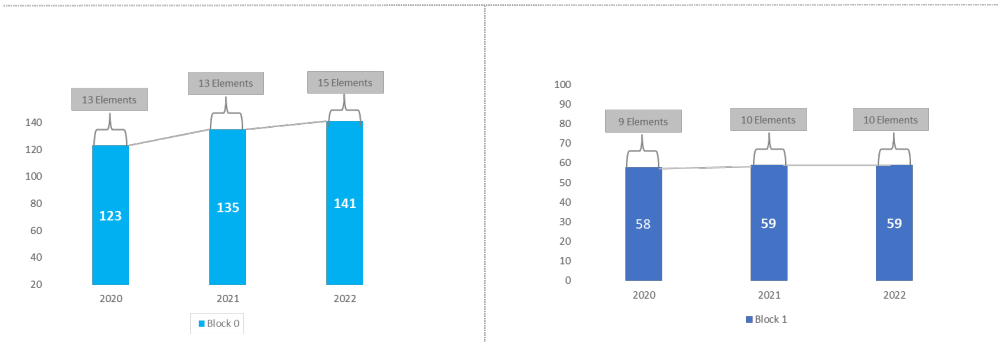
[‡] See also the ASBU Implementation Dashboard – Elements to be monitored as identified by EURGANT-PT.

[§] See also the ASBU Implementation Dashboard – Elements Monitored vs. Remaining Gaps.

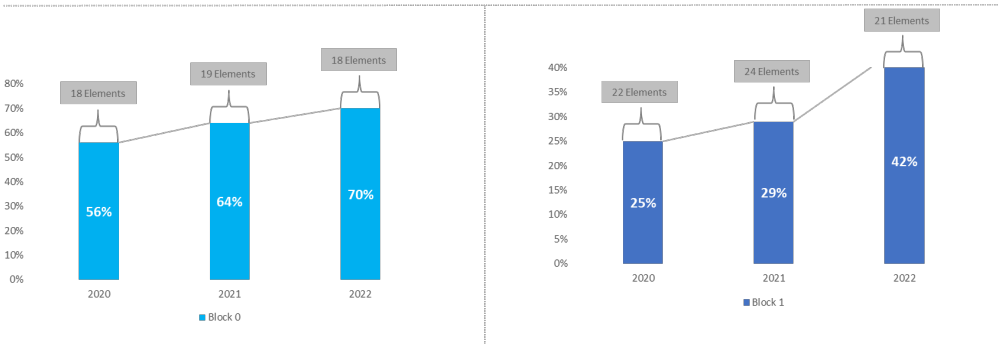


The following pages show a high-level consolidated average completion rate evolution between 2020 and 2022 at Block level* (for Airports and for States) as well as a summary of implementation progress achieved so far for individual ASBU elements implemented and reported at airport level, as well as other ASBU elements that are mostly implemented at State level.

Brief and focused summaries per **ASBU Thread** can be found in Chapter 3, while Chapter 4 gives detailed progress assessment and an outlook per individual **ASBU Element**.



Consolidated completion rate – Average (**absolute**) number of **Airports** completion (2020 to 2022 evolution)



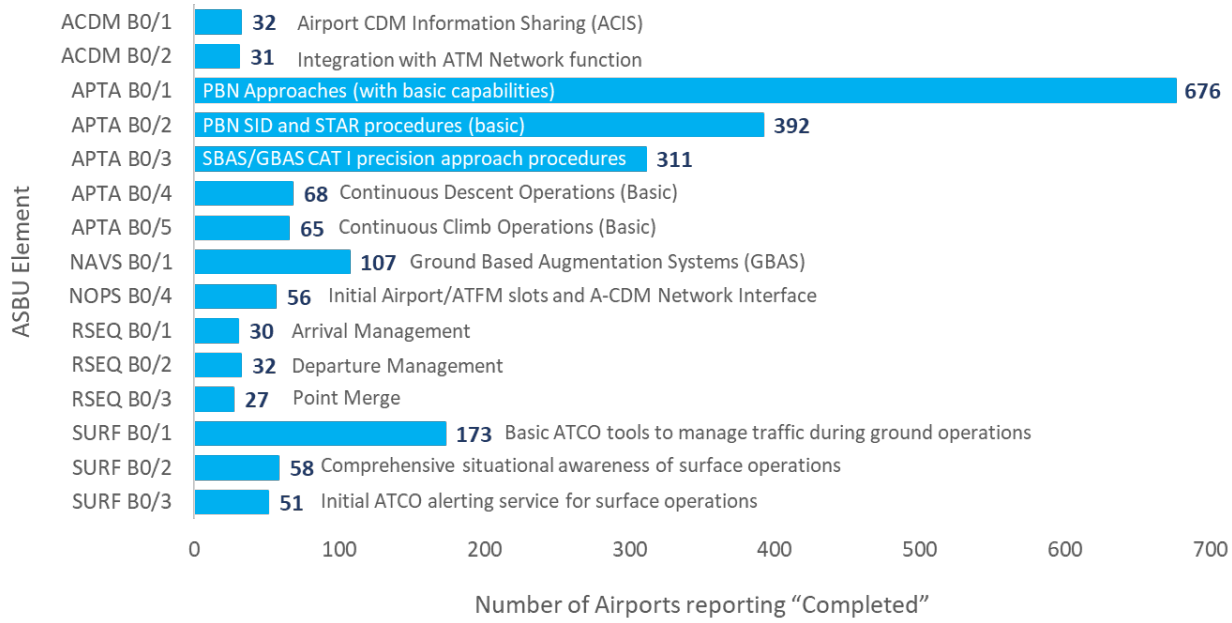
Consolidated completion rate – Average (**relative**) number of **States** completion (2020 to 2022 evolution)

* See also the ASBU Implementation Dashboard – Consolidated completion rate for States/Airports reached at the end of 2022.

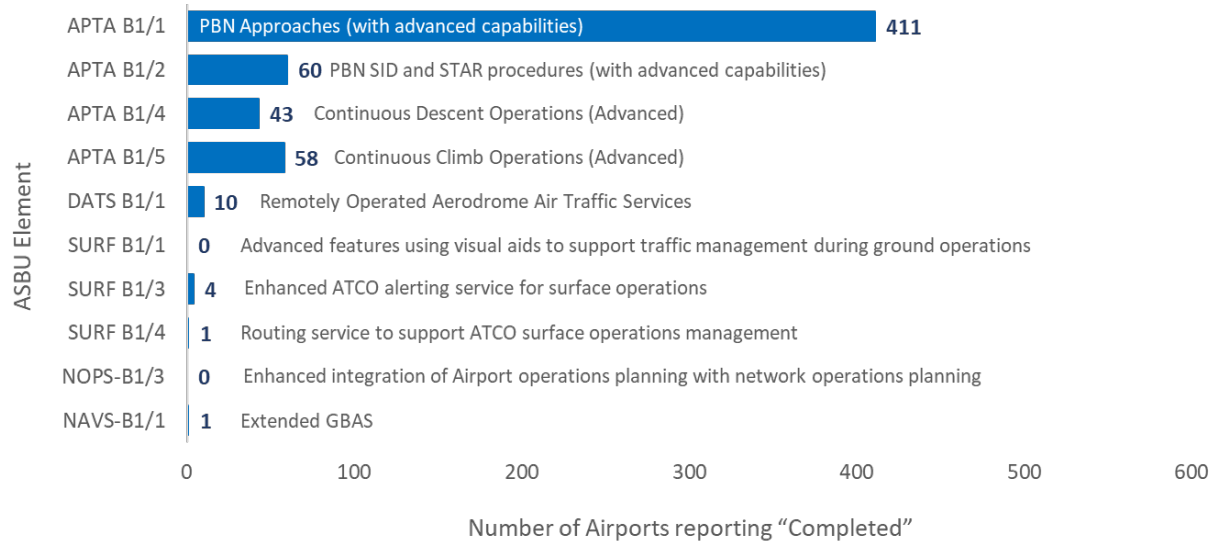
High-level summary (Reference year 2022)*

ASBU Elements implemented at airports

Block 0



Block 1



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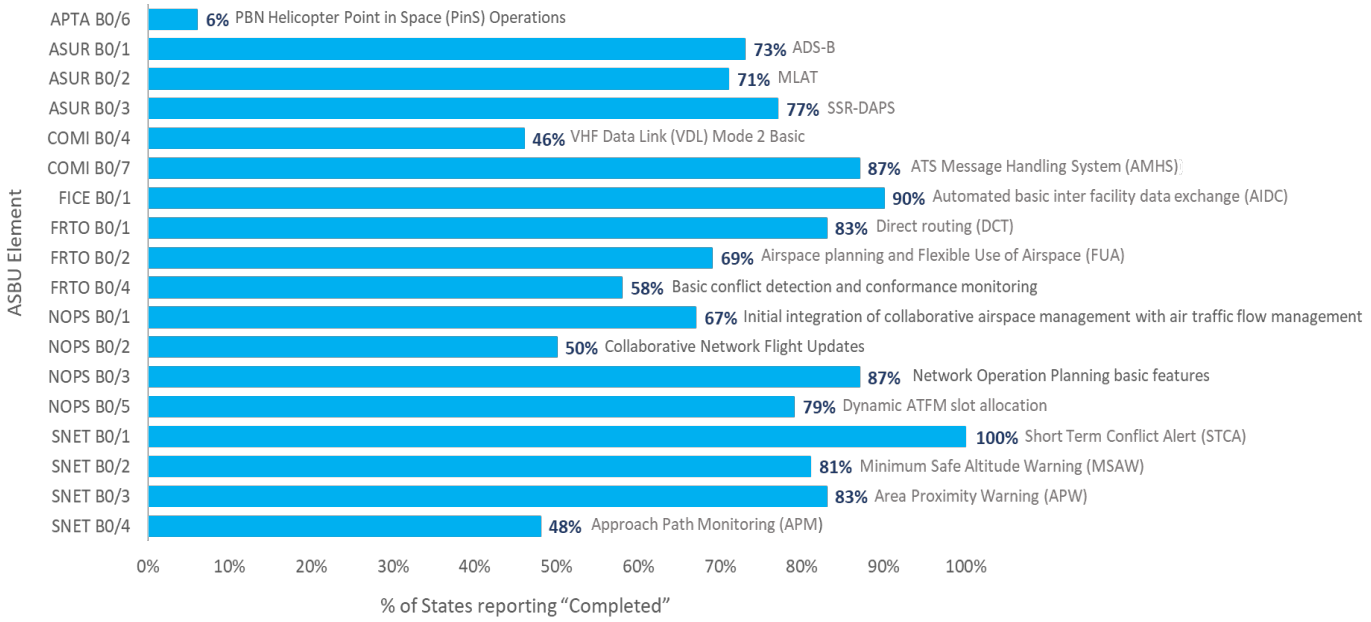
* For some elements (especially those implemented at airports) the actual progress can even be higher than presented, as many States provide information only for their major international airports. Moreover, not all States have submitted their ASBU monitoring questionnaires in this reporting cycle (more info in Chapter 2 – Data sources).

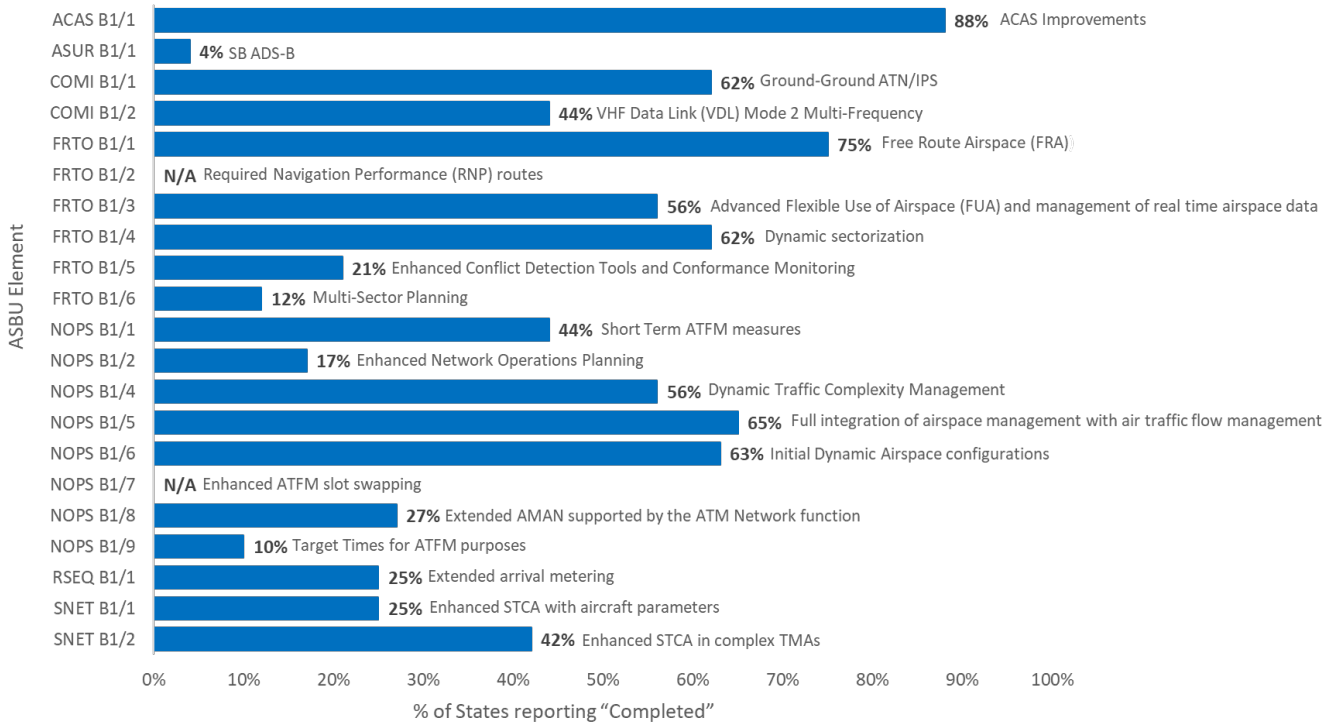
Due to specific data source (METG, AIMG) and reporting methodology, information for the AMET and for the DAIM Elements is presented separately at the end of Chapter 4.

Other ASBU Elements (State/ANSP-related)

Block 0



Block 1



1 Introduction

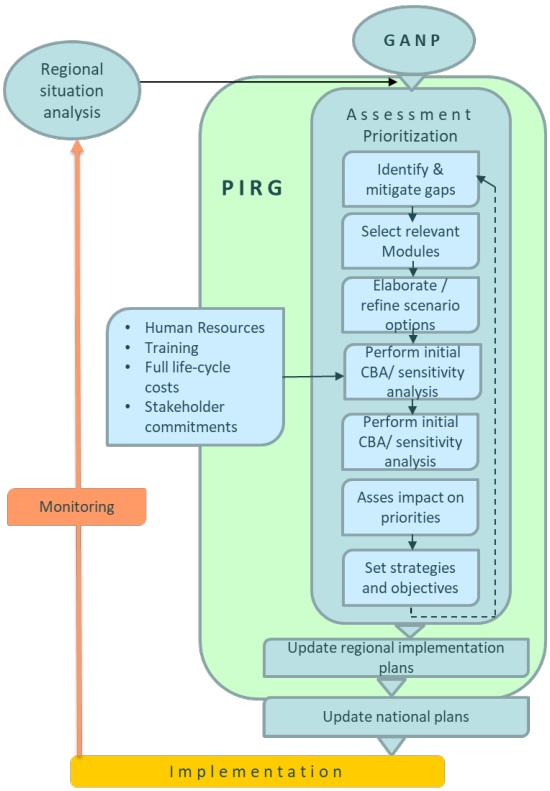
1.1 Objective and intended audience of the report

The ICAO/EUROCONTROL ASBU Implementation Monitoring Report presents an overview of the currently achieved progress, as well an outlook of the implementation of the ICAO ASBU Block 0 and Block 1 Elements identified in the 7th Edition of the GANP, within the entire ICAO EUR Region during the Reference year 2022.

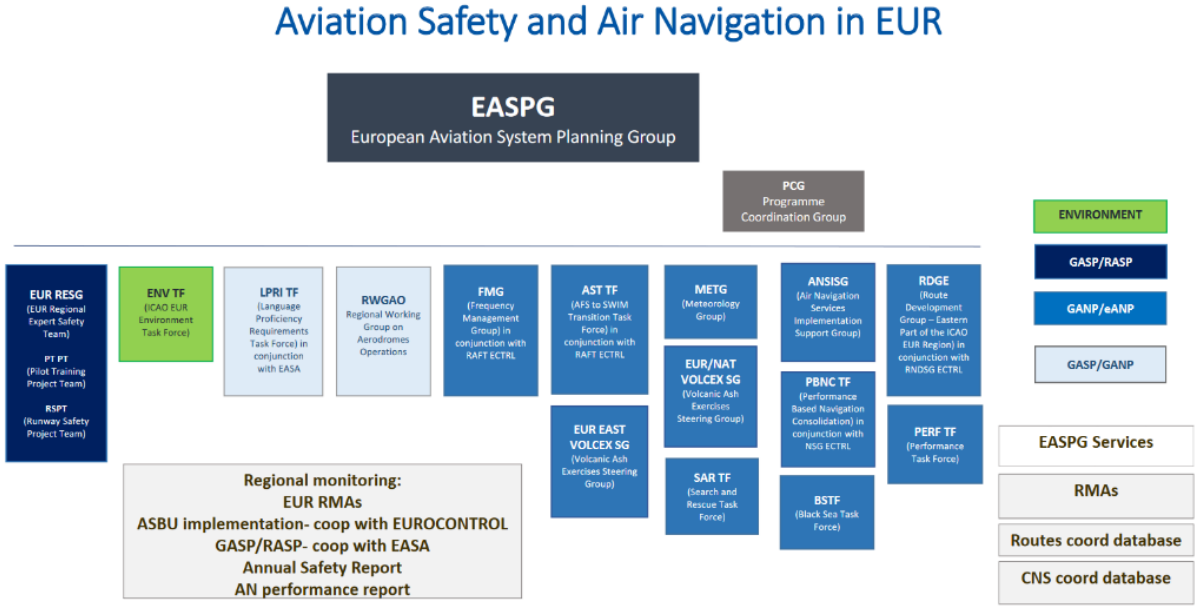
The implementation progress information covers:

- Forty-three (43) States that are part of the EUROCONTROL Local Single Sky Implementation (LSSIP) mechanism, including three States (Andorra, Monaco and San Marino) for which the information is included in another State's implementation progress information;
- Nine (9) States within the ICAO EUR Region that reported their status and plans using a dedicated questionnaire, either included in their regular State Reports for the Air Navigation Services Implementation Support Group of the ICAO EUR Region (ANSISG) meeting or during bilateral GANP ASBU implementation meetings.

Guided by the GANP, the regional national planning process should be aligned and used to identify those modules which best provide solutions to the operational needs identified. Depending on implementation parameters such as the complexity of the operating environment, the constraints and the resources available, regional, and national implementation plans will be developed in alignment with the GANP. Such planning requires interaction between stakeholders including regulators, users of the aviation system, the air navigation service providers (ANSPs), aerodrome operators and supply industry, in order to obtain commitments to implementation.



Accordingly, deployments on a global, regional and sub-regional basis and ultimately at State level should be considered as an integral part of the global and regional planning process through the **Planning and Implementation Regional Groups (PIRGs)**, which is for the ICAO EUR Region the **European Aviation System Planning Group (EASPG)**. The PIRG process will further ensure that all required supporting procedures, regulatory approvals and training capabilities are set in place. These supporting requirements will be reflected in regional online Air Navigation Plans (eANPs) developed by the PIRGs, ensuring strategic transparency, coordinated progress and certainty of investment. In this way, deployment arrangements including applicability dates can also be agreed and collectively applied by all stakeholders involved in the Region.



The ICAO/EUROCONTROL ASBU Implementation Monitoring Report, containing comprehensive and detailed information on the implementation progress of the ICAO ASBU Elements, is therefore **a key document for the EASPG to monitor and analyse the implementation within the ICAO EUR Region.**

1.2 Background

Following the discussions and recommendations from the Twelfth Air Navigation Conference (AN-Conf/12), the Fourth Edition of the Global Air Navigation Plan (GANP) based on the Aviation Systems Block Upgrades (ASBU) approach was endorsed by the 38th Assembly of ICAO in October 2013. The Assembly Resolution 38-02 which agreed, amongst others, to call upon States, planning and implementation regional groups (PIRGs), and the aviation industry to provide timely information to ICAO (and to each other) regarding the implementation status of the GANP, including the lessons learned from the implementation of its provisions and to invite PIRGs to use ICAO standardised tools or adequate regional tools to monitor and (in collaboration with ICAO) analyse the implementation status of air navigation systems.

At the EANPG meeting/55, which took place in November 2013, the EANPG agreed that in order to enable monitoring and reporting of the current priorities, a cooperative mechanism would be put in place between ICAO and EUROCONTROL. This mechanism would encompass the utilisation of the EUROCONTROL LSSIP process complemented by a specific ICAO EUR ASBU questionnaire. As a first step, this cooperative regional mechanism, with an aim to avoid duplication of reporting, would address the initial high priority modules.

In response to the EANPG/55 conclusions, the regional monitoring of ASBU implementation was announced by a State Letter in September 2014, which invited States to take all necessary measures in order to ensure that a complete overview of the status of ASBU Block 0 implementation (especially on the six ASBU Block 0 modules which had been given the highest priority at EANPG/55, namely, B0-APTA, B0-SURF, B0-FICE, B0-DATM, B0- ACAS and B0-SNET) would become available within the entire ICAO EUR Region.

A first ASBU Implementation Monitoring Report was then prepared during the year 2015 for the reporting/reference period 2014. This report contained information/overviews on the implementation progress of ASBU Block 0 from the 41 ECAC States (direct information and reports through their 2014 LSSIP

documents) and from 4 States in the EUR Region which used the specific State Report/questionnaires (in terms of information on the priorities, status of implementation and any relevant references to national documentation for the listed ASBU modules). The 2014 ICAO/EUROCONTROL ASBU implementation monitoring report was presented, reviewed and endorsed, as the first report regarding the regional monitoring of ASBU implementation in response to EANPG Conclusion 55/03, at the EANPG/57 meeting in November 2015. In order to achieve the aim of a complete overview of the status of ASBU Block 0 implementation from all States within the complete ICAO EUR Region, the EANPG concluded to optimise the reporting process and also invited States to actively support the described ASBU implementation monitoring process, so that the number of responses could be increased, and the quality of the reported information could be enhanced in the future.

A revised version of the ASBU implementation questionnaire was developed in 2016 which introduced more detailed guidance material, practical examples and specific explanations on the implementation activities/status that needed to be reported. This new questionnaire was then used for the development of the second report (reference period 2015) in order to increase the number of responses and enhance the quality of the reported information from those States that were not covered by the LSSIP mechanism.

At the 39th ICAO Assembly, the 5th edition of the GANP with updates on the ATM logical infrastructure, the introduction of a minimum path and the performance-based implementation concept was endorsed in October 2016. The ICAO Assembly Resolution A39-12 called upon States, planning and implementation regional groups (PIRGs), and the aviation industry to utilise the guidance provided in the GANP for planning and implementation activities which establish priorities, targets, and indicators consistent with globally harmonised objectives, taking into account operational needs. The 5th version of the GANP (2016-2030) included the obligation for States to map their national or regional programmes against the harmonised GANP, the requirement for active collaboration among States through the PIRGs in order to coordinate initiatives within applicable regional Air Navigation Plans, the provision of tools for States and Regions to develop comprehensive business case analyses as they seek to realise their specific operational improvements, as well as the vision of the evolution of the Global ATM system and the potential requirements for the aviation industry.

The 2015 ICAO/EUROCONTROL ASBU implementation monitoring report was presented at the EANPG/58 meeting in November 2016. The EANPG/58 noted that from the 11 States outside the LSSIP process, 8 States replied to the revised monitoring questionnaire with detailed explanations on their status of ASBU implementation. The EANPG/58 also appreciated that the number and quality of the replies received from the questionnaire represented a considerable improvement in relation to the information obtained on the previous year and did allow a considerable enhancement of the 2015 report. The EANPG/58 highlighted that, as the GANP requires States to report the status of their ASBU implementation, this report was a key document for the EANPG to monitor and analyse the ASBU implementation within the EUR Region and endorsed the 2015 report with Statement 58/01. In addition, the inclusion of additional modules (B0-CCO and B0-AMET) which had become ICAO GANP priorities or where implementation has started was supported by the meeting with EANPG Conclusion 58/22. The EANPG/58 also noted that the ICAO/EUROCONTROL ASBU implementation monitoring report would be forwarded as one of the contributions from the ICAO EUR Region to the annual ICAO Global Air Navigation Report and that relevant parts of the report had been used for the ICAO EUR eANP Vol III.

At the combined EANPG/59-RASG/6 meeting which was held at the ICAO EUR/NAT Office in Paris in November 2017, the 2016 ICAO/EUROCONTROL ASBU implementation monitoring report was presented and reviewed. The Meeting noted with satisfaction that the 2016 version of the ASBU Implementation Monitoring Report included implementation status/data from all 55 States in the ICAO EUR Region. The support from all States was highly appreciated together with the improved quality of the information received. Based on the feedback received at the ATMGE meetings a new version of the ASBU questionnaire was prepared and endorsed at the EANPG/59. The Meeting noted as well, that as a follow up to the joint ICAO/Arab Civil Aviation Commission

(ACAC) GANP ASBU Symposiums in Algiers (September 2016), and in Tunisia (March 2017), the ASBU questionnaires from Algeria, Morocco and Tunisia had been formally submitted before the end of May 2017. During these joint events, which also included participation of the ICAO MID Office and the WACAF Office, three dedicated sessions had been organised by ICAO and EUROCONTROL for the 3 North African States. The EANPG/59 appreciated the impressive collaboration, which is required to achieve the timely completion of the 2016 ICAO/EUROCONTROL ASBU implementation monitoring report, and is also avoiding any duplication of efforts.

Furthermore, the EANPG/59 noted that the endorsed ASBU implementation monitoring report would be again forwarded as one of the contributions from the ICAO EUR Region to the annual ICAO Global Air Navigation Report, that relevant parts of the report will be used for the ICAO EUR eANP Vol III and that data from the report will also be included into the Air Navigation Implementation App on the global ICAO iSTARS portal.

An updated version of the GANP was initially presented at the 13th Air Navigation Conference (AN-Conf/13) in October 2018 and further details on the implementation of the new edition of the GANP, as well as the new global GANP portal were prepared for discussion at the 40th ICAO Assembly.

At the combined EANPG/60-RASG/7 meeting which was held at the ICAO EUR/NAT Office in Paris from 26 to 30 November 2018, the 2017 ICAO/EUROCONTROL ASBU implementation monitoring report was presented and reviewed. The Meeting noted that the 2017 version of the ASBU Implementation Monitoring Report included implementation status/data from 54 of the 55 States in the ICAO EUR Region.

The meeting also noted that the 2017 report was again based on the information submitted by 42 States via the EUROCONTROL Local Single Sky Implementation (LSSIP) process and information reported through the ASBU Implementation Monitoring Questionnaires for the 10 (ten) States within the ICAO EUR Region that were outside the LSSIP reporting mechanism. In addition, the ICAO Meteorological Group (METG) tables were included for the implementation status on the B0-AMET module. The EANPG/60 was also presented with a revised reporting format (new xls file) that would give more detailed guidance on the implementation status. The meeting approved the 2017 ASBU implementation monitoring report with EANPG/60&RASG-EUR/07 Decision 08, endorsed the new questionnaire with EANPG/60&RASG-EUR/07 Conclusion 07 and appreciated the impressive collaboration, which is required to achieve the timely completion of the 2017 ICAO/EUROCONTROL ASBU implementation monitoring report and providing contributions to the annual ICAO Global Air Navigation Report, as well as updates of the ICAO EUR Air Navigation Plan (eANP) Vol III and the global ICAO iSTARS portal tools.

The 40th ICAO Assembly endorsed the 6th edition of the GANP (as a major update) in October 2019 which recognized that a performance-driven, service oriented and technologically advanced global air navigation system is critical to achieve the sustainability of the aviation sector worldwide. Furthermore, the GANP reaffirmed safety as one of the fundamental principles of aviation performance, together with environment, security and economic sustainability. The 6th edition also introduced the Basic Building Block framework (BBBs) which outlined the foundation of any robust air navigation system by identifying the essential services to be provided for international civil aviation in accordance with ICAO Standards. At the first meeting of the European Aviation System Planning Group (EASPG/1) which was held at the ICAO EUR/NAT Office in Paris from 2 to 5 December 2019, the 2018 ICAO/EUROCONTROL ASBU implementation monitoring report was presented for endorsement. The EASPG appreciated again the participation of all States in the EUR Region and the report was approved with EASPG Conclusion 1/12. As part of this conclusion, the EASPG invited States (outside of LSSIP area) to use the revised EUR ASBU implementation report questionnaires for the reference period 2019 and nominate their national ASBU Monitoring Focal Points.

During the EASPG/2 meeting, which was organised as a series of virtual meetings from 1 to 4 December 2020, the 2019 ICAO/EUROCONTROL ASBU implementation monitoring report was presented for discussion and endorsement. The EASPG/2 was informed that most of the ASBU modules recorded a slight increase in the implementation progress across EUR Region. The EASPG/2 noted with satisfaction the updated progress/status of implementation of ASBU Block 0 modules from all 55 EUR States and approved the report

with EASPG Decision 2/6. The EASPG/2 also discussed the necessity to identify the differences between the 5th and the 6th edition of the GANP and deliver a proposal for ASBU Block 0 & Block 1 Elements which shall be monitored (based on the 6th edition of the GANP) in the upcoming reports.

At the EASPG/3 meeting, which was organised as a hybrid meeting from 30 November to 2 December 2021, the 2020 ICAO/EUROCONTROL ASBU implementation monitoring report was presented for discussion and endorsement. This edition of the Report was the first one based on the 6th edition of the Global Air Navigation Plan (GANP) as well as on the proposals made by the EUR Region GANP Transition Project Team (EURGANT – PT) established by the EASPG Decision 2/7. The EURGANT-PT performed a thorough review of the new GANP ASBU framework and developed a list of 87 ASBU Elements (40 for Block 0 and 47 for Block 1) that should be monitored in the ICAO EUR Region from 2020 onwards. The results and proposals of EURGANT-PT were submitted to the EASPG members on 9 April 2021 and were subsequently approved by an EASPG written consultation procedure on 8 May 2021. The 2020 edition of the Report included information on 70 out of 87 ASBU Elements, representing roughly 80% of the total set of elements, which had been proposed for monitoring by the EURGANT-PT. This was mainly due to data availability reasons, as well as the fact that there at that time there were still standardization activities ongoing for some ASBU elements. Due to substantial changes in the structure of the ASBU framework, it was not possible to perform a comparison with the previous reporting cycles. The EASPG/3 meeting stressed the importance of the ASBU implementation monitoring report as a key document for the EASPG to monitor and analyse the ASBU implementation within the EUR Region. The EASPG appreciated the joint work of EUROCONTROL and the ICAO EUR/NAT Office and agreed to endorse the 2020 ICAO/EUROCONTROL ASBU Implementation Monitoring Report.

The 41st ICAO Assembly endorsed (Assembly Resolution A41-6 ICAO global planning for safety and implementation) the 7th edition of the GANP in October 2022, which is a minor revision to the GANP, that introduced an update to the safety key performance area of the GANP performance framework, a maintenance process revision, and minor updates to the BBBs as well as the ASBU framework. The Assembly also recognized the importance of the GANP as an operational strategy and part of the basket of measures to achieve ICAO`s global aspirational goals on CO2 emissions.

During the EASPG/4 meeting, which took place at the ICAO EUR/NAT Office in Paris, France from 29 November to 1 December 2022, the 2021 ICAO/EUROCONTROL ASBU implementation monitoring report was presented for final endorsement. The EASPG/4 was informed about the steady implementation progress (despite the COVID-19 crisis effects) for the 74 Elements across the EUR Region and the detailed findings per thread. The EASPG/4 meeting endorsed the 2021 Report with decision 4/7 and agreed to the proposed actions (e.g., updated mapping of Elements/MPL3 Objectives to be used for the 2022 Report, analysis of the 7th GANP edition changes to the BBBs and ASBU framework, dedicated workshops for States, data collection start in April 2023) for the 2022 version.

During the EASPG/5 meeting, which took place at the ICAO EUR/NAT Office in Paris, France from 28 November to 1 December 2023, the 2022 ICAO/EUROCONTROL ASBU implementation monitoring report, the first one based on the 7th Edition of the GANP, was presented for final endorsement. The EASPG/5 was informed about the steady implementation progress for 80 Elements across the EUR Region and the detailed findings per thread. The EASPG/5 meeting endorsed the 2022 Report with decision 5/15 and agreed to the proposed actions.

1.3 EUR Region GANP Transition Project Team (EURGANT – PT)

The 6th edition of the GANP introduced a revised ASBU framework, which required a new approach to implementation monitoring. Some of the changes include the introduction of the Basic Building Blocks (BBBs) and substitution of the Performance Improvement Areas (PIAs) by three categories (Operational, Information, and CNS technology and services). However, the major update was in the content of the former ASBU Modules and ASBU Threads, including a modified composition of ASBU Blocks and significantly increased granularity by clarifying the definition of **ASBU Elements** - specific changes in operations designed to improve the performance of the air navigation system under specified operational conditions. In addition, a web-based version of GANP was created, that can be accessed via https://www4.icao.int/ganpportal/.

Given the complexity of changes, a proposal from the EASPG PGC/01 meeting was shared and discussed at EASPG/02 meeting in December 2020, which lead to the establishment of the **EUR Region GANP Transition Project Team (EURGANT – PT)**. The main high-level task of the PT, with members from ICAO EUR/NAT Office, EUROCONTROL, a limited number of LSSIP Focal Points, a limited number of ANSISG members, ANSISG chairman, IATA, IBAC, IFALPA and IFATCA, was to identify the differences between 5th and 6th edition of the GANP and deliver a proposal for ASBU Block 0 & Block 1 Elements which shall be monitored in the upcoming ASBU implementation monitoring reports. Based on this analysis, further high-level tasks were to propose the inclusion of new objectives to the MPL3 Plan development process and to revise the ASBU monitoring questionnaire for the 9 non-LSSIP States (*see Section 2.2*).

The work of EURGANT-PT was organized around 7 dedicated WebEx meetings taking place between February and April 2021, witnessing high participation that included experts from Algeria, Armenia, Belarus, Georgia, Kyrgyzstan, Spain, Ukraine, United Kingdom, Uzbekistan, EUROCONTROL, ICAO and FAA (observer). A thorough review of the 22 ASBU Threads from the new GANP, together with the associated 52 ASBU Elements for Block 0 and the 62 elements for Block 1, has been performed.

The main outcome and proposal of the evaluation made by the EURGANT-PT was to integrate **87 ASBU Elements (40 for Block 0 and 47 for Block 1)** in subsequent ASBU implementation monitoring reports for the ICAO EUR Region, depending on data availability. The EURGANT-PT review also identified the list of **27 ASBU Elements (12 for Block 0 and 15 for Block 1)** that would not be included into the ASBU implementation monitoring reports as they are either not applicable for the ICAO EUR Region or they are exclusively related to aircraft equipment and/or airborne operations.

The results and proposals of EURGANT-PT have been submitted and subsequently approved by an EASPG written consultation procedure in April 2021.

This list has been reviewed and adapted in 2023, in the light of the changes brought by the 7th Version of the GANP, representing a minor update of the 6th Version, so as to take into account that 3 previously Block 1 Elements (ACDM-B1/1, ACDM-B1/2, APTA-B1/3) have been transferred to Block 2 (as ACDM-B2/1, ACDM-B2/2 and APTA-B2/4).

Detailed information about the ASBU Elements that will be covered by current and future ASBU Implementation Monitoring Reports is presented in Chapter 1.4.

1.4 Scope of the report

ASBU Elements covered*

The following table shows the full list of 84 ASBU Elements from the GANP 7th Edition that will be included in the ICAO ASBU Implementation Monitoring Reports, based on the recommendation of the EURGANT PT, amended following the minor update of the GANP. It also shows the corresponding ATM Master Plan Level 3 objective (where applicable and based on ATM MP Level 3 Plan 2022), as well as data sources used to produce the present edition of the Report.

Depending on data availability and regular updates of the ATM Master Plan Level 3 Implementation Plan, remaining Elements will be covered by subsequent editions of the Report.

The colour coding used in the table has the following meaning:

ASBU Elements for which credible data sources have been identified and that are included in this edition of the Report;

ASBU Elements which will be added in subsequent editions of the Report, depending on data availability and necessary maturity level for deployment.

ASBU Thread	ASBU Element	Title	MPL3 Objective	Data sources Used	Page
ACAS	ACAS-B1/1	ACAS Improvements	ATC16	LSSIP + questionnaire	30
ACDM	ACDM-B0/1	Airport CDM Information Sharing (ACIS)	AOP05	LSSIP + questionnaire	31
	ACDM-B0/2	Integration with ATM Network function	AOP05	LSSIP + questionnaire	31
AMET	AMET-B0/1	Meteorological observations products	/	METG	94
	AMET-B0/2	Meteorological forecast and warning products	/	METG	94
	AMET-B0/3	Climatological and historical meteorological products	/	METG	94
	AMET-B0/4	Dissemination of meteorological products	/	METG	94
	AMET-B1/1	Meteorological observations information	/	METG	100
	AMET-B1/2	Meteorological forecast and warning information	/	METG	100
	AMET-B1/3	Climatological and historical meteorological information	/	METG	100
	AMET-B1/4	Dissemination of meteorological information	/	METG	100
APTA	APTA-B0/1	PBN Approaches (with basic capabilities)	NAV10	PBN Map Tool + questionnaire	32
	APTA-B0/2	PBN SID and STAR procedures (with basic capabilities)	NAV03.1	PBN Map Tool + questionnaire	33
	APTA-B0/3	SBAS/GBAS CAT I precision approach procedures	/	PBN Map Tool + questionnaire	34
	APTA-B0/4	CDO (Basic)	ENV01-ASP01	LSSIP + questionnaire	35
	APTA-B0/5	CCO (Basic)	ENV03	LSSIP + questionnaire	37
	APTA-B0/6	PBN Helicopter Point in Space (PinS) Operations	NAV12	LSSIP + questionnaire	38
	APTA-B0/7	Performance based aerodrome operating minima – Advanced aircraft			
	APTA-B0/8	Performance based aerodrome operating minima – Basic aircraft			
	APTA-B1/1	PBN Approaches (with advanced capabilities)	NAV10	PBN Map Tool +	39

* The full list and detailed description of all ASBU Elements according to GANP 6th edition can be found at https://www4.icao.int/ganpportal/ASBU

				questionnaire	
	APTA-B1/2	PBN SID and STAR procedures (with advanced capabilities)	NAV03.2	PBN Map Tool + questionnaire	40
	APTA-B1/4	CDO (Advanced)	ENV01-ASP02	LSSIP + questionnaire	36
	APTA-B1/5	CCO (Advanced)	ENV03	LSSIP + questionnaire	37
ASUR	ASUR-B0/1	Automatic Dependent Surveillance – Broadcast (ADS-B)	/	LSSIP SUR Annex + questionnaire	41
	ASUR-B0/2	Multilateration cooperative surveillance systems (MLAT)	/	LSSIP SUR Annex + questionnaire	42
	ASUR-B0/3	Cooperative Surveillance Radar Downlink of Aircraft Parameters (SSR-DAPS)	/	LSSIP SUR Annex + questionnaire	43
	ASUR-B1/1	Reception of aircraft ADS-B signals from space (SB ADS-B)	/	LSSIP SUR Annex + questionnaire	44
COMI	COMI-B0/4	VHF Data Link (VDL) Mode 2 Basic	ITY-AGDL	LSSIP + questionnaire	45
	COMI-B0/7	ATS Message Handling System (AMHS)	COM10.1,	LSSIP + questionnaire	46
	COMI-B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)	COM12	LSSIP + questionnaire	47
	COMI-B1/2	VHF Data Link (VDL) Mode 2 Multi-Frequency	ITY-AGDL	LSSIP + questionnaire	45
DAIM	DAIM-B1/1	Provision of quality-assured aeronautical data and information	/	AIMG	104
	DAIM-B1/2	Provision of digital Aeronautical Information Publication (AIP) data sets	/	AIMG	104
	DAIM-B1/3	Provision of digital terrain data sets	/	AIMG	104
	DAIM-B1/4	Provision of digital obstacle data sets	/	AIMG	104
	DAIM-B1/5	Provision of digital aerodrome mapping data sets	/	AIMG	104
	DAIM-B1/6	Provision of digital instrument flight procedure data sets	/	AIMG	104
	DAIM-B1/7	NOTAM improvements	/	AIMG	104
DATS	DATS-B1/1	Remotely Operated Aerodrome Air Traffic Services	AOP14	LSSIP + questionnaire	48
FICE	FICE-B0/1	Automated basic inter facility data exchange (AIDC)	ITY-COTR	LSSIP + questionnaire	49
FRTO	FRTO-B0/1	Direct routing (DCT)	AOM21.1	LSSIP + questionnaire	50
	FRTO-B0/2	Airspace planning and Flexible Use of Airspace (FUA)	AOM19.5-ASP01 AOM19.5-ASP02	LSSIP + questionnaire	51
	FRTO-B0/4	Basic conflict detection and conformance monitoring	ATC12.1 (only MONA and MTCD functionalities)	LSSIP + questionnaire	52
	FRTO-B1/1	Free Route Airspace (FRA)	AOM21.2	LSSIP + questionnaire	53
	FRTO-B1/2	Required Navigation Performance (RNP) routes	/	ERNIP Part2+national AIPs + questionnaire	54
	FRTO-B1/3	Advanced Flexible Use of Airspace (FUA) and management of real time airspace data	AOM19.5-ASP09	LSSIP + questionnaire	55
	FRTO-B1/4	Dynamic sectorization	AOM19.4	LSSIP + questionnaire	56
	FRTO-B1/5	Enhanced Conflict Detection Tools and Conformance Monitoring	ATC12.1 (all functionalities)	LSSIP + questionnaire	57
	FRTO-B1/6	Multi-Sector Planning	ATC18	LSSIP + questionnaire	58
GADS	GADS-B1/1*	Aircraft Tracking	/	Aireon ALERT	59
	GADS-B1/2	Operational Control Directory			
NAVS	NAVS-B0/1	Ground Based Augmentation Systems (GBAS)	/	PBN Map Tool + national AIPs	60
	NAVS-B0/2	Satellite Based Augmentation Systems (SBAS)			
	NAVS-B1/1	Extended GBAS	NAV11.1	LSSIP + questionnaire	61

* Due to the unavailability of data, the monitoring of this Element has been suspended for this edition of the Report. The monitoring will resume after the full set-up of the LADR (Location of an Aircraft in Distress Repository) in 2024.

NOPS	NOPS-B0/1	Initial integration of collaborative airspace management with air traffic flow management	AOM19.5-ASP05, AOM19.5-ASP02	LSSIP + questionnaire	62
	NOPS-B0/2	Collaborative Network Flight Updates	FCM03	LSSIP + questionnaire	63
	NOPS-B0/3	Network Operation Planning basic features	/	Network Operations Plan + questionnaire	64
	NOPS-B0/4	Initial Airport/ATFM slots and A-CDM Network Interface	AOP05, AOP17, FCM11.1	LSSIP + questionnaire	65
	NOPS-B0/5	Dynamic ATFM slot allocation	/	NM ATFCM Operations manual + questionnaire	66
	NOPS-B1/1	Short Term ATFM measures	FCM04.2	LSSIP + questionnaire	67
	NOPS-B1/2	Enhanced Network Operations Planning	FCM10-ASP01	LSSIP + questionnaire	68
	NOPS-B1/3	Enhanced integration of Airport operations planning with network operations planning	FCM11.2	LSSIP + questionnaire	69
	NOPS-B1/4	Dynamic Traffic Complexity Management	FCM06.1 (only the traffic complexity functionality)	LSSIP + questionnaire	70
	NOPS-B1/5	Full integration of airspace management with air traffic flow management	AOM19.5-ASP04	LSSIP + questionnaire	71
	NOPS-B1/6	Initial Dynamic Airspace configurations	AOM19.4	LSSIP + questionnaire	72
	NOPS-B1/7	Enhanced ATFM slot swapping	FCM09	LSSIP + questionnaire	73
	NOPS-B1/8	Extended Arrival Management supported by the ATM Network function	ATC15.2	LSSIP + questionnaire	74
	NOPS-B1/9	Target Times for ATFM purposes	FCM10-ASP03	LSSIP + questionnaire	75
RSEQ	RSEQ-B0/1	Arrival Management	ATC07.1	LSSIP + questionnaire	76
	RSEQ-B0/2	Departure Management	Former AOP05-ASP05, AOP19	LSSIP + questionnaire	77
	RSEQ-B0/3	Point merge	ATC26	LSSIP + questionnaire	78
	RSEQ-B1/1	Extended arrival metering	ATC15.2	LSSIP + questionnaire	79
SNET	SNET-B0/1	Short Term Conflict Alert (STCA)	ATC02.2	LSSIP + questionnaire	80
	SNET-B0/2	Minimum Safe Altitude Warning (MSAW)	ATC02.8-ASP03	LSSIP + questionnaire	81
	SNET-B0/3	Area Proximity Warning (APW)	ATC02.8-ASP01	LSSIP + questionnaire	82
	SNET-B0/4	Approach Path Monitoring (APM)	ATC02.8-ASP05	LSSIP + questionnaire	83
	SNET-B1/1	Enhanced STCA with aircraft parameters	ATC20	LSSIP + questionnaire	84
	SNET-B1/2	Enhanced STCA in complex TMAs	ATC02.9-ASP02	LSSIP + questionnaire	85
SURF	SURF-B0/1	Basic ATCO tools to manage traffic during ground operations	/	National AIPs + questionnaire	86
	SURF-B0/2	Comprehensive situational awareness of surface operations	AOP04.1	LSSIP + questionnaire	87
	SURF-B0/3	Initial ATCO alerting service for surface operations	AOP04.2	LSSIP + questionnaire	88
	SURF-B1/1	Advanced features using visual aids to support traffic management during ground operations	AOP16	LSSIP + questionnaire	89
	SURF-B1/3	Enhanced ATCO alerting service for surface operations	AOP12.1	LSSIP + questionnaire	90
	SURF-B1/4	Routing service to support ATCO surface operations management	AOP13	LSSIP + questionnaire	91

In summary, a total of **80 ASBU Elements are covered** by this Report, representing roughly **96%** of the total set of Elements proposed to be monitored by the EURGANT-PT and subsequently amended following the publication of the 7th edition of the GANP (overall 84 Block 0 and Block 1 Elements to be monitored).

As already mentioned, the EURGANT PT also reviewed 27 elements (12 for Block 0 and 15 for Block 1) which will not be included in the monitoring process. Their list is presented in the table below.

ASBU Thread	ASBU Element	Title	Justification
COMI	COMI-B0/1	Aircraft Communication Addressing and Reporting System (ACARS)	Airspace user related
	COMI-B0/2	Aeronautical Telecommunication Network/Open System Interconnection (ATN/OSI)	Not applicable for EUR Region
	COMI-B0/3	VHF Data Link (VDL) Mode 0/A	Not applicable for EUR Region
	COMI-B0/5	Satellite communications (SATCOM) Class C Data	Not applicable for EUR Region
	COMI-B0/6	High Frequency Data Link (HFDL)	Not applicable for EUR Region
	COMI-B1/3	SATCOM Class B Voice and Data	Not applicable for EUR Region
	COMI-B1/4	Aeronautical Mobile Airport Communication System (AeroMACS) Ground-Ground	Local implementation only
COMS	COMS-B0/1	CPDLC (FANS 1/A & ATN B1) for domestic and procedural airspace	Not applicable for EUR
	COMS-B0/2	ADS-C (FANS 1/A) for procedural airspace	Not applicable for EUR Region
	COMS-B1/1	PBCS approved CPDLC (FANS 1/A+) for domestic and procedural airspace	Not applicable for EUR Region
	COMS-B1/2	PBCS approved ADS-C (FANS 1/A+) for procedural airspace	Not applicable for EUR Region
	COMS-B1/3	SATVOICE (incl. routine communications) for procedural airspace	Not applicable for EUR Region
CSEP	CSEP-B1/1	Basic airborne situational awareness during flight operations (AIRB)	Airspace user related
	CSEP-B1/2	Visual Separation on Approach (VSA)	Airspace user related
	CSEP-B1/3	Performance Based Longitudinal Separation Minima	Not applicable for EUR Region
	CSEP-B1/4	Performance Based Lateral Separation Minima	Not applicable for EUR Region
FRTO	FRTO-B0/3	Pre-validated and coordinated ATS routes to support flight and flow	Not applicable for EUR Region
	FRTO-B1/7	Trajectory Options Set (TOS)	Not applicable for EUR Region
NAVS	NAVS-B0/3	Aircraft Based Augmentation Systems (ABAS)	Airspace user related
NAVS	NAVS-B0/4	Navigation Minimal Operating Networks (Nav. MON)	Conceptual element, ensured by other elements
NOPS	NOPS-B1/10	Collaborative Trajectory Options Program (CTOP)	Not applicable for EUR Region
OPFL	OPFL-B0/1	In Trail Procedure (ITP)	Not applicable for EUR Region
	OPFL-B1/1	Climb and Descend Procedure (CDP)	Not applicable for EUR Region
SURF	SURF-B1/2	Comprehensive pilot situational awareness on the airport surface	Airspace user related
SURF	SURF-B1/5	Enhanced vision systems for taxi operations	Airspace user related
TBO	TBO-B0/1	Introduction of time-based management within a flow centric approach.	Conceptual element, reported through other elements
	TBO-B1/1	Initial Integration of time-based decision making processes	Conceptual element, reported through other elements

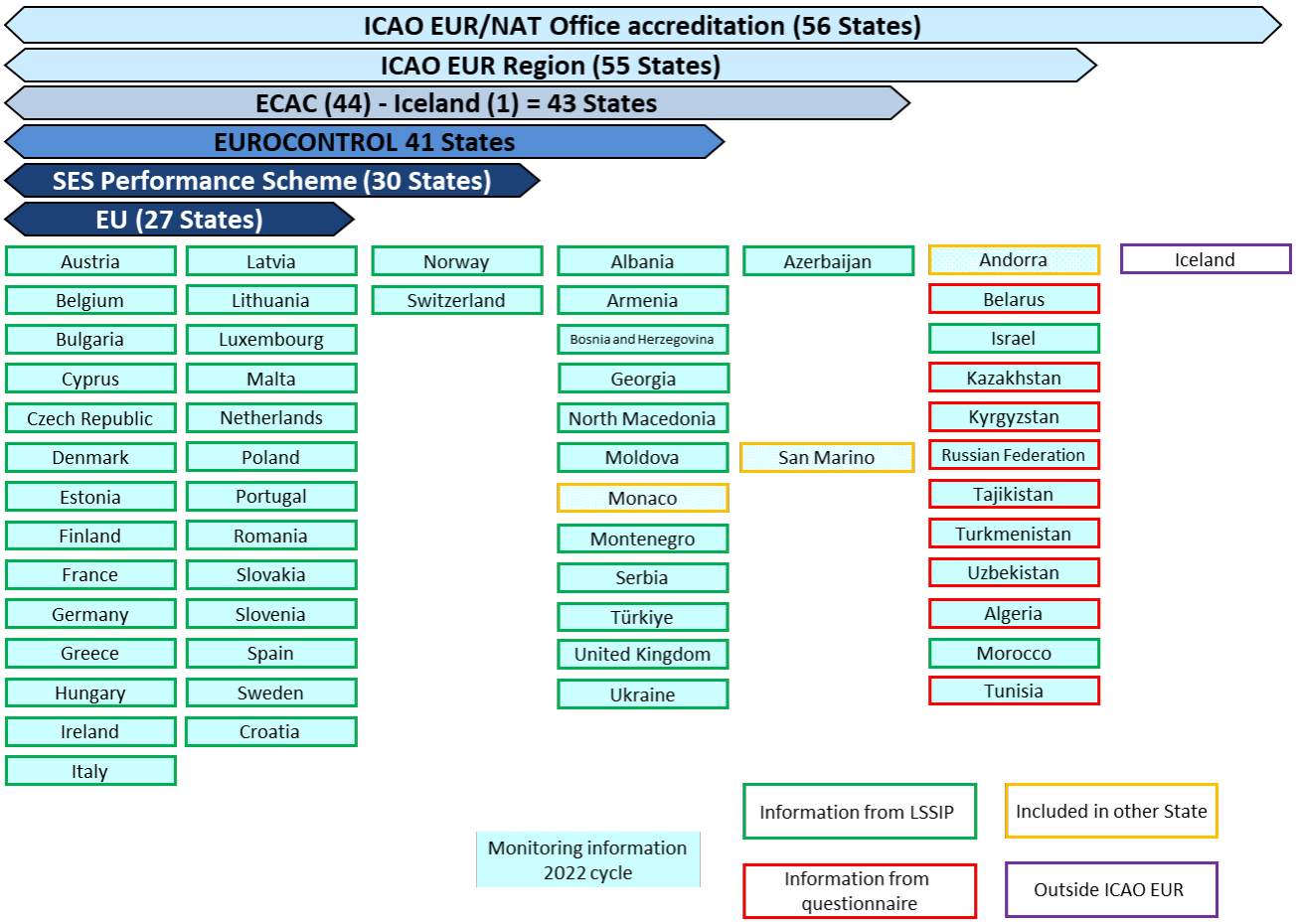
Geographical scope

This report addresses the implementation progress of ASBU Block 0 and Block 1 Elements with reference date December 2022.

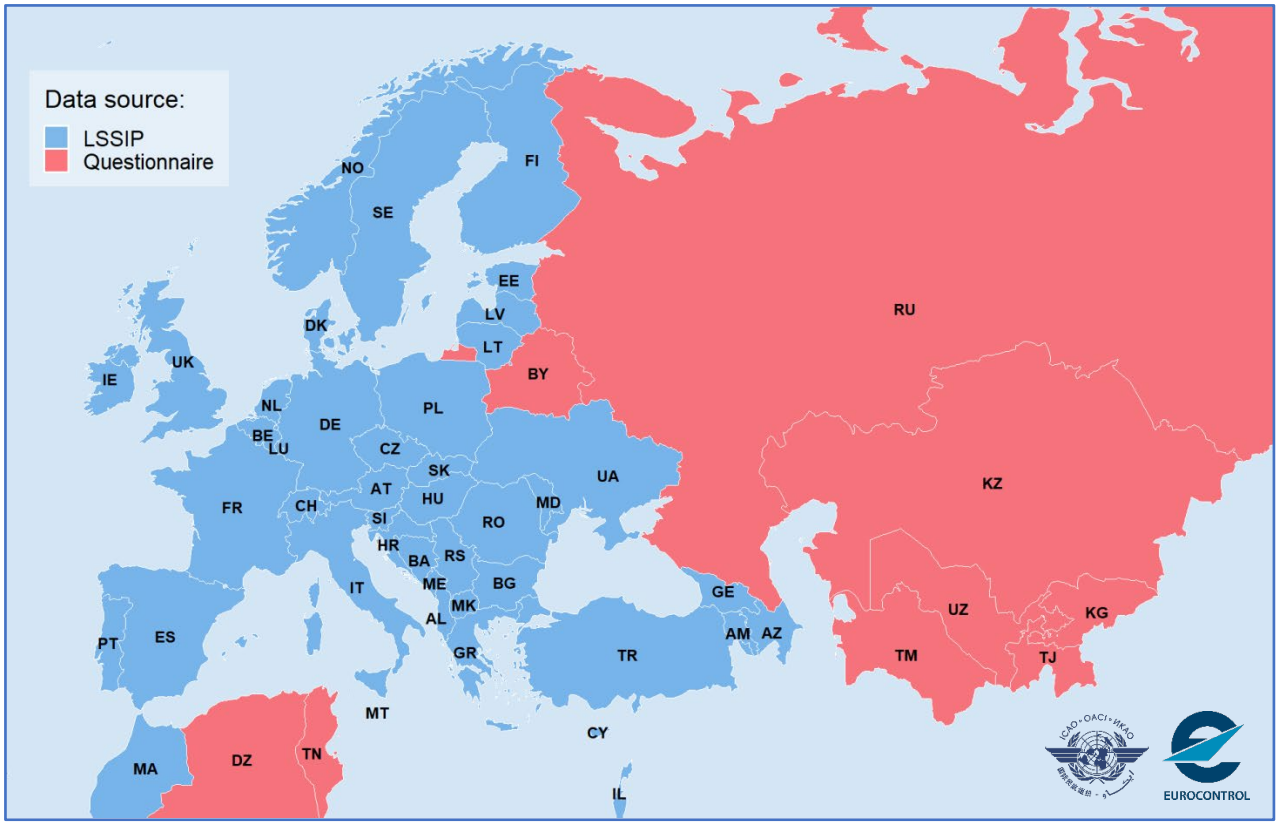
The report is primarily based on the information submitted by the 43 States participating in the LSSIP mechanism (referred to in the document as “LSSIP States”), as well as the information reported through the ASBU implementation monitoring questionnaires for the 9 States within the ICAO EUR Region that are outside the LSSIP reporting mechanism (“non-LSSIP States"). It should also be noted that that Monaco, San Marino and Andorra are not addressed separately in this report, neither in related statistics, because for monitoring purposes they are included in other hosting States. Therefore, there are 52 Member States considered individually in the following chapters.

The questionnaire is fully aligned with the implementation objectives as defined in ATM Master Plan Level 3 Implementation Plan (formerly known as ESSIP objectives) and has been continuously updated and improved for every edition of the report.

A schematic view on the States covered by this report and their affiliation to relevant organisations and/or regions is presented below:



In order to obtain a better picture of the region covered by this report, the map below shows its geographical scope:



2 Data sources

Two main complementary processes are in place to collect the monitoring data required for the preparation of this report:

1. The EUROCONTROL LSSIP mechanism with 43 participating States (See section 2.1);
2. A questionnaire specifically targeted and designed for the remaining 9 States that are accredited to the ICAO EUR Region (See section 2.2).

Furthermore, due to comprehensiveness of ASBU Elements listed in the GANP 7th Edition and for the sake of improving data quality and granularity, several more sources have been consulted in order to obtain information for this edition of the Report*, such as:

- EUROCONTROL PBN Map Tool;

  https://www.eurocontrol.int/platform/performance-based-navigation-map-tool
- National Aeronautical Information Publications (AIPs);
- LSSIP – Surveillance Questionnaire;
- Relevant NM documents and manuals (e.g. Network Operations Plan, ATFCM Operations Manual, European Route Network Improvement Plan – ARN Version 2022 - 2030 Catalogue of Airspace Projects, etc.);
- For AMET Elements the information was collected by the ICAO Meteorology Group (METG);
- For DAIM Elements the information was collected via the Aeronautical Information Management Group (AIMG).

2.1 EUROCONTROL LSSIP Process

EUROCONTROL Local Single Sky ImPlementation (LSSIP) process is a robust mechanism to support Single European Sky (SES) and SESAR deployment planning and reporting. At the moment it covers 43 States plus the EUROCONTROL Maastricht Upper Area Control Centre (MUAC). The process sits at the crossroads of multiple performance improvement initiatives synergising the planning and monitoring activities of all stakeholders involved: State civil and military authorities, ANSPs and airport operators, all categories of airspace users. This cyclic process comprises three main components (see figure below):

1. Deployment planning: European ATM Master Plan Level 3 Implementation Plan:

   https://www.eurocontrol.int/publication/european-atm-master-plan-implementation-plan-level-3
2. Deployment reporting and monitoring at local level (LSSIP documents):

   https://www.eurocontrol.int/service/local-single-sky-implementation-monitoring
3. Deployment reporting and monitoring at European level: Master Plan Level 3 Implementation Report:

   https://www.eurocontrol.int/publication/european-atm-master-plan-implementation-report-level-3

The European ATM Master Plan Level 3 Implementation Plan (formerly ESSIP Plan) and the European ATM Master Plan Level 3 Implementation Report (formerly ESSIP Report) together constitute the Level 3 of the ATM

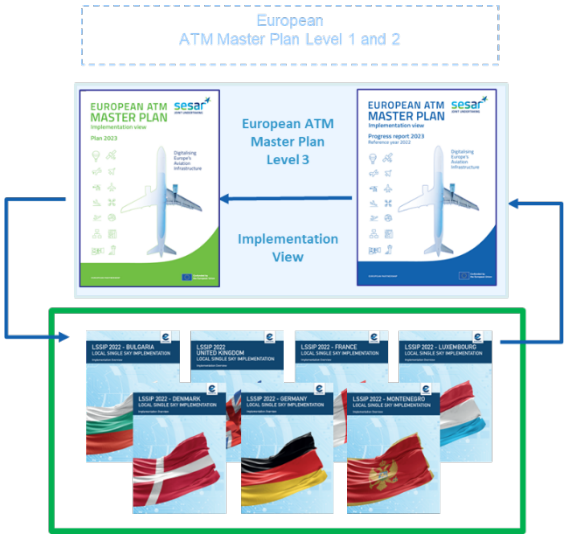
* See also the ASBU Implementation Dashboard – Data sources used for the 80 Elements.

Master Plan as indicated in the figure.

The European ATM Master Plan Level 3 Implementation Plan contains the detailed implementation objectives and Stakeholder Lines of Action (SLoA) to be achieved within coordinated time scales. Its target audience includes planning staff from the various stakeholders participating in the process, both at European and National level. It is produced on a yearly basis.

The European ATM Master Plan Level 3 Implementation Report assesses the level of progress in implementation of objectives at ECAC+ level for the benefit of all aviation stakeholders. For each of the objectives it highlights critical issues, main reasons for delays, (positive) progress and proposes remedial actions at network level. It is based on information gathered from the LSSIP documents and closes the loop between the monitoring and planning phases of the LSSIP yearly cycle.

Understanding what happened during the reporting period puts into perspective the investments and actions needed to achieve real benefits and enables to steer implementation results.



2.2 ICAO Questionnaire

With the objective to obtain monitoring information and facilitate reporting activities required by the ICAO EUR Region States outside the LSSIP mechanism, an ICAO ASBU Implementation Monitoring Questionnaire was first developed in 2014 and sent out with the State Letter which launched the regional ASBU implementation reporting in September 2014.

After review of the first reports at the ATMGE/21 meeting, and together with the lessons learned/way forward, an updated and comprehensive version of the questionnaire was developed at the ATMGE/22 meeting in order to increase the number of responses and enhance the quality of the reported information. This version (v.3) was presented and endorsed at EANPG/57, so that States could use it for the 2015 reference period of the ASBU implementation monitoring report.

Following the discussions from the ATMGE/23 meeting, an updated version of the ASBU implementation questionnaire was developed which introduced more detailed guidance material, practical examples and specific explanations on the implementation activities/status that needed to be reported. The further revised ASBU implementation report questionnaire (v.4) was presented to the EANPG/58 that agreed the new version

of the questionnaire would be attached to the ATMGE State Report format.

The EANPG/58 also recommended that the progress/status of implementation of ASBU Block 0 modules is reported, for monitoring purposes, by States regardless of their assigned priority in the EANPG/55 conclusions.

During the ATMGE/24 meeting another feedback discussion resulted in new/revised version of the ASBU implementation report questionnaire. The EANPG/59 approved an improved version of the questionnaire (v.5 from 20.10.2017), for the monitoring cycle 2017.

In order to better harmonize the calculation of the implementation percentages, as well as the level of granularity and details for non-ECAC States inputs with the LSSIP mechanism, discussions took place during the ATMGE/26 meeting where an updated version of the ICAO ASBU Implementation Monitoring Questionnaire in Excel format was presented and accepted by the ATMGE participants. This revised State Report format (as v.6 from 15.11.2018) presented, discussed and approved by the EANPG with EANPG/60 & RASG-EUR/07 Conclusion 07 (ICAO ASBU Implementation Monitoring within the ICAO EUR Region), together with the updated mapping between ICAO ASBU modules and European ATM Master Plan Implementation Objectives, has been used for the monitoring of the 2018 cycle. An updated version of the questionnaire was developed (v.7 from 17.10.2019) with similar mapping which was then used for reference year 2019.

Given the changes brought by the GANP 6th Edition and substantially increased granularity of ASBU Elements, the questionnaire for non-LSSIP States has been completely redesigned and simplified, allowing the States to report separately on State/ANSP-related and airport-related ASBU elements. The new questionnaire was presented and discussed at the Air Navigation Services Implementation and Support Group (ANSISG/04) meeting in May 2021 and sent to States on 11 June 2021.

Following the publication of the 7th edition of the GANP and based on the experience gathered over the previous cycles, the questionnaire has been reviewed. It was supplemented with guidance on the information to be provided and on the way to do this. The revised questionnaire has been presented in detail during a dedicated ASBU Monitoring workshop which took place during the ANSISG/06 meeting in May 2023. Following the workshop, the questionnaire has been distributed to the non-LSSIP States on 16 May 2023 with a deadline for the submission of the replies of 8 September. In order to provide supplementary help and guidance to the non-LSSIP States in filling the questionnaire, another on-line workshop has been organised on 24 August 2023.

In order to facilitate the provision of information and to minimise the burden on the reporting parties, all the Elements of the questionnaire (apart the 3 Elements FRTO-B1/2 on RNP Routes, NAVS-B0/1 on GBAS and NAVS-B1/1 newly added this year) have been prefilled with the information submitted during the previous reporting cycle.

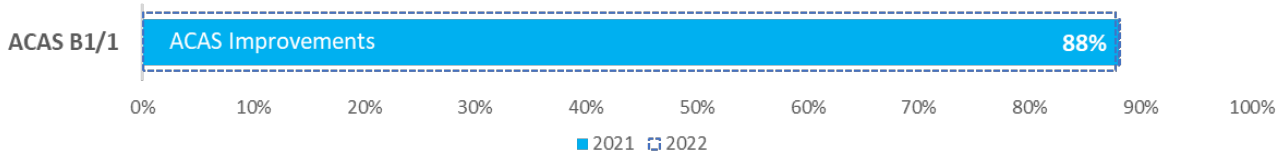
It should be noted that for this edition of the Report **7 out of the 9 non-LSSIP States submitted their ASBU implementation questionnaire to the ICAO EUR/NAT Office and EUROCONTROL** before the deadline of 8 September 2023. Compared with the previous edition of the Report, despite the substantial supplementary support provided this reporting cycle to the reporting stakeholders, **Tunisia** has not returned the filled questionnaire while **Turkmenistan** has again (for the third consecutive year) not submitted the questionnaire. For these 2 States, very limited data is presented in the Report (only functionalities for which completion was confirmed in previous editions of the Report are counted as such in the current edition).

3 Implementation summary per ASBU Thread

This chapter summarizes the implementation progress achieved for the different elements belonging to a particular ASBU Thread[*,†]. It should be noted that not all elements have been included in these focused summaries, as for some of them data is not presently available (*more info in Section 1.4*) or it is collected following a different taxonomy. Detailed assessments per ASBU Element are given in Chapter 4.

ACAS - Airborne Collision Avoidance System[‡]

There is a substantial completion rate of 88% (46 States) for **ACAS-B1/1** which is very positive from the perspective of the safety contribution. Moreover, among the States that have not finalised implementation yet, the Air Navigation Service Providers and the Regulatory Authorities have all fulfilled their tasks. The reason for delay in these States is the equipage of military transport-type aircraft, considering that for this category of airspace users, the carriage/upgrade is voluntary, therefore it takes longer. The remaining States are expected to finalise the implementation in 2023.



ACDM - Airport Collaborative Decision Making

The implementation of A-CDM in the EUR Region shows a constant progress over the years.

Currently the Element **A-CDM B0/1** on A-CDM Information sharing is reported as deployed at 32 locations, while 32 other airports are reporting implementation in progress, or planned. The more advanced Element addressing the integration of A-CDM with the ATM Network function (**A-CDM B0/2)**, is only slightly behind in terms of completion rate, as it is deployed at 31 locations, one less than A-CDM B0/1.

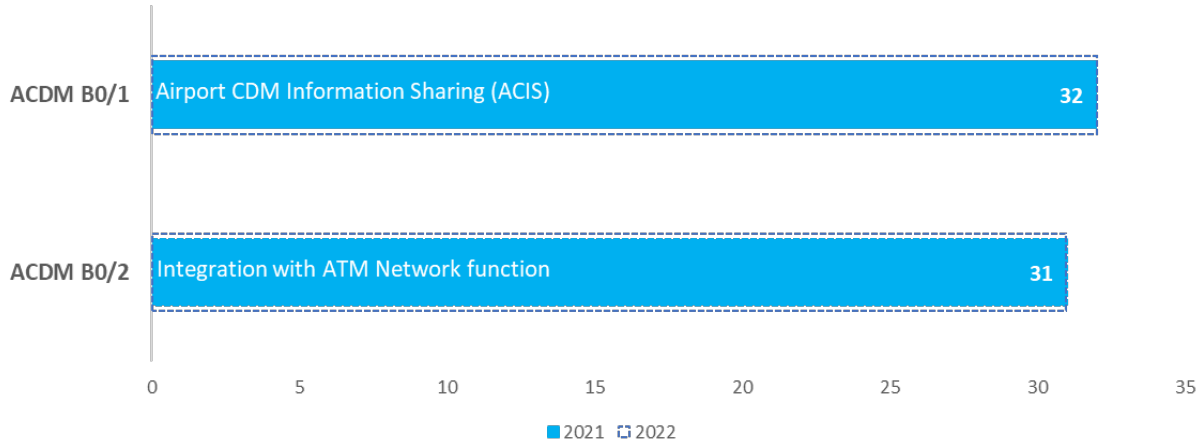
Among the remaining airports in the EUR Region, these elements are mostly considered “Not Applicable” or “Not Yet Planned” due to the lack of operational needs.

[*] Due to specific data source (METG, AIMG) and reporting methodology and taxonomy, information for the AMET and for the DAIM Threads is presented separately at the end of Chapter 4.

[†] See also the ASBU Implementation Dashboard – Number of Elements per Thread.

[‡] The bar charts indicate the progress as relative percentage (number of States reporting the implementation of the Element as “Completed” versus the overall number of States within the scope of the Report) for the Elements applicable at State level and as an absolute number (number of Airports reporting the implementation of the Element as “Completed”) for the Elements to be implemented at Airport level.

The charts reflect the overall progress of implementation across the Region including the cases when States/Airports have reverted the completion status from “Completed” in 2021 to any other status in 2022, or when Airports which used to be “Completed” in 2021 have not reported any status in 2022. The new implementers in 2022 are listed in Chapter 4.



APTA - Improve arrival and departure operations

The implementation of the Thread shows good progress across all its constitutive Elements.

The leading ASBU Element in terms of completion within the EUR region is the one addressing PBN approaches (with basic functionalities - down to LNAV or LNAV/VNAV minima), **APTA-B0/1**, with about 700 airports reporting the Element as deployed (airports with at least one runway-end served by approach procedures to LNAV or LNAV/VNAV minima). Almost other 170 airports expect the finalisation of the implementation by the end of 2024. A positive evolution is also the increase in interest for the deployment of the Element, as, compared with the previous edition of the Report, close to 100 airports are now reporting implementation intentions.

The interest in deploying advanced RNP approach procedures (**APTA-B1/1**) is confirmed, with close to 400 airports reporting completion (airports with at least one runway-end served by LPV or RNP AR approach procedures) and almost 130 airports expected to follow by the end of 2023.

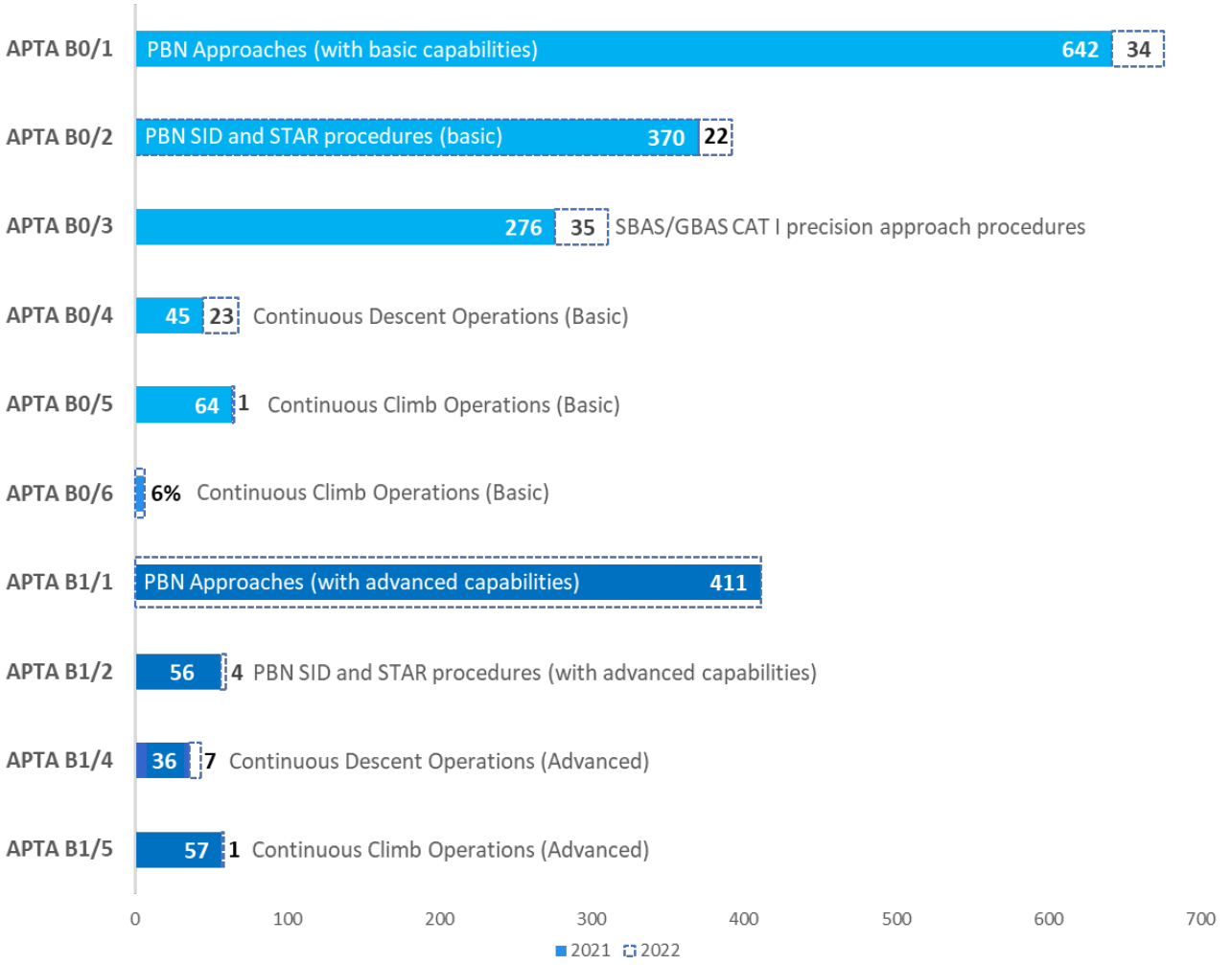
The appeal of RNP1 SIDs and STARs with RF legs (**APTA-B1/2** PBN SID and STAR procedures (with advanced capabilities) is still relatively limited across the EUR Region (only 60 airports have reported the finalisation of deployment) because the less demanding requirements of PBN SID and STAR procedures based on RNAV1 (**APTA-B0/2**) are considered fit for purpose in most of the operating environments within the Region (the Element addressing PBN SID and STAR procedures with basic capabilities is deployed at 392 airports).

The Element addressing PBN Helicopter Point in Space (PinS) operations (**APTA-B0/6**) raises a very limited interest among the States. Almost 80% of the States report no plans to implement or consider the Element as not applicable. The main reason for not implementing the element is the lack of business or operational needs, as well as the characteristics of the operational environments. Only 3 States have implemented it, with 1 other expected to complete implementation by end 2023.

The deployment of SBAS and GBAS CAT 1 precision approaches (**APTA-B0/3**) minima is quite widespread across the Region. More than 310 airports have so far published such approaches for at least one runway end in the national AIPs. The vast majority of these are based on SBAS, while GLS approaches are currently implemented or planned at more than 100 airports throughout the EUR Region, most of which in Norway and in the Russian Federation (see also **NAVS-B0/1**).

The implementation of Continuous Descent Operations (CDO) Elements (Basic CDO and Advanced CDO) have achieved good progress with 3 airports having completed implementation in 2022. Basic CDO, (**APTA-B0/4**) is now operated at 68 airports in the EUR Region. There is slightly lower progress of the Advanced CDO Element

(**APTA-B1/4**) enabled by PBN, with only 43 airports having reported completion. Continuous Climb Operation (CCO) have a slightly better completion rate, with the basic Element (**APTA-B0/5**) being implemented at 65 locations while the advanced one (**APTA-B1/5**) being operational at 58 locations.



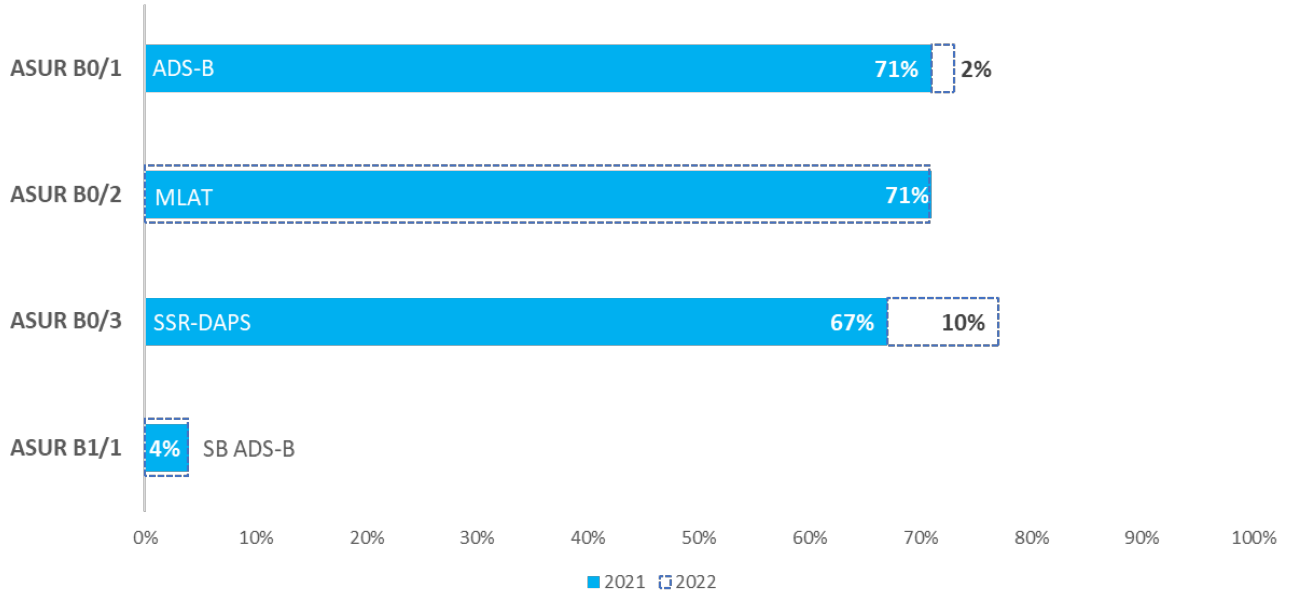
ASUR - Surveillance systems

The deployment of the capability to use ADS-B data (**ASUR-B0/1**) is progressing well across the Region, with 38 States reporting completion (ADS-B systems in operational use). It is encouraging to notice that ADS-B stations are constantly being deployed and that even in States which have not yet fully finalised deployment, ADS-B infrastructure has already been installed and is growing (more than 2000 ADS-B stations are reported as installed in the Region). In most of the cases ADS-B (either as standalone or integrated with LAM/WAM systems – ASUR-B0/2) is deployed in order to fill gaps in the surveillance coverage, to replace aging infrastructure or to provide a supplementary layer of surveillance.

The interest in using multilateration (MLAT), **ASUR-B0/2**, for providing surveillance at airports (LAM - Local Area Multilateration) or over wide areas (WAM - Wide Area Multilateration) is very high within the EUR Region. It is estimated that slightly more than 70% of the States (37) in the Region are already using MLAT. Overall, approximately 2000 sensors are deployed across the Region either as part of LAM or WAM systems. LAM is already widely used to enable airport surface surveillance, allowing the implementation of Advanced Surface Movement Guidance and Control Systems (A-SMGCS).

The capability to receive at least one of the downlinked aircraft parameters - DAPs (**ASUR-B0/3**) is widely deployed, as 40 States report having the capability to receive, display and process at least one of the DAPs. The number of the parameters and the operational use varies extensively among the States. Among the available DAPs, the Selected Altitude is the one having the widest usage and this parameter is mostly used for the improvement of ATC tools (safety nets in particular). In many cases, one or more DAPs are displayed on the operational display systems for the information of the controllers.

The interest in the deployment of the Element addressing Space Based ADS-B (**ASUR-B1/1**) is mostly limited to the States providing air navigation services over the high seas, where surveillance is not available. For the time being only 2 States are reporting the Element as implemented while 39 States do not have any plans for deployment as these States already have a robust ground surveillance infrastructure.



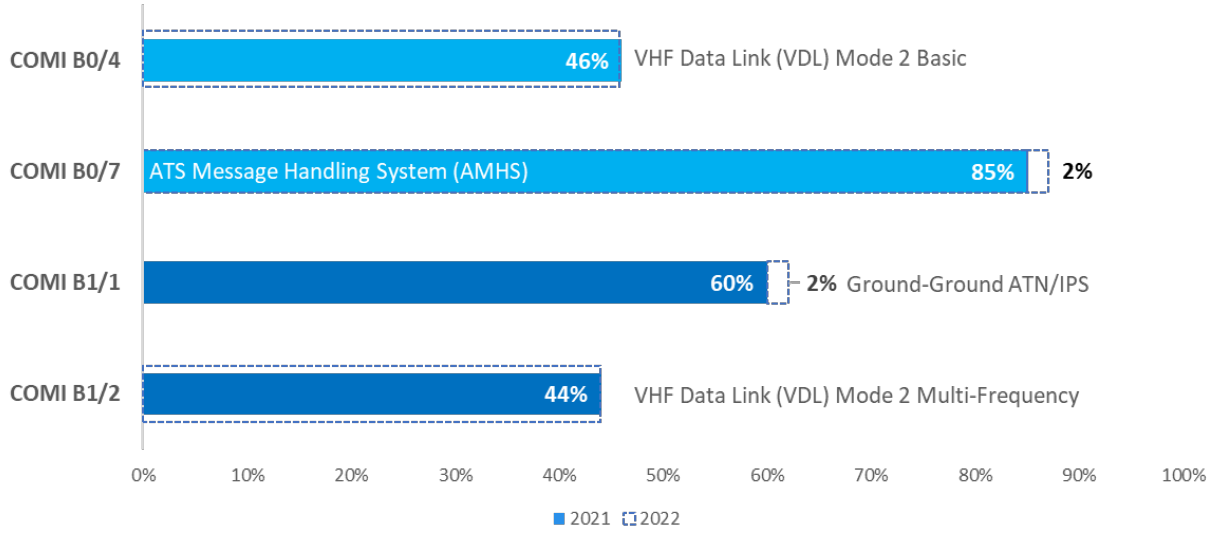
COMI - Communication infrastructure

The Element addressing VDL Mode 2 communications (**COMI-B0/4**) has been implemented by 24 States which are using it for the provision of Controller Pilot Data Link Communications services (above Flight Level 285) and for the replacement of voice communication for routine, non-time critical messages. For the time being, the analysis does not differentiate between “Basic” (**COMI-B0/4**) and “Multi-Frequency” (**COMI-B1/2**), as the choice is a local decision depending on the specific local needs.

The deployment of AMHS (**COMI-B0/7**) has reached a very good level of implementation across the Region. The “basic” AMHS service, already providing the vast majority of AMHS benefits and fulfilling the requirements of the Element, has been implemented by 45 States. It is important to note that for some of the States still reporting the implementation as “ongoing” (e.g., IT) the main service providers have already implemented the basic AMHS features. The remaining implementing States expect to finalise deployment within the 2024/2025 timeframe.

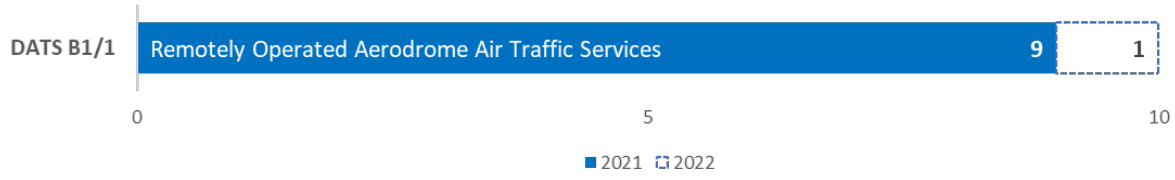
The Ground-Ground ATN/IPS (**COMI-B1/1**) Element has already been implemented by 32 States, all of them using NewPENS (New Pan-European Network Services). The vast majority of the implementers have deployed

the connectivity infrastructure and have migrated to NewPENS at ANSP/ACC level. The connection of airports is rather limited, as only 6 Sates have reported implementations or plans for implementation at airports.



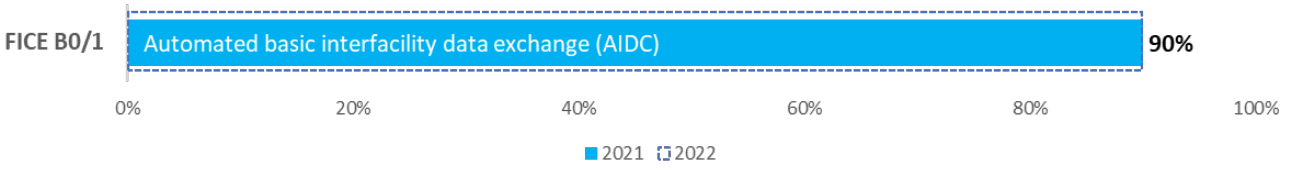
DATS - Remote Aerodrome Air Traffic Services

Implementation of the Element addressing Remotely Operated Aerodrome Air Traffic Services (**DATS-B1/1**) is building up speed, with Remote/Digital Towers already used in operations at 10 locations in the EUR Region. Particularly encouraging is the growing interest in the deployment of Remote Tower Centres, with at least 10 other locations expected to enter operations before end 2023, indicating the first steps towards the virtualisation of service provision.



FICE - Flight and Flow Information for a Collaborative Environment

The information exchanges addressed by the Element (**FICE-B0/1**) are widely implemented in the Region, based on the EUROCONTROL's OLDI (On-Line Data Interchange) Specification. The "basic procedure" addressing the notification and the coordination of flights is implemented by 47 States in the Region. It should be noted that even among the States which have not fully completed the deployment, the "basic procedure" messages are implemented with at least one of the neighbouring States. It can be considered therefore that the implementation of the Element is very close to 100% completion across the EUR Region. The focus is now on enriching the set of exchanged messages, as well as on the establishment of new bilateral connections.



FRTO - Improved operations through enhanced en-route trajectories

The Element on Direct Routing (**FRTO-B0/1**) shows a very good level of implementation, with 43 States having reported its deployment (this number also includes the States which have implemented the more advanced Element on Free Route Airspace (FRA), addressed by the Element **FRTO-B1/1**). The deployment of FRA has continued at a sustained pace, the Element being now implemented by 39 States within the Region. It is very encouraging to notice that in many instances the implementation goes beyond the national FIR's, as FRA is deployed more and more cross-border, maximising the operational benefits of its implementation.

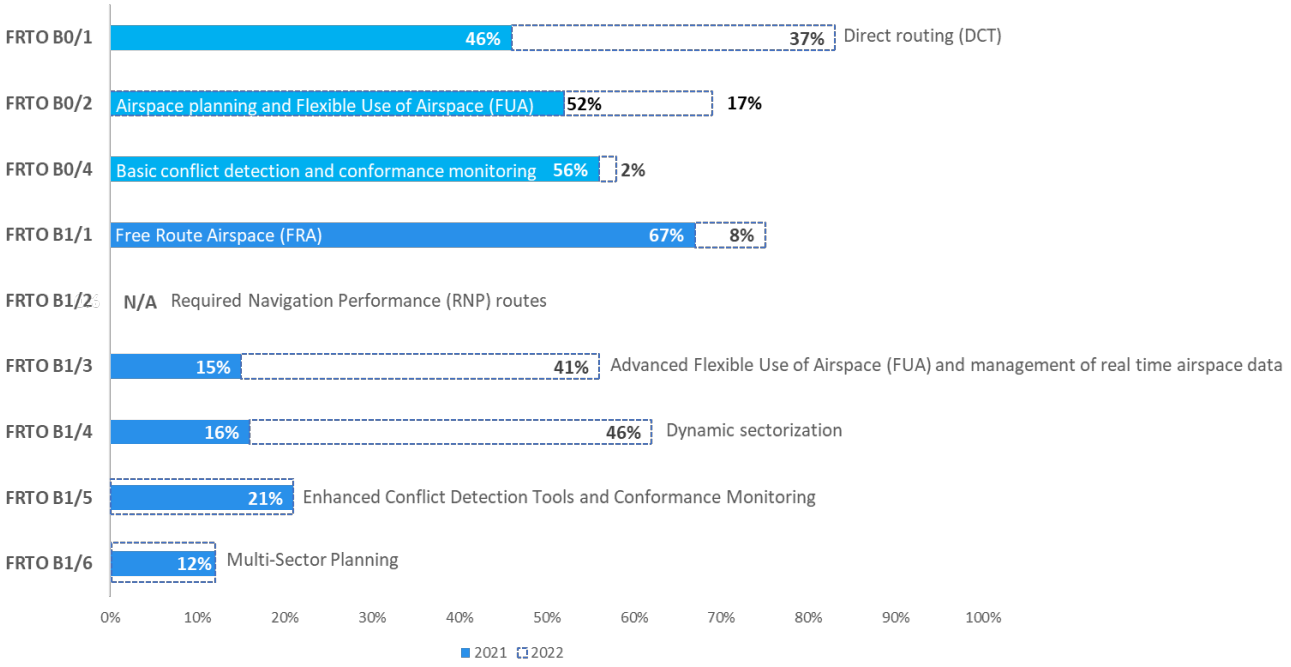
The deployment of the Flexible Use of Airspace (FUA) and Advanced FUA Elements (**FRTO-B0/2** and **FRTO-B1/3**) have both recorded substantial progresses during the reporting year. The Block 0 Element on FUA has been implemented by 36 States, with the help of a local tool (e.g., EUROCONTROL's LARA - Local and sub-regional airspace management support system) and/or using a centrally provided system (e.g., CIAM, provided by the EUROCONTROL Network Manager). Even if the Advanced FUA Element scores a lower progress than the Block 0 one, not less than 22 States have finalised deployment during the reporting year, leading to an overall of 29 States reporting the Element as implemented.

The Controller support tools (conflict detection and conformance monitoring) are addressed by 2 Elements, one for the basic features (**FRTO-B0/4**) and the other including more advanced capabilities (**FRTO-B1/5**). As expected, the basic features (Medium Term Conflict Detection-MTCD and Monitoring Aids-MONA) have a better progress with 30 States having deployed both functionalities addressed by the Element. For several States which have not yet finalised deployment, the Element is partly implemented as either MTCD or MONA is in place. The Element addressing enhanced capabilities (e.g. addition of Tactical Controller Tool - TCT) has a lower progress, with only 11 States having finalised the deployment of all its functionalities.

The Element addressing the deployment of RNP routes within the en-route airspace where Free Route Airspace (FRA) is not planned or to ensure the connectivity between FRA and TMAs (**FRTO-B1/2**) has been monitored for the first time during this reporting cycle. The collected information clearly shows that the implementation of choice in the EUR Region is by far RNAV5 and that the deployment of RNP4 is limited to a very reduced set of oceanic sectors. It is therefore proposed to remove the monitoring of this Element from future editions of the Report.

The dynamic sectorisation Element (**FRTO-B1/4**) has recorded a substantial progress in implementation with not less than 24 States having implemented it in 2022, leading to a total of 32 States where the Element is reported as deployed.

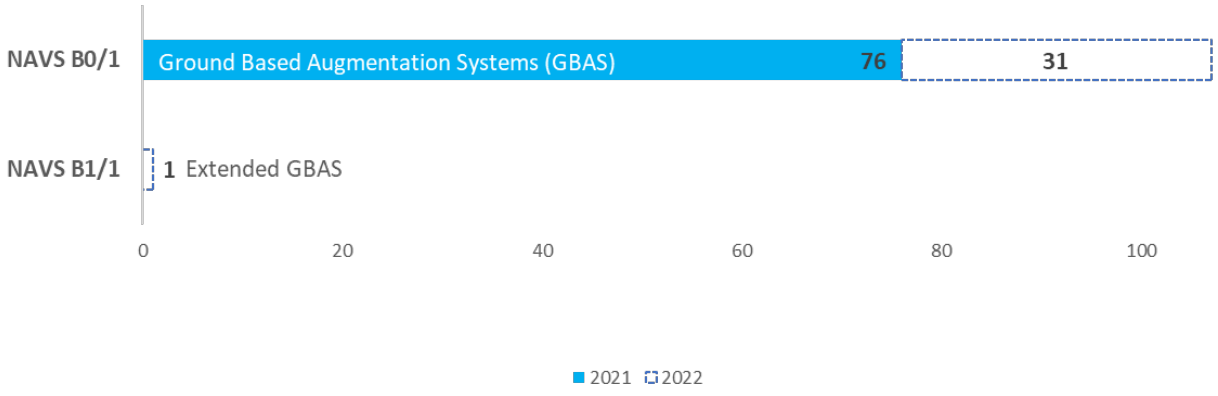
Finally, for the Multi-Sector Planning Element (**FRTO-B1/6**) the interest in deployment remains very limited with only 6 States having completed the implementation (none of them in 2021 or in 2022). Almost 70% of the States (35) in the Region consider the Element as either "Not Applicable" or "Not Yet Planned". This is mostly due to their existing ATM system capabilities/limitations, number of sectors and/or configurations, or lack of perceived operational benefits compared to current operations.



NAVS - Navigation systems

Within the Region, GBAS (**NAVS-B0/1**) is currently in use at 107 airports, the vast majority of which being located in RU (86 locations) and Norway (17 locations).

The successor Element on Extended GBAS (**NAVS-B1/1**)[*], has been monitored for the first time during this reporting cycle. For the time being it is triggering a very low interest. The Element is only deployed at 1 location in DE and planned at another 3 locations across the EUR Region. Other 98 reporting airports are considering the Element as "Not Applicable" (59) or do not have yet any implementation plans (39).



[*] For the time being the collection of information is limited to the deployment of CAT II operations utilizing GBAS Approach Service Type C (GAST C) in conjunction with enhanced ionospheric monitoring and airplane augmentations.

NOPS - Network Operations

The deployment of the Element addressing the Initial integration of collaborative ASM with ATFM, (**NOPS-B0/1**) has witnessed a substantial progress, as 17 States have finalised implementation during the reporting year, leading to a total of 35 States where the Element is deployed. This step is to be followed by a full integration of ASM with ATFCM (**NOPS-B1/5**) which is reported as completed by 34 States within the Region.

The Collaborative Network Flight Updates (**NOPS-B0/2**) keep progressing although at a slow pace (only 2 States have completed the Element in 2022). Overall, 26 States within the Region have achieved completion. However, it should be noted that the basic (and most beneficial) features of the Element (the provision of position reports or of flight activation messages) are virtually implemented in all the ECAC States. Within the more advanced features of the Element, it is observed that the more beneficial (e.g. provision of flight plan data in case of missing flight plans) show a good level of implementation being deployed by 31 States.

The Elements addressing basic Network Operations Planning (**NOPS-B0/3**) as well as Dynamic ATFM slot allocation (**NOPS-B0/5**) are well established within the Region and in particular within the Air Traffic Flow and Capacity Management (ATFCM) Area ((all ECAC Member States (apart Azerbaijan and Iceland) + Morocco) where the EUROCONTROL Network Manager (NM) is responsible for the provision of ATFCM, including the dynamic ATFM slot (CTOT) allocation. Moreover, certain States are cooperating with the NM by exchanging data with the NM and participating in the NM ATFCM service. These States are described as cooperating States and are referred as “ATFCM Adjacent Area” (Algeria, Belarus, Tunisia, Iceland, Israel, Egypt). Flow managers (FMPs) of Adjacent Areas may request the NM to apply ATFCM measures for the airports within their FIR or for significant points at the interface between the FIR and the NM Area of operations.

Two Elements within the Thread are addressing the integration of Airports with the Air Traffic Flow Management, in a gradual way, starting with initial airport/ATFM slots and ACDM Network Interface (**NOPS-B0/4**) followed by the enhanced integration between the Airports Operations Planning and Network Operations Planning (**NOPS-B1/3**). In the EUR Region the initial functionality is implemented only within the ATFCM area where 56 airports have already established certain levels of information exchanges with the EUROCONTROL NM. Most of these airports (32) have implemented the full A-CDM process (see also **ACDM-B0/1** and **ACDM-B0/2**), while additional 19 airports (typically medium and small-sized ones) provide Departure Planning Information (DPI) messages to NM. The Element addressing enhanced integration is still in very early planning phases with no airports having deployed it and with a slow progress expected in the next years as only 1 airport plans to finalise deployment before 2025. However, an implementation spike is expected for 2027 when 26 airports report plans to implement the Element.

The implementation of short term ATFM measures (**NOPS-B1/1**) has seen a substantial increase in its completion rate, with 19 States reporting completion in 2022, leading to an overall 23 States having implemented the Element. For most of the States the functionality is considered as “Not Applicable” or no concrete implementation plans are reported, mostly because of the levels of traffic not justifying the deployment.

Within the ATFCM Area, the enhanced Network Operations Planning (**NOPS-B1/2**) is deployed through the implementation of interactive rolling NOP, made available by the EUROCONTROL Network Manager (CHMI, NOP Portal). Currently 16 States have reported completion while 16 others expect completion before end 2023 (however, the number of “completed” States should be considered as conservative as evidence exist that more States have certain levels of interaction with the NOP). It should be noted that in some instances,

the B2B connection to the NOP is considered as not necessary as the manual access to NM platform is fit for the local needs.

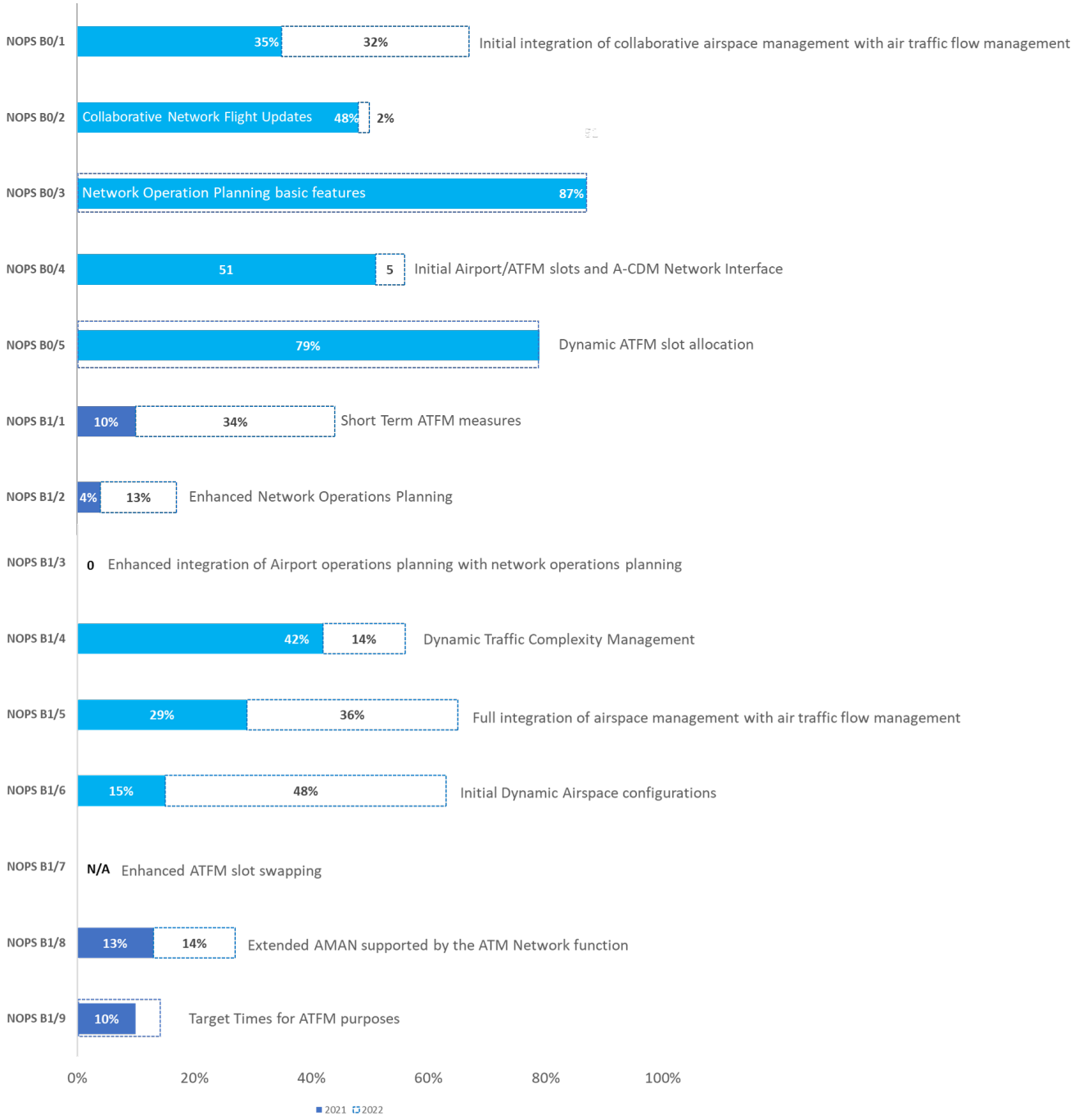
The dynamic traffic complexity management Element (**NOPS-B1/4**) has already been deployed by 29 States in the Region, 10 more than in the previous Report. Among the implementers, 13 States have chosen to implement the tool which is provided by the EUROCONTROL NM while 11 have deployed local tools which are either exchanging or planned to exchange data with NM. It should be noted that, considering the levels of traffic, several States consider traffic load monitoring as sufficient to fulfil the requirements of the Element.

The Element on initial dynamic airspace configurations (**NOPS-B1/6**) has also recorded a substantial increase in its completion rate, with 25 States having implemented during the reporting period, leading to a total of 33 States reporting the Element as implemented.

The Element on slot swapping (**NOPS-B1/7**) involves the Centralised Flow Management Unit(s) and the Airspace Users during ATFM constrained situations as it allows the Airspace Users to balance the priorities of flights subject to the same ATFM regulation. This functionality has already been implemented by EUROCONTROL's NM in the ATFCM area, while it is mostly reported as "Not Applicable" or "Not Yet Planned" by the other States of the Region.

The implementation of Extended AMAN supported by the ATM Network Function (**NOPS-B1/8**) proves to be particularly challenging as it requires coordination with several ANSPs, sometimes going beyond the neighbouring ones, as well as, with an ATM Network Function adding to the complexity of its deployment. For the time being, the Element is reported as implemented by 14 States either in support of airports within their boundaries or in support of airports in neighbouring States. However almost half of the States in the Region do not consider the implementation of the Element.

The deployment of target times for ATFCM purposes (**NOPS-B1/9**) is quite limited with only 5 States reporting completion. Most of the implementers (18 States) report plans for 2023, while more than half of the States in the Region consider the Element as "Not Applicable" or "Not Yet Planned" due to the lack of perceived operational needs, considering the traffic levels and patterns.

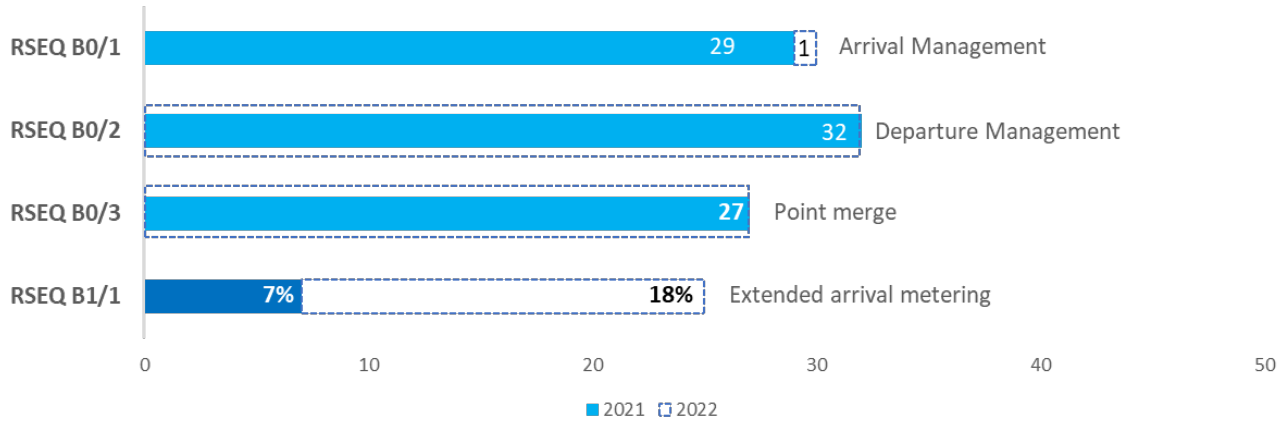

NOPS B0/1
35%
32%
Initial integration of collaborative airspace management with air traffic flow management
NOPS B0/2
Collaborative Network Flight Updates
48%
2%
NOPS B0/3
Network Operation Planning basic features
87%
NOPS B0/4
51
5
Initial Airport/ATFM slots and A-CDM Network Interface
NOPS B0/5
79%
Dynamic ATFM slot allocation
NOPS B1/1
10%
34%
Short Term ATFM measures
NOPS B1/2
4%
13%
Enhanced Network Operations Planning
NOPS B1/3
0
Enhanced integration of Airport operations planning with network operations planning
NOPS B1/4
42%
14%
Dynamic Traffic Complexity Management
NOPS B1/5
29%
36%
Full integration of airspace management with air traffic flow management
NOPS B1/6
15%
48%
Initial Dynamic Airspace configurations
NOPS B1/7
N/A
Enhanced ATFM slot swapping
NOPS B1/8
13%
14%
Extended AMAN supported by the ATM Network function
NOPS B1/9
10%
Target Times for ATFM purposes
0%
20%
40%
60%
80%
100%
2021
2022

RSEQ - Improved traffic flow through runway sequencing

The implementation of (basic) Arrival management tools (**RSEQ-B0/1**) is well spread across the entire Region, with the Element already deployed at 30 locations while another 19 locations are expected to follow before end 2024. Still the Element is considered as "Not Applicable" by many airports where the amount and distribution of traffic does not justify the implementation of such tool. For maximal operational benefits, deployment of RSEQ-B0/1 should be followed by the more advanced functionality of **RSEQ-B1/1** dealing with extended arrival metering. As already mentioned in the context of NOPS-B1/8, the implementation of this advanced feature proves to be particularly challenging as it requires coordination with several ANSPs, sometimes going beyond the neighbouring ones. At the moment, the Element is deployed by 13 States, either in support of airports within their boundaries or in support of airports in neighbouring States. However almost half of the States in the Region do not consider the implementation of the Element due to the lack of perceived operational benefits.

The Departure Management tools (**RSEQ-B0/2**) are already operational at 32 locations, in most of the cases as part of the A-CDM functionality. Completion is expected at another 21 locations by the end of 2024, still many airports consider the Element as "Not Applicable", or do not have implementation plans, as the levels of traffic do not justify the investments.

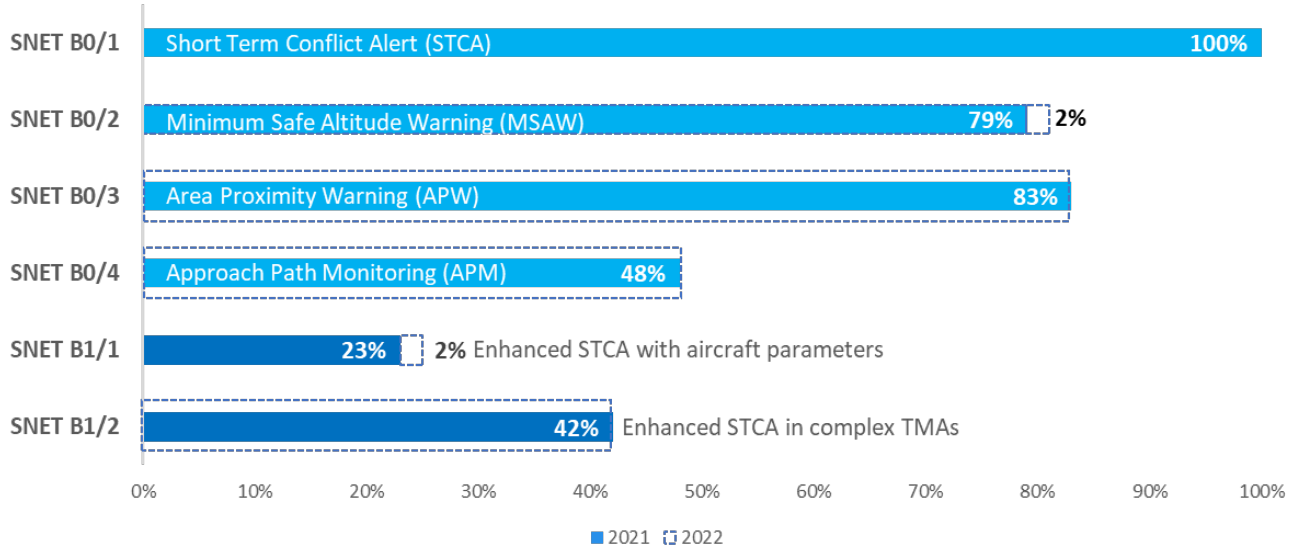
The Point Merge Element (**RSEQ-B0/3**) is implemented at 27 locations across the Region with 3 other locations expected to implement it by end 2024.



SNET - Ground-based Safety Nets

Overall, the safety nets are widely deployed within the Region. By far the most successful deployment is recorded by the Short-Term Conflict Alert-STCA (**SNET-B0/1**) which has been implemented in the en-route airspace by all States in the Region. In terms of implementation progress, STCA is followed closely by the Area Proximity Warning (**SNET-B0/3**), already deployed by 43 States and expected to be deployed by another 4 States by end 2024. It should be noted that even among States which may have not fully finalised implementation yet, the functionality is already deployed in parts of the airspace. The Minimum Safe Altitude Warning – MSAW (**SNET-B0/2**) function has also reached a very good level of implementation, with 42 States having reported completion. Implementation is expected by 7 other States by the end of 2024. A slightly lower completion rate has been reached by the Approach Path Monitor (**SNET-B0/4**) functionality with 25 States having completed the deployment. This is because the implementation is seen as slightly less beneficial in fulfilling the operational needs in comparison with the other safety nets. Still, 8 States are expecting completion before the end of 2024.

The Block 1 Elements within the Thread are also progressing. The Enhancement of STCA with downlinked aircraft parameters (**SNET-B1/1**) is deployed by 13 States, while 5 States expect to finalise deployment by end 2024. Among all the available parameters, in order to enhance the STCA, all implementations use the Selected Altitude. For several other States which have not reported completion yet (e.g., AM, CY, EE, HR, NL, SK), the downlinked SA is available and shown for information on the controller screen, but it is not yet integrated with the safety tools. The deployment of enhanced STCA in complex TMAs (**SNET-B1/2**) is already finalised by 22 States. It should be noted that 19 other States have reported the deployment of normal STCA based on linear algorithms, as they are considered fit for the use in their terminal areas. Therefore 41 States have reported the deployment of STCA functions in their TMAs.



SURF - Surface operations

The implementation of the Elements within the Thread is progressing, not only in terms of completion rates (airports which have finalised deployment) but also in terms of airports joining the applicability areas (airports which decide to implement the Elements). The set of Elements provide for an incremental evolution of functionalities, starting from a basic functionality, not necessary implying a surveillance service (Basic ATCO Tools to manage during Ground Operations – **SURF-B0/1**), followed by basic A-SMGCS (surveillance service - **SURF-B0/2**) and up to enhanced alerting (**SURF-B1/3**) and routing (**SURF-B1/4**) services.

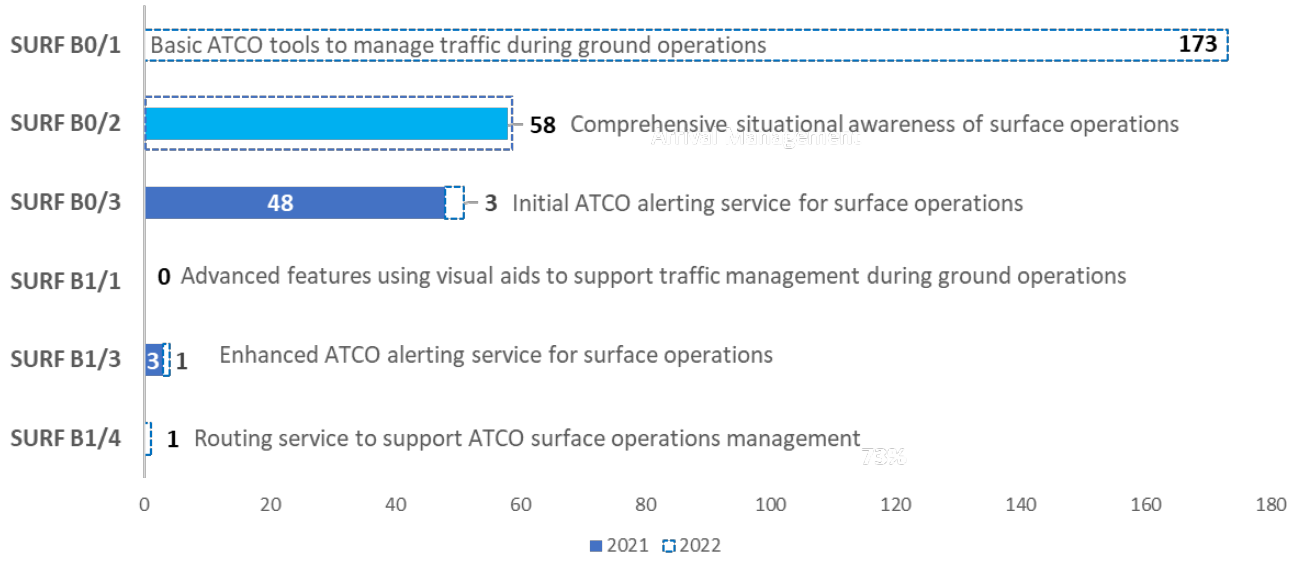
The foundation Element (**SURF-B0/1**) is addressing the delivery of the guiding and routing service using visual aids and signals on the platform. Information is managed by the controller to provide pilots and vehicle drivers all necessary information to taxi and avoid incursion on the runway. The assessment of the progress has been performed based on AIP held information for the international airports within the Region (for the EUROCONTROL Member States, the reviewed airports were those available in the EUROCONTROL Airport Corner). Out of the 323 airports assessed, all of them have deployed visual aids and signals on the platform, which is the core of the Element. The deployment of visual aids preventing incursions on the runway, stop bars in particular, has been achieved by half of the assessed airports.

The subsequent functionality, provided by the A-SMGCS Surveillance Service (**SURF-B0/2**), is already operational at 58 locations while 23 others are expected to deploy it by end 2024. This is very encouraging as this functionality is essential as the fundament unlocking more advanced A-SMGCS features. The more

advanced feature providing an initial alerting service for surface operations (**SURF-B0/3**) is already operational at 51 locations while 14 others are expected to finalise deployment by end 2024.

Meanwhile the more advanced A-SMGCS features included in Block 1, as the enhanced alerting service for surface operations (**SURF-B1/3**) and the routing service (**SURF-B1/4**) show a lower completion rate and a lower interest. This is mostly because many airports in the Region consider that the Bock 0 features are enough and fit for purpose for the foreseeable future and that an upgrade will be performed when the operational needs will require it. For the time being, SURF-B1/3 is implemented at 4 locations while SURF-B1/4 is only available at 1 location in the Region.

The functionality related to advanced features using visual aids to support traffic management during ground operations (**SURF-B1/1**) is not yet implemented anywhere in the EUR Region and for the time being it has an extremely limited appeal for deployment as only three implementations are expected to take place between now and 2025. This low interest is justified by the complexity of the implementation requiring an advanced A-SMGCS system providing the guidance function, linked with the aerodrome lighting infrastructure.



4 Detailed progress assessment per ASBU Element

The following pages show a detailed assessment of implementation progress for each of the ASBU Elements within the scope of this Report. Below is the explanation of the different items and charts shown in these dedicated pages.

ASBU Element Code	ASBU Element Title

Description:

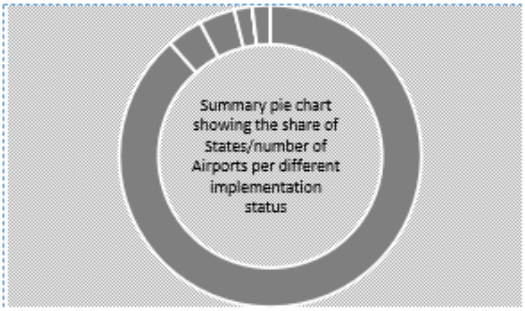
Description of the ASBU Element, its main purpose and new capabilities. Detailed information can be accessed on https://www4.icao.int/ganpportal/ASBU

Implementation summary (end 2022):

Textual summary describing the main developments in implementation of a given ASBU Element, with a special focus on the main blocking factors, reasons for delay or lack of interest in deployment, as well as outlook.

New Implementers

States/Airports that have implemented a given ASBU Element during 2022

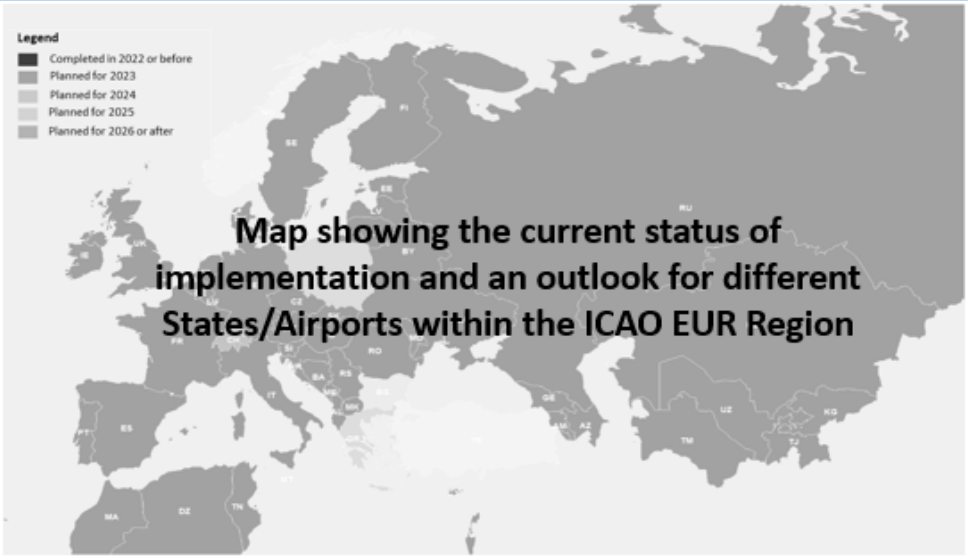


Progress among non-completed stakeholders

- Bar chart showing the progress of non-completed stakeholders, divided in four average progress intervals, set between 0-99%.

Expected 2022 Implementation vs Achieved 2022 Implementation

- Bar chart showing the achieved implementation vs completions expected in 2022, as reported in the previous reporting cycle.



ACAS-B1/1	ACAS Improvements

Description:

Traffic alert and Collision Avoidance System (TCAS) version 7.1 provides short-term improvements to existing Airborne Collision Avoidance Systems (ACAS) to reduce nuisance alerts, as well as to enhance the logic for some geometries. This will reduce trajectory deviations and increase safety in cases where there is a breakdown of separation.

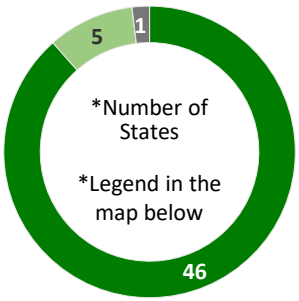
TCAS systems selectively interrogate nearby aircraft to determine their position and velocity (using Mode C/S replies). This information is passed through "threat logic" to determine proximate traffic, issue traffic alerts, and issue collision avoidance "resolution advisories" to flight crews. Resolution advisories provide flight crews with vertical guidance (climb, descend, remain level, do not descend/climb) as appropriate to avoid collisions.

Implementation summary (end 2022):

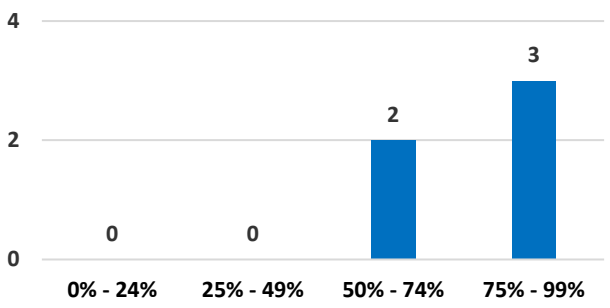
- There is a substantial completion rate of 88% (46 States) across the EUR Region, which is very positive from the perspective of the safety contribution of the Element
- Among the States that have not yet finalised implementation, the ANSPs and the Regulators have all fulfilled their tasks. The implementation pace is driven by the voluntary equipage of the transport-type State aircraft
- There is a very good level of implementation across the non-LSSIP States, with 8 States reporting completion
- Even if CH declared this Element as "Not Applicable", the carriage of TCAS version 7.1 is enforced in the Swiss airspace
- The implementation should be finalised by all States in the Region, in 2023.

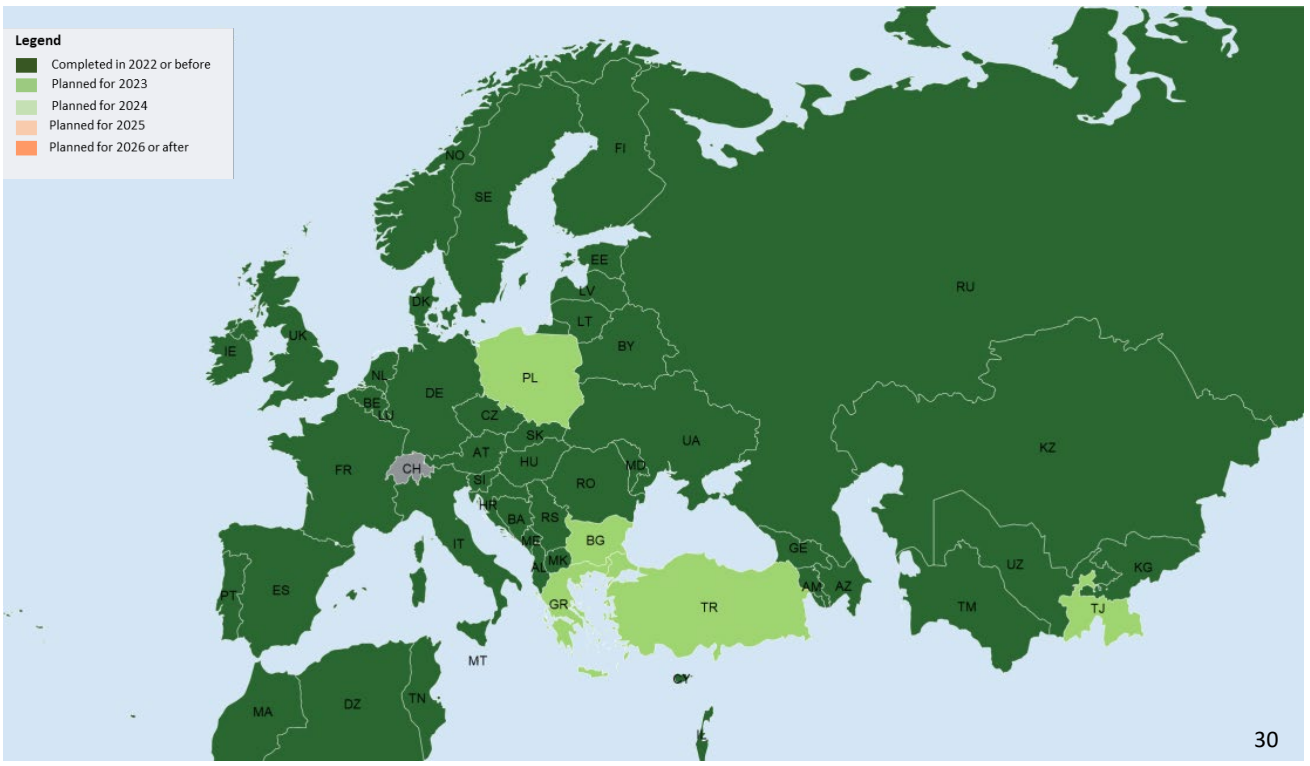
New Implementers

NO



Progress **among non-completed** stakeholders





ACDM-B0/1	Airport CDM Information Sharing (ACIS)
ACDM-B0/2	Integration with ATM Network function

Description:

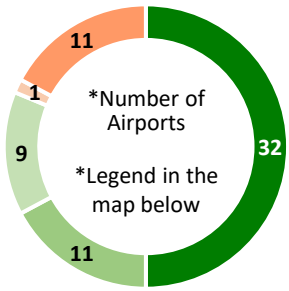
Airport Collaborative Decision Making (A-CDM) is a concept that aims to improve the efficiency and resilience of airport operations by optimizing the use of resources and improving the predictability of air traffic. ACDM-B0/1 represents the first collaboration step among stakeholders involved in aerodrome operations.
It consists in the definition of common specific milestones for several flight events taking place during surface operations. ACDM-B0/2 consists in feeding arrival information from the network into A-CDM and, at the same time, coordination of specific departure milestones.

Implementation summary (end 2022):

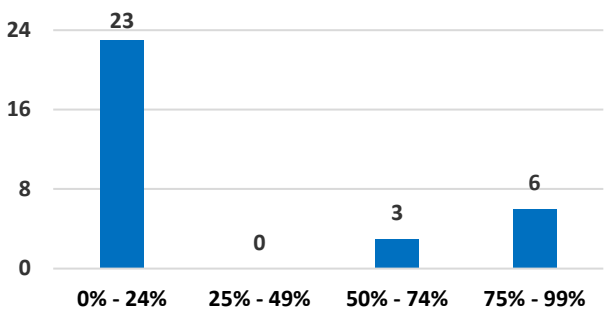
- Currently the Element is implemented at 32 locations across the Region (1 new completion in 2022)
- There is noticeable interest in deployment, with other 32 airports reporting implementation plans or activities
- In general, the Element is of interest to the main, busiest airports of the States. For the other airports, the Element is considered “Not Applicable” or “Not Yet Planned” because of the lack of operational needs
- In the non-LSSIP States, A-CDM is implemented in BY (UMMS) while the work is ongoing in RU (UUWW, UUDD and UUEE) with implementation expected in 2024, to be followed by airports in KG and UZ
- The only difference in the progress of the 2 Elements is shown by UMMS which has implemented ACDM-B0/1 while ACDM-B0/2 is expected for 2025.

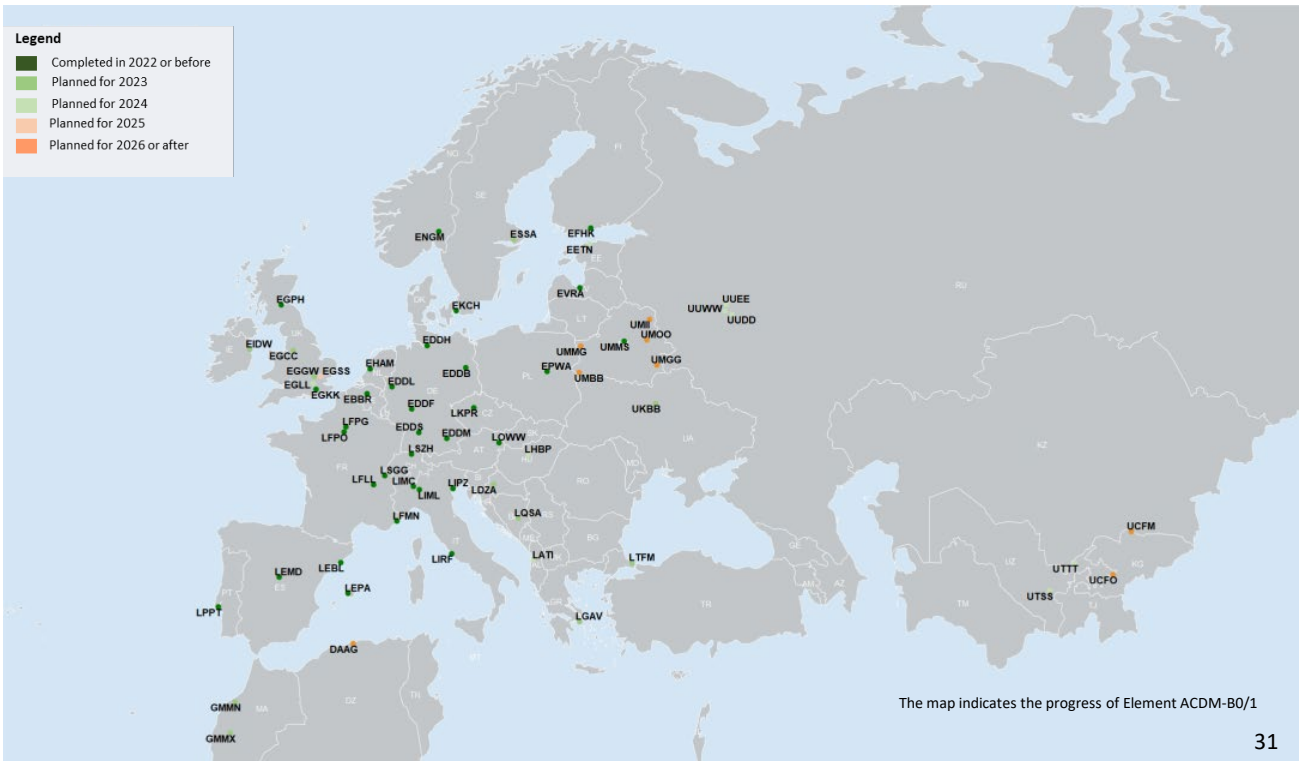
New Implementers

LOWW



Progress **among non-completed** stakeholders





APTA-B0/1	PBN Approaches (with basic capabilities)

Description:

This Element represents the use of PBN in design of approach procedures to provide more flexibility to airspace planners to manage the use of airspace, and to facilitate access to airports. It includes the provision of instrument approach procedures with vertical guidance in support of stabilized approaches.

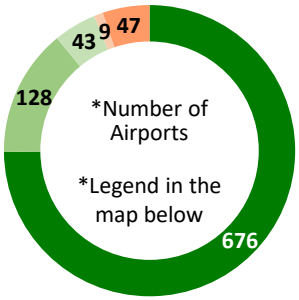
PBN approaches allow for guided lateral paths (LNAV) and (optionally) with associated advisory vertical paths based on Baro-VNAV functionality for equipped aircraft (LNAV/VNAV).

Implementation summary (end 2022):

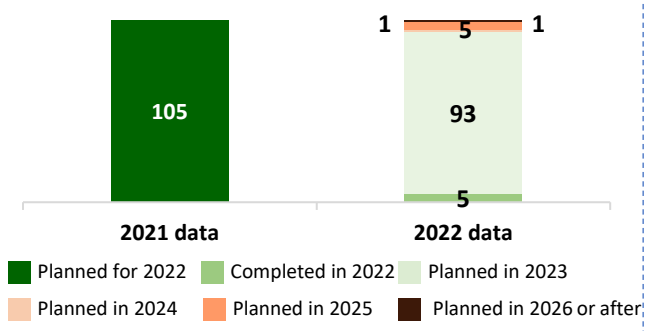
- The implementation of Performance-Based Navigation (PBN) is well under way in the EUR Region, as it represents one of the cornerstones for the CNS rationalisation
- More than 700 airports In the entire Region (69 more than in the previous eition of the Report) have already published their PBN approach procedures down to LNAV or LNAV/VNAV minima for at least one runway-end
- Almost 170 other airports expect implementation before the end of 2024
- Overall, since the previous Report, the number of airports reporting implementation or plans for implementation grew by almost 100 airports, reaching now 935
- These numbers should be considered rather conservative, as the situation is constantly evolving, and new procedures are being published in AIPs
- Note: LPV and RNP AR approaches are covered by APTA-B1/1.

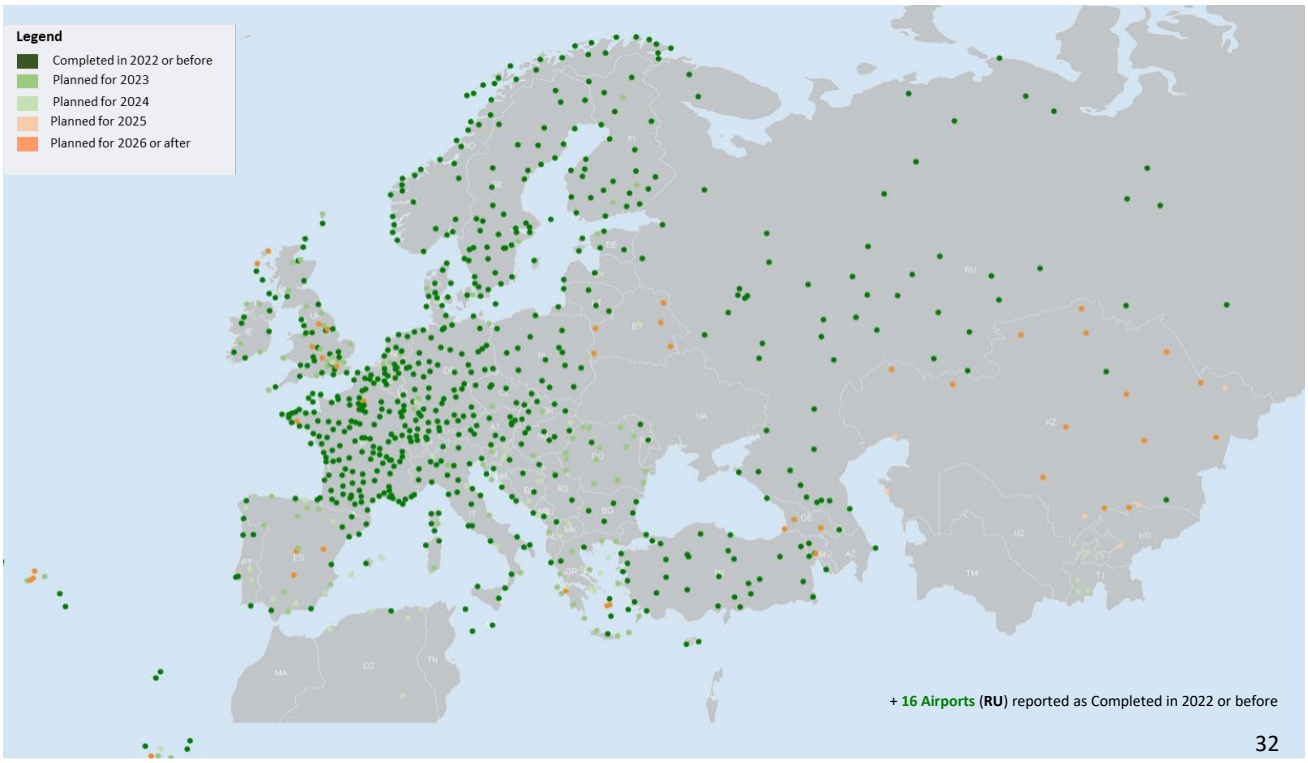
New Implementers

69 airports



Expected 2022 Implementation vs Achieved 2022 Implementation





APTA-B0/2	PBN SID and STAR procedures (with basic capabilities)

Description:

This Element represents the use of PBN in design of arrival and departure procedures to provide more flexibility to airspace planners to manage the use of airspace for enhancing arrival and departures in terminal areas. It provides the basic capability to support the implementation of CDO and CCO operations.

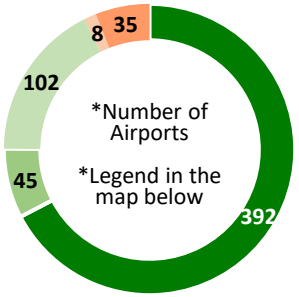
The flexibility of arrival path design supports the ability to connect en-route to the approach in an optimal manner, enabling better airspace management, reduced path distance, and reduced noise footprint. A precisely defined arrival path supports more optimum descent planning in operations and provides a building block for reducing ATC intervention during descent.

Implementation summary (end 2022):

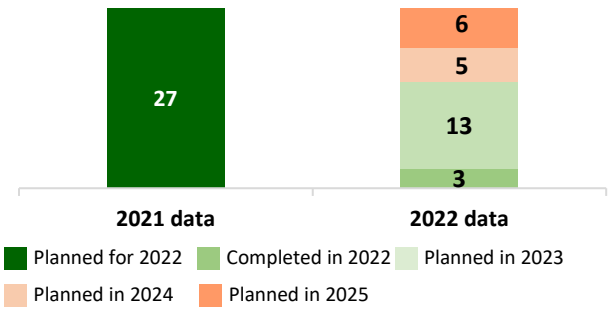
- The implementation of the Element is progressing well in the EUR Region
- At least 390 airports throughout the Region are already served with PBN SID and STAR procedures based on RNAV1 performance requirements for at least one runway-end
- Almost 150 others are expected to achieve completion before the end of 2024
- Overall, since the previous Report, the number of airports reporting implementation or plans for implementation grew by almost 80 airports, reaching now 587
- Among the non-LSSIP States the interest is also high in all reporting States, with RU leading the way with more than 90 airports having this Element already completed or planned in the very short term.

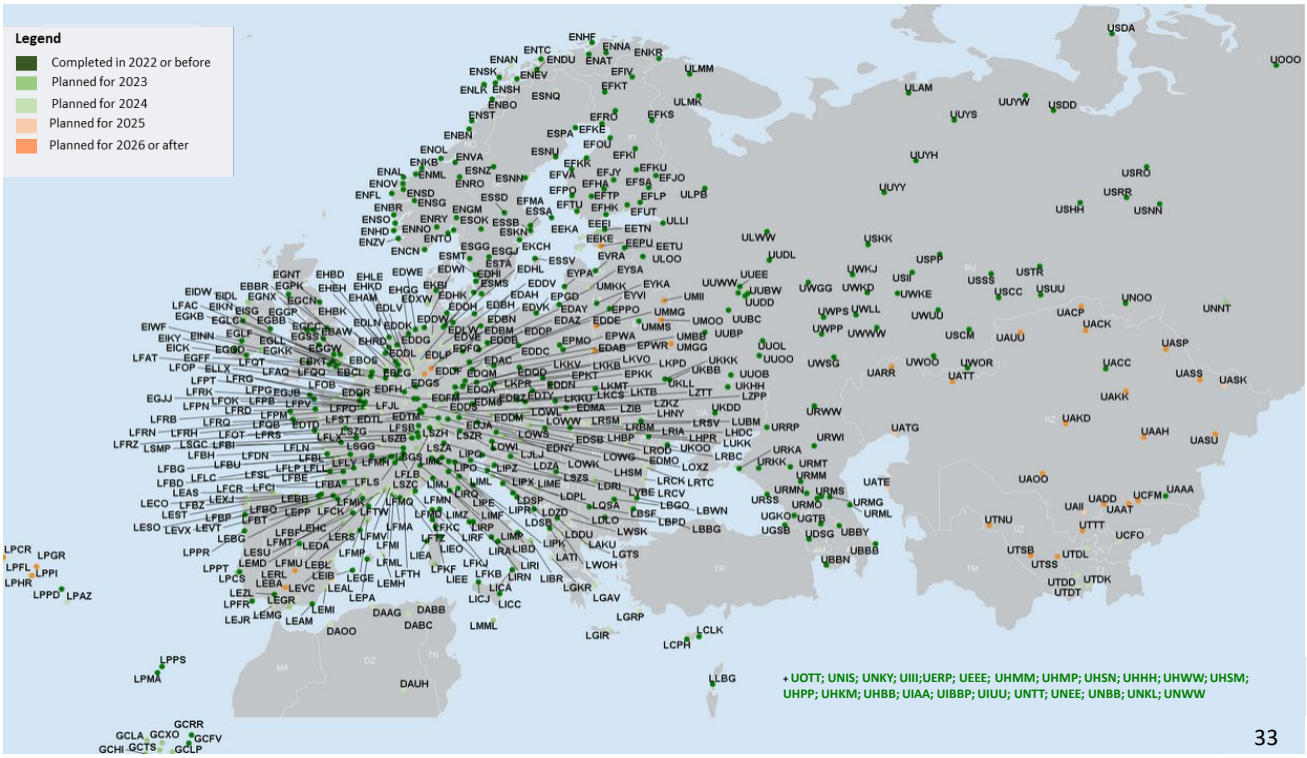
New Implementers

58 airports



Expected 2022 Implementation vs Achieved 2022 Implementation





APTA-B0/3	SBAS/GBAS CAT I precision approach procedures

Description:

This Element represents the use of augmented GNSS systems to allow aircraft operation with a more precise vertical and lateral navigation capability. Introduction of SBAS and GBAS CAT I procedures allow for reduced minima at aerodromes situated in areas of significant terrain, where ILS is not possible.

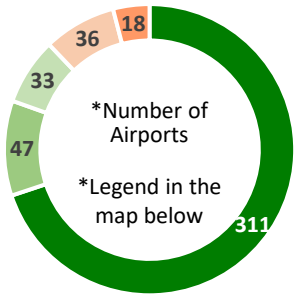
It also provides a building block for aircraft with equipment such as SVS, EVS HGS to operate to decision altitudes below standard CAT I Minimums using special operational authorizations. For aircraft with such approvals, this increases airport availability in weather conditions that would otherwise preclude operations.

Implementation summary (end 2022):

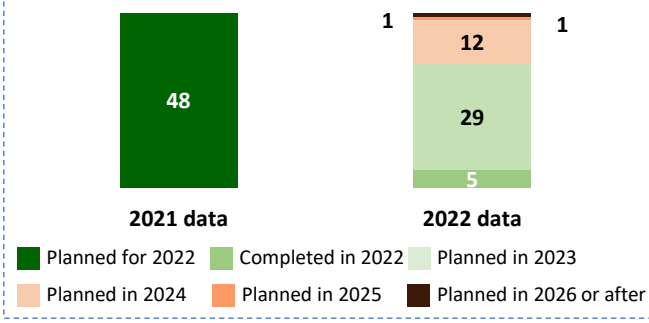
- There is substantial interest in deploying the Element within the EUR Region
- More than 310 airports have so far published such approaches for at least one runway-end
- Vast majority of these are LPV CAT I (SBAS), while GLS approaches are currently implemented or planned at more than 100 airports throughout the EUR Region, most of them in NO and RU (see NAVS-B0/1)
- The implementation is continuous, and more airports are likely to deploy the Element. Among them, 80 airports expect to finalise deployment by the end of 2024
- In non-LSSIP States, the Element is either already implemented or scheduled for implementation in DZ, BY, KZ, KG and RU, with Russia leading the way with over 120 planned or implemented locations.

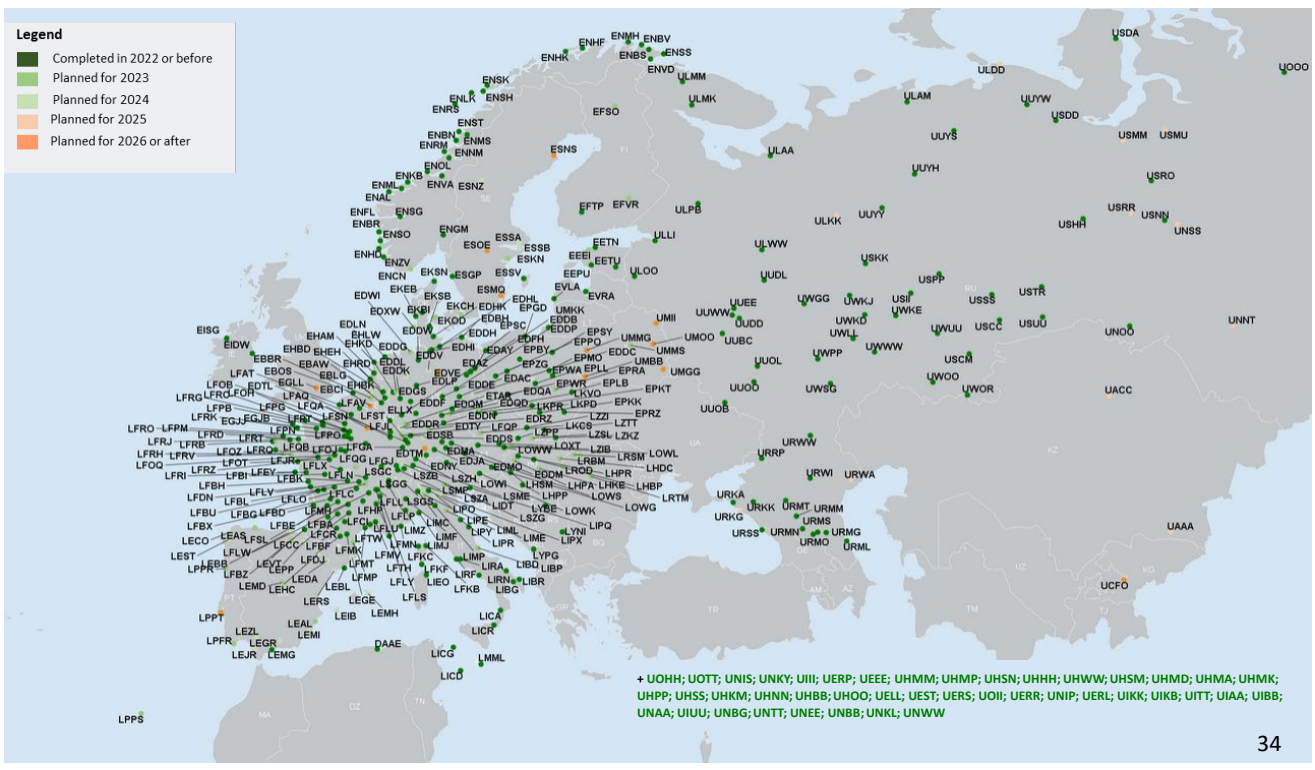
New Implementers

37 airports



Expected 2022 Implementation vs Achieved 2022 Implementation





APTA-B0/4	CDO (Basic)

Description:

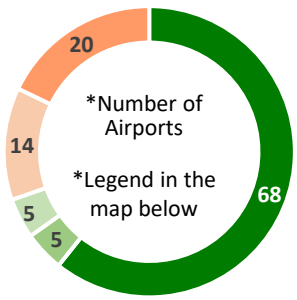
CDO represent ATC procedures to facilitate uninterrupted descent, reducing fuel burn and ATC/Pilot interaction. Arriving aircraft are allowed to descend continuously from top of descent by employing minimum engine thrust, ideally in a low drag configuration, prior to the Initial Approach Fix (IAF).

Implementation summary (end 2022):

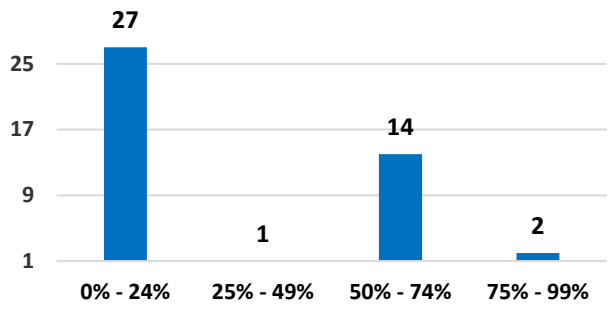
- The implementation of the Element shows good progress, with 68 airports throughout the Region reporting completion
- There is also sustained interest in deploying the Element in the future, as 44 airports have reported their implementation plans between 2023 and 2027
- Among the non-LSSIP States, the Element is already implemented at 7 airports in BY and 2 in KZ, while the implementation is reported as ongoing or planned at several airports in DZ (5 airports), KZ (23) and RU (9), with implementation timeframes ranging from 2024 and 2027.

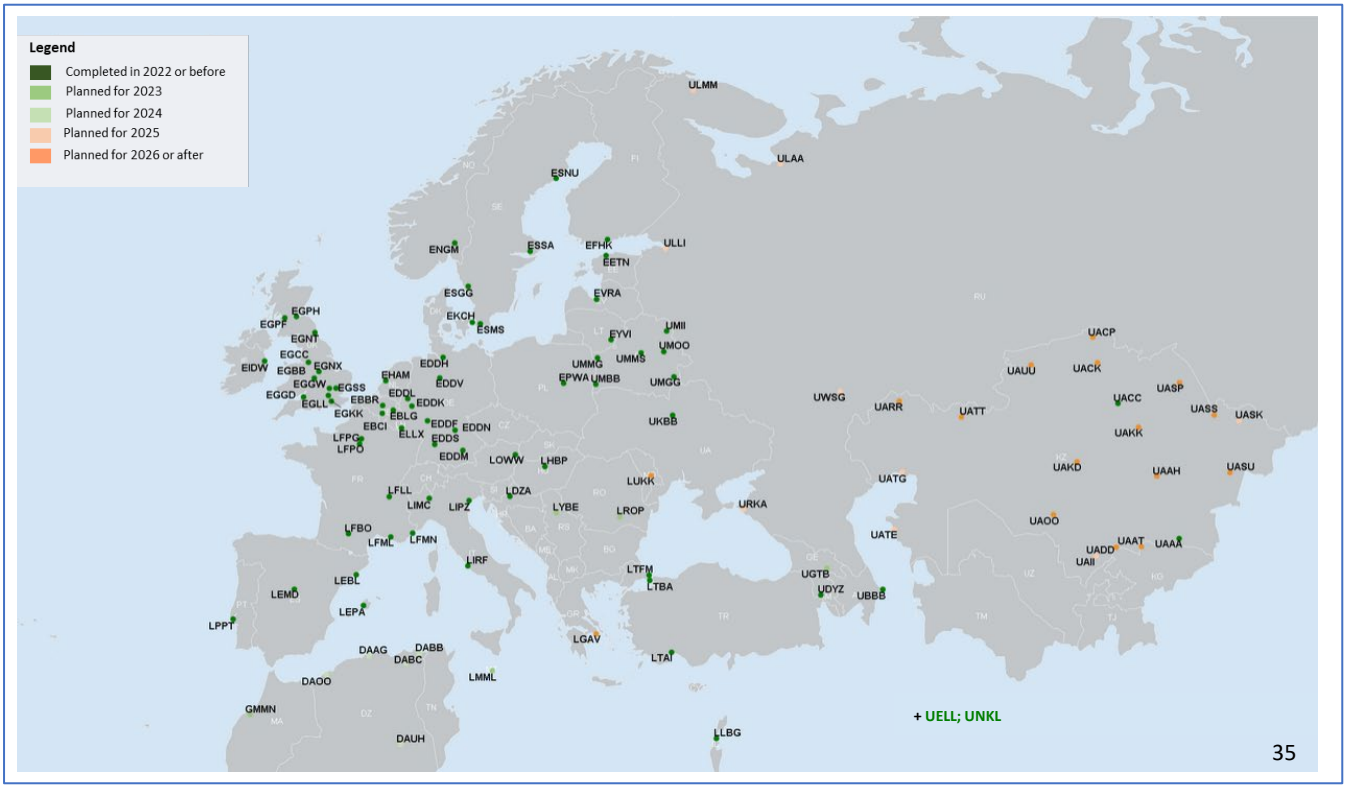
New Implementers

LTBA, LTFM, LTAI



Progress **among non-completed** stakeholders





APTA-B1/4	CDO (Advanced)

Description:

CDO represent ATC procedures to facilitate uninterrupted descent, reducing fuel burn and ATC/Pilot interaction. Arriving aircraft are allowed to descend continuously from top of descent by employing minimum engine thrust, ideally in a low drag configuration, prior to the Initial Approach Fix (IAF).

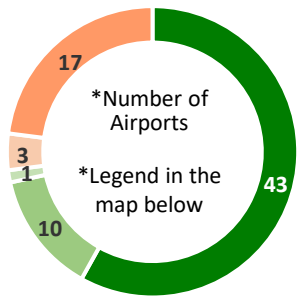
Advanced CDO builds on the basic CDO capabilities and adds advanced vertical path management. PBN with vertical navigation (VNAV) which is an altimetry-based capability is used, allowing equipped aircraft to precisely descend on a vertical path, as computed by avionics equipment, while providing the flight crew with navigation performance information.

Implementation summary (end 2022):

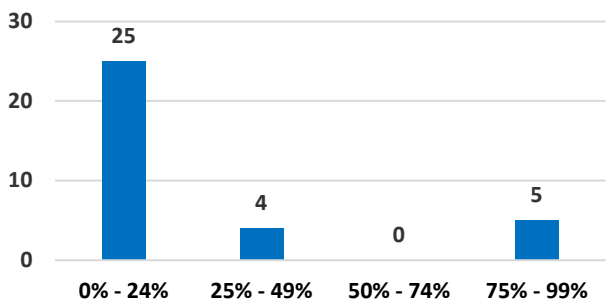
- The Element is already implemented at 43 airports within the Region (all in the LSSIP States)
- The completion rate is slightly lower than the basic CDO (see APTA-B0/4) as many implementers consider that the basic features are enough for their operational environments
- Deployment is expected to be finalised at 11 other airports, before the end of 2024
- Among the non-LSSIP States the Element is planned for implementation in BY (7 locations, in 2030), KG (3 locations in 2027) and KZ (2 locations in 2026), while the other reporting airports consider the Element as "Not Applicable" (27 airports) or do not have implementation plans yet (15 airports).

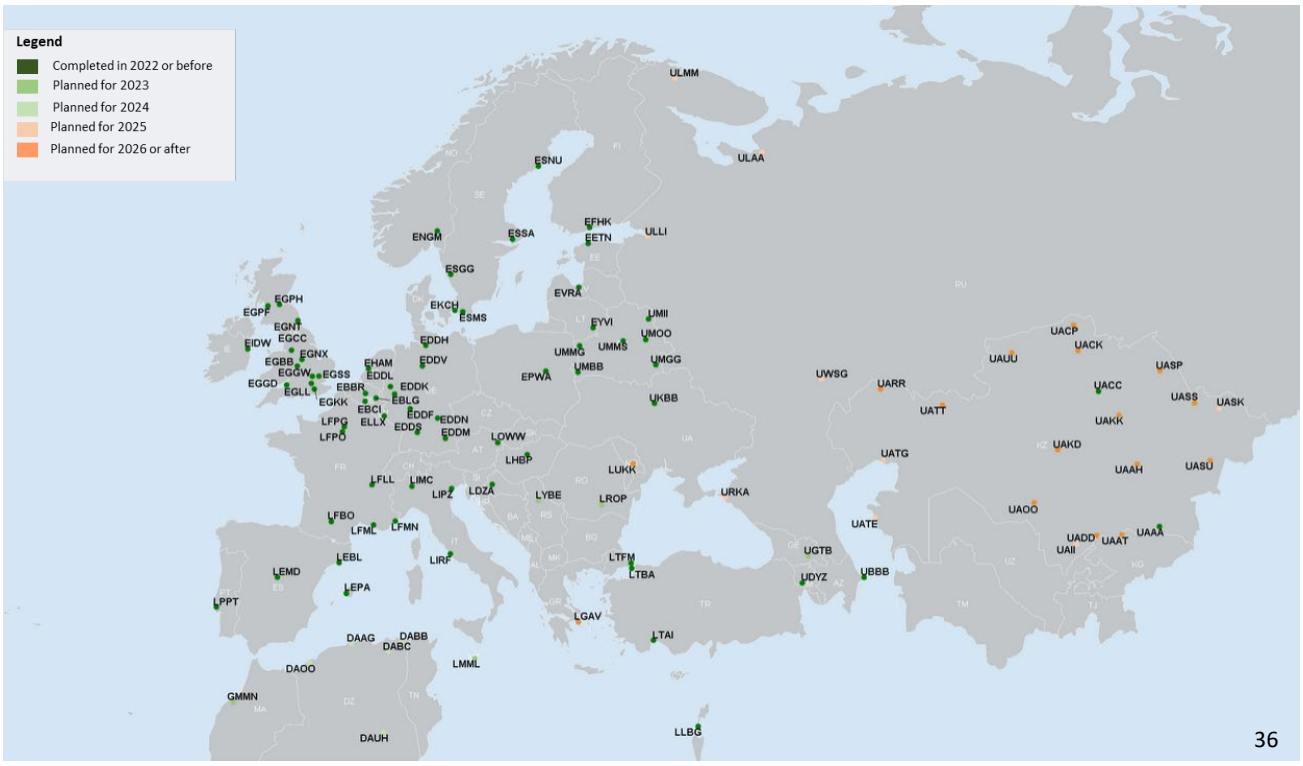
New Implementers

EKCH, EIDW, LTFM, LTAI



Progress **among non-completed** stakeholders





APTA-B0/5	CCO (Basic)
APTA-B1/5	CCO (Advanced)

Description:

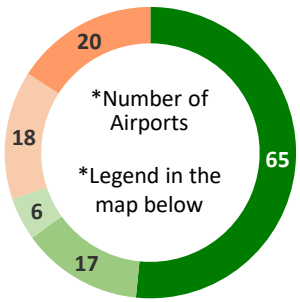
CCO represent ATC procedures to facilitate uninterrupted climb, reducing fuel burn and ATC/Pilot interaction. Departing aircraft are allowed to climb continuously, to the greatest possible extent, by employing optimum engine thrust. An optimal continuous climb should start on take-off and allow the aircraft to climb efficiently using climb profiles that reduce controller pilot communications and segments of level flight until the top of climb. Advanced CCO builds on the basic CCO capabilities and adds advanced vertical path management. PBN with vertical navigation (VNAV) allows equipped aircraft to precisely ascend on a vertical path, while providing the flight crew with navigation performance information.

Implementation summary (end 2022):

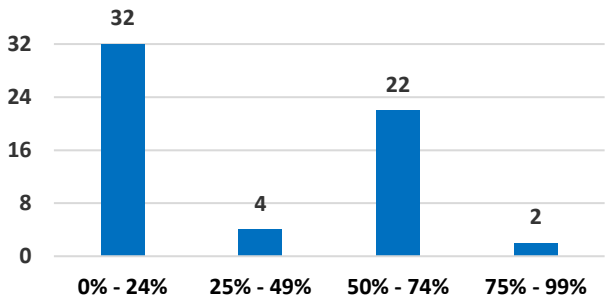
- Continuous Climb Operations (CCO) are widely implemented throughout the ICAO EUR Region, with a total of 65 airports already applying (at least) Basic CCOs
- Implementation plans are reported by 41 other airports which expect to finalise deployment before end 2025
- Among the non-LSSIP States, the Basic CCO is implemented only in BY (7 locations) while implementation plans are reported by DZ (5 locations, by end 2024), KG (1 location, in 2023), KZ (7 locations by end 2025 followed by 18 locations by end 2027) and RU (9 locations, by end 2025). There is less interest in the deployment of the more advanced Element (APTA-B1/5), with plans in BY (6 locations by 2030). KG (3 locations by 2027) and KZ (2 locations by 2026).

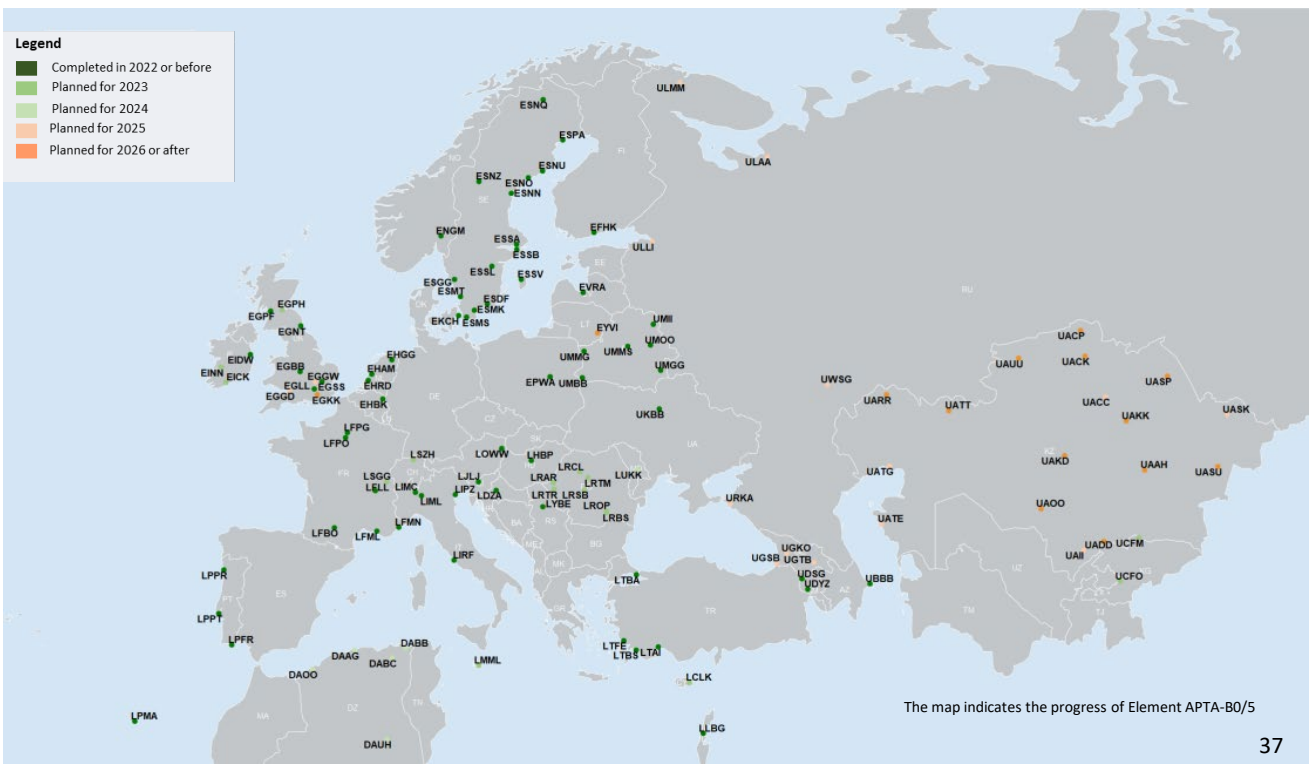
New Implementers

LYBE, EGBB



Progress **among non-completed** stakeholders





APTA-B0/6	PBN Helicopter Point in Space (PinS) Operations

Description:

PBN Point in Space (PinS) operations include arrivals and departure procedures, specific to helicopters, that allow visual landing and take-off operations from heliports or other landing locations.

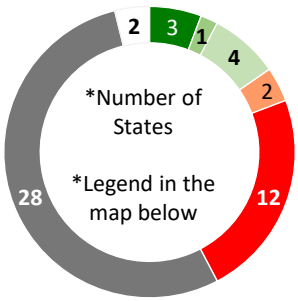
Helicopter unique capabilities allow IFR operations that start or terminate from any suitable point in space (PinS), as long as visual conditions support take-off/landing capability from that point.

Implementation summary (end 2022):

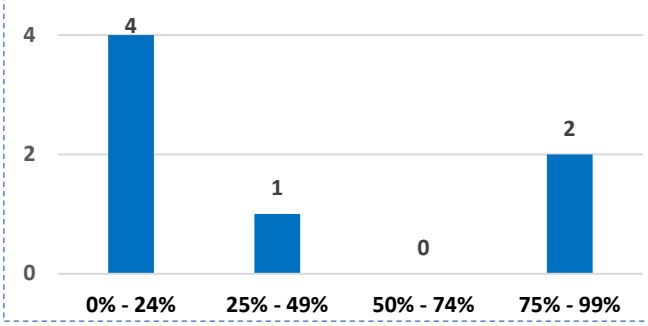
- The interest for the deployment of the Element remains limited, with most States either having no plans for implementation or deeming it “Not Applicable”
- The main reason for not implementing the Element is the lack of business or operational needs, as well as the characteristics of the operational environments
- Only 3 States (EE - in Tallinn CTR , CH - Low Flight Network, NO - IFR routes for helicopters in several TMAs) have implemented the Element, another one (IE) expecting to finalise deployment by end 2023
- Among the non-LSSIP states within the Region, BY is the only State with intentions to implement the Element, with a target date set for 2030, in line with the PBN Implementation Plan for Belarus, which was approved by the Department of Aviation in 2016.

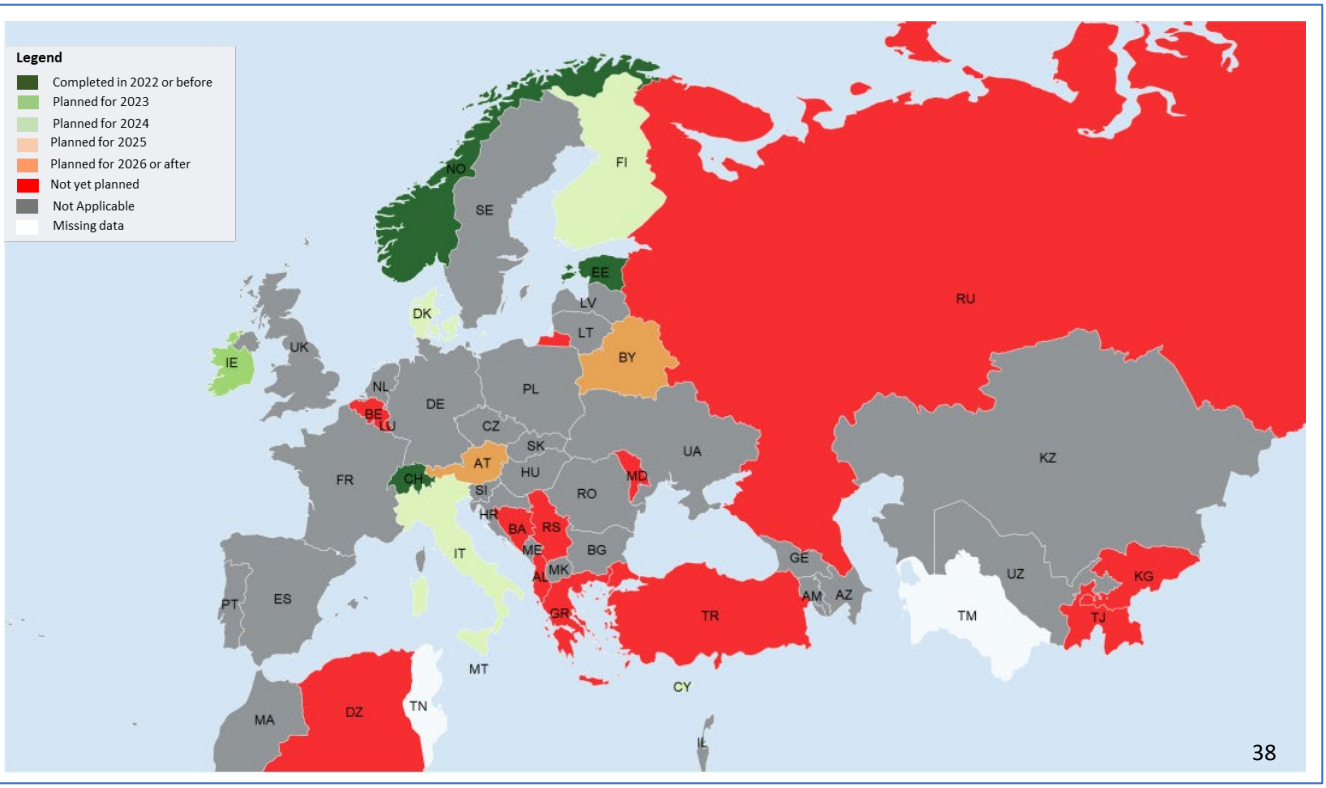
New Implementers

None



Progress **among non-completed** stakeholders





APTA-B1/1	PBN Approaches (with advanced capabilities)

Description:

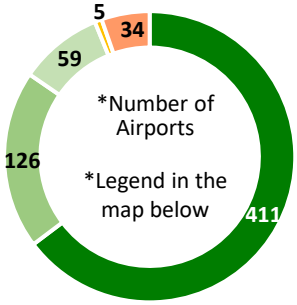
This Element represents the use advanced features of PBN in design of approach procedures to provide more access to airports in challenging environments, where conventional procedures are unsuitable.
PBN approaches with advanced functionality allow for the introduction of more flexible approaches including the use of RF legs within the Final Approach Segment (FAS) and RNP. Advanced RNP is the navigation specification which encompasses all elements of PBN (excluding RNP AR APCH). RNP AR APCH requires a Specific Approval.

Implementation summary (end 2022):

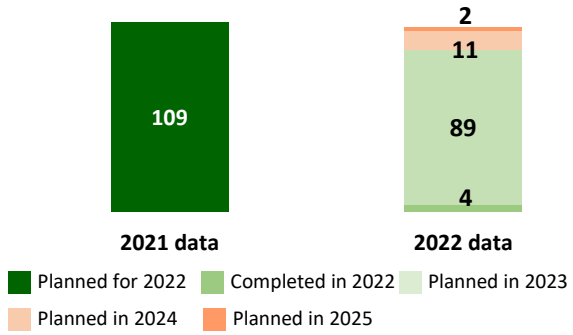
• Interest in implementing advanced RNP approach procedures remains robust throughout the Region, with a minimum of 411 airports having these procedures officially published in the AIP for at least one of their runway-ends
• Another 126 airports are in the process of planning to publish LPV or RNP AR approach procedures before the end of 2023
• It should be noted that for a number of airports the primary impediment to implement this Element is insufficient EGNOS coverage
• Among the non-LSSIP States the Element is not yet implemented but it is reported as planned for implementation at 12 locations in BY, KG and KZ, between 2026 and 2028.

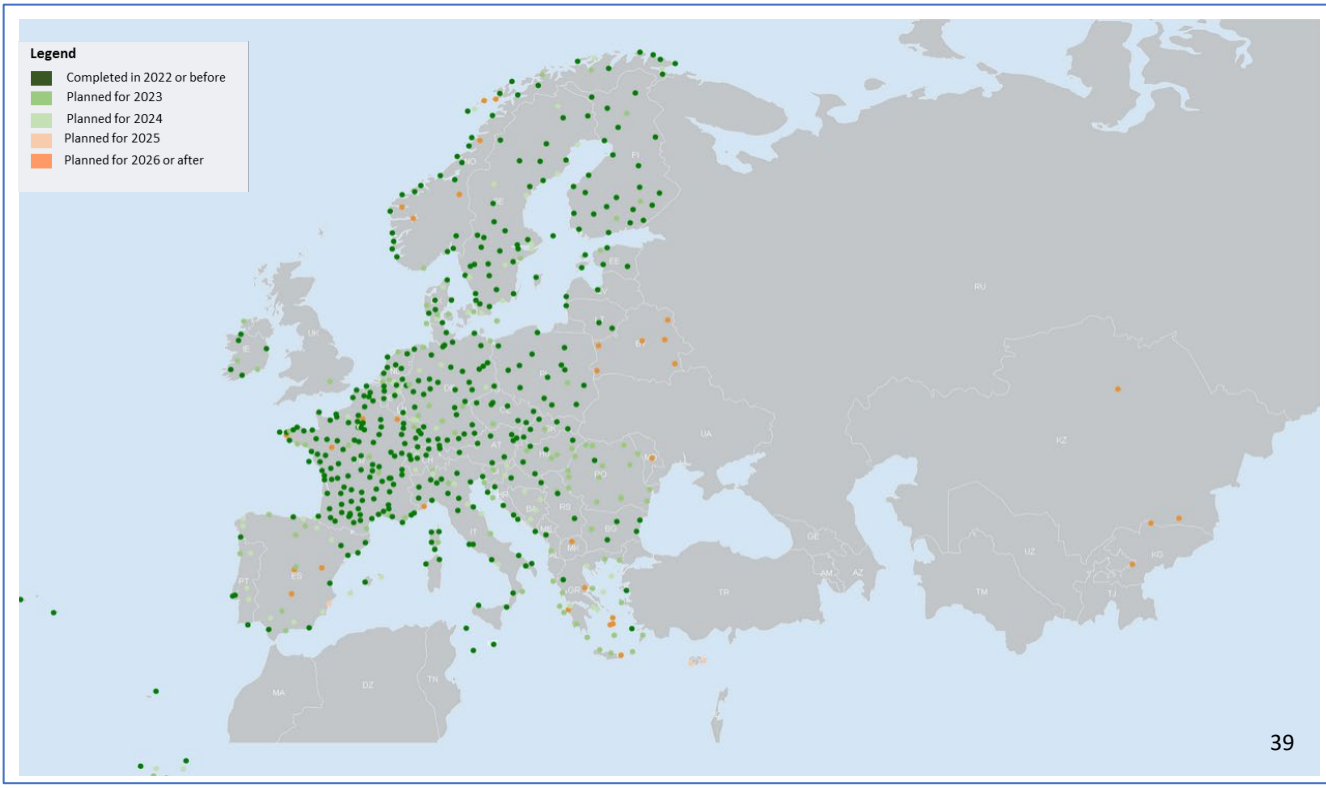
New Implementers

EDDN, LICA, LEDA, LERS, LECH



Expected 2022 Implementation vs Achieved 2022 Implementation





APTA-B1/2	PBN SID and STAR procedures (with advanced capabilities)

Description:

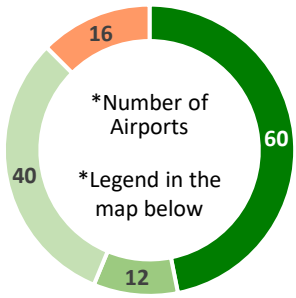
This Element represents the use advanced features of PBN in design of arrival procedures to provide more flexibility in airspace design (e.g., RF legs outside of the Final Approach Segment), leading to greater efficiency in the terminal area and increased capacity.
Advanced RNP is the navigation specification which encompasses all elements of PBN (but excluding RNP AR APCH). It requires an FMS based on a TSO-C115d.

Implementation summary (end 2022):

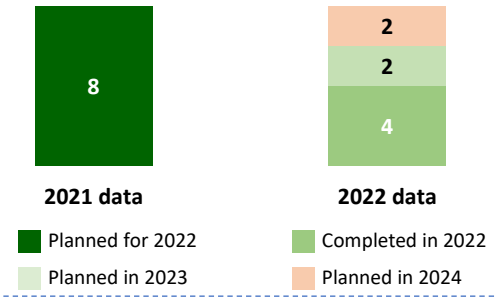
- Interest in RNP1 SIDs and STARs with RF legs remains somehow limited throughout the Region, as several States consider that RNP1 implementation is unnecessary due to the adequacy of RNAV1 for their operational needs
- Nonetheless, 60 airports have successfully implemented this Element, while an additional 12 airports anticipate completing the implementation process by the end of 2023
- Among non-LSSIP states, BY, KG, and KZ have expressed interest in deployment at 12 locations, all with plans within the 2026-2028 timeframe.

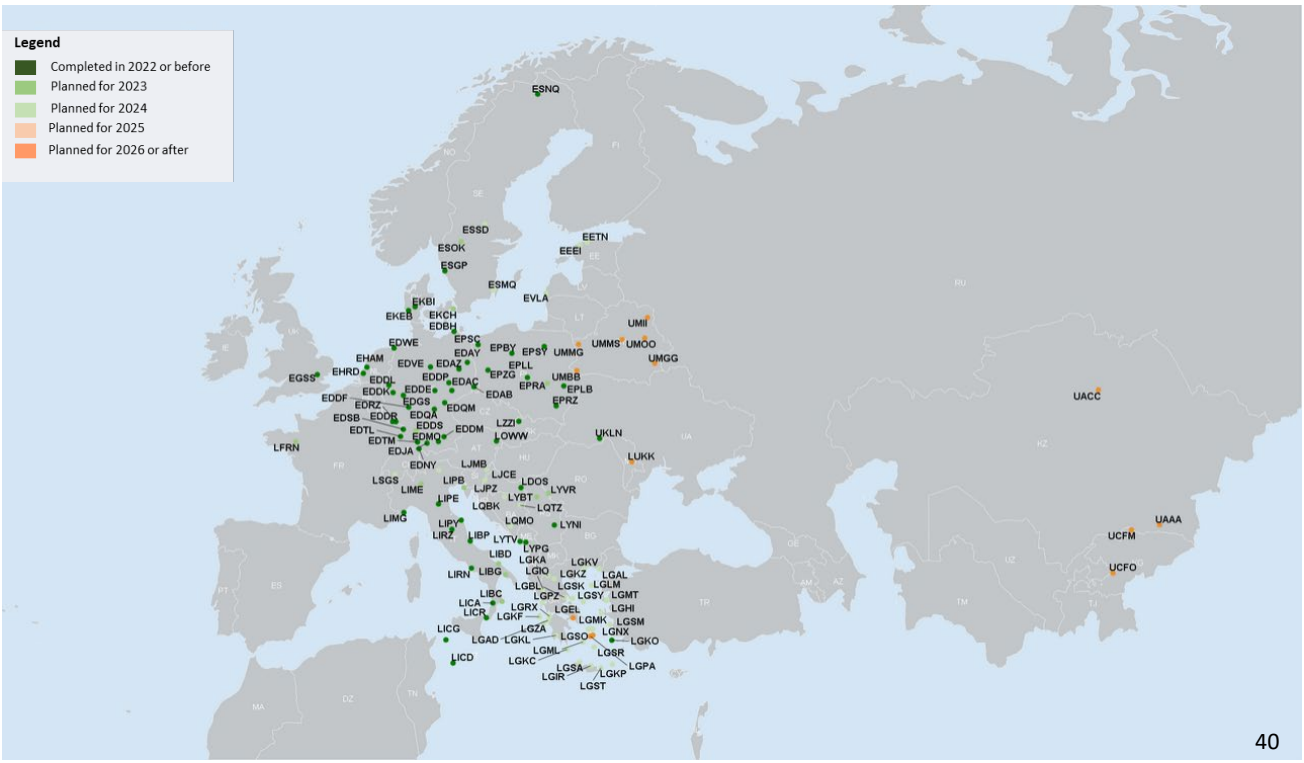
New Implementers

LOWW, LICA, EHAM



Expected 2022 Implementation vs Achieved 2022 Implementation





ASUR-B0/1	Automatic Dependent Surveillance – Broadcast (ADS-B)

Description:

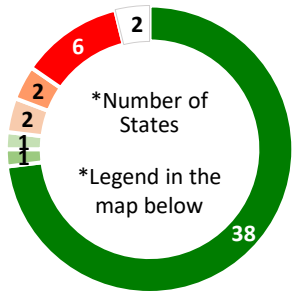
Automatic Dependent Surveillance – Broadcast (ADS-B) provides an aircraft's identification, position, altitude, velocity, and other information to any receiver (airborne or ground) within range. The broadcasted aircraft position/velocity is normally based on the global navigation satellite system (GNSS) and transmitted at least once per second.
As such, ADS-B supports the provision of Air Traffic Services and operational applications at reduced cost and increased surveillance coverage.

Implementation summary (end 2022):

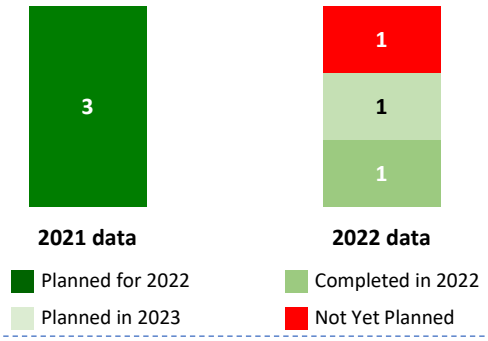
- Deployment of the Element continues within the EUR Region with more and more ADS-B stations deployed either as stand-alone or integrated within MLAT/WAM systems
- 38 States are reporting that ADS-B systems are already in operational use
- Moreover, among the States which have not yet reported the completion of the Element, ADS-B stations have already been installed but not yet integrated in the surveillance systems
- More than 2000 ADS-B stations (stand alone or integrated in MLAT/WAM systems) are currently deployed all over the Region
- Within the non-LSSIP States, the Element is reported as completed by BY, TJ and TN and in implementation by KG, RU (both by 2025) and by KZ and UZ (by 2026 or later).

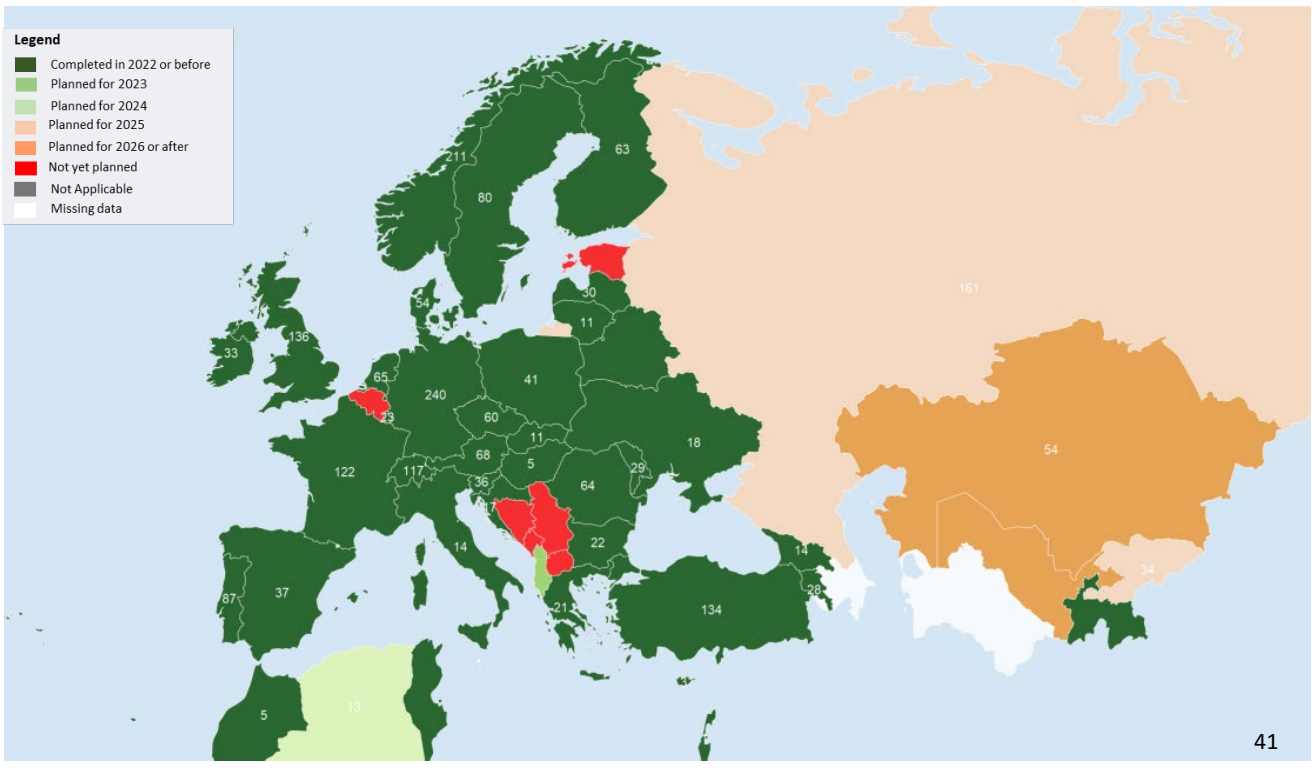
New Implementers

LT



Expected 2022 Implementation vs **Achieved 2022 Implementation**





ASUR-B0/2	Multilateration cooperative surveillance systems (MLAT)

Description:

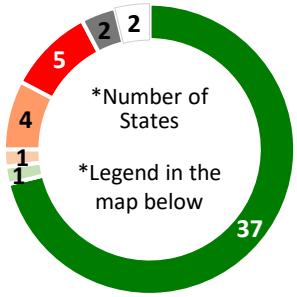
MLAT is a new technique providing independent cooperative surveillance. The MLAT system interrogates an aircraft, and the transponder reply is received by multiple receivers located in different places. The reply's times of arrival difference at the receivers allows the position of the source of signals to be determined, with an accuracy that is dependent on the number of receivers and their location relative to the aircraft.
MLAT allows cooperative surveillance in rough terrain such as in mountainous regions or on airport surfaces where surveillance systems requiring a rotating radar dish had performance difficulties. The technique is now also used to provide surveillance over wide area (wide area MLAT system - WAM).

Implementation summary (end 2022):

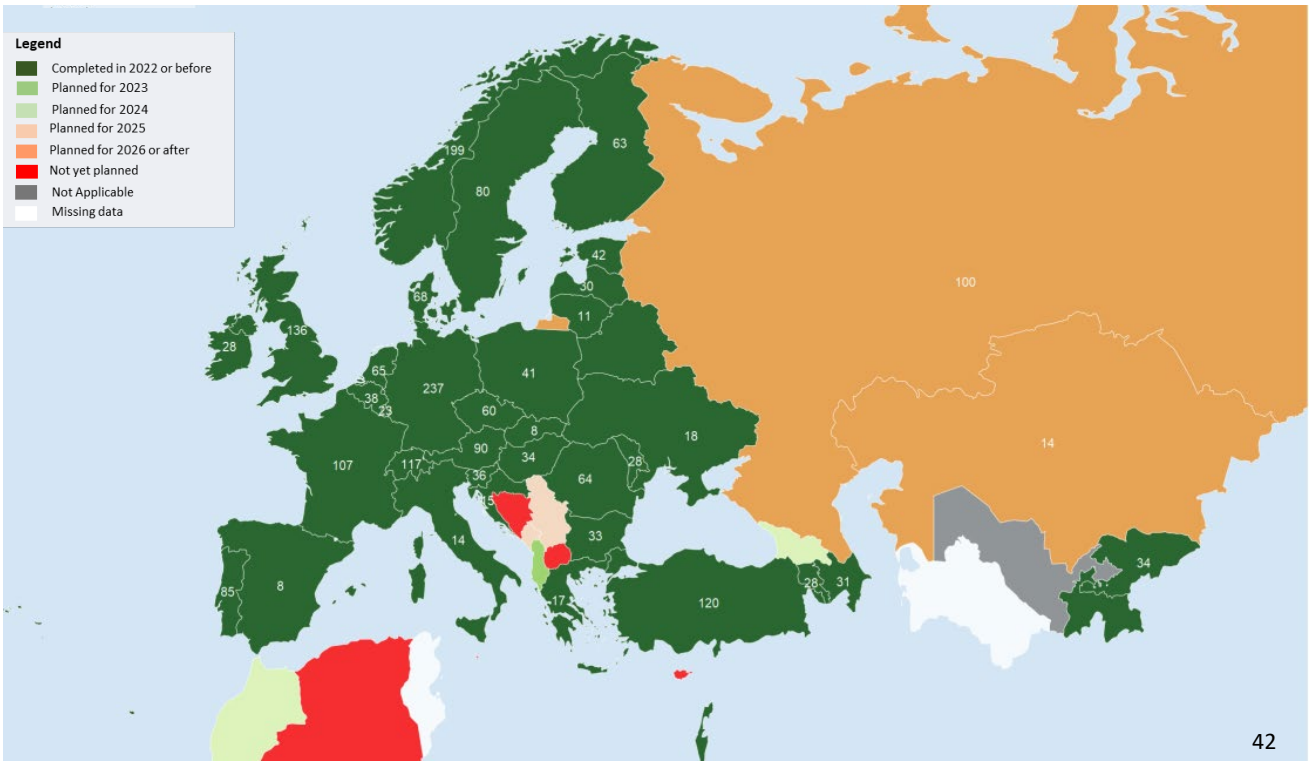
- The interest in using multilateration (MLAT) for providing surveillance at airports (LAM - Local Area Multilateration) or over wide areas (WAM - Wide Area Multilateration) is very high all across the EUR Region, with 37 States having completed the deployment of the Element
- Roughly 2000 sensors are deployed in the Region either as part of LAM or WAM systems
- LAM is already widely used to enable airport surface surveillance, allowing the implementation of Advanced Surface Movement Guidance and Control Systems (A-SMGCS)
- States reporting the implementation still in progress (KZ, RU) have actually deployed WAM/LAM systems in parts of their airspace or at airports and implementation continues in other locations.

New Implementers

None



Expected 2022 Implementation vs Achieved 2022 Implementation



ASUR-B0/3	Cooperative Surveillance Radar Downlink of Aircraft Parameters (SSR-DAPS)

Description:

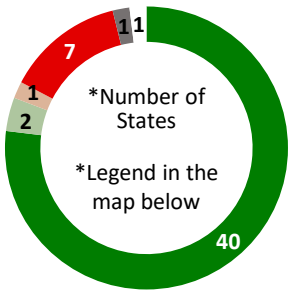
Downlink of Aircraft Parameters (DAPS) includes both Controller Access Parameters (CAPs) and System Access Parameters (SAPs). Possible CAPs include Magnetic Heading, Indicated Airspeed / Mach Number, Barometric rate of climb/descent, and Selected Altitude (which can also be consider a SAP). SAPs include Roll Angle, Track Angle Rate, True Track Angle, and Barometric Pressure Setting. SSR-DAPS enables ATM systems to obtain additional information from an aircraft transponder, via interrogation by a cooperative surveillance system (Mode S radar or MLAT). This additional information can be used to increase controller awareness and reduce the volume of air-ground voice communications, and/or to improve the performance of tracking systems or safety net systems such as STCA and MSAW.

Implementation summary (end 2022):

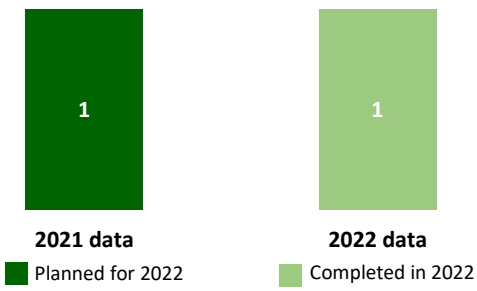
- The vast majority of States in the Region (40 States) have the technical capability to receive, display and process at least one of the DAPS
- The number of processed parameters and the extent of operational use varies extensively among the States
- The most widely used parameter is the Selected Altitude (SA). This information is reported as integrated in the ATC tools (notably safety nets) by 23 States. The SA is also reported as displayed for the information of the controllers by 35 States. This is followed by the Magnetic Heading and by the Indicated Airspeed, mostly shown for information on the ATCO ODS (Operator Input and Display Systems)
- Within the non-LSSIP States, the Element is implemented by BY, TN and UZ and planned for deployment by KG.

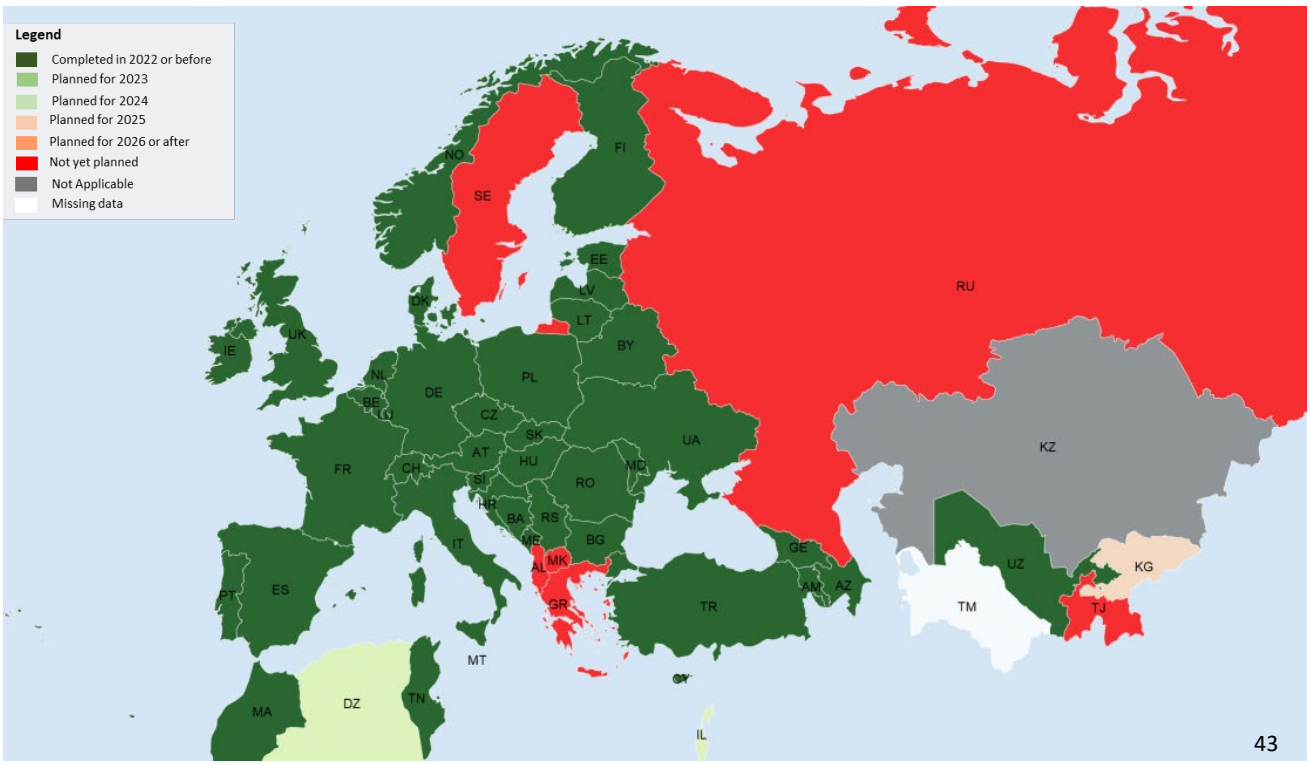
New Implementers

BA, CY, UZ



Expected 2022 Implementation vs Achieved 2022 Implementation





ASUR-B1/1	Reception of aircraft ADS-B signals from space (SB ADS-B)

Description:

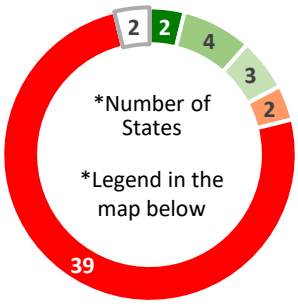
ADS-B provides an aircraft's identification, position, altitude, velocity, and other information to a receiver on an orbiting satellite. The broadcasted aircraft position/velocity is normally based on the global navigation satellite system (GNSS) and transmitted at least once per second.
Aircraft ADS-B signals are received on one or more orbiting satellites, and this information is passed through a data network to a Service Delivery Point at an Air Traffic Service facility (or facilities).

Implementation summary (end 2022):

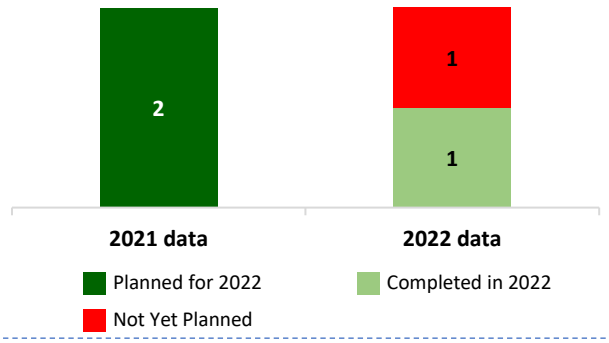
- At present, there is limited interest in implementing the Element
- As anticipated, the Element appeals to the States providing air navigation services over the high seas, for which SB ADS-B would allow the provision of surveillance services, with an obvious safety and efficiency benefit
- Currently only 2 States have implemented the Element while 39 States do not have any plans for its deployment, because of the perceived lack of a business/operational need
- Among the non-LSSIP States, KZ and TJ are considering the possibility for deployment in 2024 while BY and UZ are reporting longer term possible plans (after 2026)

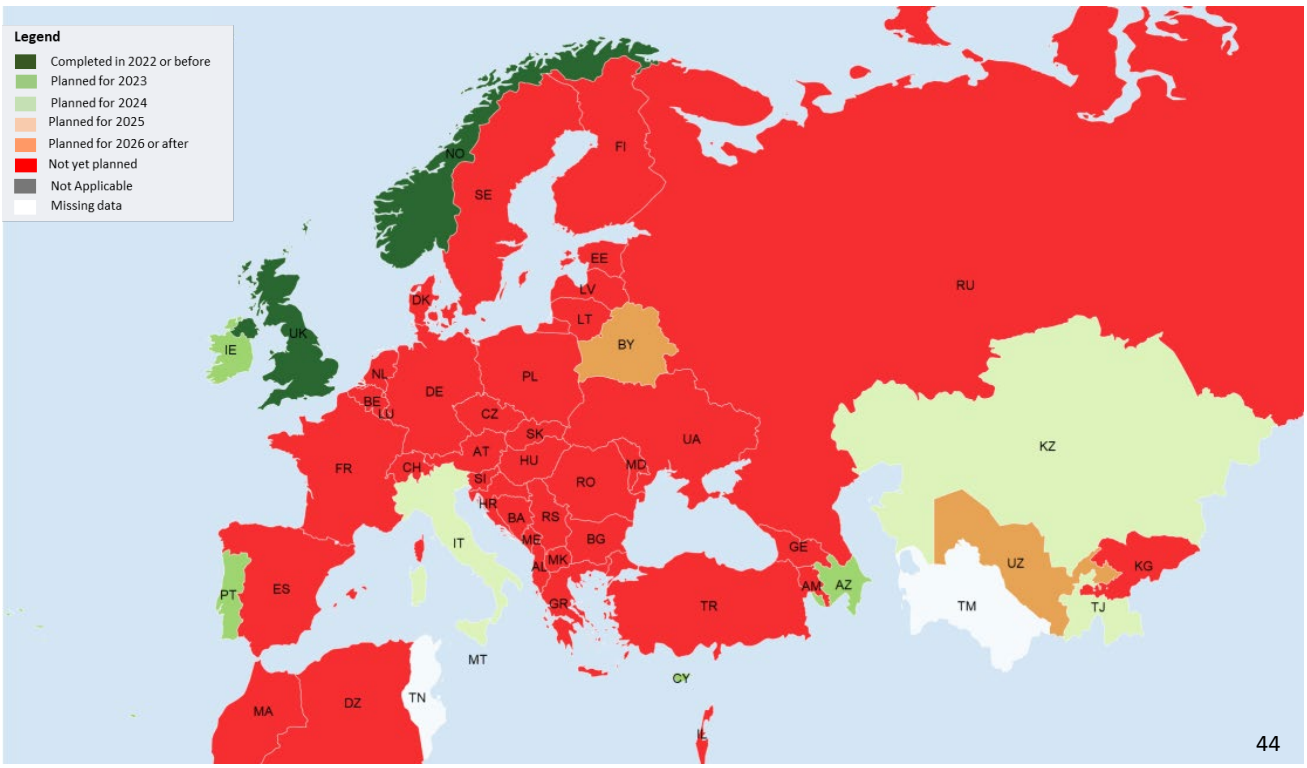
New Implementers

None



Expected 2022 Implementation vs **Achieved 2022 Implementation**





COMI-B0/4	VHF Data Link (VDL) Mode 2 Basic
COMI-B1/2	VHF Data Link (VDL) Mode 2 Multi-Frequency

Description:

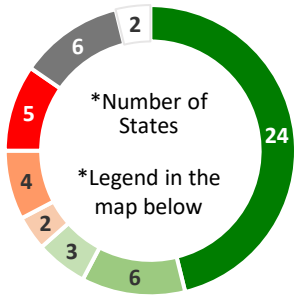
VDL Mode 2 is narrow-band transceiver operating in the VHF aviation protected spectrum band, which will transmit data to support data communications between the aircraft and ground. VDL Mode 2 Multi-Frequency consists of a set of air-ground protocols that increase the data rate to 31.5 kbits.
It allows transmission from a character-oriented protocols to digital or bit-based protocols while using VHF air and ground narrow-band transceiver operating in the VHF aviation protected spectrum band, which will transmit textual data to and from the cockpit to support data communications between the pilot and the air traffic controller.

Implementation summary (end 2022):

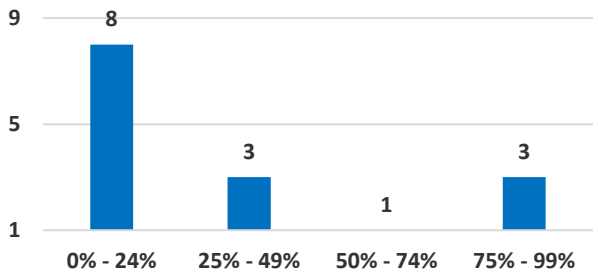
- The deployment of the Element remained stable, with 24 States (all in the western half of the EUR Region) already using it for the provision of Controller Pilot Data Link Communications services above Flight Level 285
- At this point in time, the analysis does not distinguish between "Basic" and "Multi-Frequency" variants, as this decision depends on local considerations related to specific needs
- Within the non-LSSIP States there is a clear interest in implementation, with deployment plans being reported by BY, KG, KZ, RU and TJ, within the 2024-2030 timeframe
- For BE, LU and NL the Element has been deployed in the airspace where the service is provided by the Maastricht Upper Area Centre.

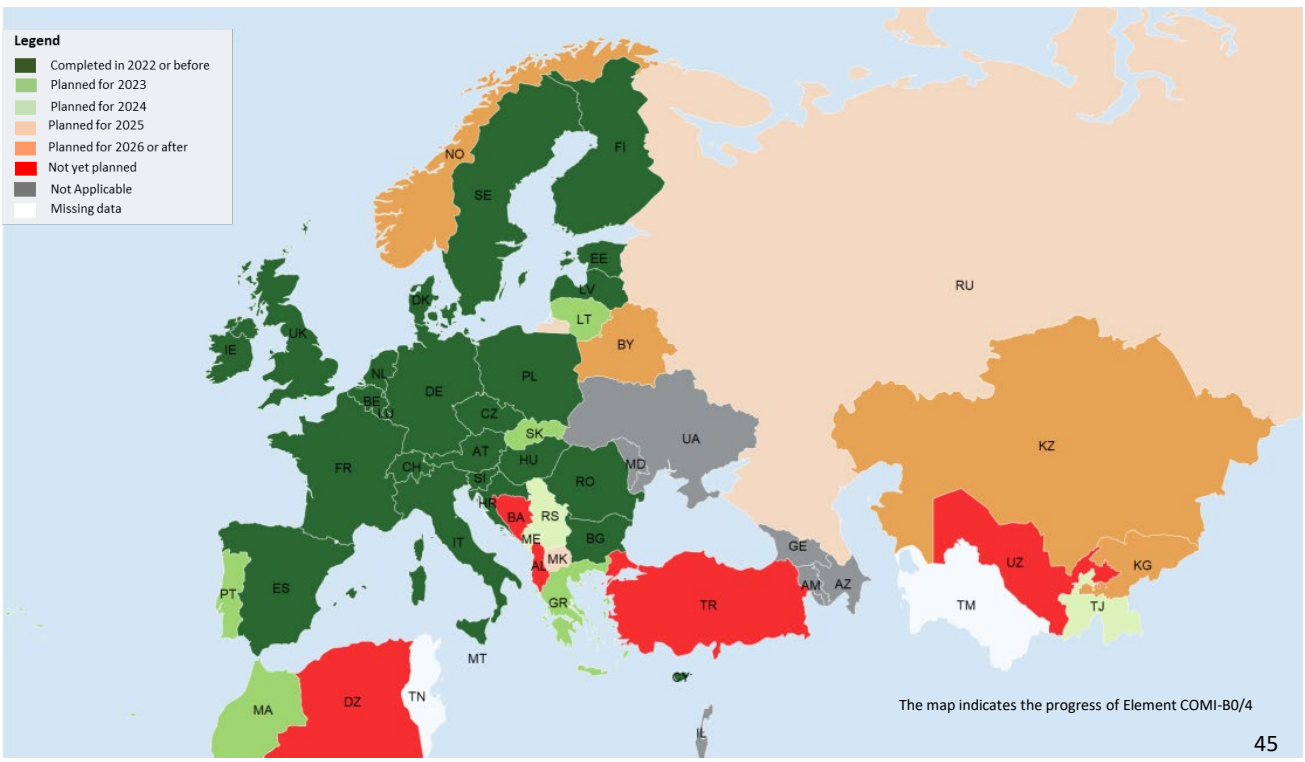
New Implementers

CY



Progress **among non-completed** stakeholders





The map indicates the progress of Element COMI-B0/4

COMI-B0/7	ATS Message Handling System (AMHS)

Description:

Aeronautical Fixed Telecommunications Network (AFTN) has provided an effective store-and-forward messaging service for the conveyance of text messages, using character-oriented procedures, for many years. ATS Message Handling System (AMHS) makes use of higher speed communication than AFTN. It also allows the use of bit-oriented communications allowing greater flexibility in message types. Attachments to messages can also be supported, thus allowing the exchange of graphics.

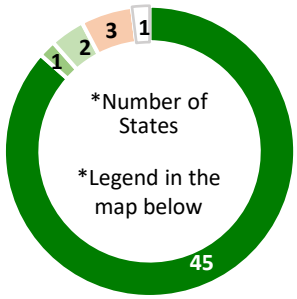
The AMHS is served as ICAO mandated communication for data exchange between ANSPs (ICAO Doc. 9880 and Annex X) and is expected to be utilized to carry traffic for AIDC/Flight Plan/MET until SWIM is ready in Block 2.

Implementation summary (end 2022):

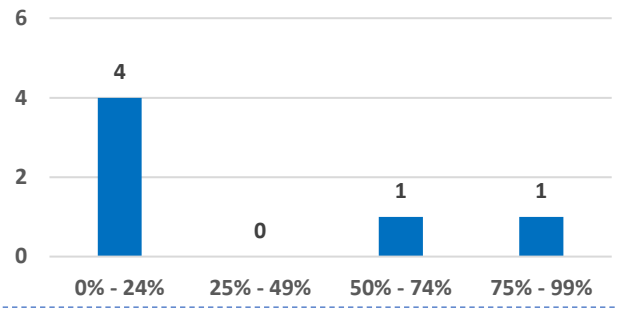
- Implementation of the Element is approaching completion, with 45 State being fully compliant with the Basic AMHS, which is already offering significant improvements over AFTN
- For some of the States still reporting the implementation as “ongoing” (e.g., IT) the main service provider (ENAV) has already implemented AMHS while the military stakeholders expect to be ready in 2023
- There is a good level of progress across the non-LSSIP States as well, with the functionality already deployed by BY, RU, TJ and TN while the other States are reporting implementation plans for 2024/2025.

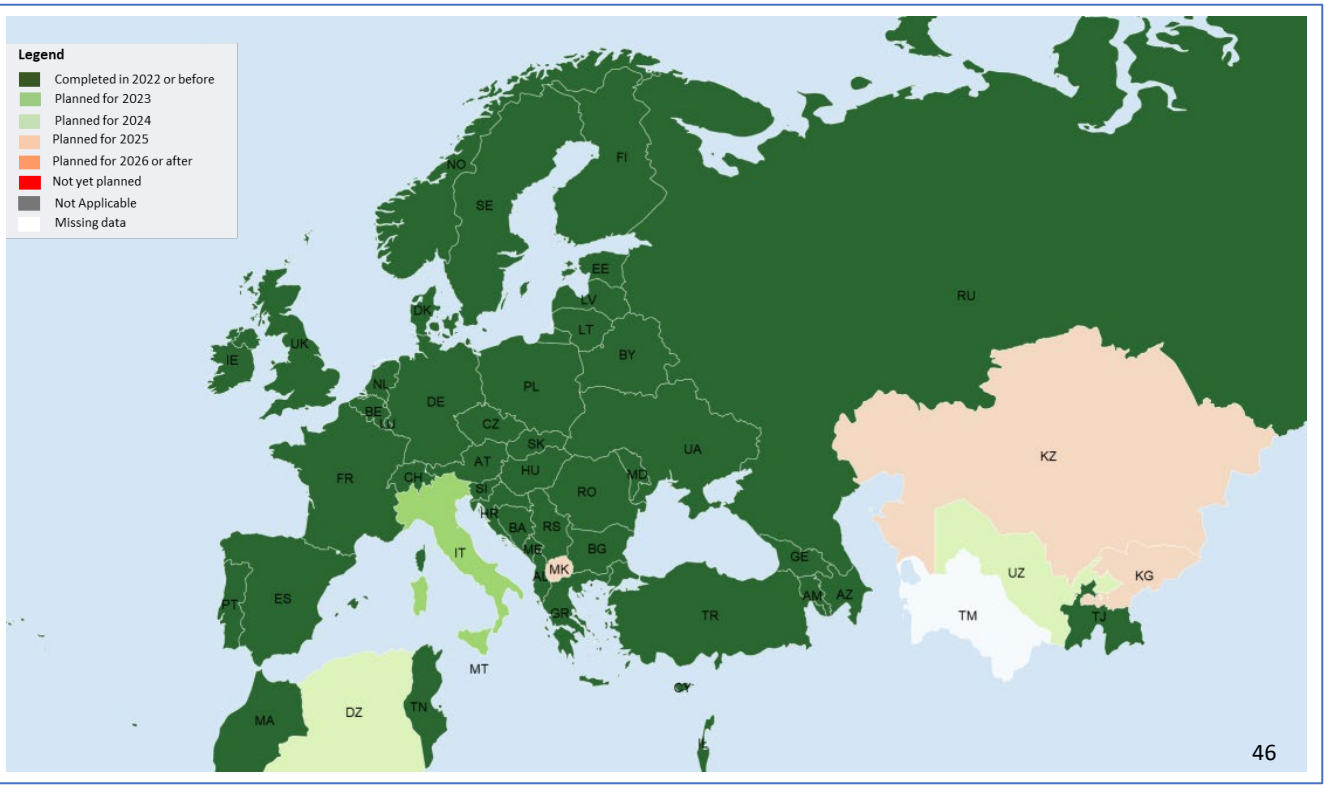
New Implementers

FR



Progress **among non-completed** stakeholders





COMI-B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)

Description:

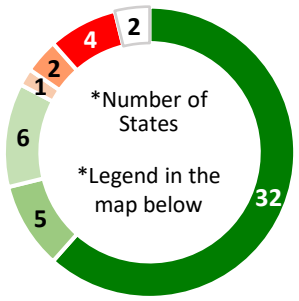
ATN/IPS enables the efficient integration of technologies with improved integrity to support air to ground aeronautical safety services and regularity of flight communications.
It consists of IPS nodes and networks operating in a multinational environment in support of Air Traffic Service Communication (ATSC) as well as Aeronautical Industry Service Communication (AINSC), such as Aeronautical Administrative Communications (AAC) and Aeronautical Operational Communications.
This evolution will support enhanced civil-military cooperation and coordination functions, if interoperability and military information security aspects are considered.

Implementation summary (end 2022):

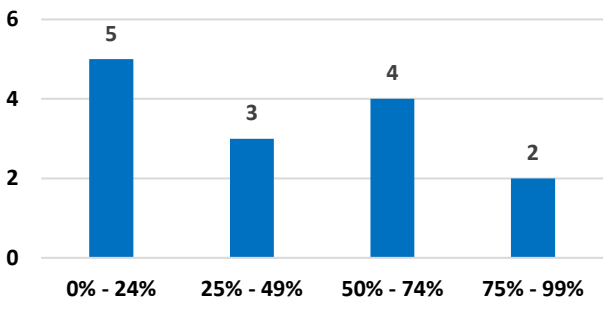
- The implementation of the Element has witnessed an impressive progress of the last 3 reporting cycles and 32 States (all LSSIP) have by now implemented it
- All the 32 States which have implemented the Element have done it through the use of NewPENS (New Pan-European Network Services)
- In the vast majority of cases the implementation is done at the level of ANSP/ACC
- There is a much lower interest at the level of Airport Operators, mostly because the lack of operational or business needs. Therefore only 6 Sates have reported implementations or plans for implementation at airports
- Amongst the non-LSSIP States, implementation plans are reported by BY, KG, KZ, TJ and UZ within the 2023/2030, the first deployment being expected in TJ in 2023, followed by UZ in 2024.

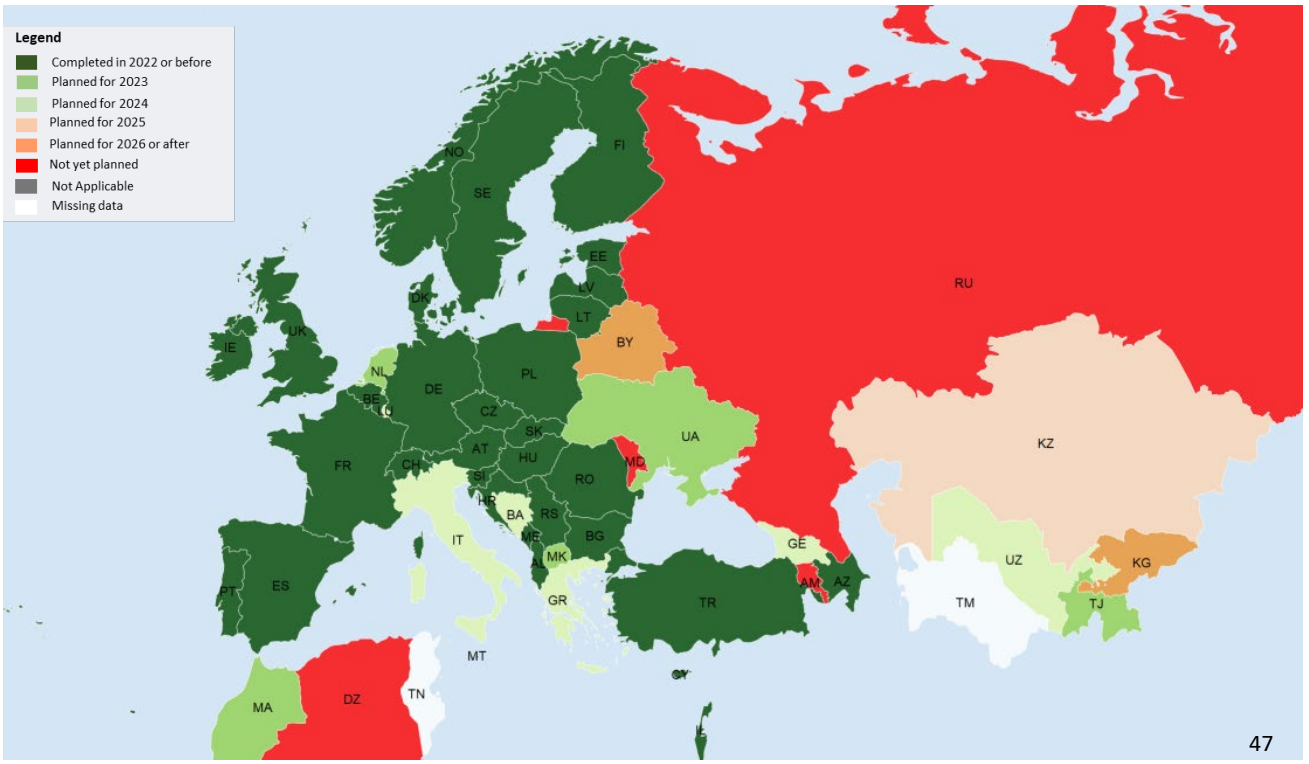
New Implementers

UK



Progress **among non-completed** stakeholders





DATS-B1/1	Remotely Operated Aerodrome Air Traffic Services

Description:

This Element represents the provision of Aerodrome Control or Aerodrome Flight Information Services (AFIS) at aerodromes from other than an on-site facility.

This could be achieved by utilizing either video surveillance, digital surveillance, procedural processes, or a combination thereof, which is commensurate with the complexities and traffic demands at the aerodrome. A Remote Tower Centre (RTC) will be remotely connected to one or more aerodromes and consist of one or more Controller Working Positions (CWP), dependent on the requirements of the connected aerodrome(s).

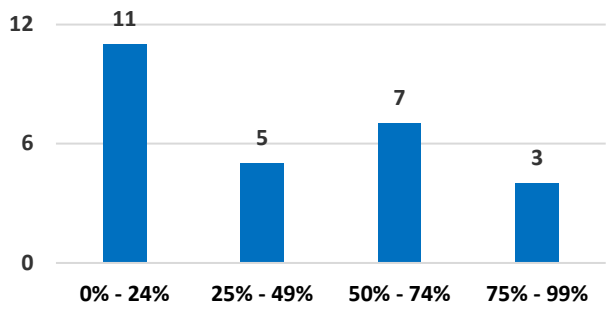
Implementation summary (end 2022):

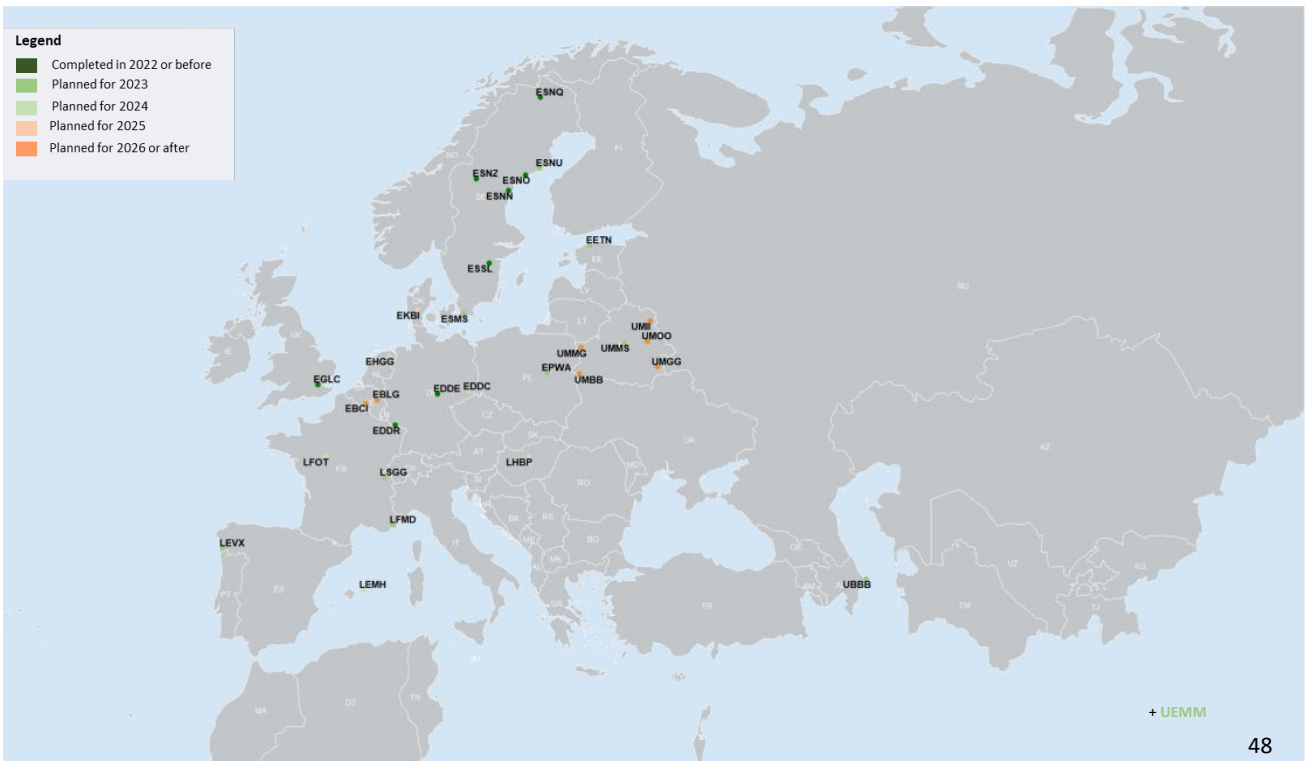
- Implementation of Remote Tower is building up speed with the functionality already used in operations at 10 locations in the EUR Region, with another 10 expected to become operational by the end of 2023
- Particularly encouraging is the growing interest in the deployment of RTC for both the provision of traffic services as well as information services, indicating the first steps towards the virtualisation of service provision
- Interest in deploying Remote Tower technology is also on the rise among non-LSSIP States. The first implementations are anticipated in 2023 at airports in BY and RU (UMMS and UEMM, respectively), with further airports in BY planning to follow suit in the 2028 timeframe.

New Implementers

EDDE, ENRC, LIBR

Progress **among non-completed** stakeholders





FICE-B0/1	Automated basic inter facility data exchange (AIDC)

Description:

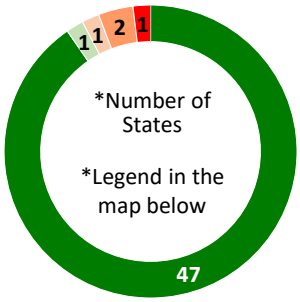
This Element represents a first automation step in the evolution of the coordination and transfer of control between neighboring ATS units to guarantee that all related and necessary flight information will be available to the other unit as per agreement. It is meant to replace voice communication between ATS units by automatic message exchange.

Implementation summary (end 2022):

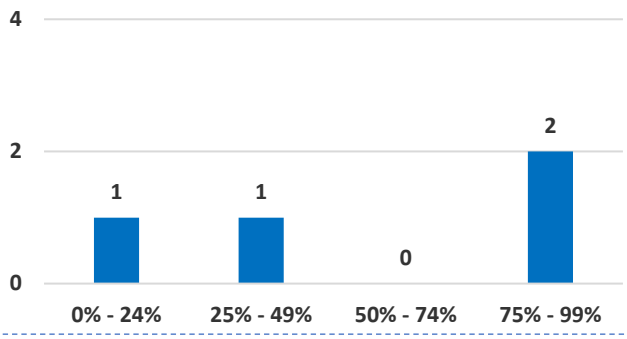
- System supported information exchanges for the process of coordination and transfer, in particular those addressing the notification and the coordination of flights (the "basic procedure") are widely implemented across the entire EUR Region, with 47 States having reported completion.
- Several of the States which still report implementation as being "Ongoing" (KG, KZ), have already implemented the functionality with at least one of their neighbouring States
- The implementation of this Element within the EUR Region is approaching completion, with full compliance expected to be realized in the near future.

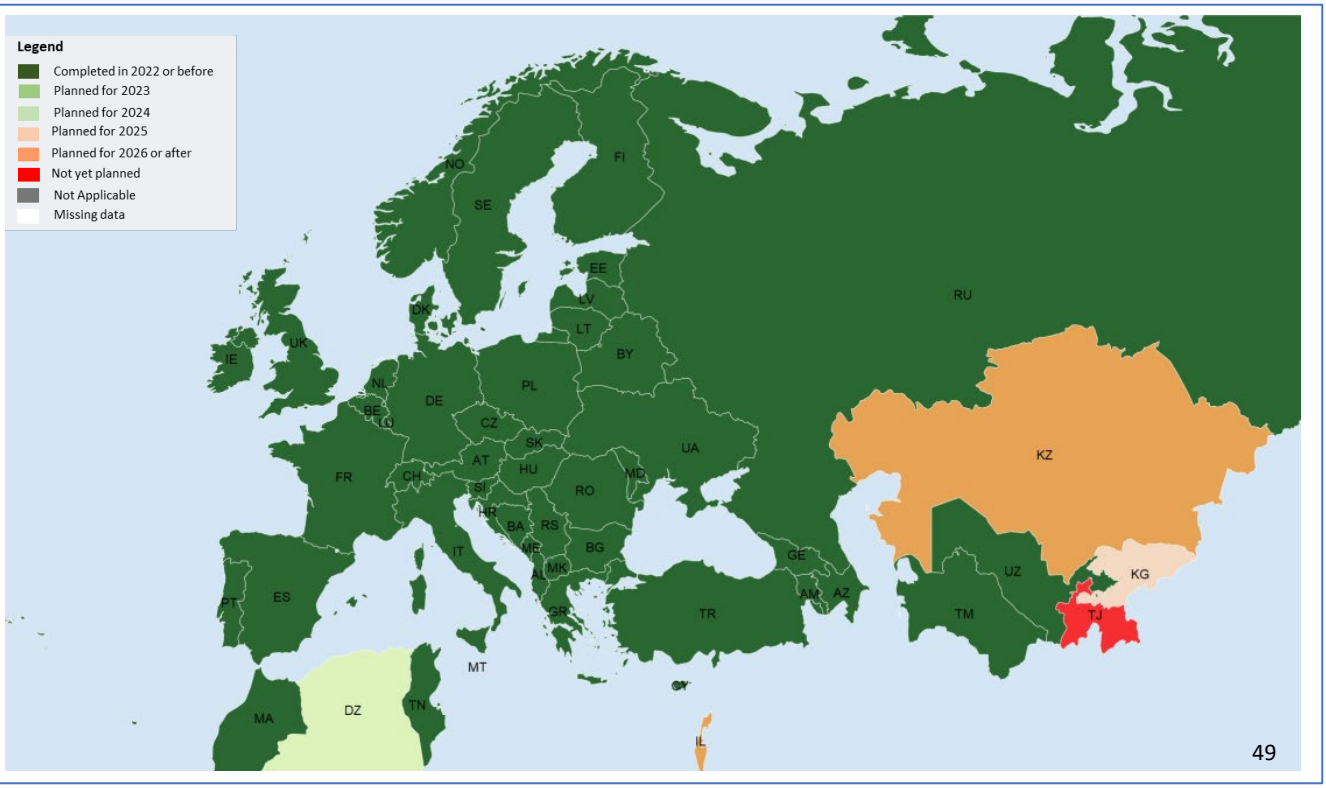
New Implementers

None



Progress **among non-completed** stakeholders





FRTO-B0/1	Direct routing (DCT)

Description:

Direct routings (DCTs) are established with the aim of providing airspace users with additional flight planning route options on a larger scale across FIRs, such that the overall planned leg distances are reduced in comparison with the fixed route network. They are implemented at national and regional levels and made available for flight planning (with published conditions of use). DCTs should be considered as an early iteration of the Free Route Airspace (FRA) concept.

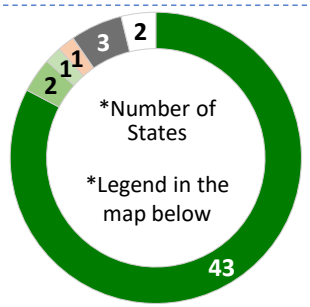
The extension of DCTs within and across the FIR boundaries also requires Network and ANSPs ground system upgrades for airspace management and flight data processing.

Implementation summary (end 2022):

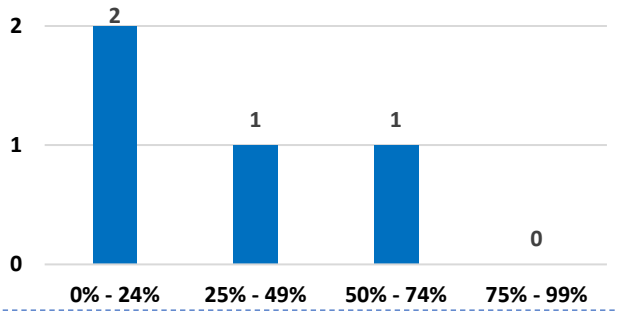
- The Element shows a very good level of implementation, 43 States within the Region having reported its deployment
- This progress includes also the States which have implemented the more advanced functionality of Free Route, taking into account that the deployment of DCT is only an interim step towards the deployment of Free Route Airspace (FRA)
- Among the non-LSSIP States, the Element is already implemented in BY, RU and UZ as well as planned for deployment by TJ (2023), DZ (2024) and KG (2025).

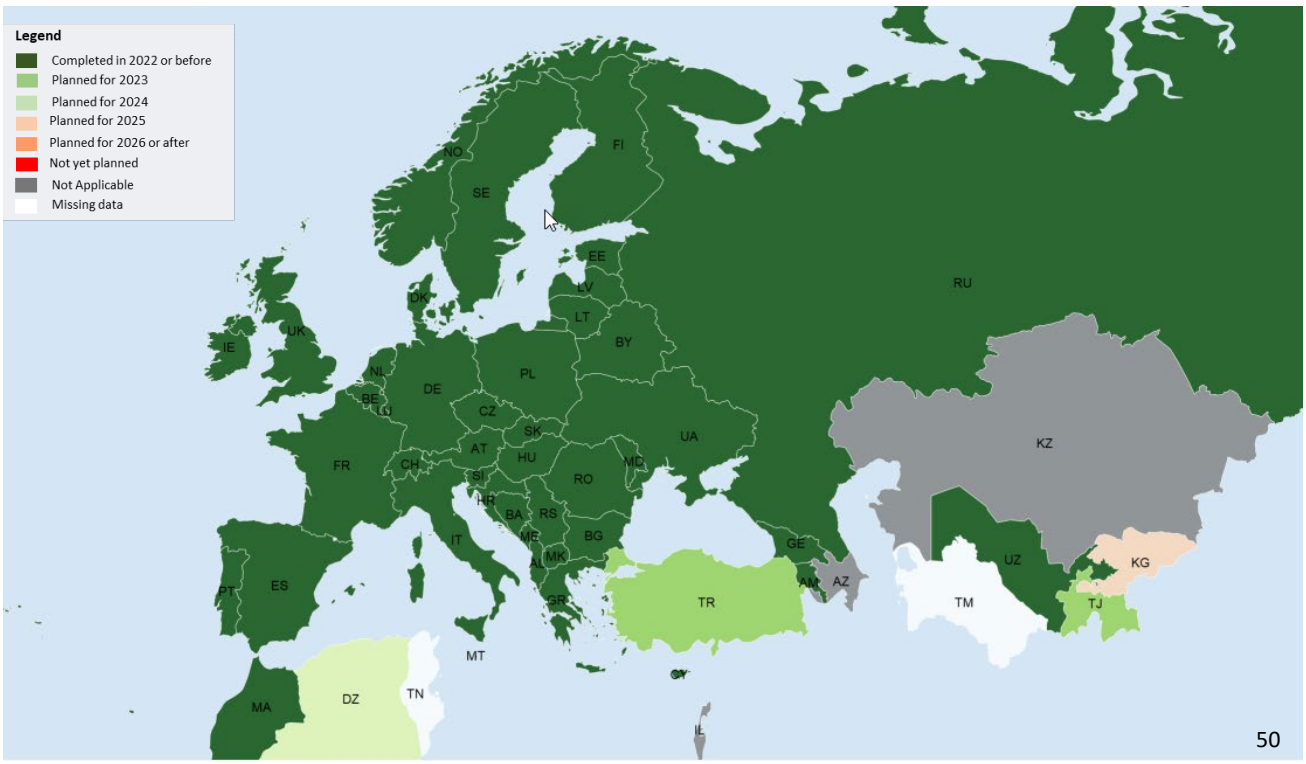
New Implementers

RU



Progress **among non-completed** stakeholders





FRTO-B0/2	Airspace planning and Flexible Use of Airspace (FUA)

Description:

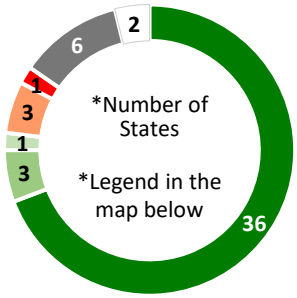
This Element addresses strategic/long term airspace management, pre-tactical planning and tactical operations. Automated ASM support systems improve airspace management processes and flexible airspace planning including time horizon specifications in all flight phases (strategic, pre-tactical and tactical time horizon) by providing mutual visibility on civil and military requirements.
They also support flexible airspace planning according to civil and military ANSPs and airspace user requirements, including permit cross border and use of segregated areas operations regardless of national boundaries.

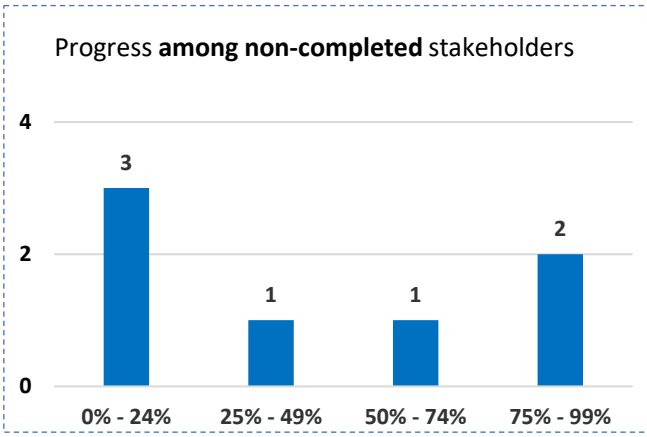
Implementation summary (end 2022):

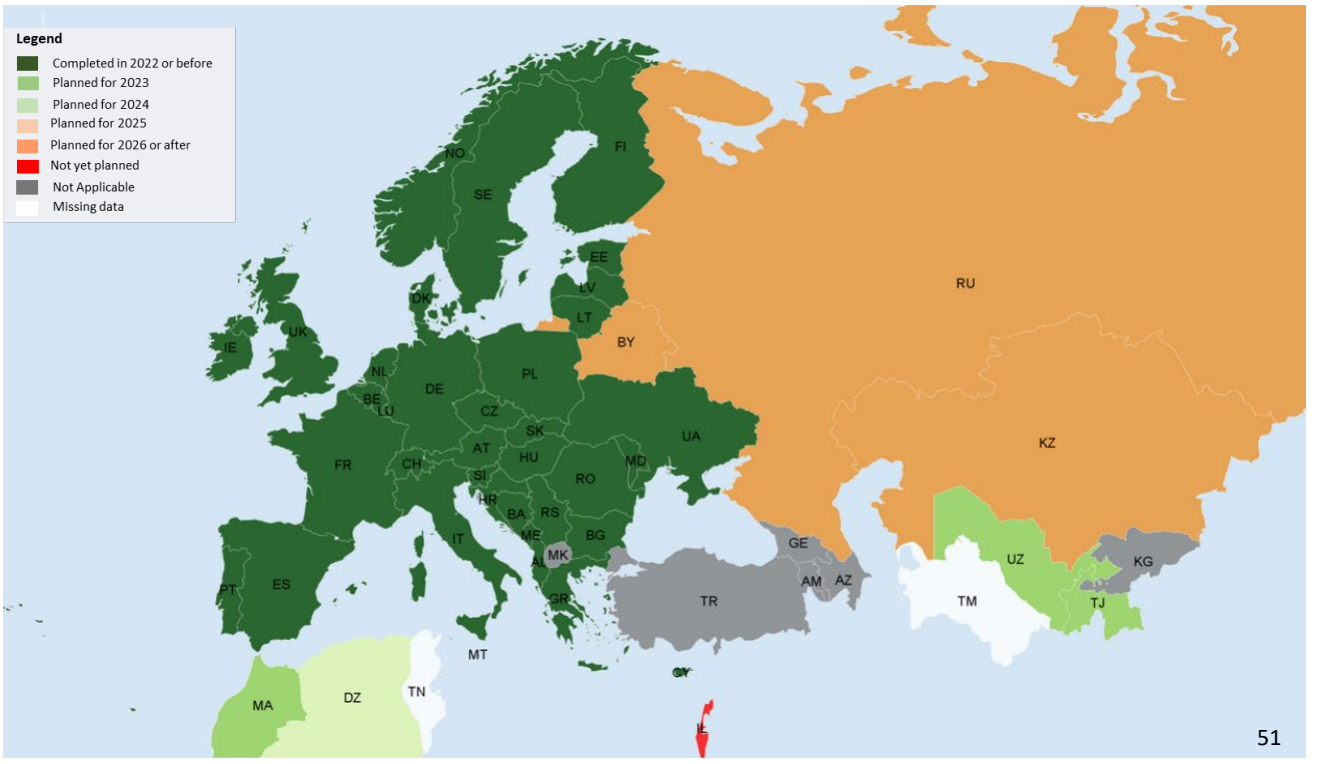
• The Element has already been implemented by 36 States, 8 of them having finalised deployment during the reporting cycle
• Among the implementers, 19 States have implemented both a local tool (e.g., EUROCONTROL's LARA - Local and sub-regional airspace management support system, or equivalent) as well as a centrally provided system (e.g., CIAM also provided by the EUROCONTROL Network Manager)
• No State outside the LSSIP area has implemented the Element yet. TJ and UZ are the first ones to expect deployment in 2023, to be followed by DZ (2024), RU (2026) and BY (2027).
*Note: for improved granularity, the analysis is conducted by tracking the progress of Stakeholder Lines of Action AOM19.5-ASP01, "Deployment of automated ASM support systems (LARA or its equivalent)," or AOM19.5-ASP02, "Adoption of the NM system (CIAM) for ASM capabilities".

New Implementers

CZ, FI, GR, MD, ME, MT, RS, SI







FRTO-B0/4	Basic conflict detection and conformance monitoring

Description:

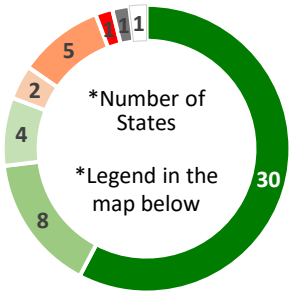
MTCD assists the controller in conflict identification and planning tasks by providing automated early detection of potential conflicts; facilitating identification of flexible routing/conflict free trajectories; identifying aircraft constraining the resolution of a conflict or occupying a flight level requested by another aircraft.
The monitoring aids (MONA) function provides the controller with warnings if aircraft deviate from a clearance or planned trajectories and reminders related to the ATCO instructions to be issued. MONA might include the flight progress monitoring as well as the lateral, longitudinal, vertical and Cleared Flight Level (CFL) deviations.

Implementation summary (end 2022):

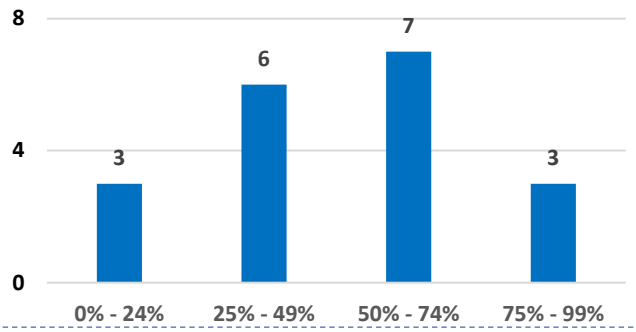
• The implementation of conflict detection and conformance monitoring tools is progressing well within the ICAO EUR Region with both functionalities (MTCD and MONA) being deployed in 30 States of the Region
• Among several of the States reporting implementation still in progress (e.g., CY, IT, SK, SI, TR) one of the 2 functionalities (either MTCD or MONA) is already implemented while the other is in progress
• Among the non-LSSIP States, the Element has been fully implemented by KZ, TN and UZ. Subsequent implementations are expected in TJ (2023), DZ (2024) and RU (2026), to be followed by KG and BY the year after.

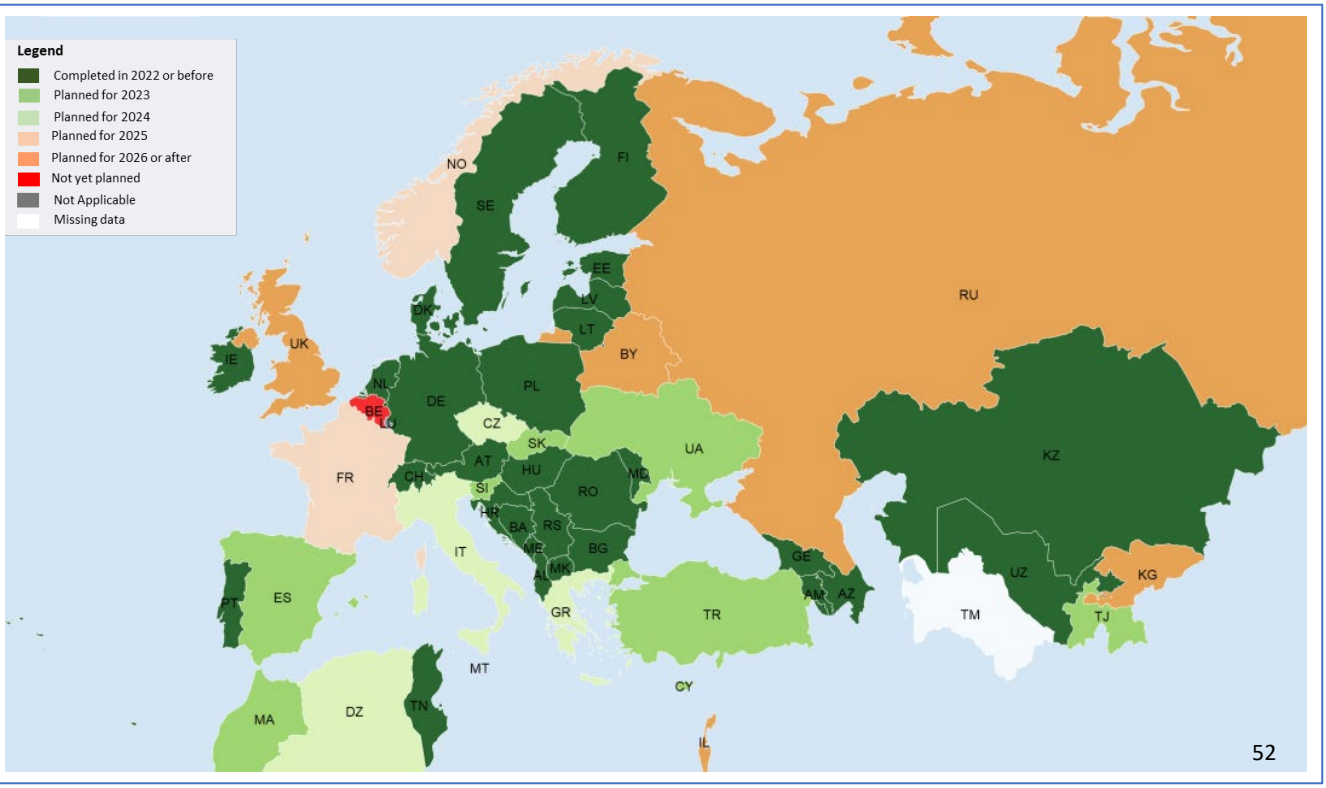
New Implementers

PT



Progress **among non-completed** stakeholders





FRTO-B1/1	Free Route Airspace (FRA)

Description:

The Free Route Airspace (FRA) is a specified volume of airspace within which users may freely plan a route between a defined entry point and a defined exit point, with the possibility to route via intermediate (published or unpublished) waypoints, without reference to the ATS route network, subject to airspace availability. Within this airspace, flights remain subject to air traffic control.

FRA implementation can be customized for instance: laterally and vertically; during specific periods; with a set of entry/exit conditions; with initial system upgrades. The extension of FRA within and across the FIR boundaries also requires upgrades of the ATM network function system and the ANSPs ground system for airspace management and flight data processing.

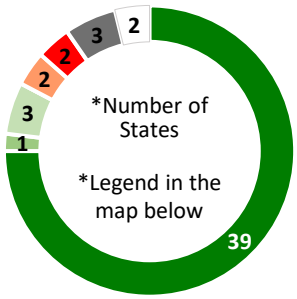
FRA concept brings significant flight efficiency benefits and a choice of user preferred routes to airspace users.

Implementation summary (end 2022):

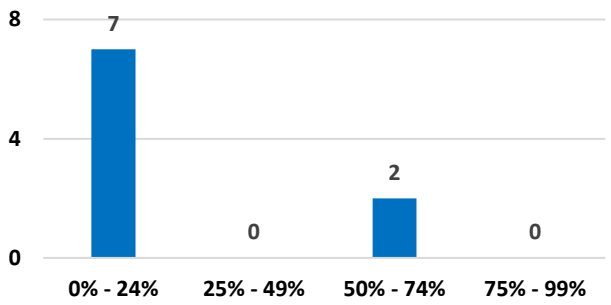
- The FRA implementation continued at a sustained pace with 5 States having finalised deployment in 2022
- Overall, at EUR Region level, the Element is deployed in 39 States, 4 others expecting completion by end 2024
- In many instances the implementation goes beyond the national FIR's as FRA is deployed more and more cross-border
- Among non-LSSIP States, the first implementation are expected in RU and UZ (2024), to be followed by BY (2027) and KG (2028)
- For BE, LU and NL the Element has been deployed in the airspace where the service is provided by the Maastricht Upper Area Centre.

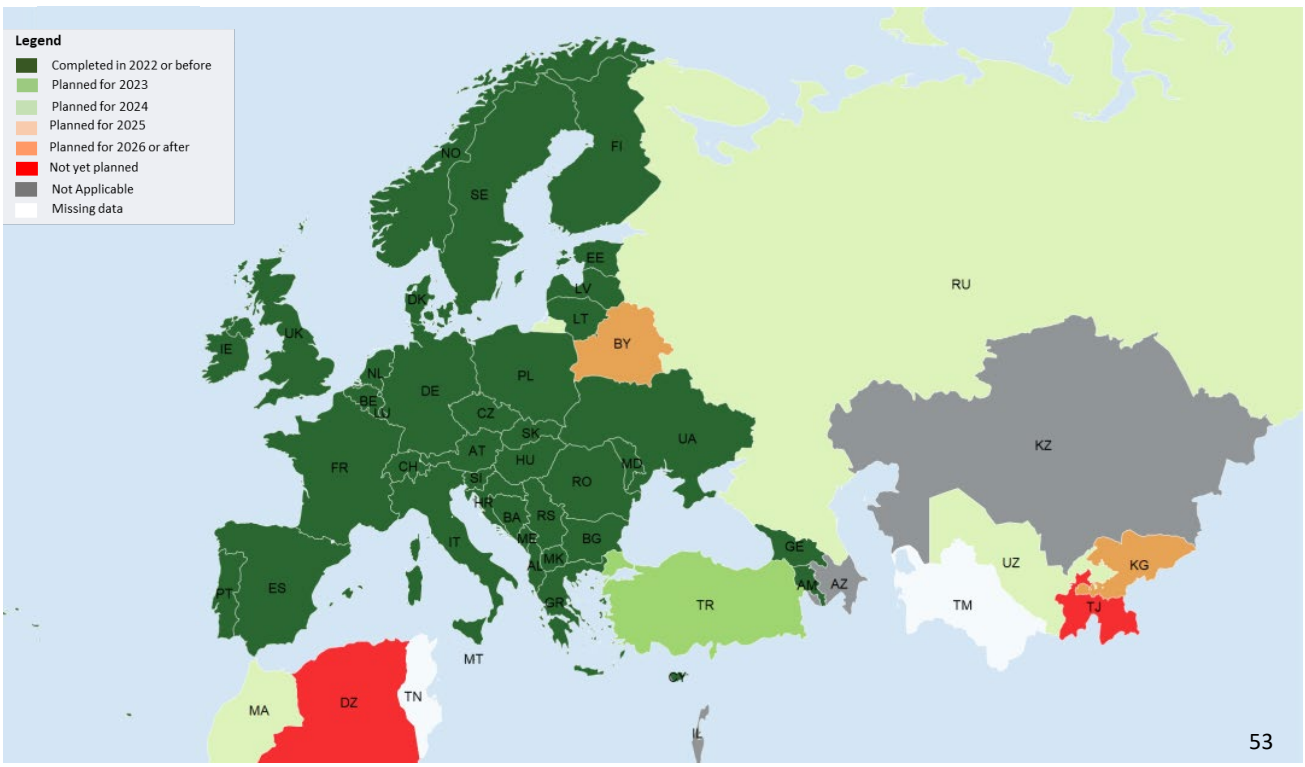
New Implementers

CH, CY, ES, GR, UK



Progress **among non-completed** stakeholders





FRTO-B1/2	Required Navigation Performance (RNP) routes

Description:

With the introduction of a RNP navigation specification, the advantages gained from RNAV will be further enhanced by on-board performance monitoring and alerting and the execution of more predictable aircraft behaviour. Design of optimized routes which may include closely spaced parallel routes, Fixed Radius Transition (FRT) and Tactical Parallel Offset (TPO) functionality in en-route, supported by infrastructure and system improvements to support PBN routes. The adequate navigation infrastructure is required. GNSS or DME ground infrastructure needs to be optimised to support RNP operations and main reversionary capability in case of GNSS outages. PBN requires a full digital chain, to critical data quality levels, for aeronautical data provided to the airborne systems. The system improvements for controller support tools which might be required are covered by other FRTO elements (MTCD, monitoring aids) or other threads (Safety Nets).

Implementation summary (end 2022):

- The assessment of Element has been performed based on the information available in Part 2 of the European Route Network Improvement Plan (ERNIP) - the Catalogue of Airspace Projects, as well as the information published in the AIP (Part 2 ENR, section 3 “ATS Routes”) of the EUR Region States and the information collected via the questionnaire addressed to the non-LSSIP States
- The current information clearly indicates that the Element is not being implemented nor planned to be implemented anywhere in the Region. The only RNP4 implementation is reported by RU in the oceanic sectors of FIRs Magadan and Murmansk
- The implementation of choice for the en-route ATS routes all over the EUR Region is RNAV5
- This is also reinforced by Regulation (EU) 2018/1048 (the “PBN Regulation”) mandating RNAV5 where ATS routes are established for en route operations within the airspace of the European Union
- Based on the available information it is proposed to remove this Element from the scope of the ASBU Implementation Monitoring Report for the EUR Region.

New Implementers

Info not available – first monitoring cycle of the Element

N/A

Progress **among non-completed** stakeholders

Progress not available as the Element is not being implemented in the EUR Region.

Progress map not available as the Element is not being implemented in the EUR Region

FRTO-B1/3	Advanced Flexible Use of Airspace (FUA) and management of real time airspace data

Description:

This Element enhances Airspace Management (ASM) by automated data exchange services during the pre-tactical and tactical execution phases continuously in real time. ASM information is shared between ASM systems and ATS units/systems and communicated to the ATM network function in the tactical and execution phases.

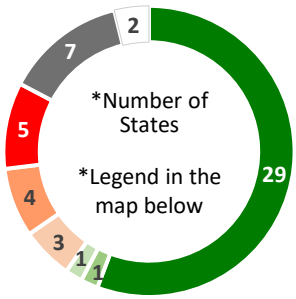
Such data, consisting of pre-notification of activation, notification of activation, de-activation, modification and release are collected, saved and processed. Furthermore, data needs to be exchanged between ASM stakeholders and made available to other actors and relevant airspace users not involved in ASM processes.

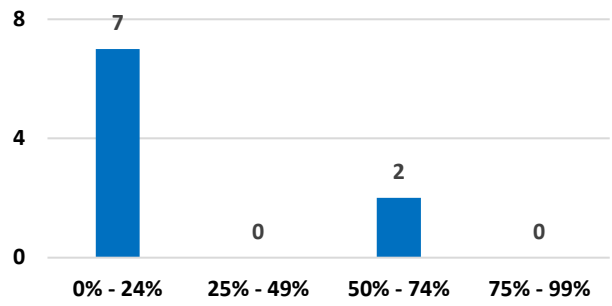
Implementation summary (end 2022):

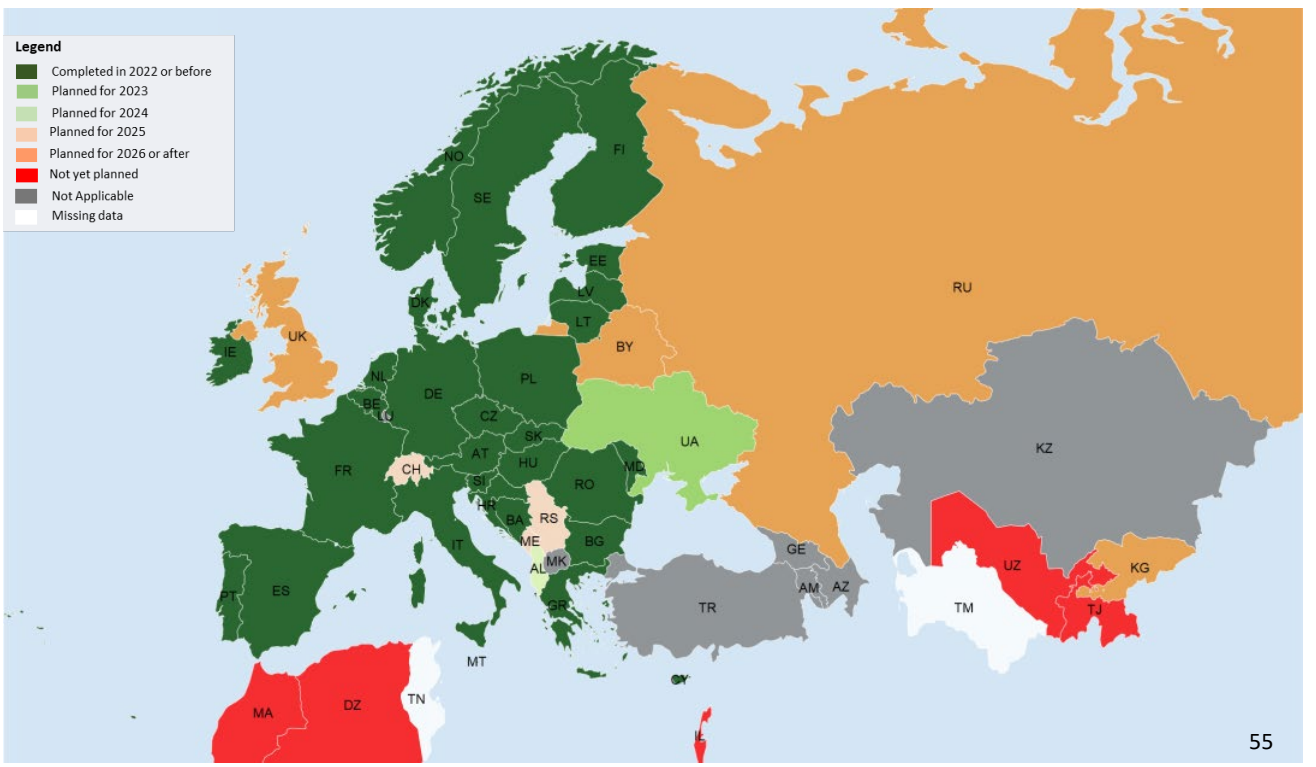
- The Element is reported as completed by 29 States
- During the reporting year, 22 States have achieved completion, mainly driven by the obligations imposed by the CP1 Regulation (EU 116/2021 -Sub-AF 3.1 on ASM and Advanced FUA) on the EU Member States
- Among the non-LSSIP States, no implementation is to be expected before 2026 (RU) or 2027 (BY, KG) with the other States not having deployment plans yet, in particular due to the lack of operational needs
- For BE, LU and NL the Element has also been deployed in the airspace where the service is provided by the Maastricht Upper Area Centre.

New Implementers

AT, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GR, HU, IE, IT, MT, NO, PT, RO, SE, SI, SK







FRTO-B1/4	Dynamic sectorization

Description:

Dynamic sectorization represents dynamic adaptation of the ATC sectorization in order to respond to traffic demand without increasing the number of controllers working position in use.

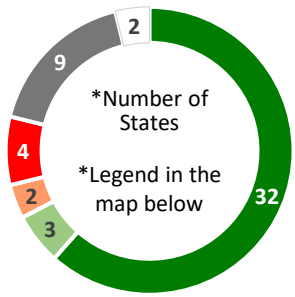
The sectorization tool enables the dynamic management of a large number of possible sector configurations. Based on the volume of pre-defined ATC sector configurations, the automated system continuously evaluates traffic demand and complexity in the future and proposes optimum sectorization solutions. This tool supports real-time shaping of the airspace volumes allocated to the physical controller working position by adding/removing elementary sectors in order to respond to the predicted traffic demand and complexity.

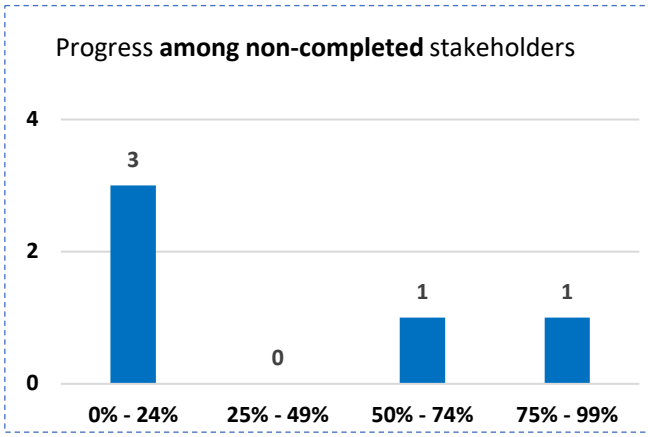
Implementation summary (end 2022):

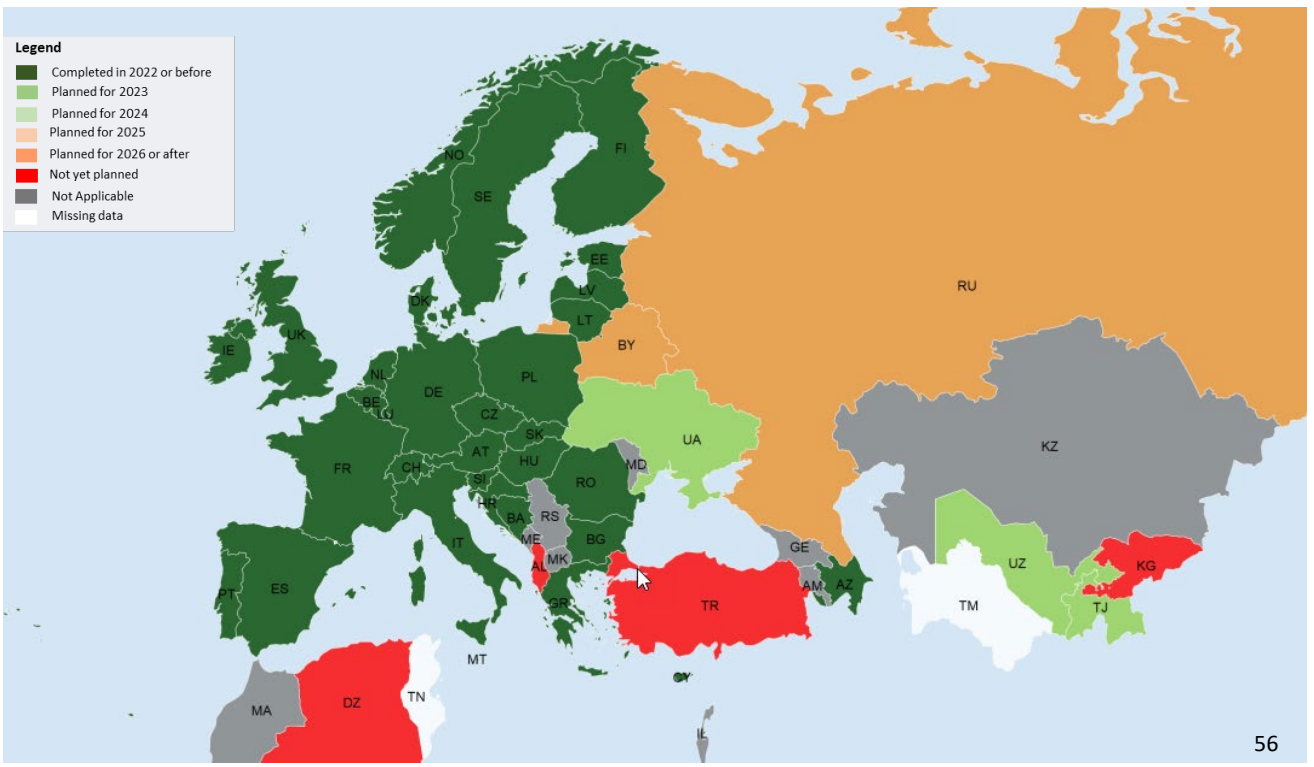
- The substantial increase in completion anticipated in the Previous edition of the Report has been confirmed, with 23 States having deployed the Element in 2022, mainly driven by the obligations imposed by the CP1 Regulation (EU 116/2021 - Sub-AF 3.1 on ASM and Advanced FUA) on the EU Member States
- No non-LSSIP States have implemented the Element so far, in particular due to the lack of operational needs. The Element is planned to be deployed by TJ and UZ in 2023, to be followed by RU (2026) and BY (2027).

New Implementers

AT, AZ, BA, BE, BG, CH, CY, CZ, EE, ES, FI, GR, HR, HU, IE, LU, MT, NL, NO, PT, RO, SE, SI, SK







FRTO-B1/5	Enhanced Conflict Detection Tools and Conformance Monitoring

Description:

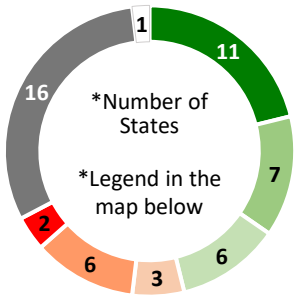
CDT provides real-time assistance to the en-route controllers (both planning and tactical) in conflict detection and resolution. It is based on new approaches that enhance and refine the existing tools yielding more efficient and usable services. MTCD aids the planning ATCO by showing only the most probable conflicts within the predefined look-ahead time, discarding detected conflicts with lower probabilities. The MTCD includes the what if probe function showing the problems that would occur if the given clearances is applied and identify the contextual traffic that may impair the manual identified conflict resolution. The tactical tool is based on the tactical trajectories and identifies the conflicts within the sectors, including the what-if capabilities. MONA provides the en-route controller with warnings if aircraft deviate from the calculated ground system trajectory or the ATCOs tactical clearances (e.g., heading, vertical rate).

Implementation summary (end 2022):

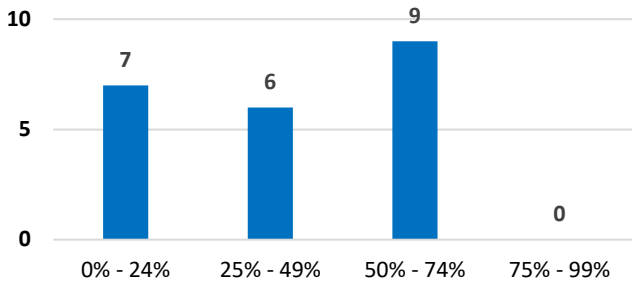
- The Element has been implemented by 11 States within the Region
- As expected, it has a substantial lower progress than the precursor Element FRTO-B0/4, addressing basic MTCD and MONA, which is already implemented by 30 States
- The slower implementation is caused by the more advanced functionalities (e.g., Tactical Controller Tool) which are part this Element. Still the MTCD and MONA functionalities are already deployed to a wider extent
- Among the non-LSSIP States, the Element has been implemented by TN, while the other States expect deployment in a longer term (TJ in 2024, KG in 2025, followed by BY, KZ and RU between 2026 and 2030).

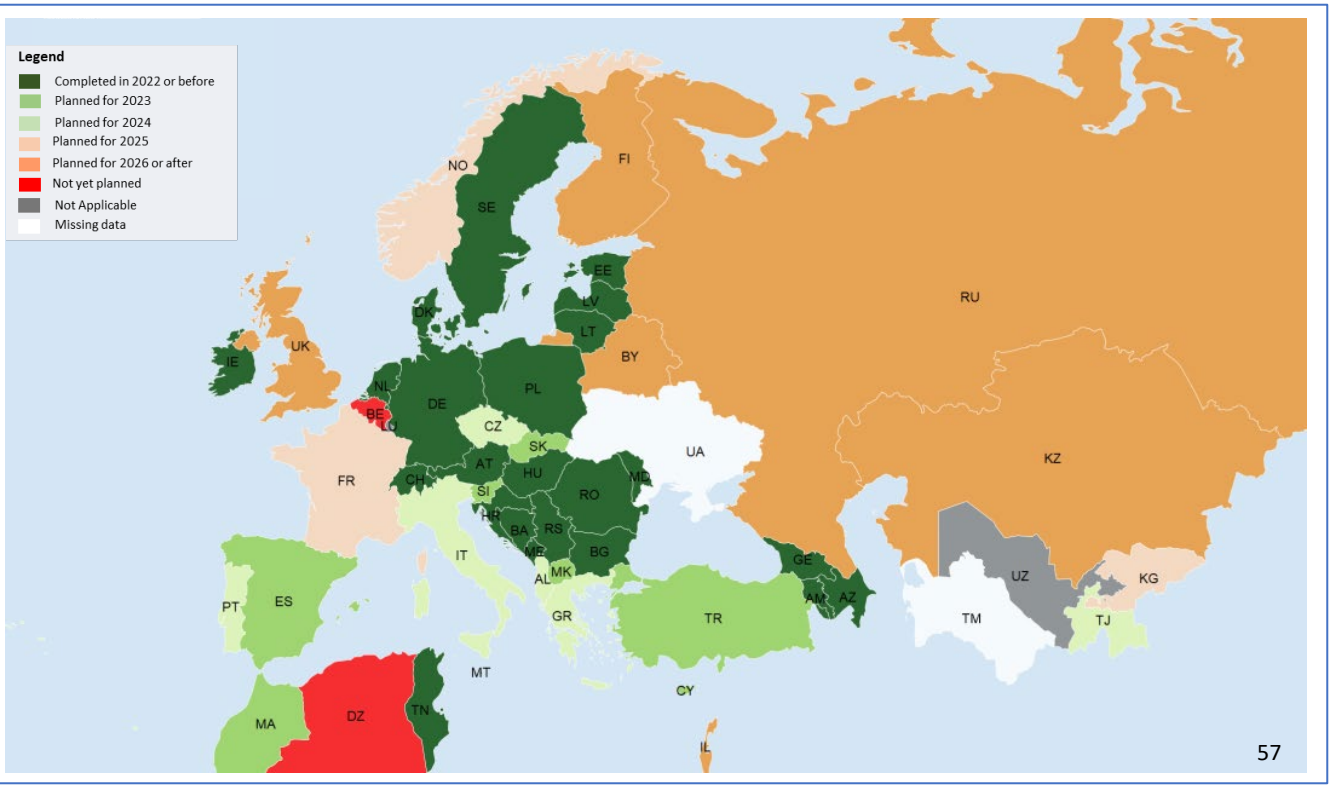
New Implementers

ME, RS



Progress **among non-completed** stakeholders





FRTO-B1/6	Multi-Sector Planning

Description:

The Multi-Sector Planning (MSP) function defines a new organization of controller team(s) and new operating procedures to enable the planning controller to provide support to several tactical controllers operating in different adjacent sectors. MSP controller ensures suitable coordination agreements between sectors and assists in managing the workload of the tactical controllers.

This function might reduce the ATCO workload related to intra/inter centre coordination. The workload conversion to potential capacity gains might vary considerably depending on the sector.

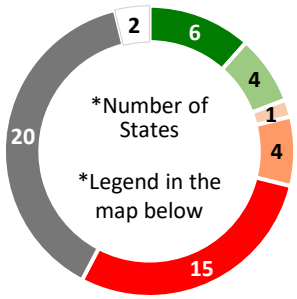
New tools and operating procedures are needed for the planning controller to provide support to several tactical controllers operating in different sectors. The multi-sector planner needs to have access to flight data, system tracks, trajectory, warnings and tools for the airspace of several ATC sectors allocated to him.

Implementation summary (end 2022):

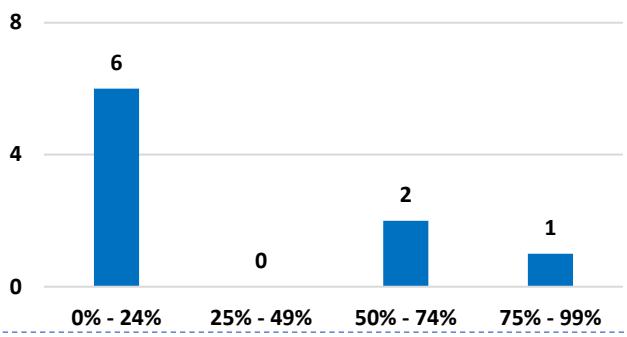
- The interest in deploying the Element remains rather limited, with no State reporting completion in 2022
- Deployment is expected by 4 States (GR, MD, PL, TJ) in 2023, in en-route and/or TMA environments
- Almost 70% of the States consider the Element as either “Not Applicable” or “Not Yet Planned”. This is mostly due to their existing ATM system capabilities/limitations, airspace configurations, or lack of perceived operational benefits compared to current operations
- Among the non-LSSIP States, only RU has implemented it, while TJ expects completion in 2023 and BY in 2027. The remaining States consider the Element as “Not Applicable” or do not have implementation plans yet.

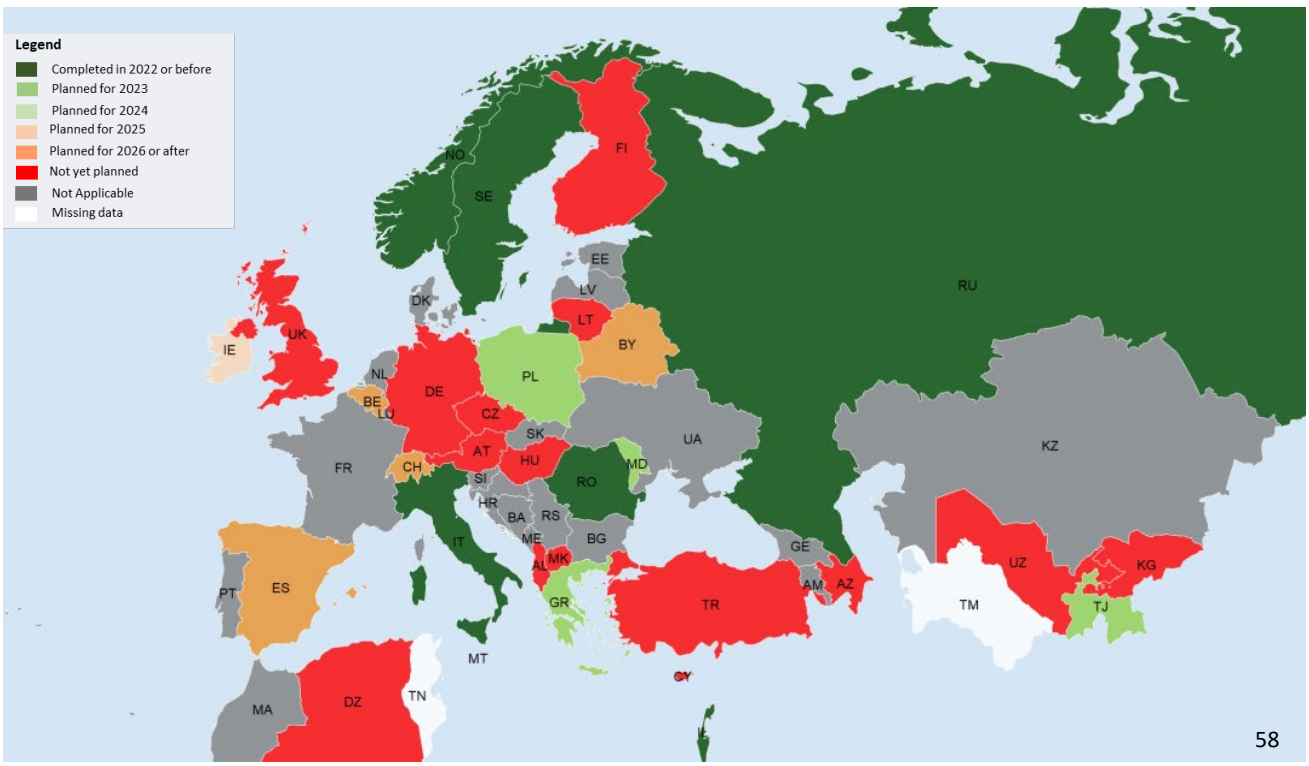
New Implementers

None



Progress **among non-completed** stakeholders





GADS-B1/1	Aircraft Tracking

Description:

Aircraft tracking is one of the Global Aeronautical Distress and Safety System (GADSS) functions (ref. GADSS ConOPS V6). Aircraft tracking is a process, established by the operator, that maintains and updates, at standardized intervals, a ground-based record of the four-dimensional position of individual aircraft in flight (ICAO Annex 6).
Aircraft operator will be able to track the aircraft, detect missing position reports, notify, if necessary, the relevant ATSUs and timely share relevant information including last known position(s).

Implementation summary (end 2022):

Due to the unavailability of data, the monitoring of this Element has been suspended for this edition of the Report. The monitoring will resume after the full set-up of the LADR (Location of an Aircraft in Distress Repository) in 2024.

New Implementers

Not Available

Progress **among non-completed** stakeholders

Not Available

Due to the unavailability of data, the monitoring of this Element has been suspended for this edition of the Report. The monitoring will resume after the full set-up of the LADR (Location of an Aircraft in Distress Repository) in 2024.

NAVS-B0/1	Ground Based Augmentation Systems (GBAS)

Description:

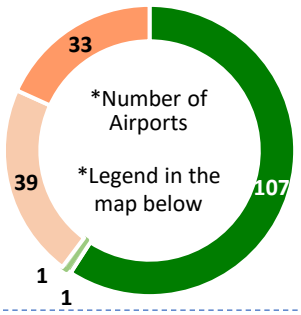
This element introduces improved accuracy, integrity and availability through a local airport based differential satellite navigation and monitoring system.
A local network of reference receivers is deployed at or near an airport. Observations from these reference receivers are used to compute corrections for each satellite as well as to monitor for system integrity. The information is broadcast to users via a VHF Data Broadcast link (operating in the 108 to 118 MHz band).
Category I performance is enabled by using GBAS Approach Service Type C (GAST-C). As an option, PBN in terminal area (RNAV 1 and RNP 1 operations) can also be supported using GBAS positioning service.

Implementation summary (end 2022):

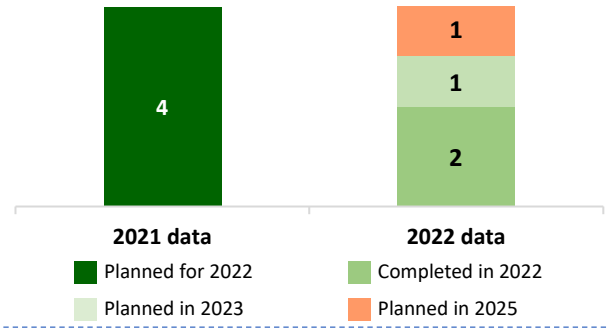
- The primary advantage of using GBAS-enabled approaches lies in the associated cost-efficiency gains, as one single ground station is sufficient to serve multiple approaches to different runway ends at one airport. As such, together with SBAS it is often seen as an enabler for ILS decommissioning and/or for providing precision approaches at airports currently not equipped with ILS systems
- Within the EUR Region, GBAS is currently in use at 107 airports, with the majority located in RU (86 locations), followed by NO (17 locations)
- Implementation plans are underway at another 74 locations mostly in the non-LSSIP States, in particular in RU (34 locations) and KZ (22 locations) by 2025/2027.

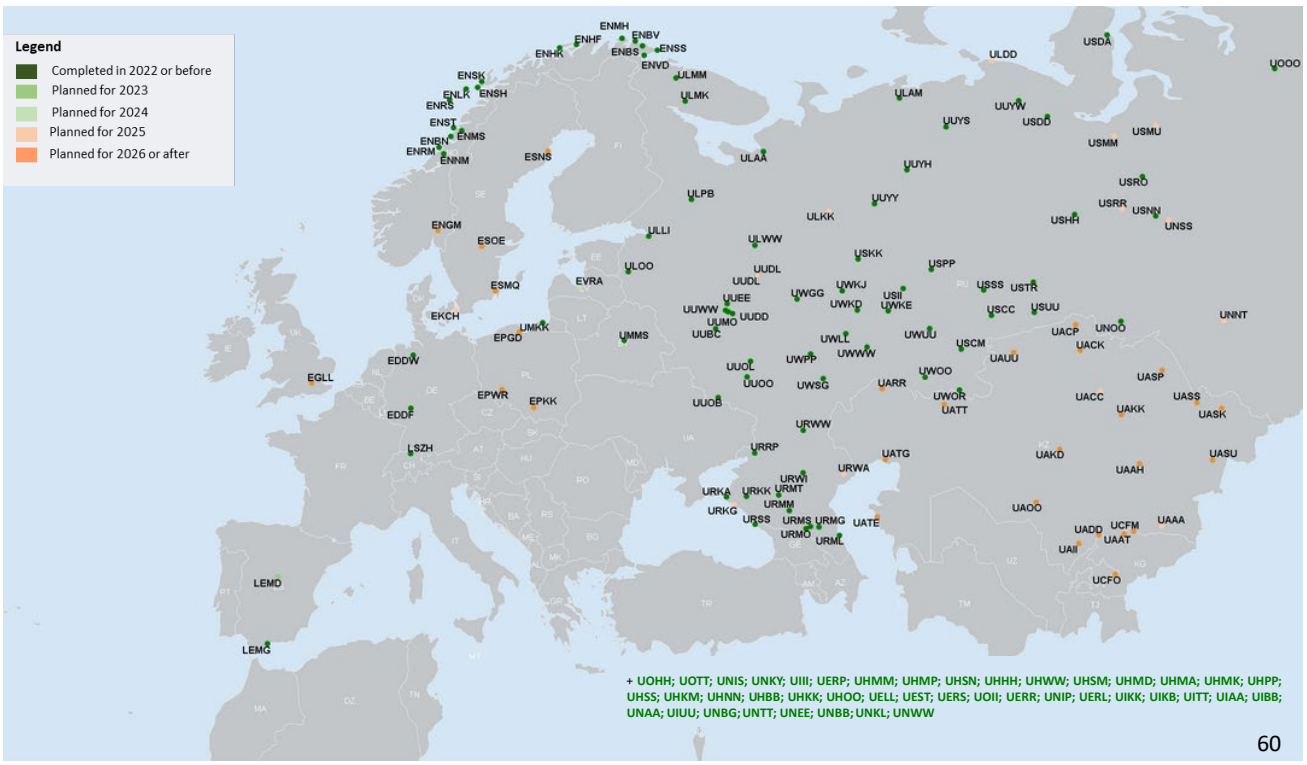
New Implementers

Info not available due to the change of reporting methodology



Expected 2022 Implementation vs **Achieved 2022 Implementation**





NAVS-B1/1	Extended GBAS

Description:

This Element introduces improved accuracy, integrity and availability through a local airport based differential satellite navigation and monitoring system.
A local network of reference receivers is deployed at or near an airport. Observations from these reference receivers are used to compute corrections for each satellite as well as to monitor for system integrity. The information is broadcast to users via a VHF Data Broadcast link (operating in the 108 to 118 MHz band). This Element extends the capability of Block 0 by adding improved ionospheric error monitoring and mitigation as well as enhanced VDB receiver performance to support interoperability and coexistence of ILS, VOR and VDB at any airport.

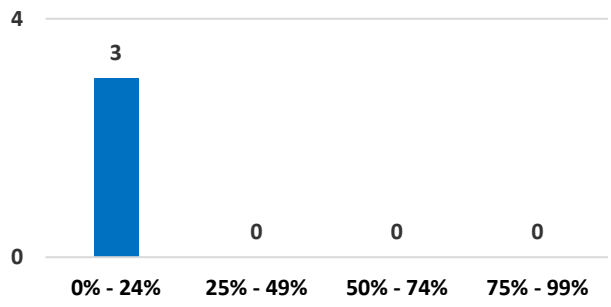
Implementation summary (end 2022):

- As this is first time the Element is monitored, the reported interest in deployment is still low
- The Element is only implemented in one location (EDDF) and planned for deployment at another 3 (UDYZ, LEMD, UMMS) between 2025 and 2028
- Other 98 reporting airports are considering the Element as "Not Applicable" (59) or do not have any implementation plans (39)
- For the time being the collection of information is limited to the deployment of CAT II operations utilizing GBAS Approach Service Type C (GAST C) in conjunction with enhanced ionospheric monitoring and airplane augmentations.

Info not available – first monitoring cycle of the Element

New Implementers

Progress **among non-completed** stakeholders



NOPS-B0/1	Initial integration of collaborative airspace management with air traffic flow management

Description:

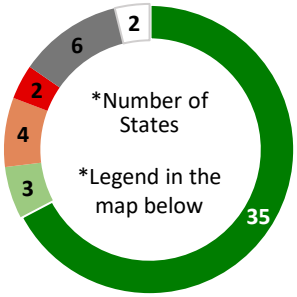
This Element introduces ASM/ATFM techniques, procedures and tools for the initial establishment of an integrated collaborative airspace management and air traffic flow and capacity management process applicable to the strategic through to the tactical phases of operations. It represents the initial step to enhancing the common situational awareness supporting optimum availability of airspace and ATC capacity to meet air traffic demand and it will result in a dynamic/rolling process supporting the enhancement of network operations. It will improve the cross-border operations and optimize network operations based on the richest and more accurate information.

Implementation summary (end 2022):

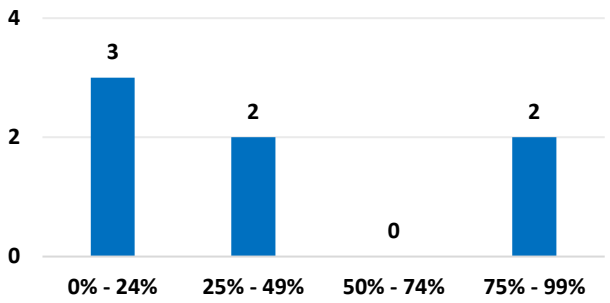
- Substantial progress has been achieved in 2022 and 35 States have now implemented the Element, compared with 18 States in the previous Report
- For this edition of the Report, multiple ways of compliance are acknowledged (deployment of a local tool or the use of a centralised one made available by a centralised function, e.g., the Network Manager). This has also led to an increase in the completion rate
- Among the non-LSSIP States the Element has already been implemented by UZ (with a local tool). Completion is expected to be achieved by TJ in 2023. BY, KZ, KJ and RU have also reported implementation plans within the 2026/2027 timeframe.

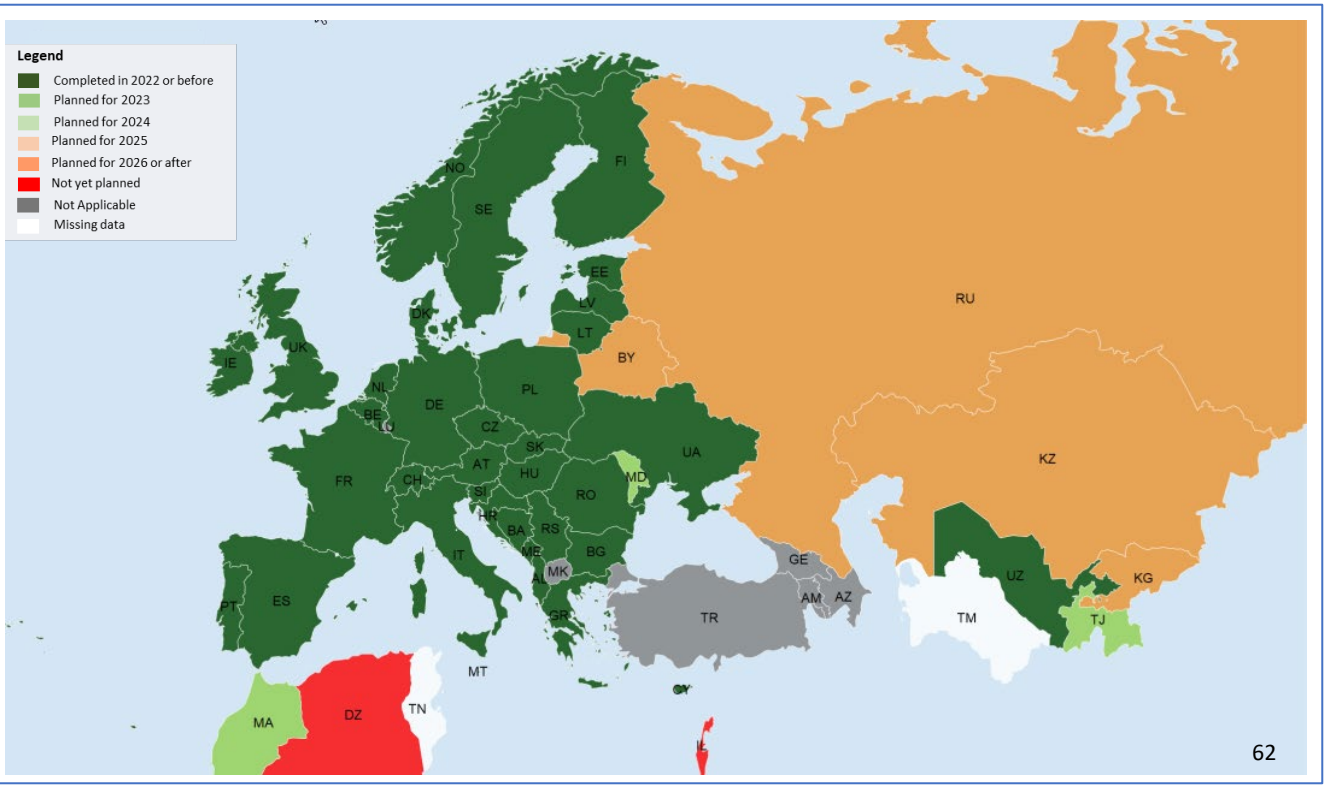
New Implementers

AT, BE, CY, CZ, FI, HR, GR, IE, ME, MT, NL, RO, RS, SI, SE, UA, UK



Progress **among non-completed** stakeholders





NOPS-B0/2	Collaborative Network Flight Updates

Description:

This Element will ensure effective interface between ATC and ATFM with regard to deviations from the current flight plan, as well as enhanced tactical flow management service based on real-time aircraft position data and flight activation information, resulting to more accurate ATFM measures and thus better use of scarce airspace resources.

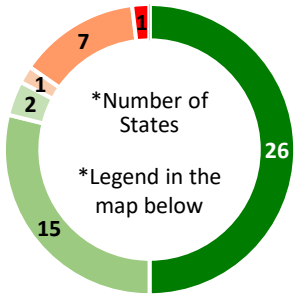
It includes seamless exchange and processing of correlated position information, flight activation status and up to date flight plan information for airborne flights. Such data are required within the Area of Responsibility (AOR) of the ATFM unit, but also within the Area of Interest (AOI) of the ATFM unit for all flights entering the ATFM area.

Implementation summary (end 2022):

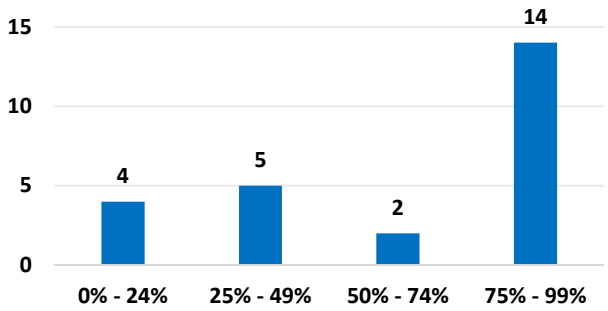
- The Element is implemented by half of the States in the EUR Region (26 States have reported completion of all the functionalities addressed by the Element) while another 15 expect to finalise deployment by the end of 2023
- The basic features of the Element (the provision of corelated position reports or of flight activation messages) are virtually implemented in all the ECAC States
- With regard the (automatic) flight plan updates for airborne flights, the implementation for the most often triggering event (missing flight plan) is already in place in 31 States
- Among the non-LSSIP States, the Element is implemented by TN, TM and UZ, while DZ expects to finalise deployment in 2024. BY, KG, KZ and RU also report implementation plans in the 2026/2027 timeframe.

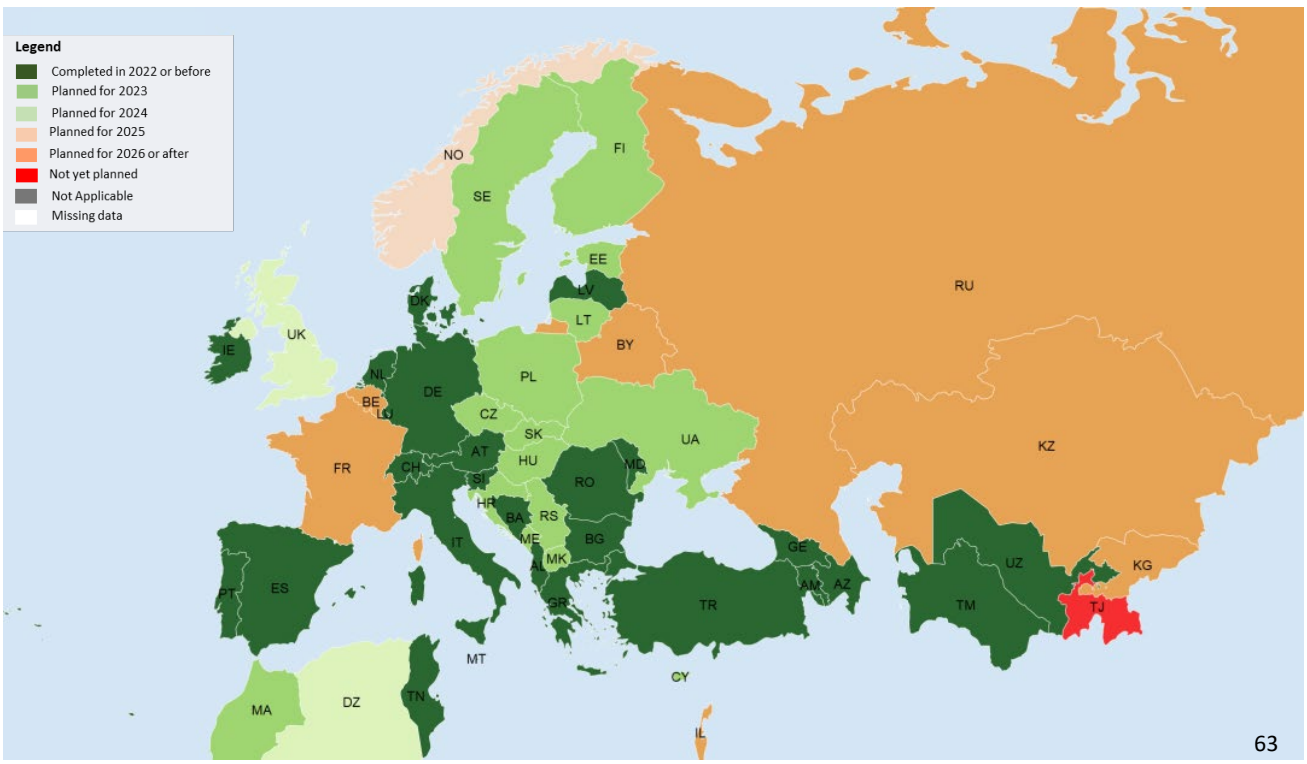
New Implementers

LU, PT



Progress **among non-completed** stakeholders





NOPS-B0/3	Network Operation Planning basic features

Description:

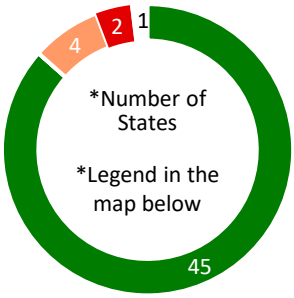
Network Operation Planning provides an overview of the situation from strategic planning through real time operations with ever increasing accuracy up to and including the day of operations by a common situational awareness for all ATFM actors within and adjacent to the ATFM area and allowing network wide demand and capacity balancing. It is based on enhanced participation in a dynamically updated collaborative planning process. This requires the sharing of the latest flight status and intentions, airport and airspace component, associated demand and capacity balancing measures in a frequently updated plan which is aimed to be realized as target by all actors.

Implementation summary (end 2022):

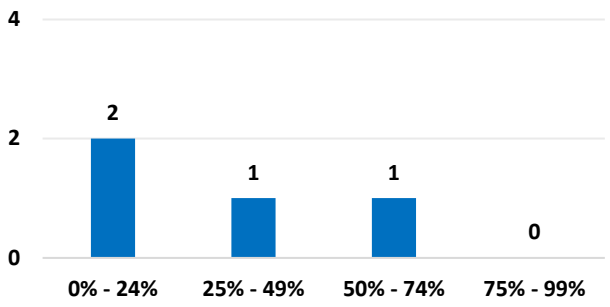
- Network Operations Planning is already a well-established process within the EUROCONTROL Member States, and it is coordinated by the Network Manager, representing one of its ATM network functions. In this context, the Network Operations Plan is regularly produced
- It implements the Network Strategy Plan and the Network Performance Plan at an operational level and provides a short to medium-term outlook of how the ATM Network will operate, including expected performance at network and local level
- NM is also publishing the Rolling Seasonal Plan, covering a rolling six-week period and consolidating data from 350 airlines, 68 ACCs, 55 airports and 43 States
- Among the non-LSSIP States, the Element is reported as completed by TN and UZ and planned in the longer-term (2026/2027) by BY, KG, KZ and RU.

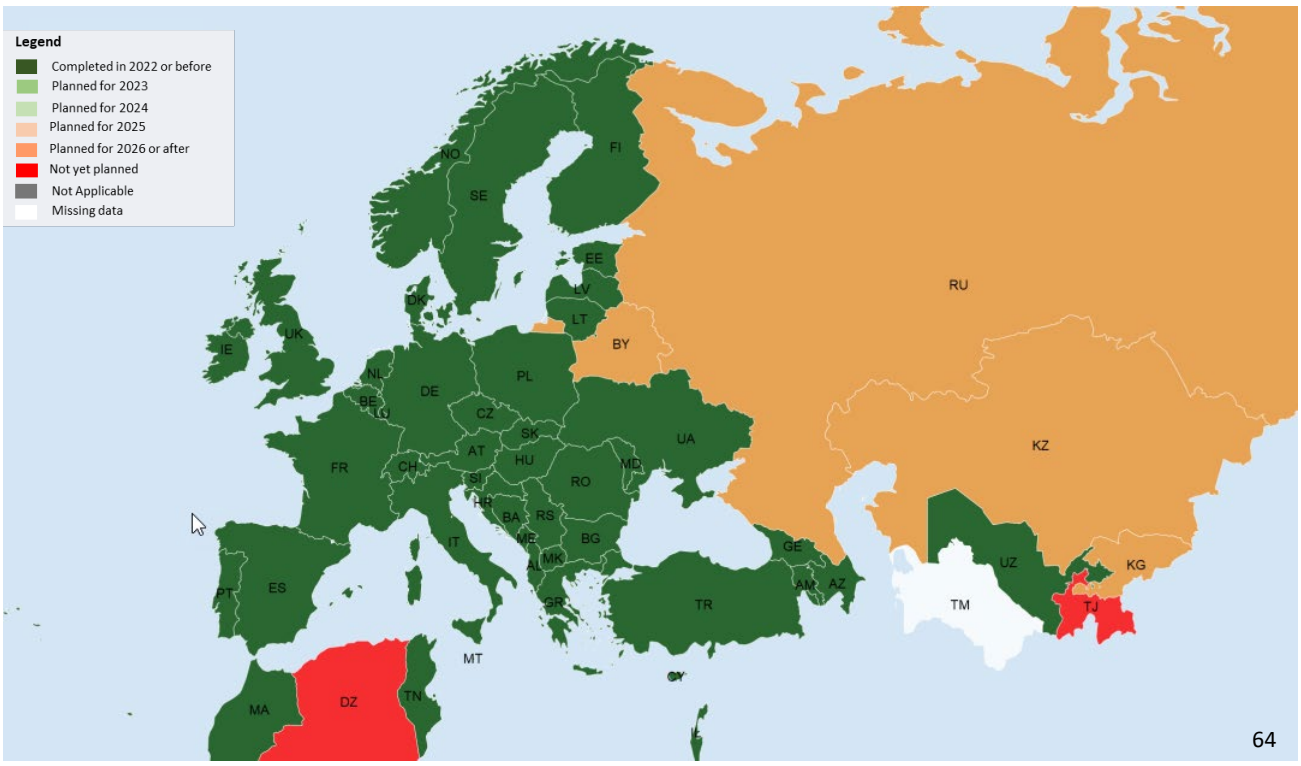
New Implementers

None



Progress **among non-completed** stakeholders





NOPS-B0/4	Initial Airport/ATFM slots and A-CDM Network Interface

Description:

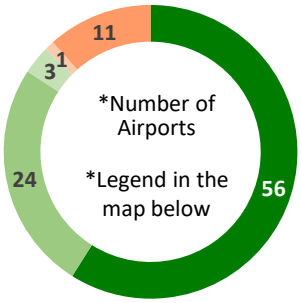
This Element ensures an initial integration of airports into the ATM network function. The first objective is the A-CDM (Airport Collaborative Decision Making) integration with ATFM via exchanges of specific messages. The second objective is to ensure ATFM slot adherence and limited ATFM slot swapping in order to meet airline demands in line with capacity declarations.
Stakeholders will be able to share relevant airport and flight turnaround information with ATM network function resulting in better predictability and better use of existing capacity whilst considering user preferences and requirements.

Implementation summary (end 2022):

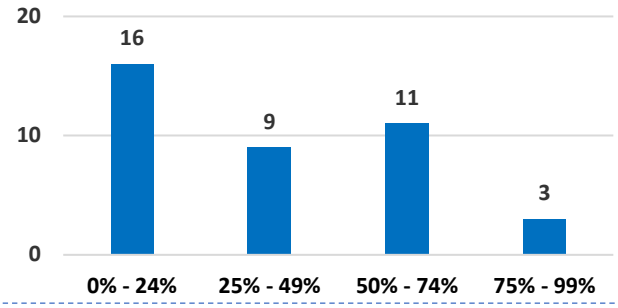
- Within the Air Traffic Flow and Capacity Management (ATFCM) area of EUROCONTROL NM, initial integration of airports within the ATM network function is ensured via information exchanges (DPI and FUM) as part of the Advanced ATC Tower implementation, of full A-CDM, or of AOP/NOP information sharing
- These functionalities provide incremental levels of integration, from basic to full integration (AOP/NOP)
- In the EUR Region, 56 airports have already established certain levels of information exchanges with NM. Most of these airports (32) have implemented the full A-CDM process (see also ACDM-B0/1 and B0/2), while at least 19 additional airports (typically medium and small-sized ones) provide DPI messages to NM
- Among the non-LSSIP States, the Element is not yet implemented but it is planned at several airports in BY, KG (no specific airport identified), RU and UZ within the 2024-2030 timeframe.

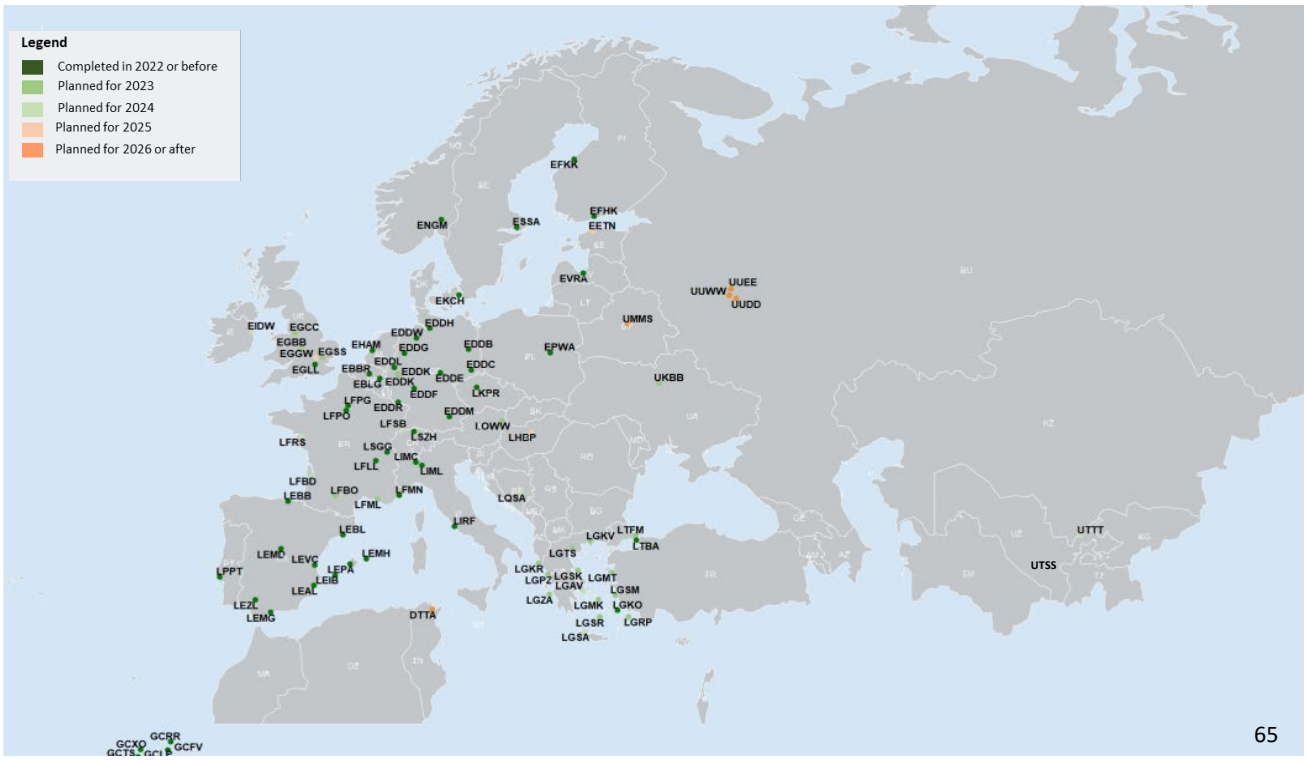
New Implementers

LOWW, LFBO, LFML, LGMT, LGTS, LGRP, LGSM



Progress **among non-completed** stakeholders





NOPS-B0/5	Dynamic ATFM slot allocation

Description:

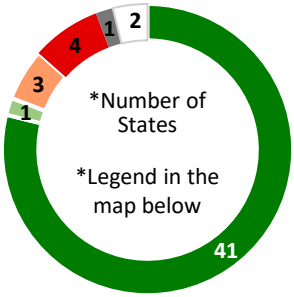
Dynamic ATFM slot allocation represents an ATM network function which provides departure ATFM slots, including Calculated Take-off Time (CTOT) for regulated flight to all concerned operational stakeholders. The CTOT is defined as a time at which the aircraft shall take-off. CTOT is sent to AU/ATS when a flight becomes regulated (e.g., new flight entering the system, new period of regulation in the system, change of runway in use) at a system parameter time before the last received Estimated Off-Block Time (EOBT). AU/ATS/Airport need to adhere to the CTOT. The calculation of take-off times takes into account the off-block times and an average taxing time for the runway in use at the airfield concerned.

Implementation summary (end 2022):

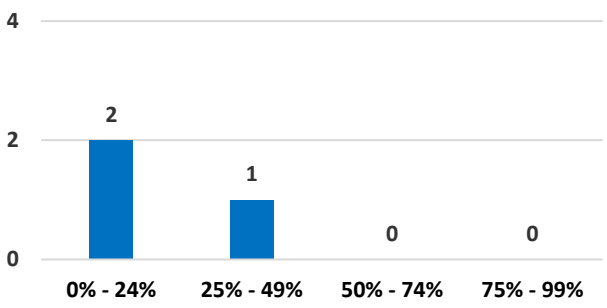
- Within its Air Traffic Flow and Capacity Management (ATFCM) Area (all ECAC Member States (apart Azerbaijan and Iceland) + Morocco), EUROCONTROL Network Manager is responsible for the provision of ATFCM, including the dynamic ATFM slot (CTOT) allocation to flights in order to resolve demand/capacity imbalances
- Furthermore, certain States are cooperating with the NM by exchanging data with it and participating in the NM ATFCM service. These States referred as ATFCM Adjacent Area (Algeria, Belarus, Tunisia, Iceland, Israel, Egypt). Flow managers (FMPs) of Adjacent Areas may request the NMOC to apply ATFCM measures for the airports within their FIR or for significant points at the interface between the FIR and the NM Area of operations
- Among the remaining States within the Region, UZ expects to implement the Element in 2023 to be followed by RU in 2026 and BY in 2027.

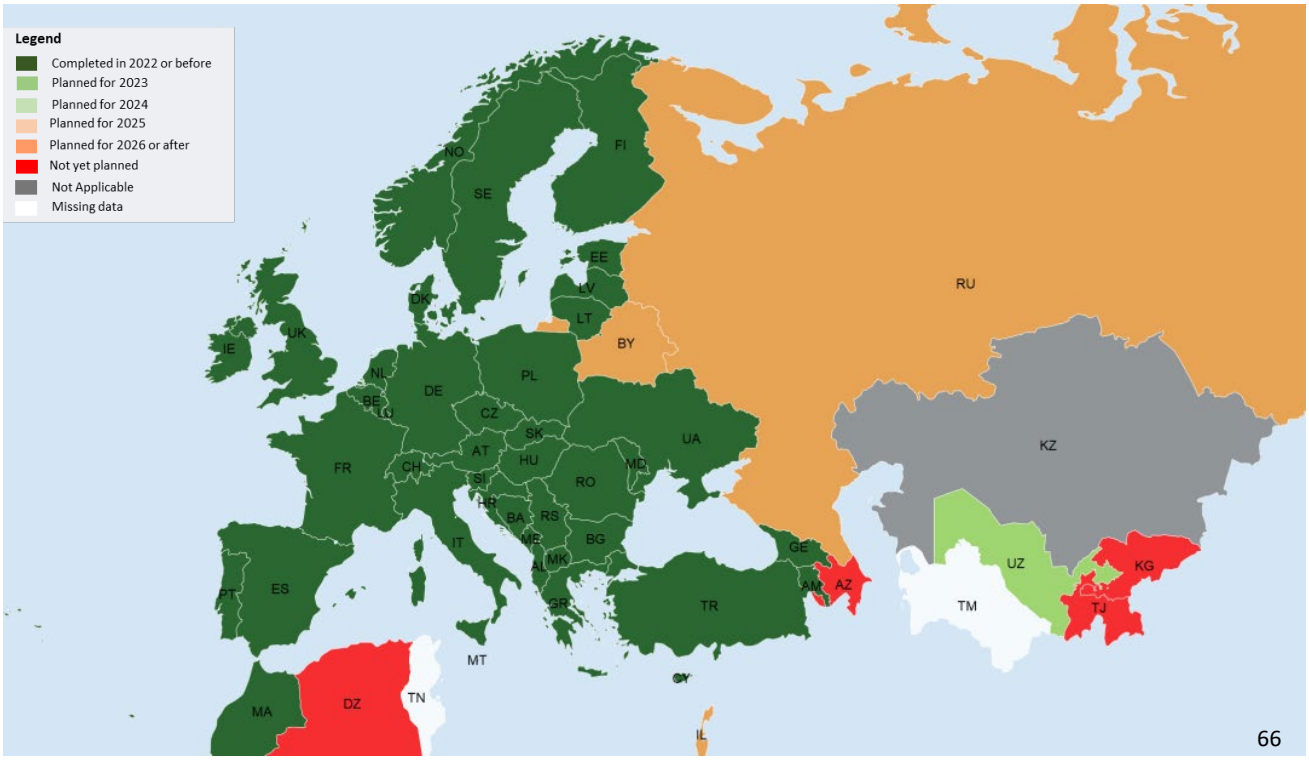
New Implementers

None



Progress **among non-completed** stakeholders





NOPS-B1/1	Short Term ATFM measures

Description:

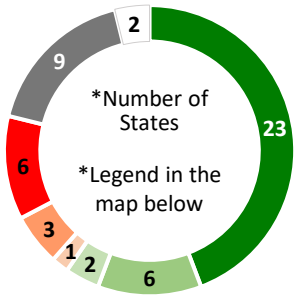
Short Term ATFM Measures (STAM) are intended to smooth sector workloads by reducing traffic peaks through short-term applications of minor ground delays, appropriate flight level capping, timing and modalities of ATC re-sectorization. These measures are capable of reducing the traffic complexity for ATC with minimum curtailing impact on the airspace users. The rigid application of ATFM measures based on standard capacity thresholds as the pre-dominant tactical capacity measure needs to be replaced by a close working relationship between ANSP, AU and ATM Network function. STAM tools and procedures are based on accurate short-term occupancy counts. The tactical capacity management procedures can be supported by the ATFM Tools (system-based STAM with the hotspot detection in the network view, the "what-if" function and capabilities of promulgation and implementation of STAM measures, including CDM).

Implementation summary (end 2022):

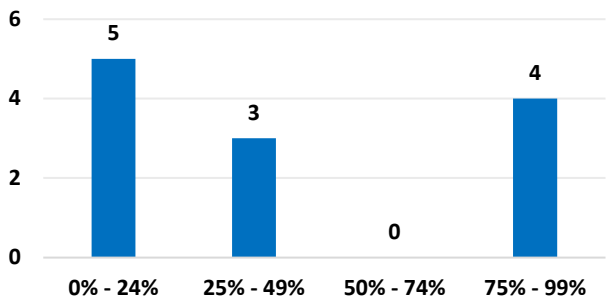
- The Element has seen a substantial increase in its completion rate, with 19 States reporting completion in 2022, leading to an overall 23 States having implemented it
- This implementation spike was driven by the obligations imposed by the EU CP1 Regulation (EU 116/2021 - Sub-AF 4.1.1 on enhanced short term ATFCM measures) on the EU Member States
- Outside the EU, most of the States consider the functionality as "Not Applicable" or do not have concrete implementation plans, mostly because the levels of traffic do not justify deployment
- Within the non-LSSIP States, only 3 of them have reported longer-term deployment plans, RU for 2026, followed by BY and KG in 2027.

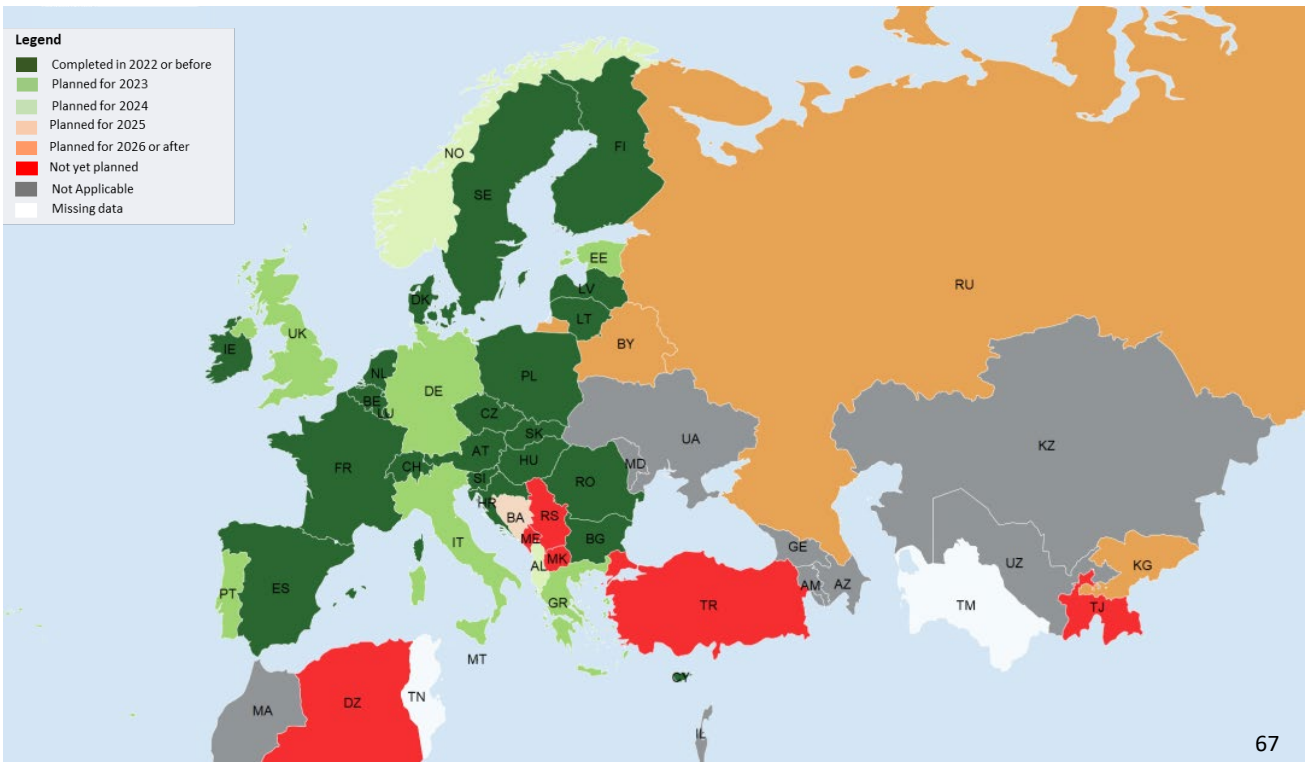
New Implementers

AT, BE, BG, CY, DK, ES, FI, FR, HR, HU, IE, LU, MT, NL, PL, RO, SE, SI, SK



Progress **among non-completed** stakeholders





NOPS-B1/2	Enhanced Network Operations Planning

Description:

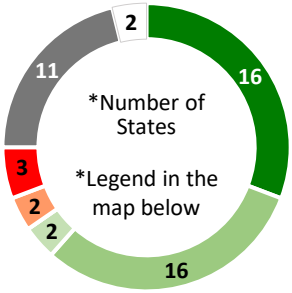
The Network Operations Planning (NOP) process will be enhanced to continuously provide up-to-date situational information on all components of the network. Furthermore, it will provide access to initial network performance objectives and support to network performance assessment in post-operations.
The required technological platform will use the state-of-the-art technologies for creation of a virtual operations room for the physically distributed network operations, in support of collaborative NOP. These interfaces will support the network collaborative dynamic/rolling processes from strategic to real-time operations, including capabilities for online performance monitoring integrated and feeding back into the collaborative network planning.

Implementation summary (end 2022):

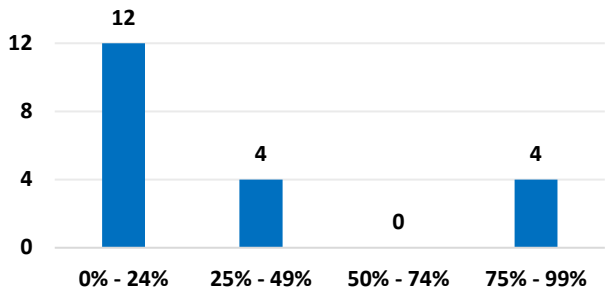
- Within the ATFCM Area, interactive rolling NOP components are already implemented and made available by the EUROCONTROL Network Manager (CHMI, NOP Portal)
- However, the interactive rolling NOP is an evolving development, and new functionalities are added every year
- The Element is reported implemented by 16 States and 16 others expect completion in 2023. Still, many States reporting it as “Not Applicable” or “Not Yet Planned” refer to B2B services as actually they all have manual access to the NOP via the CHMI
- Apart for BY, RU and TJ which expect deployment within 2023-2027 timeframe, most of the non-LSSIP States do not have plans for implementation yet.

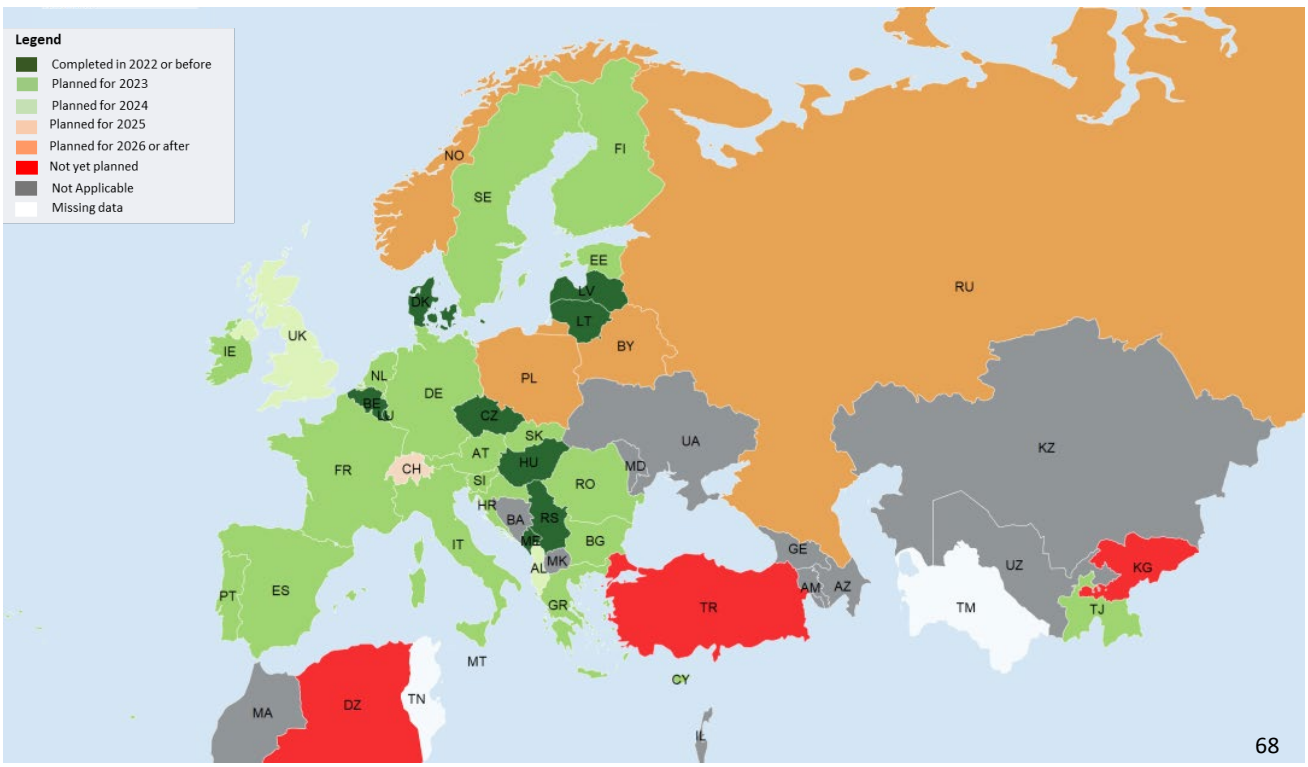
New Implementers

AT, CZ, LU, ME, NO, RS, SK



Progress **among non-completed** stakeholders





NOPS-B1/3	Enhanced integration of Airport operations planning with network operations planning

Description:

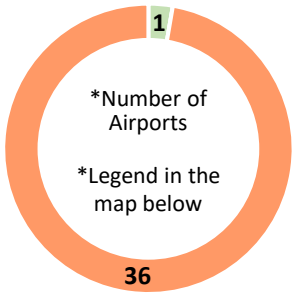
The airport operations plan will contain all data and information related to the different status of planning phases and will be a dynamic/rolling plan, which naturally evolves over time. The integration of airport operations planning within the network operations planning provides a dynamic/rolling picture of the network situation to be used by all operational stakeholders to prepare their plans and their inputs to the network CDM processes. The data exchanges are based on the subset of B2B/SWIM services that are most widely available to all stakeholders, communicating with local airport A-CDM systems to exchange relevant operational information.

Implementation summary (end 2022):

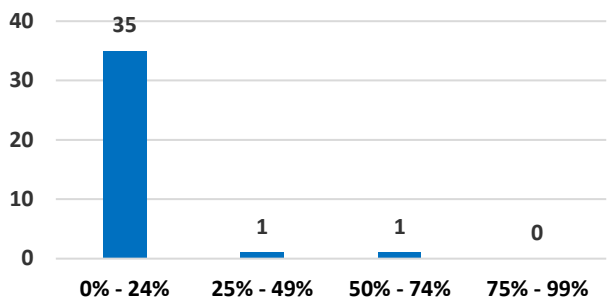
- The Element is still in very early planning phases, with no airports having deployed it and with a slow progress expected in the next years. Only 1 airport plans to finalise deployment before 2025
- Out of the overall 31 airports reporting deployment plans, 26 expect to finalise deployment in 2027. The choice of this date is also related to the CP1 Regulation (EU 116/2021 - Sub-AF 4.1.4 on AOP/NOP integration) mandating the functionalities of the Element to a sub-set of airports in the Region, by 2027
- Among the non-LSSIP States, BY (7 locations), KG (3 locations) and RU (3 locations) show interest in the deployment of the Element, between 2024 and 2028. The first airport expecting to be ready is UMMS in 2024.

New Implementers

None



Progress **among non-completed** stakeholders



NOPS-B1/4	Dynamic Traffic Complexity Management

Description:

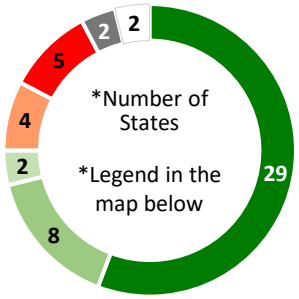
The local traffic complexity assessment continuously monitors sector demand and evaluates traffic complexity (by applying predefined complexity metrics) according to a predetermined qualitative scale. It provides support in the determination of solutions in order to plan airspace, sectors and staff to handle the predicted traffic. The local complexity assessment would benefit by receiving, processing and integrating the ATM Network function information in order to supplement the local traffic counts with the relevant flight plan data. This will improve the quality of the planned trajectory and further enhance the traffic complexity management.

Implementation summary (end 2022):

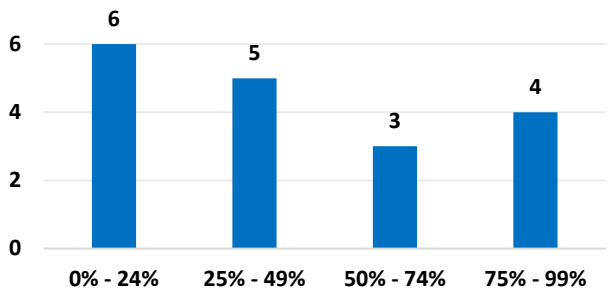
- The Element has already been deployed by 29 States, another 8 States expecting completion in 2023
- Among the implementers, 13 States have chosen to implement a centralised tool provided by the EUROCONTROL NM while 11 have deployed local tools which are either exchanging or planned to exchange data with NM. Beside the above, 5 States have deployed or expect to deploy both options, for redundancy purposes
- Several States consider traffic load monitoring tool as sufficient to fulfil the requirements of the Element as it is fit for their operational needs
- Among the non-LSSIP States, TJ reports this Element as completed, while BY, KG (both in 2027) and RU (2026) have reported implementation plans.

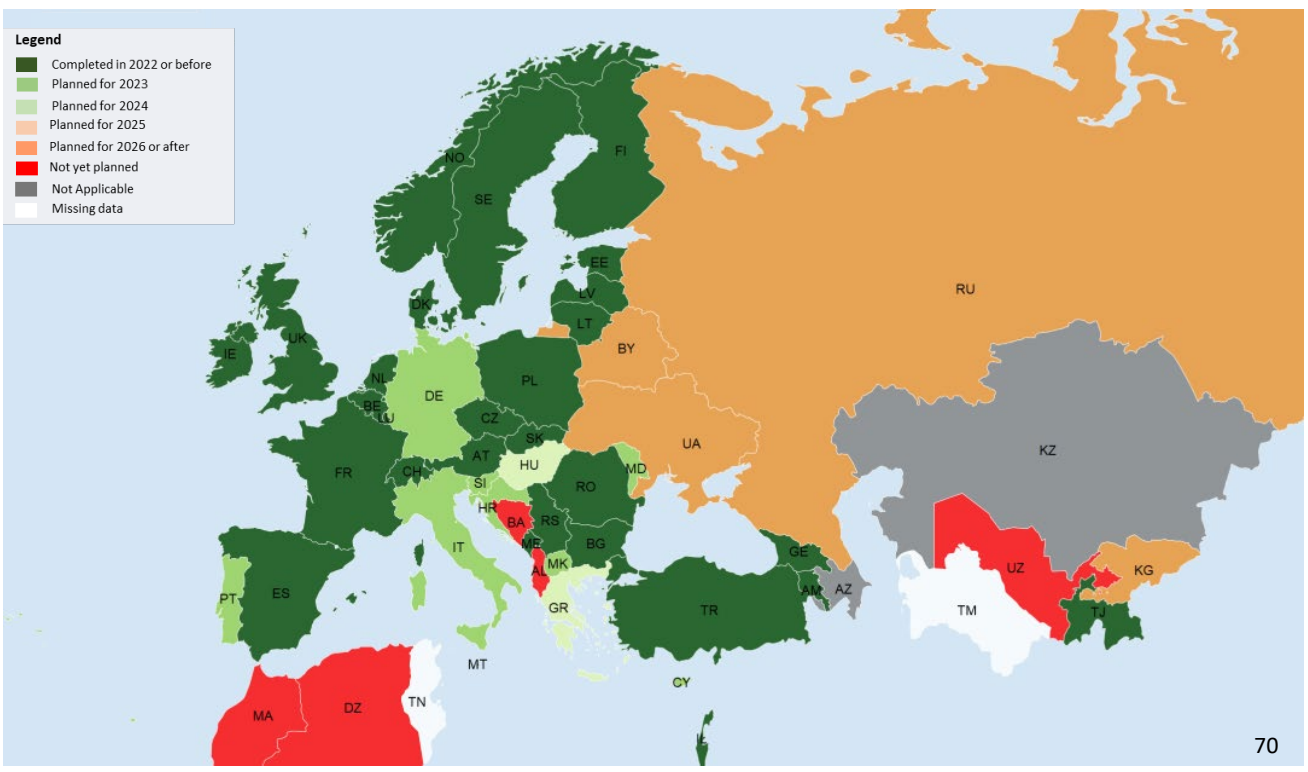
New Implementers

AT, DK, FR, IE, ME, NL, RO, RS, SK, ES



Progress **among non-completed** stakeholders





NOPS-B1/5	Full integration of Airspace Management with Air Traffic Flow Management

Description:

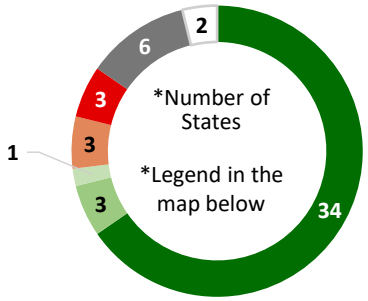
The full dynamic/rolling ASM/ATFM process focuses on improving airspace planning. It will ensure a continuous, seamless and iterative airspace planning and management/allocation based on airspace requests at any time period within strategic, pre-tactical and tactical ASM levels. It will result in a rolling process, supporting the enhancement of dynamic Network Operations Planning. The real time ASM data exchanges relates to the automated exchange services of ASM data during the tactical phase continuously in real time. ASM information (real-time Airspace Reservation status) is shared between different systems and Stakeholders and communicated to ATFM in the tactical phase.

Implementation summary (end 2022):

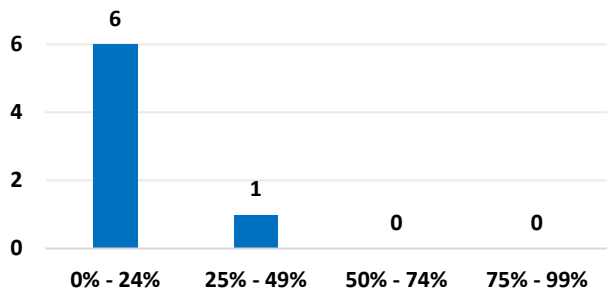
- Within the ATFCM area, the States are adapting their systems and procedures in order to support a full rolling ASM/ATFCM process via Airspace Use Plans (AUPs) and Updated Airspace Use Plans (UUPs). Within this area, 33 States have already finalised the implementation (34 at the EUR Region level)
- Another 3 States expect to achieve completion in 2023
- Within the non-LSSIP States, only TJ has reported completion, while deployment is expected by RU (2026), BY and KG (both in 2027)
- For BE, LU and NL the Element has also been deployed in the airspace where the service is provided by the Maastricht Upper Area Centre.

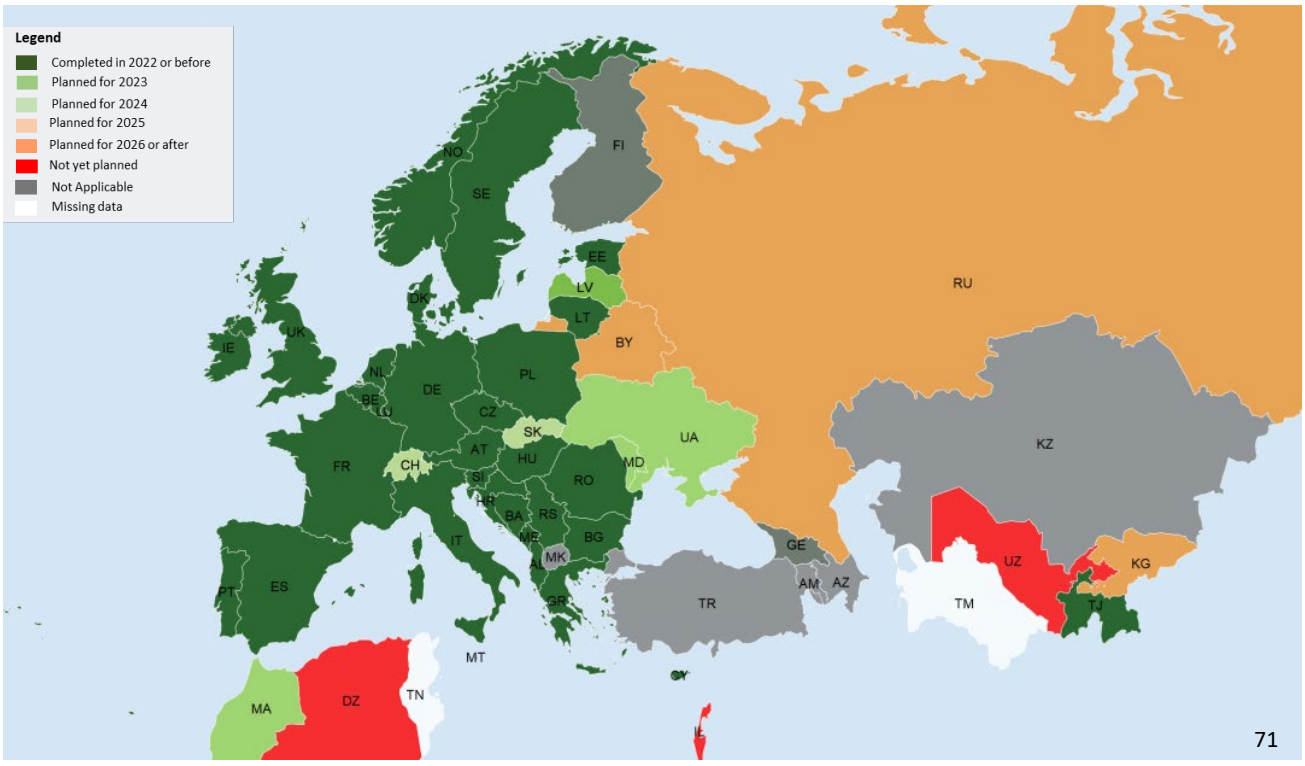
New Implementers

AT, BG, CY CZ, FI, FR, DE, GR, IE, LU, ME, MT, NL, PL, RS, ES, SE, SI, UK



Progress **among non-completed** stakeholders





NOPS-B1/6	Initial Dynamic Airspace configurations

Description:

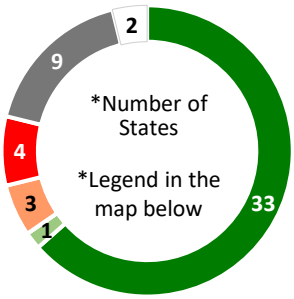
This Element addresses the ASM solutions and initial dynamic airspace configurations for ATFM planning, synchronization of traffic flows and demand/capacity balancing. The ASM solutions process is aimed at delivering ASM options/solutions that can help reducing or even alleviate the ATFM measures and address capacity issues identified in any area as well as to improve flight efficiency, assess impact on capacity and ensure the synchronized availability of optimized airspace structures based on traffic demand and dynamic sectors management. The Airspace configurations are pre-defined and coordinated airspace structures and ATC dynamic sectorization, to meet the ATFM and airspace needs in terms of capacity and/or flight efficiency. The implementation of pre-defined airspace configuration exchange covers the improvements of ATFM systems, to allow exchange of predefined airspace configurations information.

Implementation summary (end 2022):

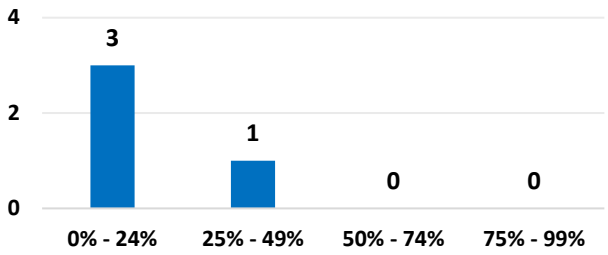
- The Element is currently implemented by 33 States, with 25 new implementers in 2022
- The spike in implementation was in particular due to the compliance with the obligations imposed by the CP1 Regulation (EU 116/2021 - Sub-AF 3.1 on ASM and Advanced FUA) on the EU Member States
- Among the non-LSSIP States, only TJ has reported completion, while deployment is expected by RU (2026), BY and KG (both in 2027)
- For LSSIP States this Element is linked to the same Implementation Objective as FRTO-B1/4.

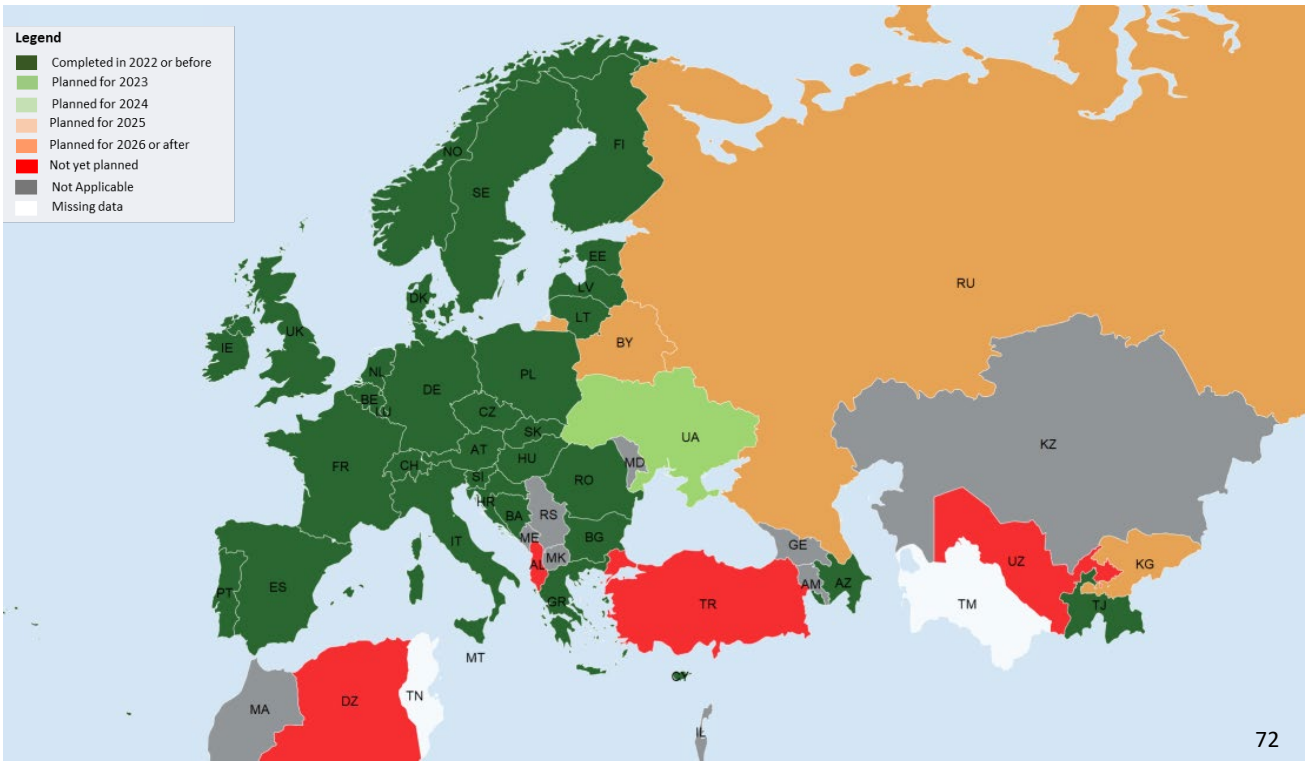
New Implementers

AT, AZ, BE, BA, BG, HR, CY, CZ, EE, FI, GR, HU, IE, LU, MT, NL, NO, PT, RO, SK, SI, ES, SE, CH, TJ



Progress **among non-completed** stakeholders





NOPS-B1/7	Enhanced ATFM slot swapping

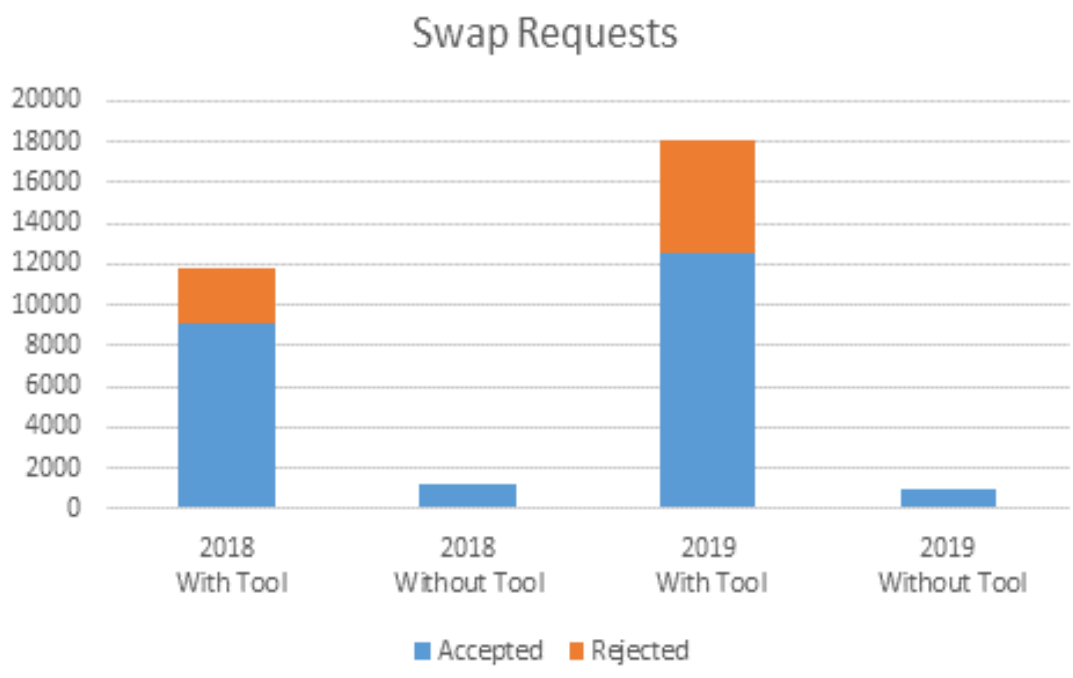
Description:

ATFM slot swapping allows Airspace Users (AU) to request a rearrangement of their own flights subject to an ATFM measure in order to better suit their needs. The enhanced ATFM Slot Swapping improves the slot swapping currently used by AU, by allowing the function to be extended gradually to all AU, by re-prioritizing their flights during the pre-departure part of operations. The Enhanced Slot swapping increases flexibility for AU and provides a wider range of possibilities, by facilitating the identification of possible swaps for an ATFM Measure impacted flight and by reducing the rate of rejection of swap requests by refining current processes.

Implementation summary (end 2022):

- This Element involves the Centralised Flow Management Unit(s) and the Airspace Users during ATFM constrained situations
- In practice slot swapping facilitates the Airspace User to balance the priorities of flights subject to the same ATFM regulation. A higher priority flight may transfer a portion of its ATFM delay to a lower priority flight or a low priority flight may increase its proportion of delay to benefit a neutral priority flight (reducing their delay). In addition to this, slot swapping can be used to reduce the delay of a flight by re-using the slot of a to-be cancelled flight from the same airline or airline grouping
- This functionality has already been implemented by EUROCONTROL's NM in the ATFCM area, while it is mostly reported as "Not Applicable" or "Not Yet Planned" by most of the non-LSSIP States of the EUR Region
- Among the non-LSSIP states the deployment is only planned by BY (2027) and RU (2026).

Element only relevant for the Centralised Flow Management Unit(s) and Airspace Users



NOPS-B1/8	Extended AMAN supported by the ATM Network function

Description:

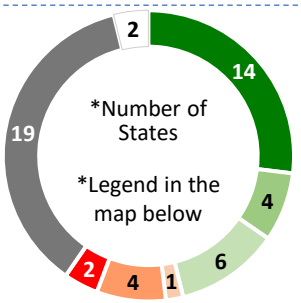
The ATM Network function involvement in extended Arrival Management includes enhancements of ATFM Planned Trajectory about the accuracy/predictability of estimates to meet the extended AMAN operational requirements; provision of ATFM Planned Trajectory to ANSPs; reception and processing of ANSPs extended AMAN info by ATM Network function; and ATFM assessment tool for extended AMAN.
Bilateral agreements need be established between the sectors involved that can be in different ATC units and also in different countries, including the ATM Network function for the notification purposes. The ATFM procedures need to be revised for the management of the extended Arrival Management information.

Implementation summary (end 2022):

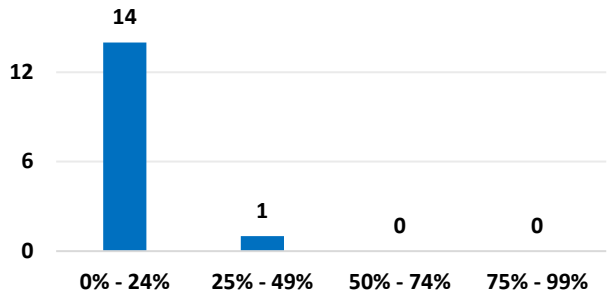
- The implementation of Extended AMAN proves to be particularly challenging as it requires coordination with several ANSPs, sometimes going beyond the neighbouring ones
- The Element also requires information exchanges with an ATM Network Function adding to the complexity of its deployment
- Currently 14 States have reported implementation. For several of them the functionality is implemented only in support of AMAN systems deployed by airports in neighbouring States (e.g., CZ, FR, HU, ME, SK, SE, IE)
- For some 40% of the States, the Element is considered as “Not Applicable” or is “Not Yet Planned” due to the lack of operational needs
- Among the non-LSSIP States, the Element is only implemented in TJ and expected in RU (2026) and BY (2027).

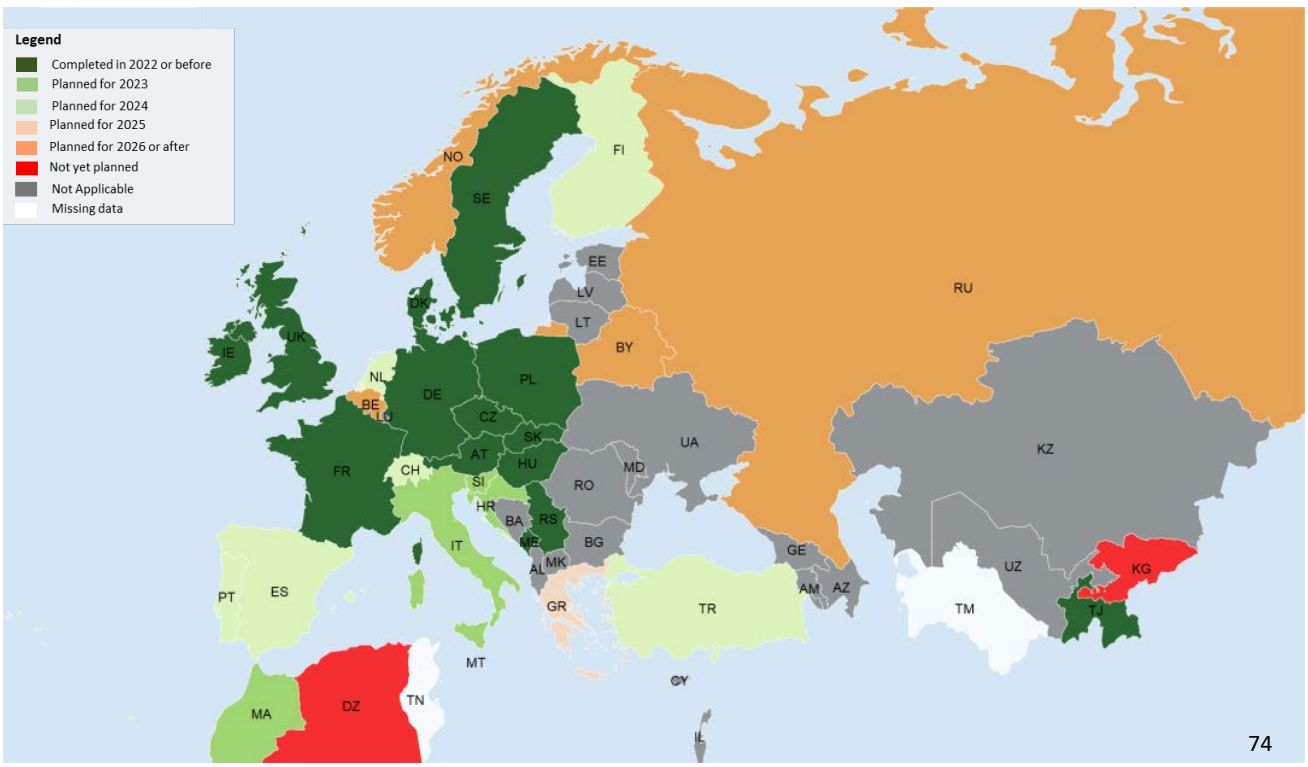
New Implementers

ME, RS, TJ



Progress **among non-completed** stakeholders





NOPS-B1/9	Target Times for ATFM purposes

Description:

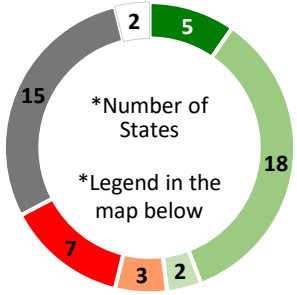
In order to improve the flight predictability at the entry of the congested area, a target time of entry at the congested area will be provided by ATM Network function. At this stage, the target times will be applied for ATFM purpose only, including an initial level of arrival sequencing in case of an arrival ATFM measure. The ATM Network function will provide the calculated Target Time (TT) at the most penalising measure reference point in addition to Calculated Take-Off Time (CTOT) to all concerned users. Stakeholders using TTs should be able to receive, extract and present the target times. ANSPs have access to the relevant information on flights that are subject to a Target Time to manage these flights as required. The Flight Operating centres should provide TT to pilots prior to departure; pilots should endeavour to adhere to the Target Times to the extent possible.

Implementation summary (end 2022):

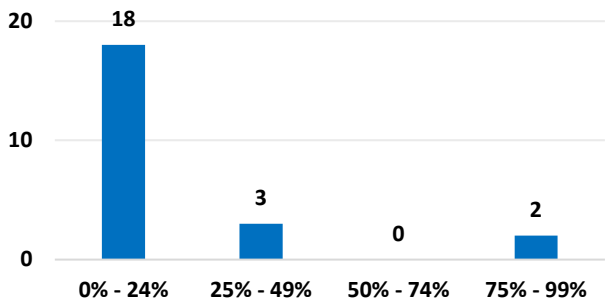
- The current implementation of the Element is quite limited with only 5 States reporting completion
- Other 18 States expect to deploy the Element in 2023 in line with the requirements of the CP1 Regulation (EU 116/2021 - Sub-AF 4.1.2 on Collaborative NOP) mandating the functionalities of the Element within the EU Member States
- Almost half of the States in the EUR Region consider the Element as “Not Applicable” or “Not Yet Planned” due to the lack of perceived operational benefits, taking into account the traffic levels and patterns
- Among the non-LSSIP States, the implementation currently planned, in the 2026/2027 timeframe, only by BY, RU and KG.

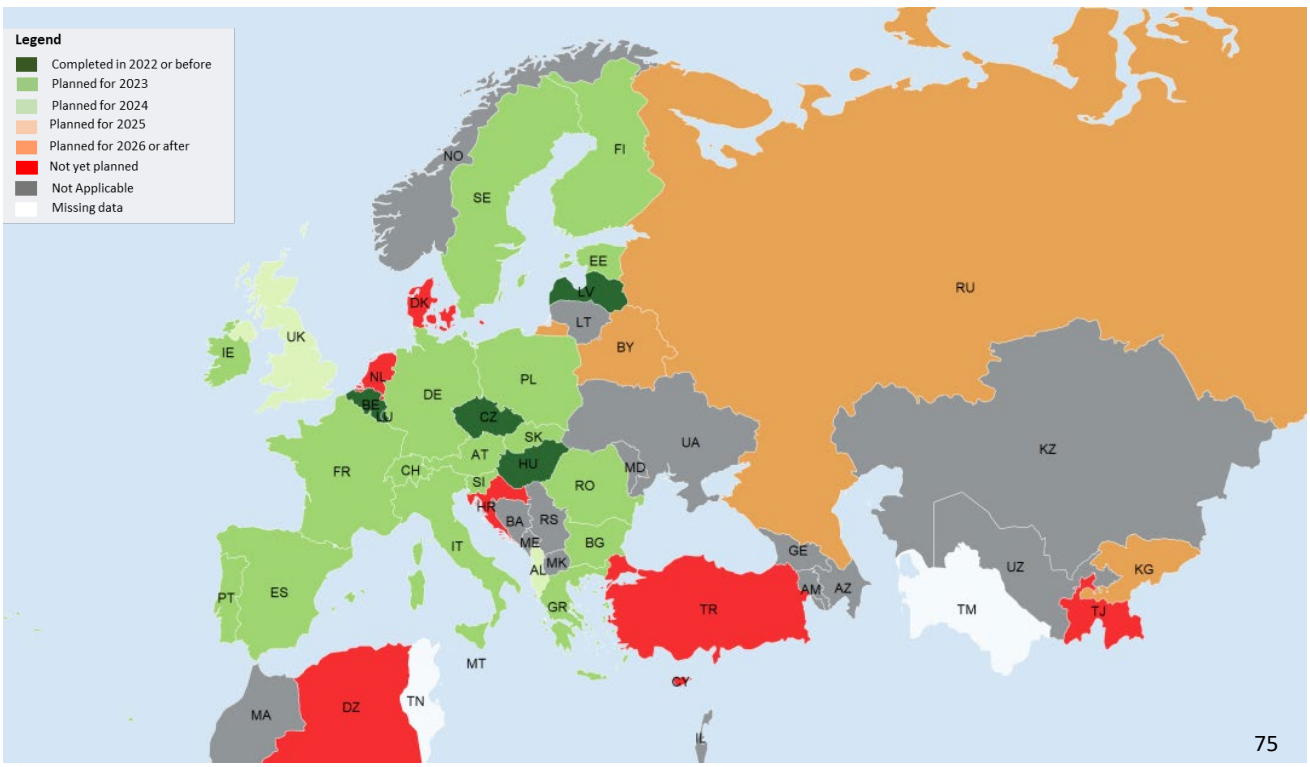
New Implementers

CZ, LU



Progress **among non-completed** stakeholders





RSEQ-B0/1	Arrival Management

Description:

This Element represents management of arrival sequences, thereby allowing aircraft to fly more efficiently to the necessary fix and to reduce the use of holding stacks, especially at low altitude.
Based on inbound traffic prediction information and decision-making support, ATC operational techniques (metering points, speed-control, Time-To-Gain/Time-To-Lose, etc.) will be used to sequence inbound flights at minimum separation on final approach (time or distance based), to optimize runway utilization. Time-based metering is the practice of planning a sequence of traffic by time rather than distance. Typically, the relevant ATC authorities will assign a time in which a flight must arrive at the aerodrome or at a specific control point, and/or advises subject flights of speed changes as required to achieve the optimal separation on final approach.

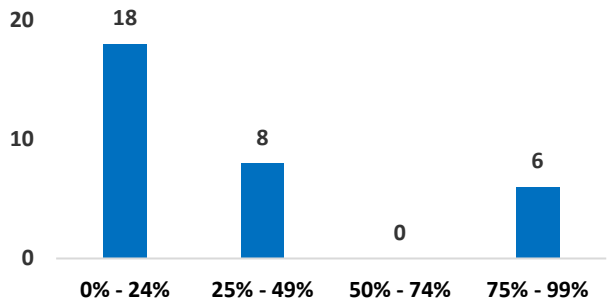
Implementation summary (end 2022):

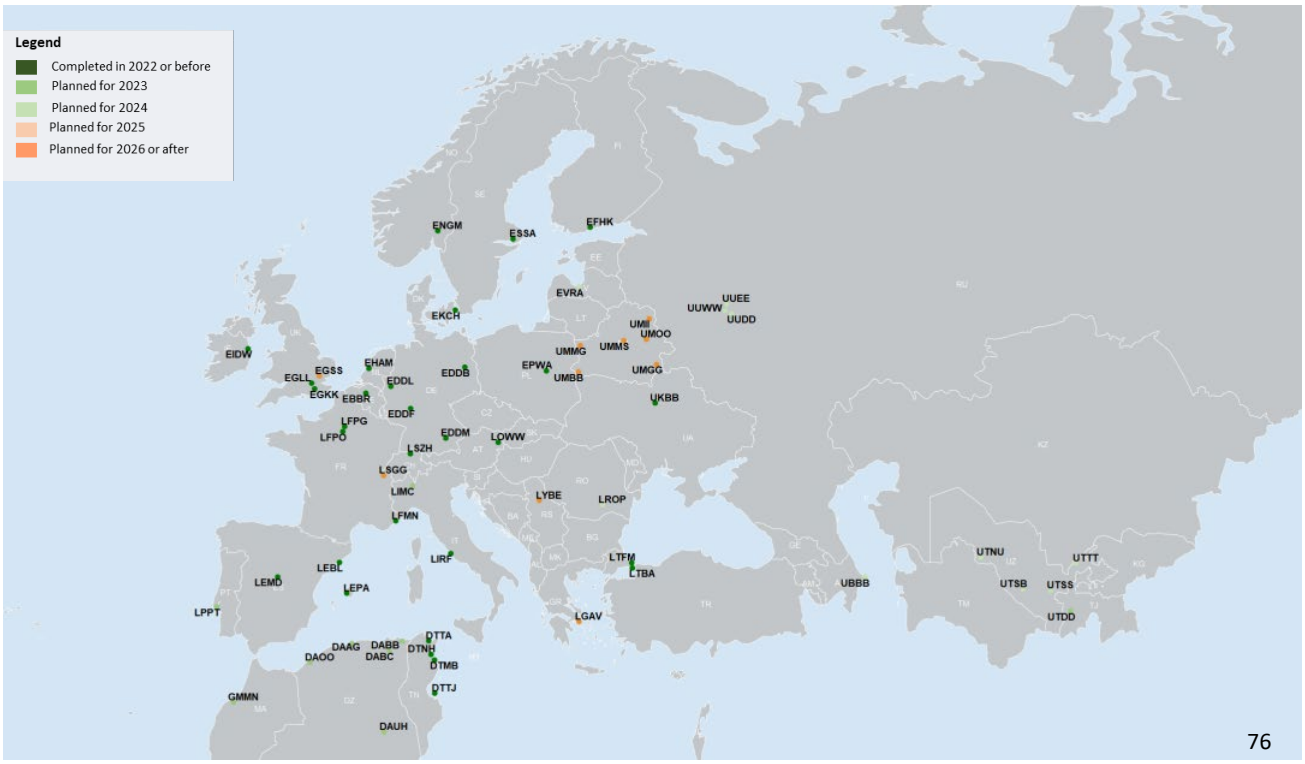
- The Element is quite well spread across the EUR Region, having already been deployed at 30 locations
- Another 19 airports expect to finalise deployment before the end of 2024. Still the Element is considered as "Not Applicable" by many airports where the amount and distribution of traffic does not justify the implementation of such tool
- Interest in AMAN deployment is also high among non-LSSIP States, with implementation either completed or in progress at 26 locations. TN has successfully implemented AMAN at 4 locations, while DZ (5 locations) and TJ (1 location) are set to deploy in 2023. UZ (4 locations) and RU (3 locations) are planning implementation in 2024, followed by KG (2 locations) and BY (7 locations) between 2025 and 2027.

New Implementers

LIRF

Progress **among non-completed** stakeholders





RSEQ-B0/2	Departure Management

Description:

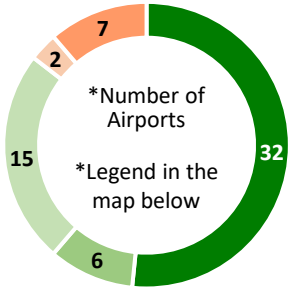
Departure management (DMAN) is used to sequence the aircraft for optimized utilization of ground infrastructure and efficiently meet en-route and destination airport constraints, taking on board user preferences. Like its arrival counterpart, it serves to optimize departure operation to ensure the most efficient utilization of aerodrome and terminal resources. Slots assignment and adjustments will be supported by departure management automation. Dynamic ATFM slot allocation will foster smoother integration into overhead streams and help airspace users to better meet metering points and comply with other ATM requirements. Where Airport CDM is implemented, departure management will interface with the associated A-CDM processes (including the pre-departure sequencing of A-CDM) in determining optimal departure sequencing.

Implementation summary (end 2022):

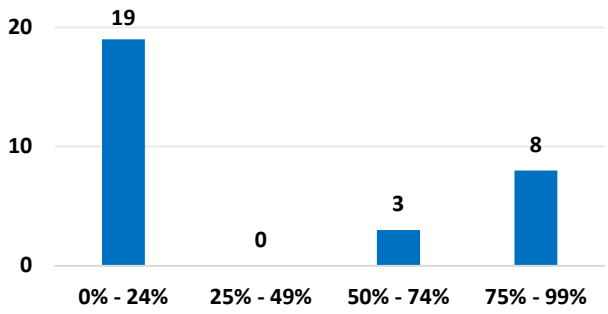
- The Element has been already implemented at 32 locations in the EUR Region, all of them in the LSSIP States
- In most of the cases the implementation is closely linked to the deployment of A-CDM and the related predeparture sequencer
- Still many airports consider the Element as “Not Applicable” or do not have implementation plans as the levels of traffic do not justify the investments
- However, implementation at 21 locations is expected to take place before the end of 2024
- Within the non-LSSIP States, the first deployments will take place in 2023 in TJ (1 location), followed by DZ (5 locations), KZ (4 locations) and RU (4 locations) in 2024 as well as BY (7 locations) and KG (2 locations) by 2027.

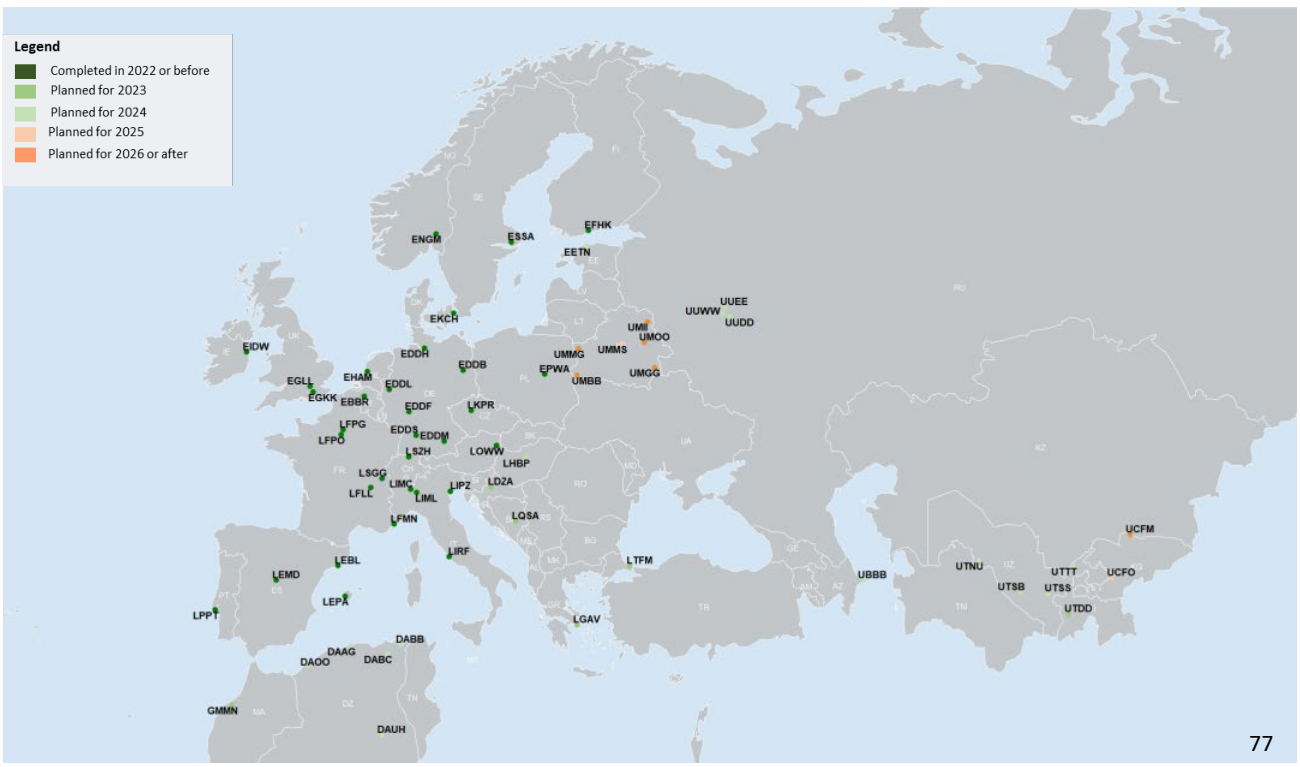
New Implementers

EDDH, EDDS



Progress **among non-completed** stakeholders





RSEQ-B0/3	Point merge

Description:

This Element represents a procedural concept that uses existing technology to merge arrival flows. Its purpose is to improve and harmonize arrival operations by enabling continuous descent operations (CDO) and increasing arrival predictability, thereby enhancing airport capacity and limiting the environmental impact of aircraft emissions. Point Merge is based on a specific route structure that is made of a point (the merge point) with pre-defined legs (the sequencing legs) equidistant from this point that are used for shortening or stretching the arrival path.

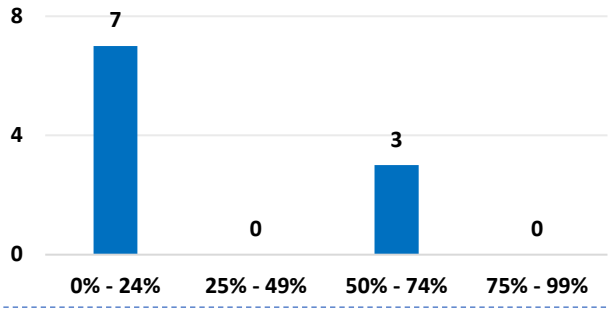
Implementation summary (end 2022):

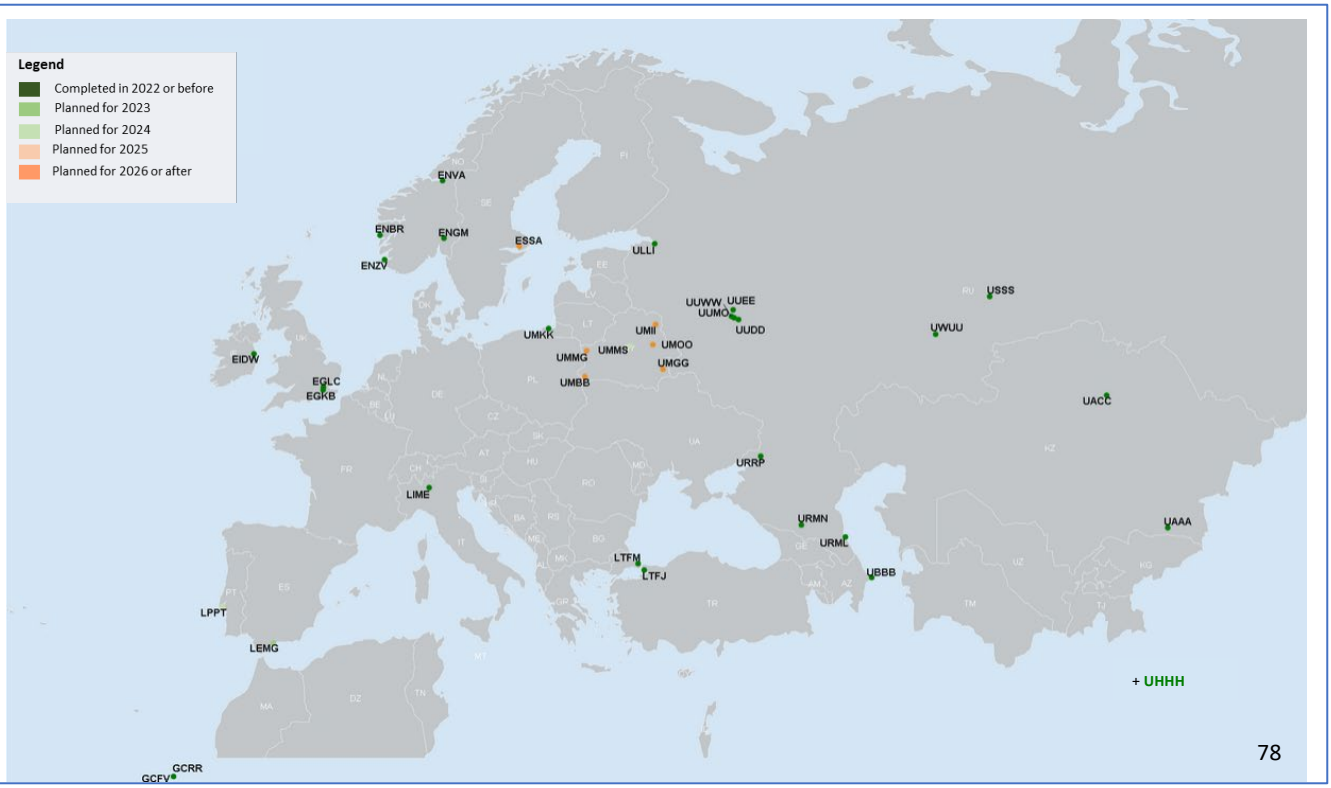
- For the time being the Element is implemented at 27 locations, equally spread between LSSIP and non-LSSIP States
- The current plans indicate that 3 other locations (LEMG, LPPT and UMMS) expect to finalise deployment in 2023 and 2024
- Most of the implementations have taken place in the RU (12 locations), followed by NO (4 locations)
- Among the non-LSSIP States, beside RU, the Element is already implemented in KZ (2 locations) and planned for implementation in BY (7 locations) between 2024 and 2030.

New Implementers

None

Progress **among non-completed** stakeholders





RSEQ-B1/1	Extended arrival metering

Description:

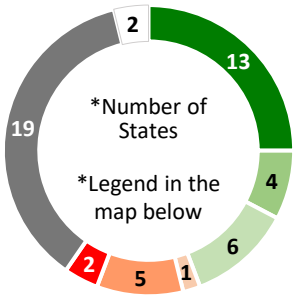
Extended metering will enhance predictability and ATM decision compliance. The ATS units will be able to meter across FIR boundaries. Extended metering will enable ATS units to continue metering during high volume traffic and will improve metering accuracy. This will also facilitate synchronization between adjacent FIRs. With extended metering, delays can be shifted to higher attitudes or even to the departure gate, where it can be more efficiently absorbed by incoming flights. This metering will provide extended arrival management, increasing arrival management effectiveness and benefits (e.g. in terms of reduced holding time) while reducing approach ATC workload. Extended metering may set requirements on flights pre-departure, if departing within the arrival metering range of the destination airport.

Implementation summary (end 2022):

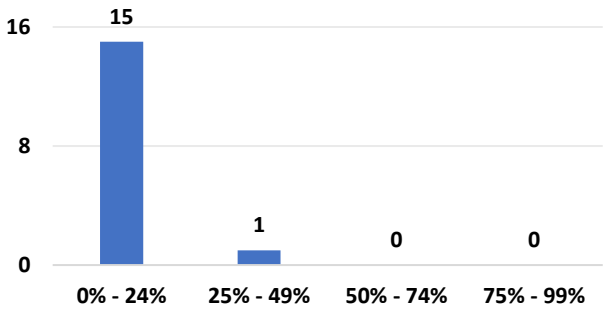
- The implementation of Extended arrival metering proves to be particularly challenging as it requires coordination with several ANSPs, sometimes going beyond the neighbouring ones
- Currently 13 States have reported implementation. For several of them the functionality is implemented only in support of AMAN systems deployed by airports in neighbouring States (e.g. CZ, FR, HU, ME, SK, SE, IE)
- For some 40% of the States, the Element is considered as “Not Applicable” or is “Not Yet Planned” due to the lack of operational needs
- Among the non-LSSIP States, the Element is only expected to be deployed by BY, RU and KG within the 2026/2027 timeframe.

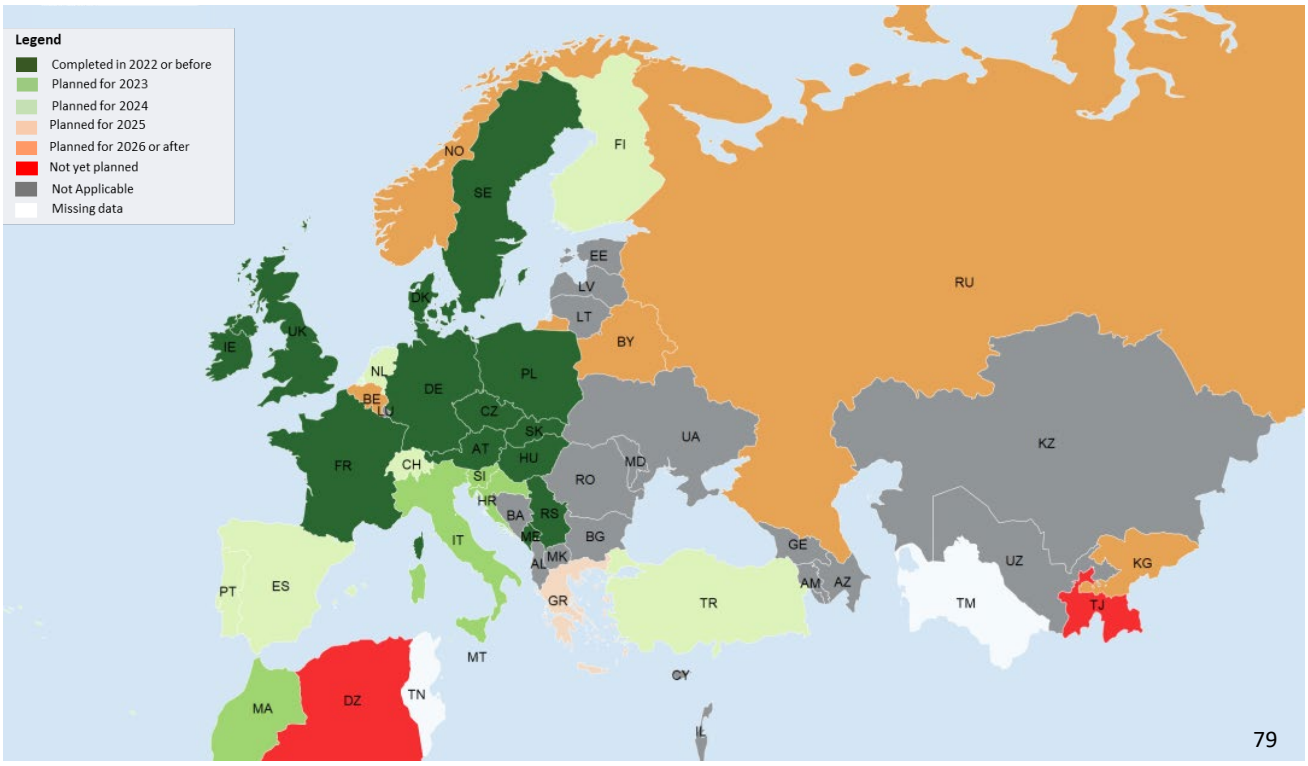
New Implementers

RS, ME



Progress **among non-completed** stakeholders





SNET-B0/1	Short Term Conflict Alert (STCA)

Description:

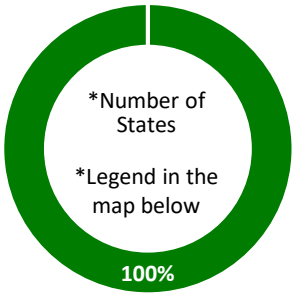
Short-term conflict alert (STCA) systems alert the controller when a given separation between two aircraft is actually lost or may be lost within a given amount of time.
Surveillance data from ground radars and ADS-B stations is used to track aircraft. For each pair of aircraft which are sufficiently close, an STCA is raised if at least one of the following tests is true: (current proximity test) their current horizontal separation is lower than a horizontal threshold and their current vertical separation is lower than a vertical threshold; or (linear prediction test) at any of their future positions within a given amount of time (warning time), as linearly extrapolated from their current track, their horizontal separation will be lower than a horizontal threshold and their vertical separation will be lower than a vertical threshold.

Implementation summary (end 2022):

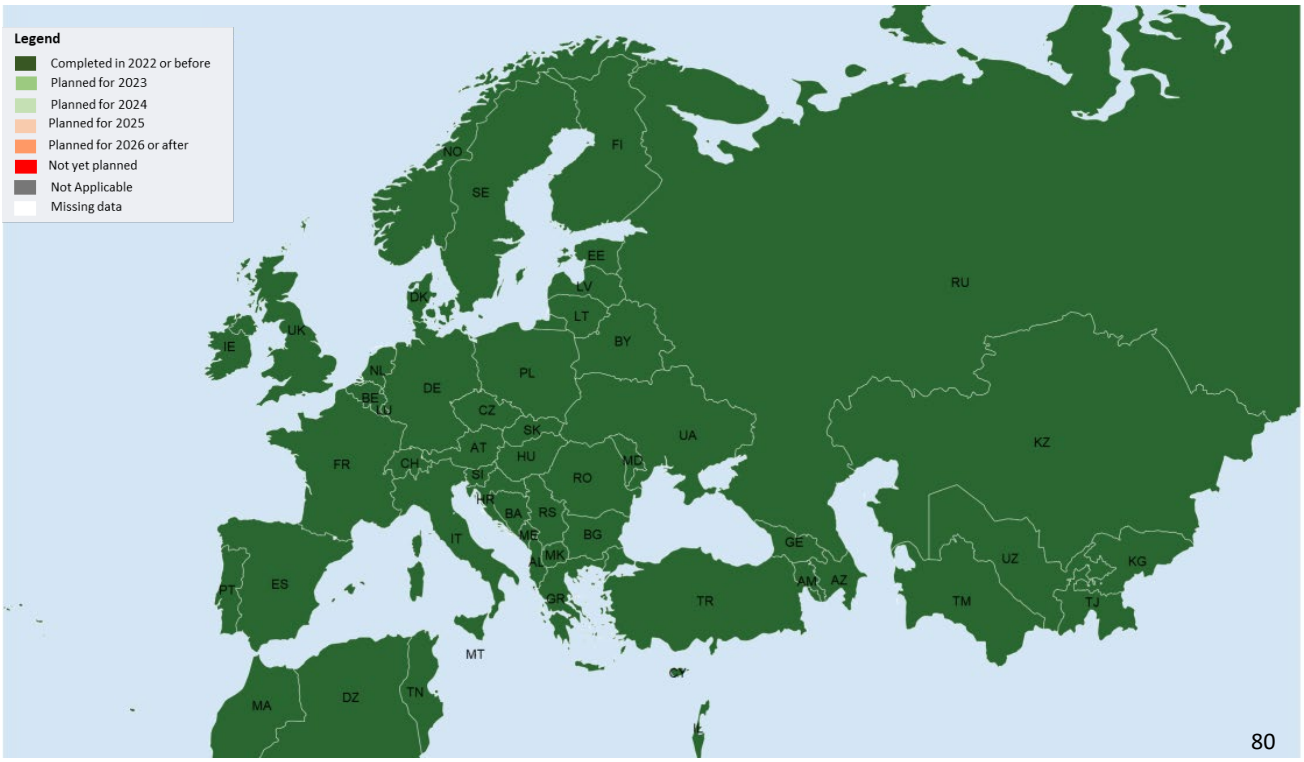
• Short Term Conflict Alert (STCA) represents undoubtedly not only the most widely implemented safety net in the ICAO EUR Region with 100% completion but also the first ASBU Element for which deployment has been completed all over the Region in the en-route airspace (for STCA deployment in terminal areas see Element SNET-B1/2).

New Implementers

None



Progress **among non-completed** stakeholders



SNET-B0/2	Minimum Safe Altitude Warning (MSAW)

Description:

Minimum Safe Altitude Warning (MSAW) systems warn the controller about the increased risk of Controlled Flight Into Terrain (CFIT) accidents by generating, in a timely manner, an alert of aircraft proximity to terrain or obstacles.

Surveillance data (including tracked pressure altitude), flight data (including cleared flight levels) and environment data (including terrain and obstacle data) represent an input to the MSAW system to generate the alerts to the controller working position.

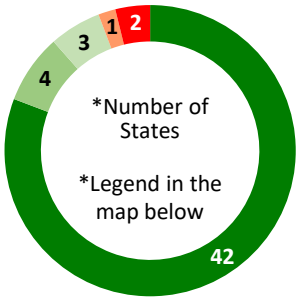
Upon noticing the alert, the controller has to analyze the situation and, if deemed necessary, issue an instruction to the aircraft, with the appropriate emergency phraseology.

Implementation summary (end 2022):

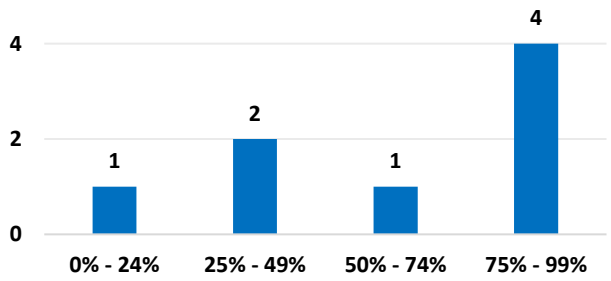
- The Minimum Safe Altitude Warning (MSAW) function has reached a very good level of implementation, with 42 States having reported completion
- Implementation is expected by 7 other States by the end of 2024 as part of ATM systems' upgrades. Next States expected to implement, in 2023 are LU, PT, SI and TJ
- The Element is also widely deployed in the non-LSSIP States, the only State reporting the Element as still in implementation being TJ.

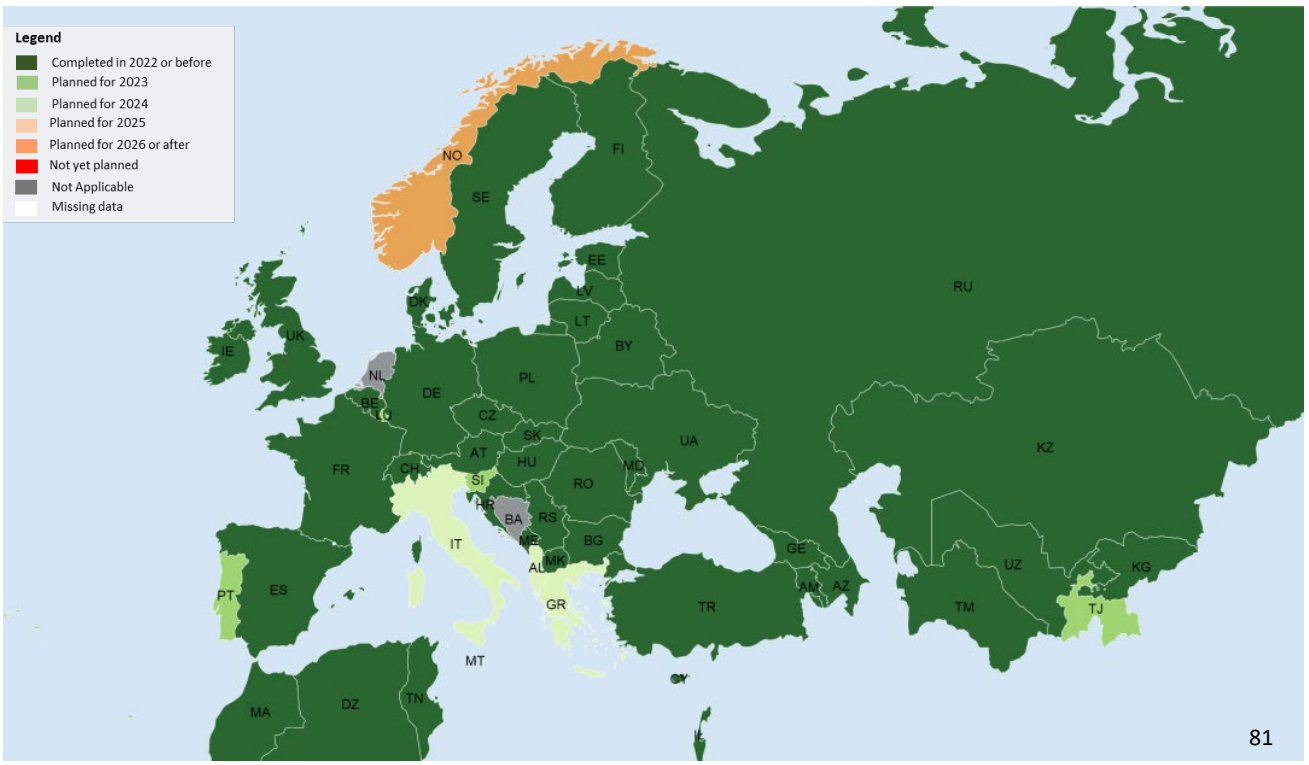
New Implementers

EE



Progress **among non-completed** stakeholders





SNET-B0/3	Area Proximity Warning (APW)

Description:

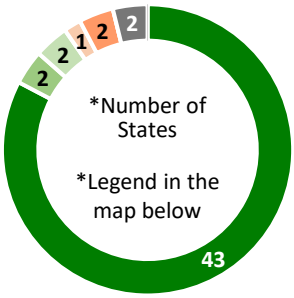
Area Proximity Warning (APW) systems warn the air traffic controller about unauthorized penetration into the airspace (either restricted or controlled) by a flight (either controlled or uncontrolled).
Surveillance data (including tracked pressure altitude), flight data (including cleared flight levels and RVSM status) and environment data (including airspace volumes) are input to the APW system to generate the alerts to the controller working position(s).
Upon noticing the alert, the controller has to analyze the situation and, if deemed necessary, issue an instruction to the aircraft, with the appropriate emergency phraseology.

Implementation summary (end 2022):

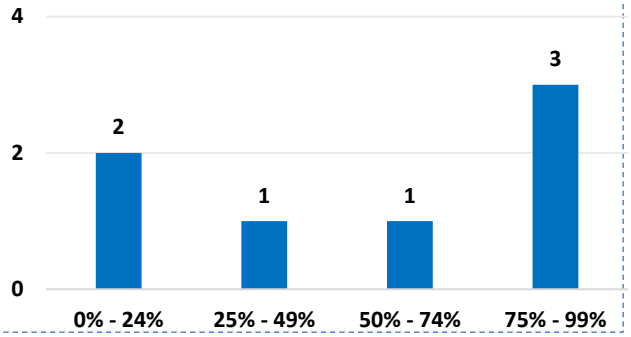
- The APW function has the highest completion rate among the safety nets, beside the STCA
- It has been already implemented in 43 States, 4 other expecting to fully deploy the Element by the end of 2024. The good progress of the Element is justified by the fact that it addresses one of the system enablers facilitating the deployment of Free Route Airspace
- There are cases where States have not reported completion yet but where, the functionality is already deployed in parts of the airspace (e.g., ES))
- The Element is also widely implemented across the non-LSSIP States, with only KG expecting the finalisation of implementation by end 2025.

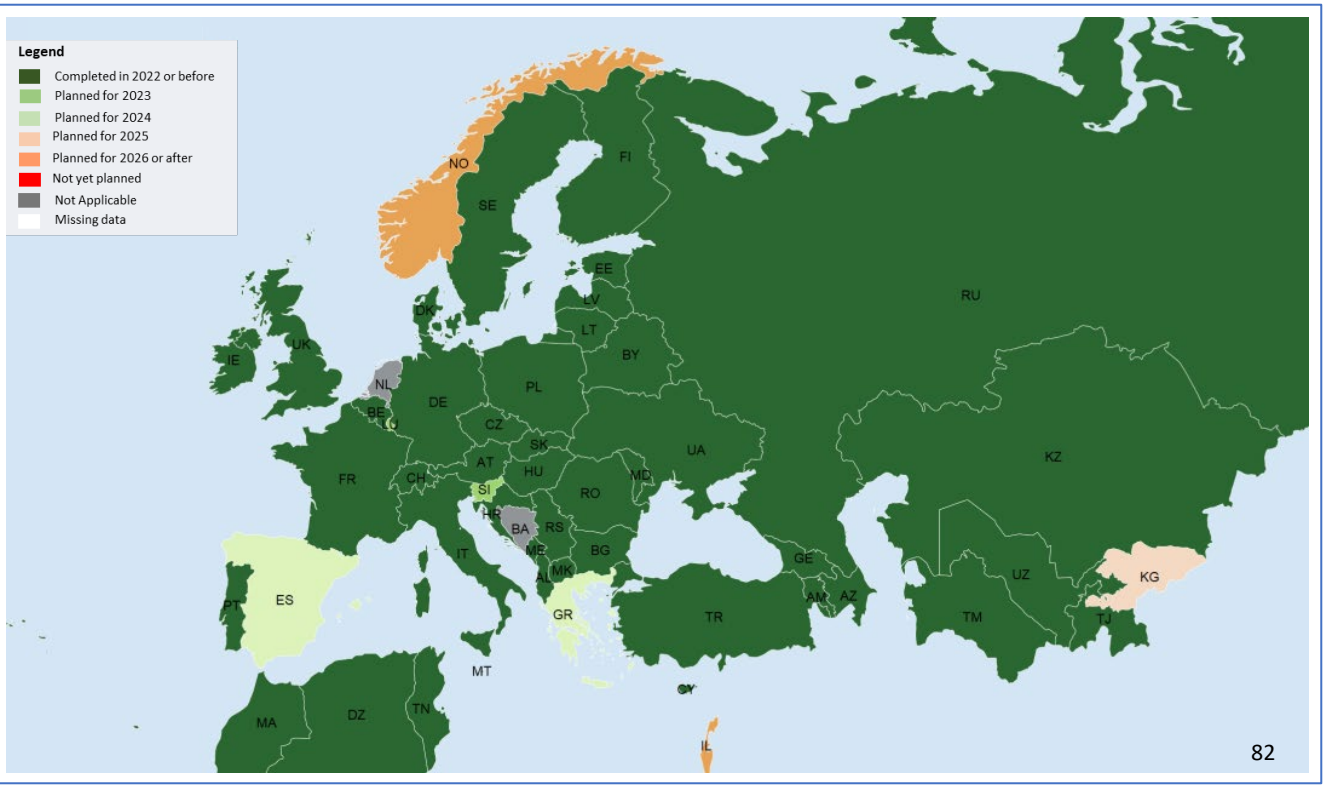
New Implementers

None



Progress **among non-completed** stakeholders





SNET-B0/4	Approach Path Monitoring (APM)

Description:

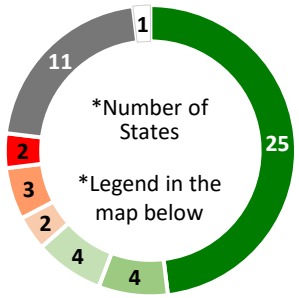
Approach Path Monitoring (APM) is designed, configured and used to make a significant positive contribution to avoidance of Controlled Flight Into Terrain (CFIT) accidents by generating, in a timely manner, an alert of aircraft proximity to terrain or obstacles during final approach.
Surveillance data (including tracked pressure altitude), flight data (including concerned sectors) and environment data (including terrain and obstacle data) are input to the APM system to generate the alerts to the controller working position(s).
Upon noticing the alert, the controller has to analyze the situation and, if deemed necessary, issue an instruction to the aircraft, with the appropriate emergency phraseology.

Implementation summary (end 2022):

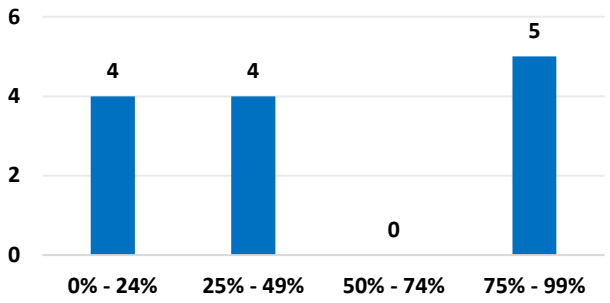
- Among the safety nets related Elements, the one addressing APM shows the lowest completion rate, with 25 States reporting finalisation
- This is in particular due to the fact that the implementation is seen as slightly less beneficial in fulfilling the operational needs in comparison with the other safety nets
- However, the implementation is progressing, with 8 States expecting completion by the end of 2024
- Among the non-LSSIP States, APM shows a mixed progress, with 2 States (TN and UZ) reporting completion, while DZ expects to deploy it in 2024, to be followed by KG in 2025 and BY in 2030.

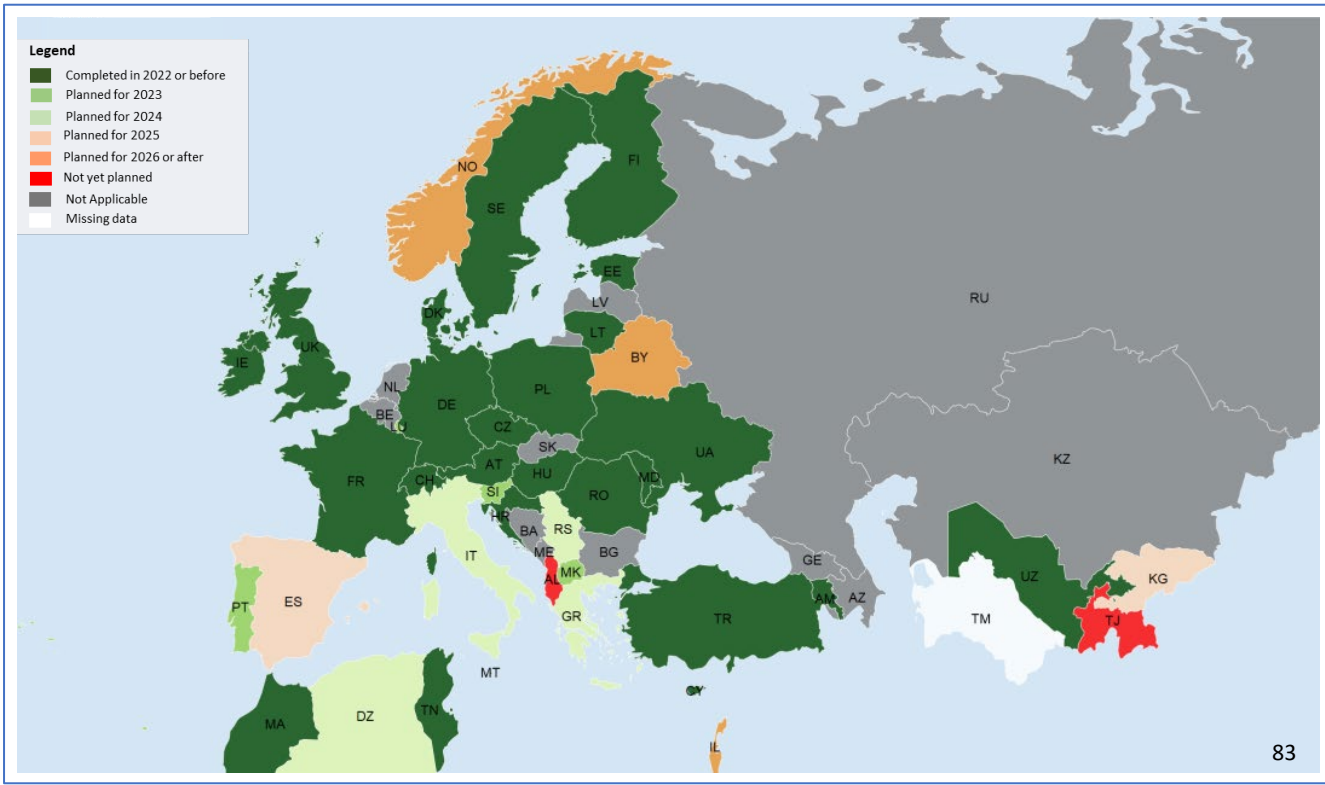
New Implementers

CZ, EE



Progress **among non-completed** stakeholders





SNET-B1/1	Enhanced STCA with aircraft parameters

Description:

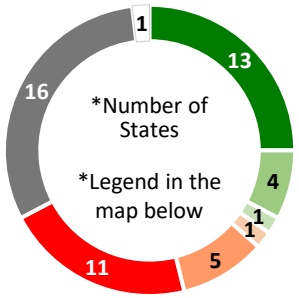
This Element assists the air traffic controller in preventing collision between aircraft, using position data from ground surveillance and flight intent reported by aircraft.
This enhanced STCA works the same as the basic STCA system in Block 0 but stops the linear extrapolation of the vertical position of an aircraft when it reached the Selected Flight Level (SFL) information reported from ADS-B or downlinked from Mode S transponders. Therefore, using aircraft intent parameters allows STCA systems to reduce the number of unnecessary alerts, increase the number of relevant alerts, as well as to alert earlier compared to the basic STCA.

Implementation summary (end 2022):

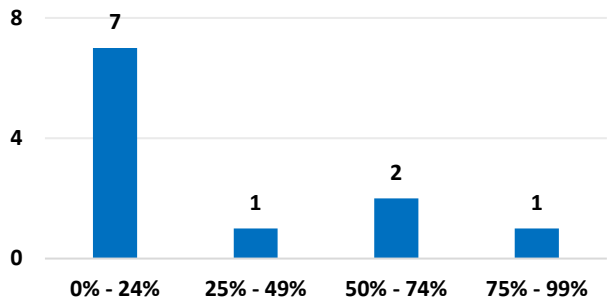
- The Element has so far been implemented in 13 States in the ICAO EUR Region while 27 States either consider it as “Not Applicable” or have not established implementation plans yet
- Deployment is expected by another 5 States by the end of 2024
- Among all the available parameters, all implementations use the Selected Altitude (SA)
- For several other States which have not reported completion yet (AM, CY, EE, HR, NL, SK), the downlinked SA is available and shown for information on the controller screen, but it is not yet integrated with the safety tools
- Among the non-LSSIP States, the Element is only implemented by TN. The next State expected to implement is TJ (2023), while BY and KG have deployment plans in the 2026-2030 timeframe.

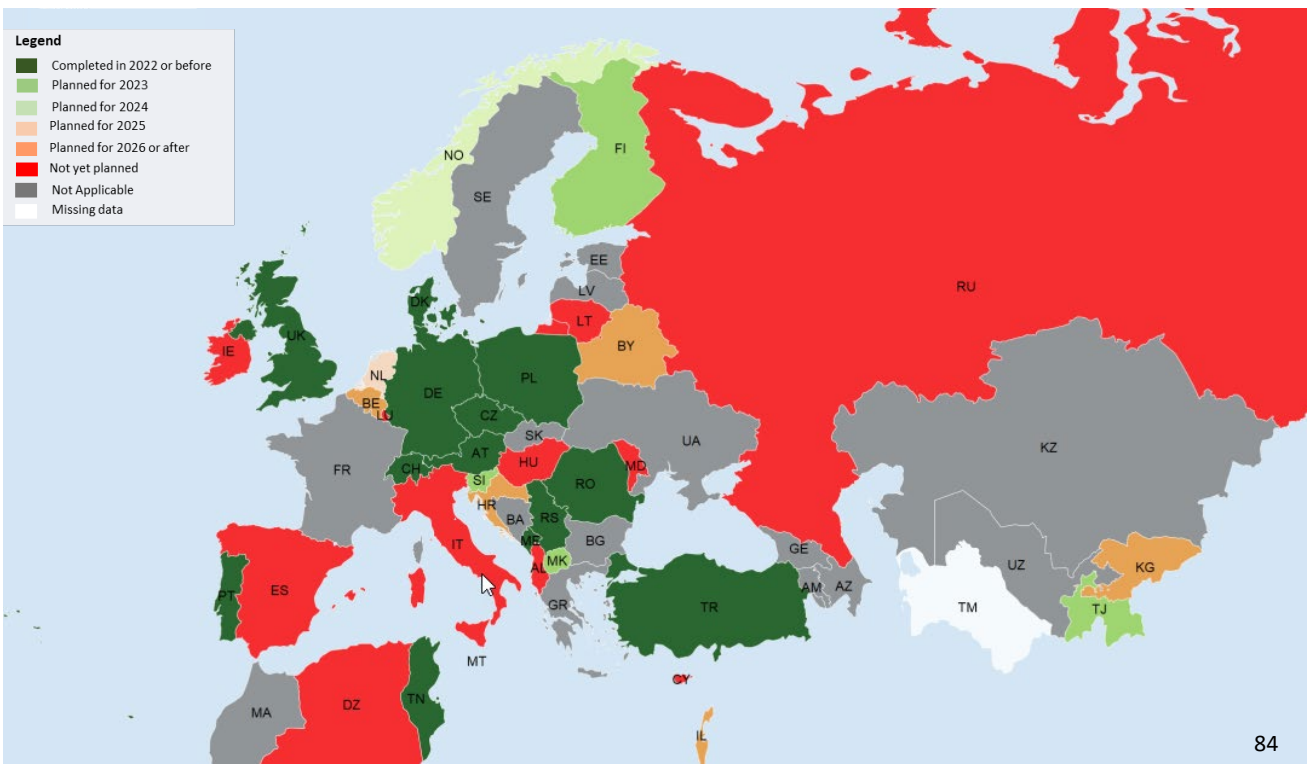
New Implementers

PT



Progress **among non-completed** stakeholders





SNET-B1/2	Enhanced STCA in complex TMAs

Description:

This Element assists the air traffic controller in preventing collision between aircraft, using position data from ground surveillance and taking into account possible crew intents linked to traffic patterns and ATC practices in complex TMAs.

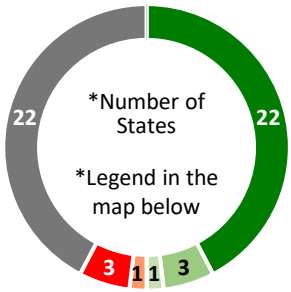
This enhanced STCA works the same as the basic STCA system in Block 0. However, in addition of the current proximity test and the linear prediction test, it performs the level-off prediction test and the turn prediction test, allowing to reduce the number of unnecessary alerts, increase the number of relevant alerts, as well as to alert earlier compared to the basic STCA system.

Implementation summary (end 2022):

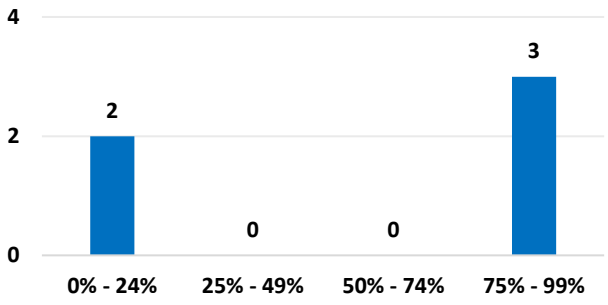
- The Element is reported as deployed by 22 States in the Region while other 22 States consider is as "Not Applicable" due to the lack of operational needs for an enhanced STCA
- If all types of STCAs ("standard" of "enhanced") in TMAs are taken into account, the implementation is completed by 41 States
- In many instances the "standard" STCAs, based on linear algorithms are considered fit for the use in TMAs
- Among the non-LSSIP States, the Element has been reported as completed by KG, TM and TN, while implementation is expected by TJ (2023) and BY (2030). However, among the States reporting the Element as "Not Applicable" (e.g., KZ), the "standard" STCA is available in TMAs.

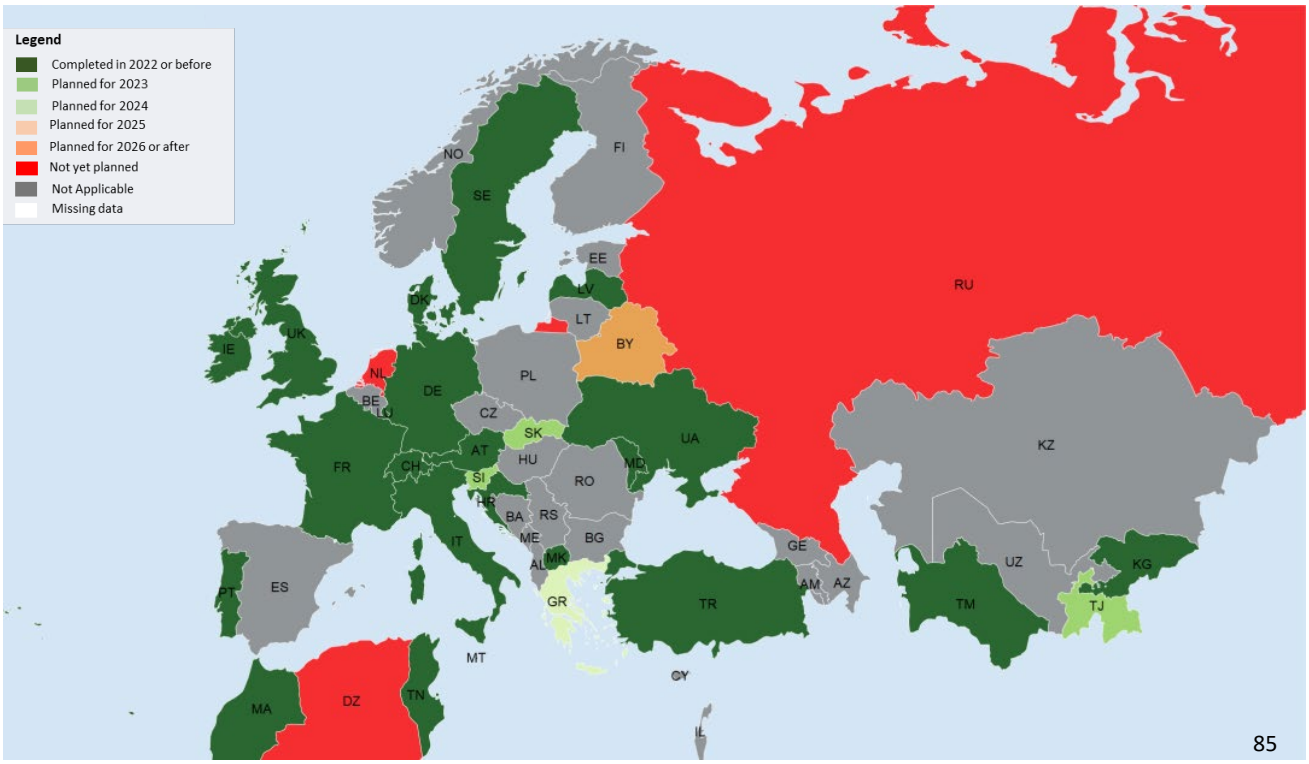
New Implementers

HR



Progress **among non-completed** stakeholders





SURF-B0/1	Basic ATCO Tools to manage during Ground Operations

Description:

This Element represents the provision of guidance and routing information to the pilot in order to manage the traffic in a safe and efficient way by the controller: to confirm the routing of all aircraft and vehicles according to the defined identification procedures; to prevent incursions on the runway using visual aids, stop bars in particular.

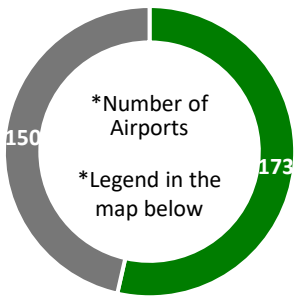
The Controller monitors and commands the lighting systems.

Implementation summary (end 2022):

- The assessment of the progress of the Element is based on the information available in the AIPs of the States in the EUR Region, for international airports (Part 3 AD, section 2.9 “Surface movement guidance and control system and markings”)
- For the LSSIP States, the assessed airports are those listed in the EUROCONTROL Airport Corner
- All reviewed airports in the Region have deployed visual aids and signals on the platform, which is the core of the Element
- The implementation of stop bars is less advanced, with only some 50% of the airports indicating the availability of these features.

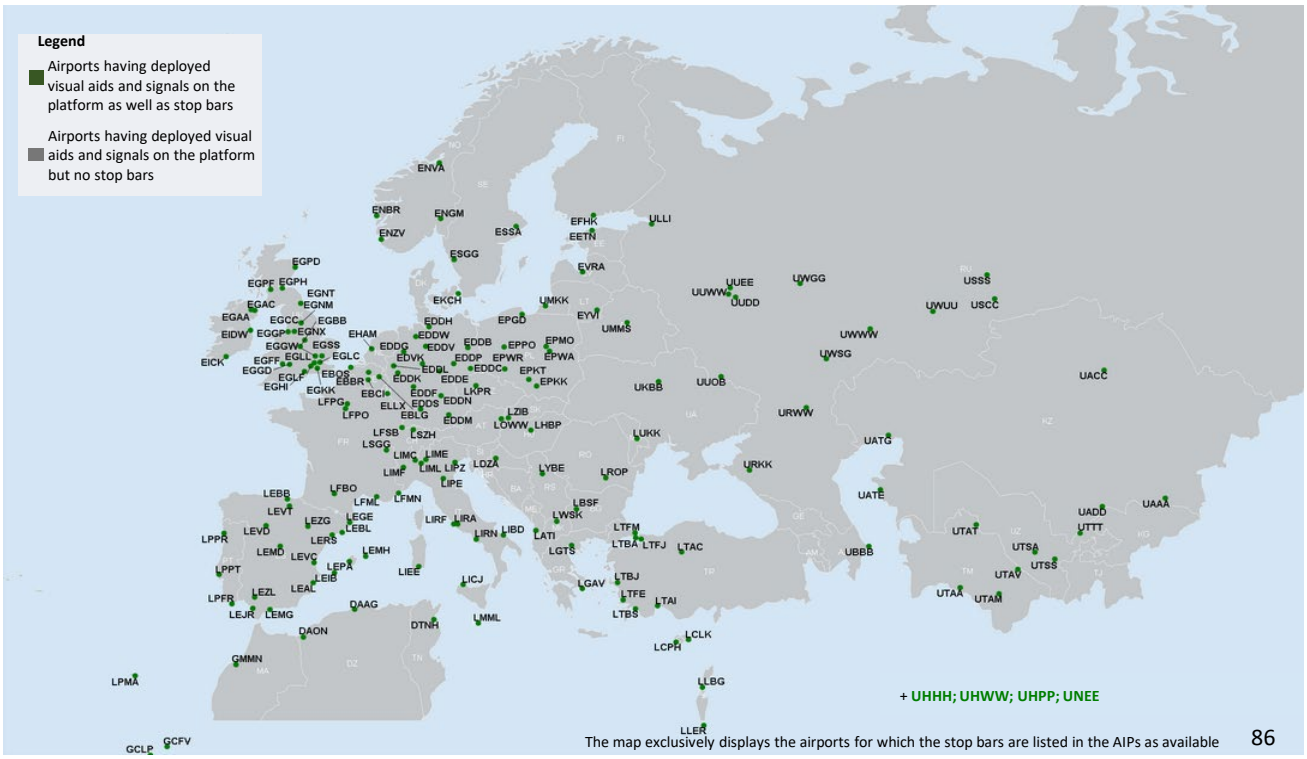
Info not available – first monitoring cycle of the Element

New Implementers



Progress **among non-completed** stakeholders

N/A



The map exclusively displays the airports for which the stop bars are listed in the AIPs as available

SURF-B0/2	Comprehensive situational awareness of surface operations

Description:

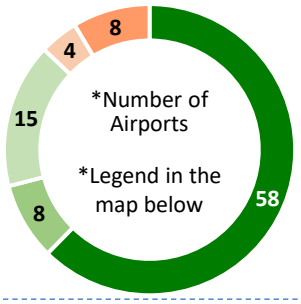
The surveillance service of A-SMGCS provides airport traffic situational awareness through the position, identification and tracking of aircraft and vehicle suitably equipped on the aerodrome surface. It allows the controller to: confirm the identity of all participating vehicles according to the defined identification procedures; prevent collisions between all aircraft and vehicles especially in conditions when visual contact cannot be maintained; manually correlate (link a target with a call sign) targets for the rare cases where there is an operational need to, e.g. areas of poor cooperative surveillance coverage and the need to track non-cooperative targets such as towed aircraft; detect and indicate the position of potential intruders.Information is presented on the controller and airport operator display independent of visibility conditions and controller line of sight.

Implementation summary (end 2022):

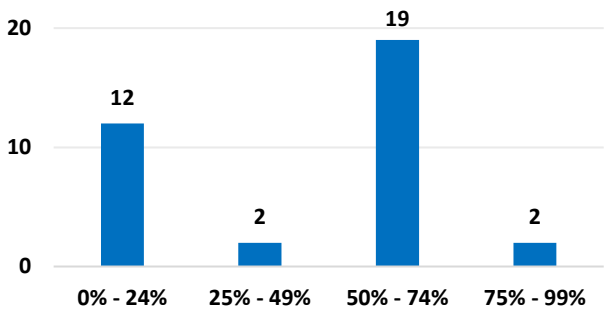
- This Element is progressing well, not only from the perspective of the completion rate but also with regards to the constant growth of the number of airports that report implementation plans
- This increased interest is primarily driven by the necessity to accommodate the growing levels of traffic. This is very encouraging as this functionality is essential as the fundament unlocking more advanced A-SMGCS features
- The Element is already operational at 58 locations while 23 others are expected to deploy it by end 2024
- It also shows a very good progress in the non-LSSIP States as well, being deployed at 15 locations (12 in RU, 2 in KZ and 1 in BY). Several other locations in BY (6), KG (2) and RU (13) will follow, between 2024 and 2027.

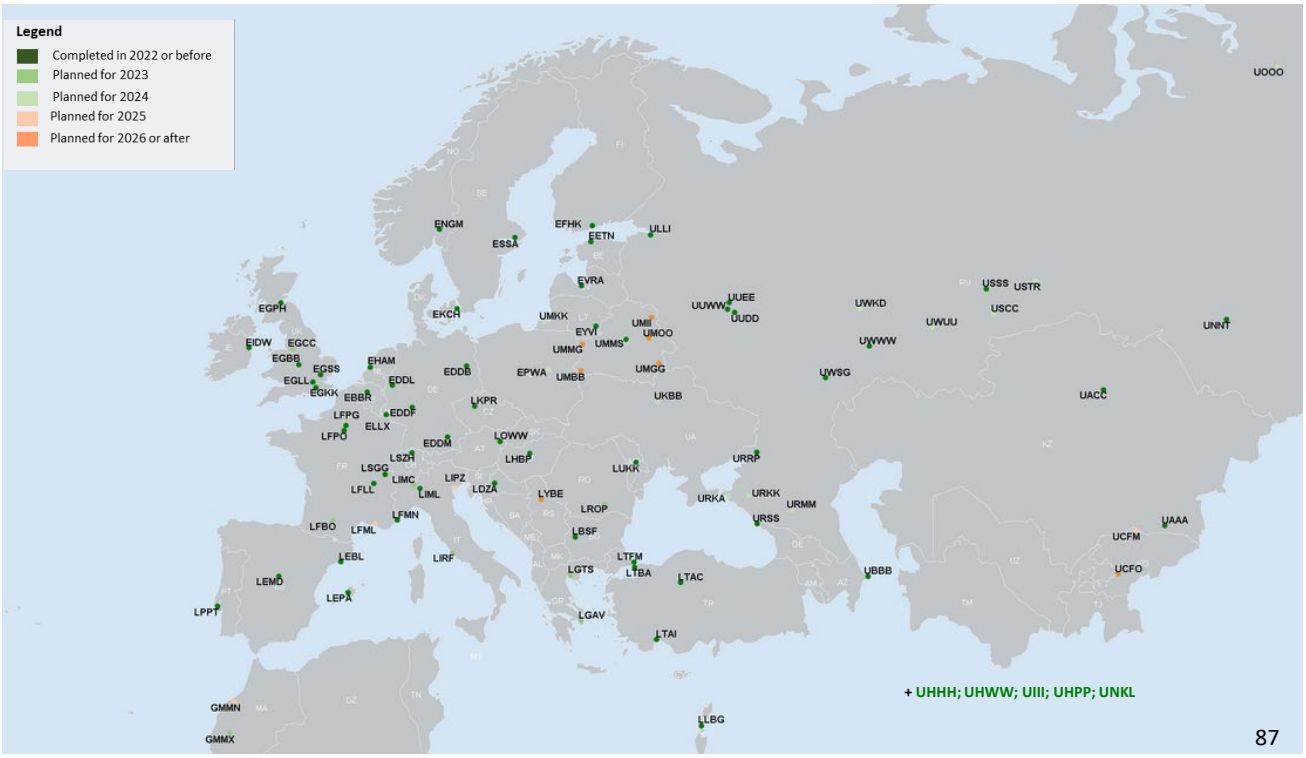
New Implementers

None



Progress **among non-completed** stakeholders





SURF-B0/3	Initial ATCO alerting service for surface operations

Description:

This Element represents the first step of A-SMGCS alerting service and is based on A-SMGCS surveillance. It takes into account elements such as: the runway configuration of the airport (e.g. one, two or more runways); the associated procedures (e.g. multiple line ups and reduced separation on the runway when approved by the ATS authorities); the position and type of the aircraft and vehicles (e.g. arrival, departure or vehicle) according to the set time parameters and their relative speeds and positions when within or about to enter a predefined area around the runway; aircraft in the vicinity of the runway (e.g. on final approach, climb out and helicopters crossing); meteorological conditions.

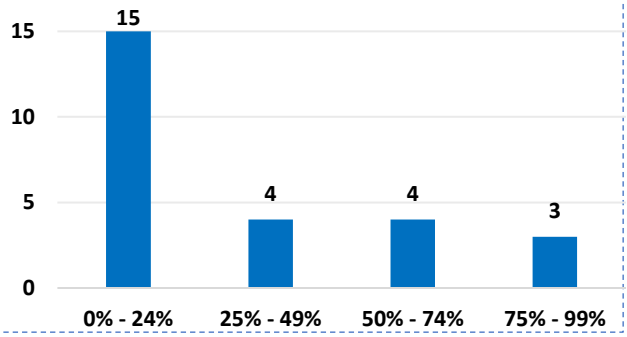
Implementation summary (end 2022):

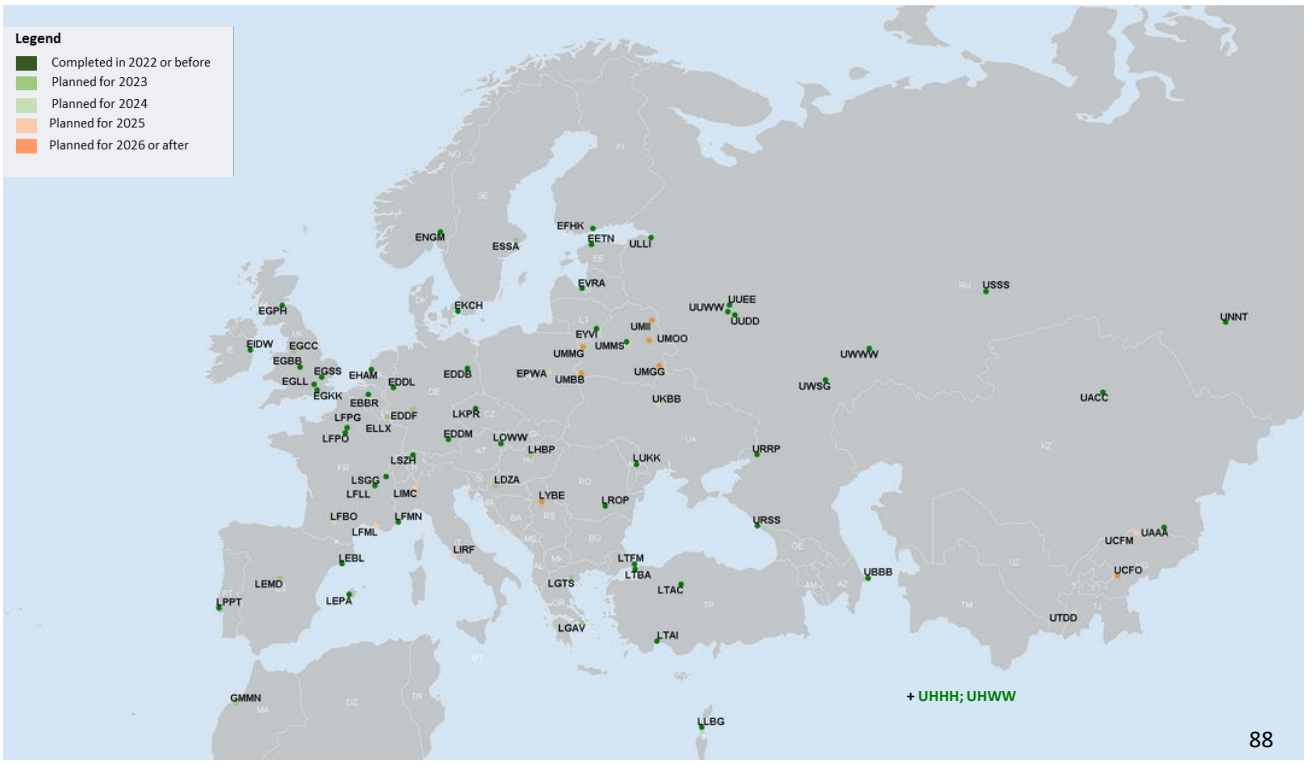
- This Element is progressing, not only in terms of airports that have successfully completed their implementation, but also with regard the increase in the number of airports reporting implementation plans
- The Element is already operational at 51 locations in the Region, while 14 others are expected to finalise deployment by end 2024
- It also shows a very good progress in the non-LSSIP States as well, being deployed at 15 locations (12 in the RU, 2 in KZ and 1 in BY). Several more locations in BY (6), KG (2) and TJ (1) are anticipated to follow between 2024 and 2027.

New Implementers

LFLL, LUKK, LROP

Progress **among non-completed** stakeholders





SURF-B1/1	Advanced features using visual aids to support traffic management during ground operations

Description:

This Element improves surface operations with the aim to reduce taxi time and fuel burn, as well as potential mistakes. Advanced features including “Follow the Greens” (FTG) and Variable Message Panels are used to optimize routing during taxi operations. The lighting system is used to direct the aircraft, making the guidance safer, as errors are minimized.
Lighting system for other vehicles than aircraft is connected to the Surface Movement Guidance and Control System (SMGCS) in order to optimize ground circulation and prevent collision.

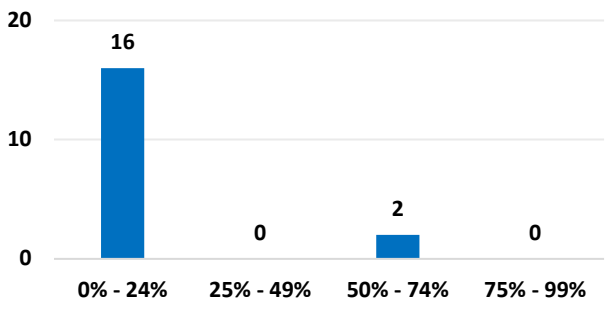
Implementation summary (end 2022):

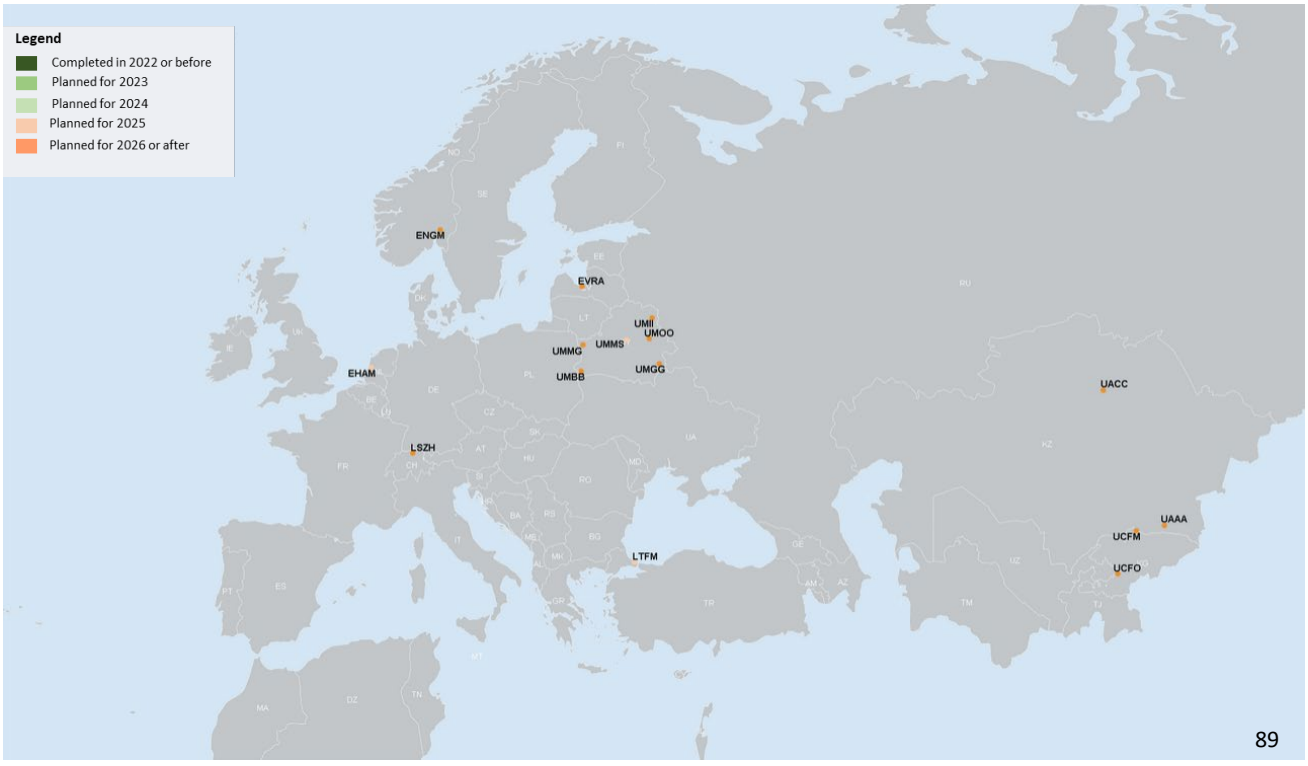
- Interest in implementing the Element remains limited, primarily due to a lack of an operational need or of a clear business justification, especially considering the complexity of the implementation process
- The deployment requires an advanced A-SMGCS system that includes the guidance function, integrated with the aerodrome lighting infrastructure. As a result, most States either regard it as "Not Applicable" or lack concrete plans for its implementation
- No implementation is foreseen before 2025, when deployment is expected at EHAM, LTFM and UMMS
- The Element seems to attract more the interest of the non-LSSIP States, with several airports in BY (7), KG (4) and KZ (2) reporting deployment plans, between 2025 and 2030.

New Implementers

None

Progress **among non-completed** stakeholders





SURF-B1/3	Enhanced ATCO alerting service for surface operations

Description:

This Element covers an enhanced A-SMGCS alerting service that anticipates potential runway conflicts, runway incursion and other hazardous situations on the aerodrome surface.
The A-SMGCS Alerting service for controllers is complemented with the detection of conflicting ATC Clearances (CATC) given by the controller (e.g., Line-up versus Land on same runway) and with the detection of non-conformance to procedures or instructions (e.g., route deviation). An electronic clearance input means is used by the controller to make the clearances known to the system. Surveillance data and routing information are also used by the logic to generate alerts to the controller.

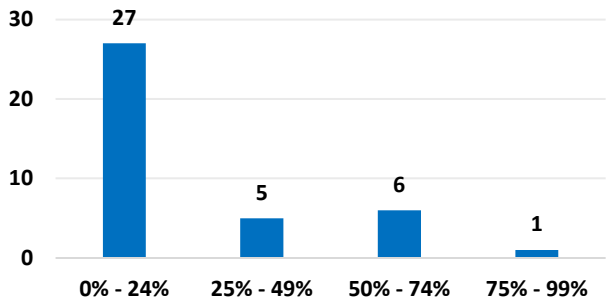
Implementation summary (end 2022):

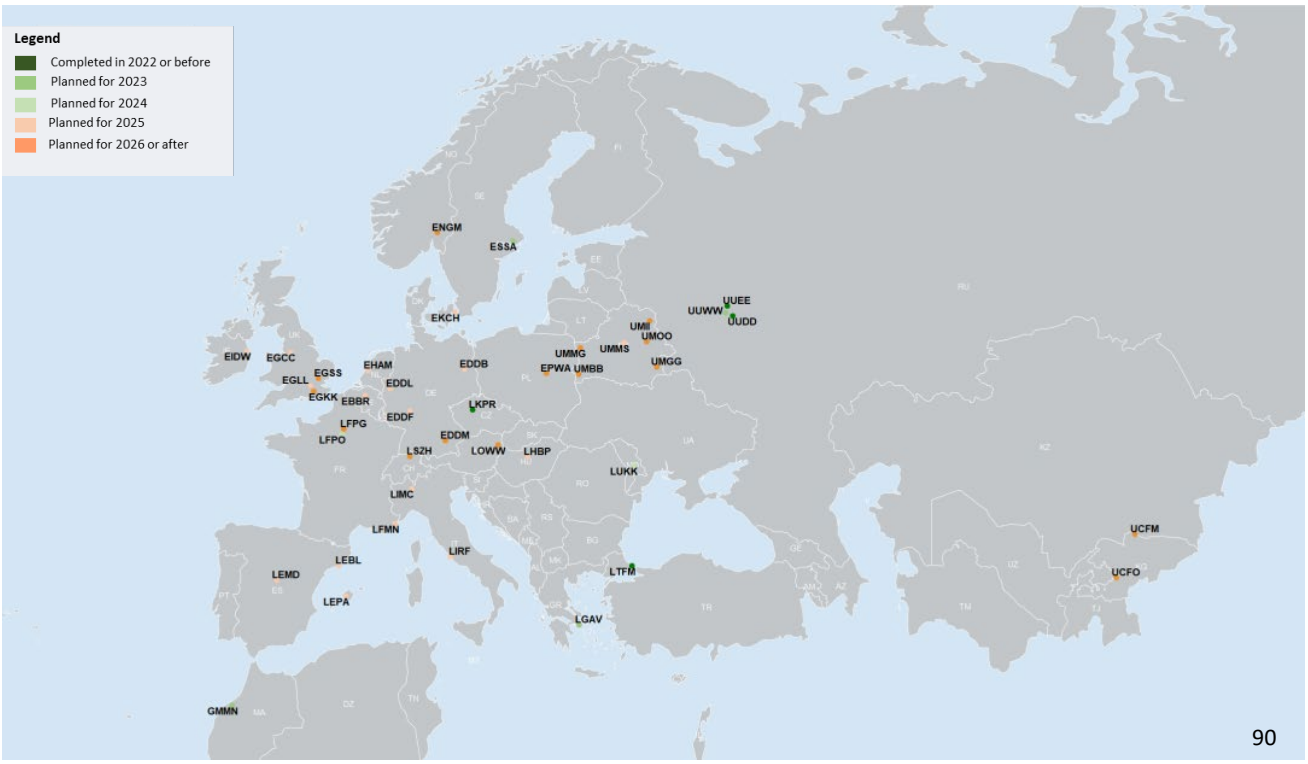
- While the level of implementation is still low, with only 4 Airports reporting completion, there is growing interest in deployment, with more and more airports reporting deployment plans, even if in a longer-term
- The slow uptake is due to the fact that the functionality of Element SURF-B0/3 on initial alerting for surface operations is still fit for purpose for the majority of Airports in the Region, therefore the upgrade to the more advanced functionalities addressed by SURF-B1/3 will be performed when the operational needs will appear
- A boost in implementation will also be given by the CP1 Regulation (EU 116/2021 - Sub-AF 2.1.3 on Airport Safety Nets) mandating the functionalities of the Element to a sub-set of airports in the Region, by 2025
- Among the non-LSSIP States, the Element has been deployed by RU (UUEE and UUDD) and is expected to be deployed at several other locations in BY (7), KG (2) and RU (1), between 2023 and 2030.

New Implementers

UUEE, UUDD

Progress **among non-completed** stakeholders





SURF-B1/4	Routing service to support ATCO surface operations management

Description:

This Element covers the A-SMGCS routing service, which calculates individual routes for mobiles based on known airport parameters and constraints or following an interaction by the controller, thereby supporting the runway sequencing strategy.
The controller is presented with planned or cleared routes and has means to modify these routes or to create new route if necessary. Information is updated in real time in order to improve predictability of surface operations.

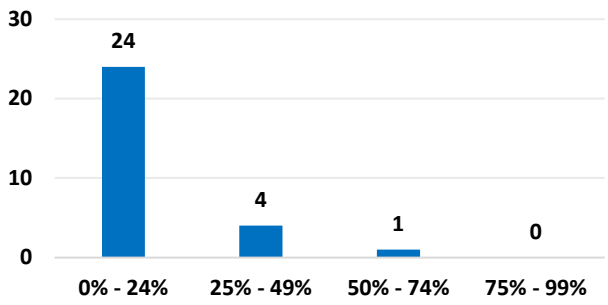
Implementation summary (end 2022):

- The functionality has a very limited appeal as the investment would only be beneficial at airports with high amounts of traffic and complex layouts
- Therefore, the Element is not planned for deployment or is considered as “Not Applicable” to most airports within the scope of the Report as they consider that less advanced A-SMGCS capabilities are suitable and fit for the foreseeable levels of traffic and operational conditions
- Implementation is available at one location in LV (EVRA) and is expected at 9 locations by the end of 2024, starting with TR (LTFM) and RU (UUEE, UUWW and UUDD) in 2023
- Among the non-LSSIP States, apart RU, deployment is also planned at several locations in BY (7) and KG (2), between 2025 and 2030.

New Implementers

EVRA

Progress **among non-completed** stakeholders



AMET - Meteorological information (data from METG)

Block 0

Description and purpose

Global, regional and local meteorological information:

a) forecasts provided by world area forecast centres (WAFC), volcanic ash advisory centres (VAAC) and tropical cyclone advisory centres (TCAC);
b) aerodrome warnings to give concise information of meteorological conditions that could adversely affect all aircraft at an aerodrome including wind shear; and
c) SIGMETs to provide information on occurrence or expected occurrence of specific en-route weather phenomena which may affect the safety of aircraft operations and other operational meteorological (OPMET) information, including METAR/SPECI and TAF, to provide routine and special observations and forecasts of meteorological conditions occurring or expected to occur at the aerodrome.

This module includes elements which should be viewed as a subset of all available meteorological information that can be used to support enhanced operational efficiency and safety.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	Y	Y

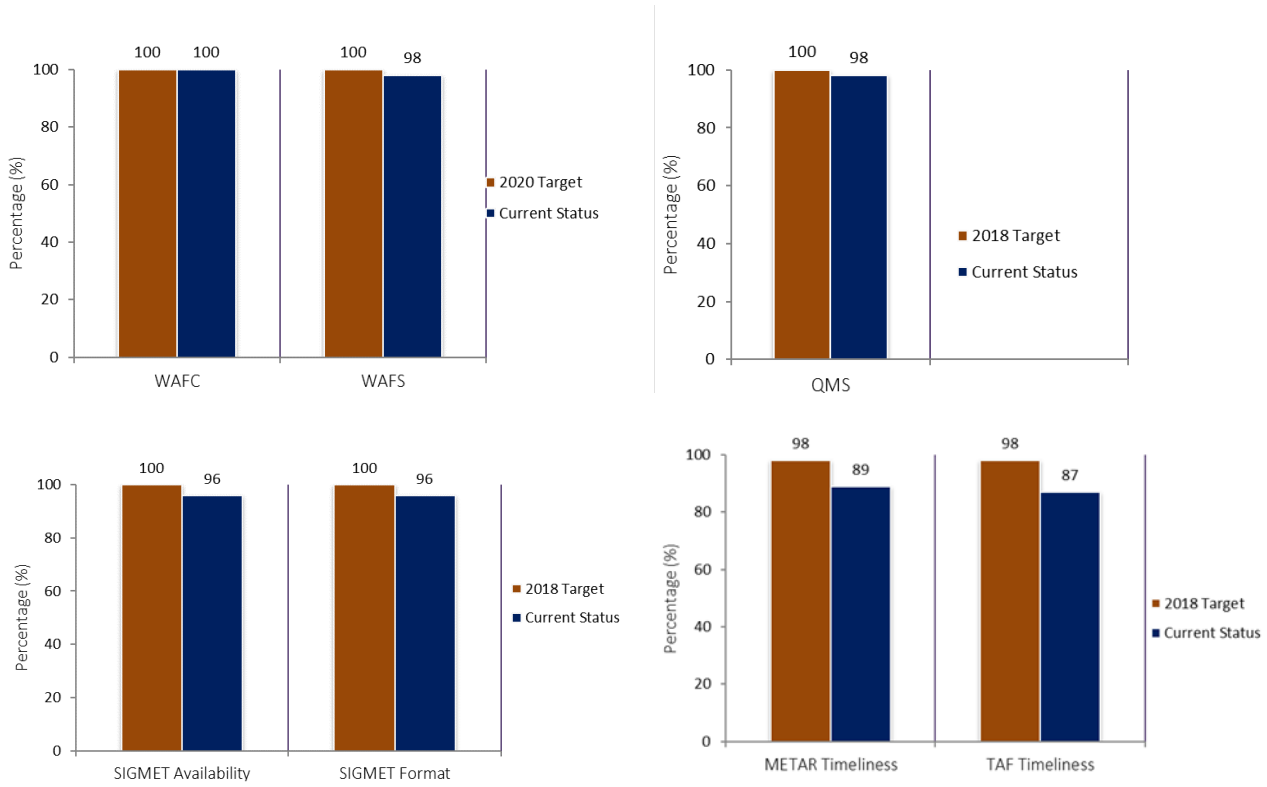
Applicability consideration:

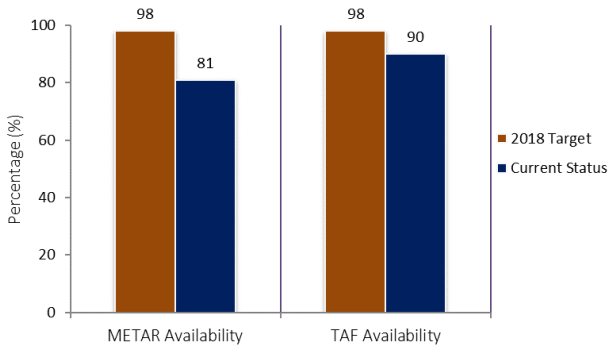
Applicable to traffic flow planning, and to all aircraft operations in all domains and flight phases, regardless of level of aircraft equipage.

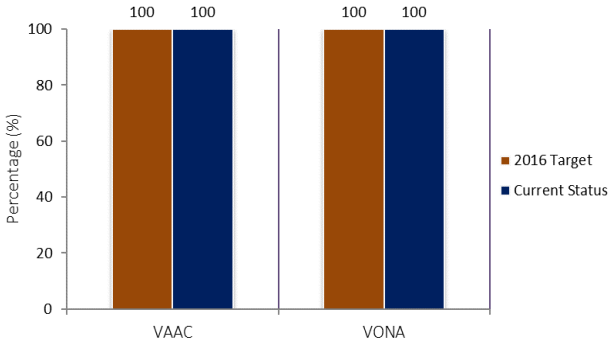
Elements	*Applicability*	*Performance Indicators/Supporting Metrics*	*Targets*
WAFS	***All States***	Indicator: % of States using WAFS data. Supporting metric: number of States having implemented SADIS FTP	100% by Dec 2020
QMS	***All** States*	Indicator: % of States having implemented QMS for MET Supporting metric: number of States having implemented QMS for MET	100% by Dec 2020
METAR Availability	***All** States*	Indicator: % of States providing METAR as per requirements in the ANP, Volume II Table MET II-2 Supporting metric: number of States providing METAR as per requirements in the ANP Volume II Table MET II-2	98% by Dec 2020
TAF Availability	***All** States*	Indicator: % of States providing TAF as per requirements in the ANP, Volume II Table MET II-2 Supporting metric: number of States providing TAF as per requirements in the ANP Volume II Table MET II-2	98% by Dec 2020
METAR Timeliness	***All** States*	Indicator: % of States providing METAR in the time required as defined in Annex 3 Supporting metric: number of States providing METAR in the time required as defined in Annex 3	98% by Dec 2020
TAF Timeliness	***All** States*	Indicator: % of States providing TAF in the time required as defined in Annex 3 Supporting metric: number of States providing TAF in the time required as defined in Annex 3	98% by Dec 2020

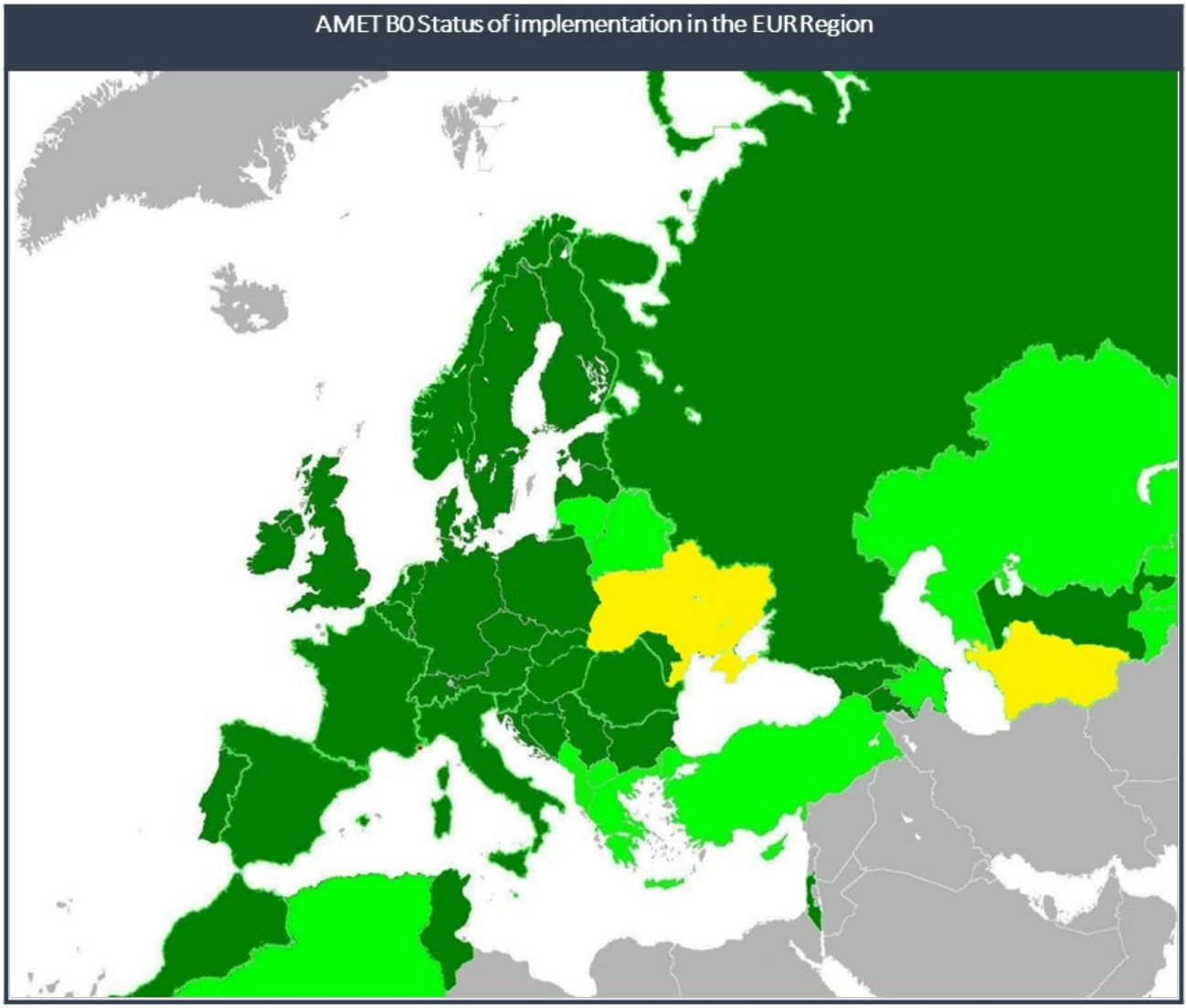
Elements	*Applicability*	*Performance Indicators/Supporting Metrics*	*Targets*
SIGMET Availability	***All** with a FIR*	Indicator: % of States providing SIGMET Supporting metric: number of States providing SIGMET	100% by Dec 2020
SIGMET Format	***All** with a FIR*	Indicator: % of States providing SIGMET format in accordance with WMO AHL in the List of EUR SIGMET and AIRMET headers Supporting metric: number of States providing SIGMET format in accordance with WMO AHL in the List of EUR SIGMET and AIRMET headers	100% by Dec 2020
VAAC	***France, United Kingdom***	Indicator: % of VAACs in or serving the EUR Region that provide Annex 3 volcanic ash products (Volcanic Ash Advisories (VAA) and Volcanic Ash Advisories in Graphic Form (VAG)) Supporting metric: number of States hosting a VAAC having implemented VAA/VAG	100% by Dec 2020
VONA	***Italy, Russian Federation, Spain***	Indicator: % of Volcano Observatories in the EUR Region that provide volcano observatory notice for aviation (VONA) as per the Handbook on the International Airways Watch (IAVW) (Doc 9766) Supporting metric: number of States with Volcano Observatory having implemented VONA	100% by Dec 2020
WAFC	***United Kingdom***	Indicator: % of WAFCs in the EUR Region that provide Annex 3 World Area Forecast System (WAFS) data Supporting metric: number of States hosting a WAFC having implemented Annex 3 WAFS data	100% by Dec 2020

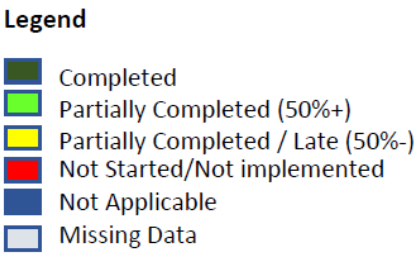
B0-AMET Status of implementation in the EUR Region




98
81
98
90
100
80
60
40
20
0
Percentage (%)
METAR Availability
TAF Availability
2018 Target
Current Status


100
100
100
100
100
80
60
40
20
0
Percentage (%)
VAAC
VONA
2016 Target
Current Status


AMET B0 Status of implementation in the EUR Region



The progress for AMET-B0 is acceptable (with approximately 93% implementation).

Note: These high-level implementation elements are not applicable to Andorra, Monaco and San Marino.

Yellow – identified in Feb monitoring 2021 (existed and status has not changed)
Amber – first identified in Feb monitoring 2023 (new)
Light Green – identified in Feb monitoring 2022 and corrected by Feb 2023
Dark Green – implemented correctly for both Feb 2022 and 2023 monitoring
Red – on the list of air navigation deficiencies
Blue – not applicable

Module	Elements	Albania	Algeria	Armenia	Austria	Azerbaijan	Belarus	Belgium	Bosnia and Herzegovina	Bulgaria	Croatia	Cyprus	Czechia	Denmark	Estonia	Finland
AMET B0	WAFS															
	QMS															
	METAR availability															
	TAF availability															
	METAR timeliness															
	TAF timeliness															
	SIGMET availability															
	SIGMET format															
	VAAC															
	VONA															
	WAFC															

Module	Elements	France	Georgia	Germany	Greece	Hungary	Ireland	Israel	Italy	Kazakhstan	Kyrgyzstan	Latvia	Lithuania	Luxembourg	Malta	Monaco
AMET B0	WAFS															
	QMS															
	METAR availability															
	TAF availability															
	METAR timeliness															

Module	Elements	France	Georgia	Germany	Greece	Hungary	Ireland	Israel	Italy	Kazakhstan	Kyrgyzstan	Latvia	Lithuania	Luxembourg	Malta	Monaco
	TAF timeliness															
	SIGMET availability															
	SIGMET format															
	VAAC															
	VONA															
	WAFC															

Module	Elements	Montenegro	Morocco	Netherlands	North Macedonia	Norway	Poland	Portugal	Republic of Moldova	Romania	Russian Federation	Serbia	Slovakia	Slovenia	Spain	Sweden
AMET B0	WAFS															
	QMS															
	METAR availability															
	TAF availability															
	METAR timeliness															
	TAF timeliness															
	SIGMET availability															
	SIGMET format															
	VAAC															
	VONA															
	WAFC															

Module	Elements	Switzerland	Tajikistan	Tunisia	Türkiye	Turkmenistan	Ukraine	United Kingdom	Uzbekistan
AMET B0	WAFS								
	QMS								
	METAR availability								
	TAF availability								
	METAR timeliness								
	TAF timeliness								
	SIGMET availability								
	SIGMET format								
	VAAC								
	VONA								
	WAFC								

Block 1

Description and purpose

To enable the reliable identification of solutions when forecast or observed meteorological conditions impact aerodromes, airspace or operations in general. Full ATM-Meteorology integration is needed to ensure that meteorological information is included in the logic of a decision process and the impact of the meteorological conditions on the operations are automatically derived, understood and taken into account. The supported decision time-horizons range from minutes, to several hours or days ahead of the ATM operation. This includes optimum flight profile planning and execution, and support to tactical in-flight avoidance of hazardous meteorological conditions (improved in-flight situational awareness) to typical near-term and planning (>20 minutes) type of decision making. This module promotes the establishment of standards for global exchange of the MET information closely aligned with other data domains and adhering to a single reference (ICAO-AIRM). It also promotes the further enhancement of meteorological information on various quality-of-service aspects including the accuracy and consistency of the data when used in inter-linked operational decision making processes.

Appreciating that the number of flights operating on cross-polar and trans-polar routes continues to steadily grow and recognizing that space weather affecting the earth's surface or atmosphere (such as solar radiation storms) pose a hazard to communications and navigation systems and may also pose a radiation risk to flight crew members and passengers, this module acknowledges the need for space weather information services in support of safe and efficient international air navigation.

This module builds, in particular, upon Module AMET B0, which detailed a sub-set of all available meteorological information that can be used to support enhanced operational efficiency and safety.

Main performance impact:

KPA-01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	Y	Y

Applicability consideration:

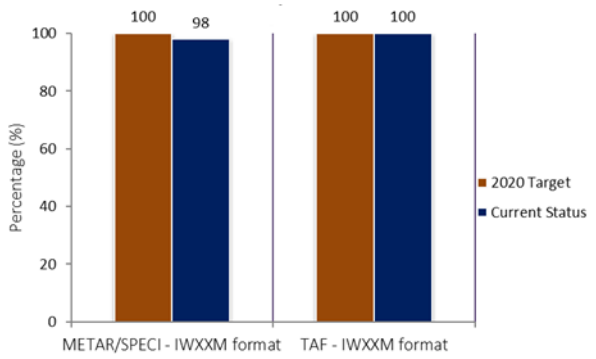
Applicable to traffic flow planning, and to all aircraft operations in all domains and flight phases, regardless of level of aircraft equipage.

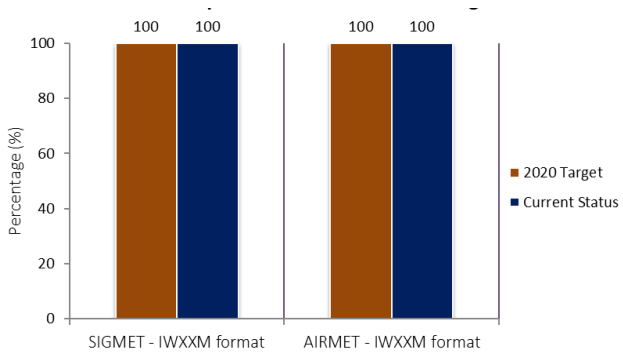
Though not explicit in ICAO Doc 9750, the implementation of providing a suite of MET products (METAR/SPECI, TAF, SIGMET, AIRMET, TCA, VAA and SWXA) in IWXXM format is a prerequisite to the System Wide Information Management (SWIM) and a requirement during the ASBU-B1 time frame (requirement 5 November 2020). Therefore, these elements in IWXXM format will be measured in EUR ANP Volume III.

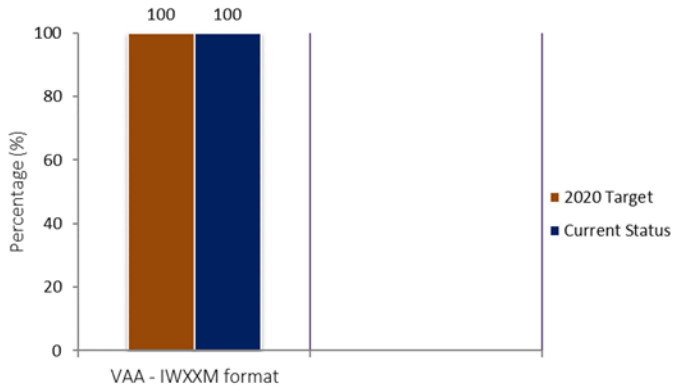
Elements in IWXXM format	***Applicability***	***Performance Indicators/Supporting Metrics***	***Targets***
METAR/SPECI	*States where METAR/SPECI is required as per the EUR ANP*	Indicator: % of relevant States having implemented METAR/SPECI in IWXXM format Supporting metric: number of relevant States having implemented METAR/SPECI in IWXXM format	100% by Nov 2020

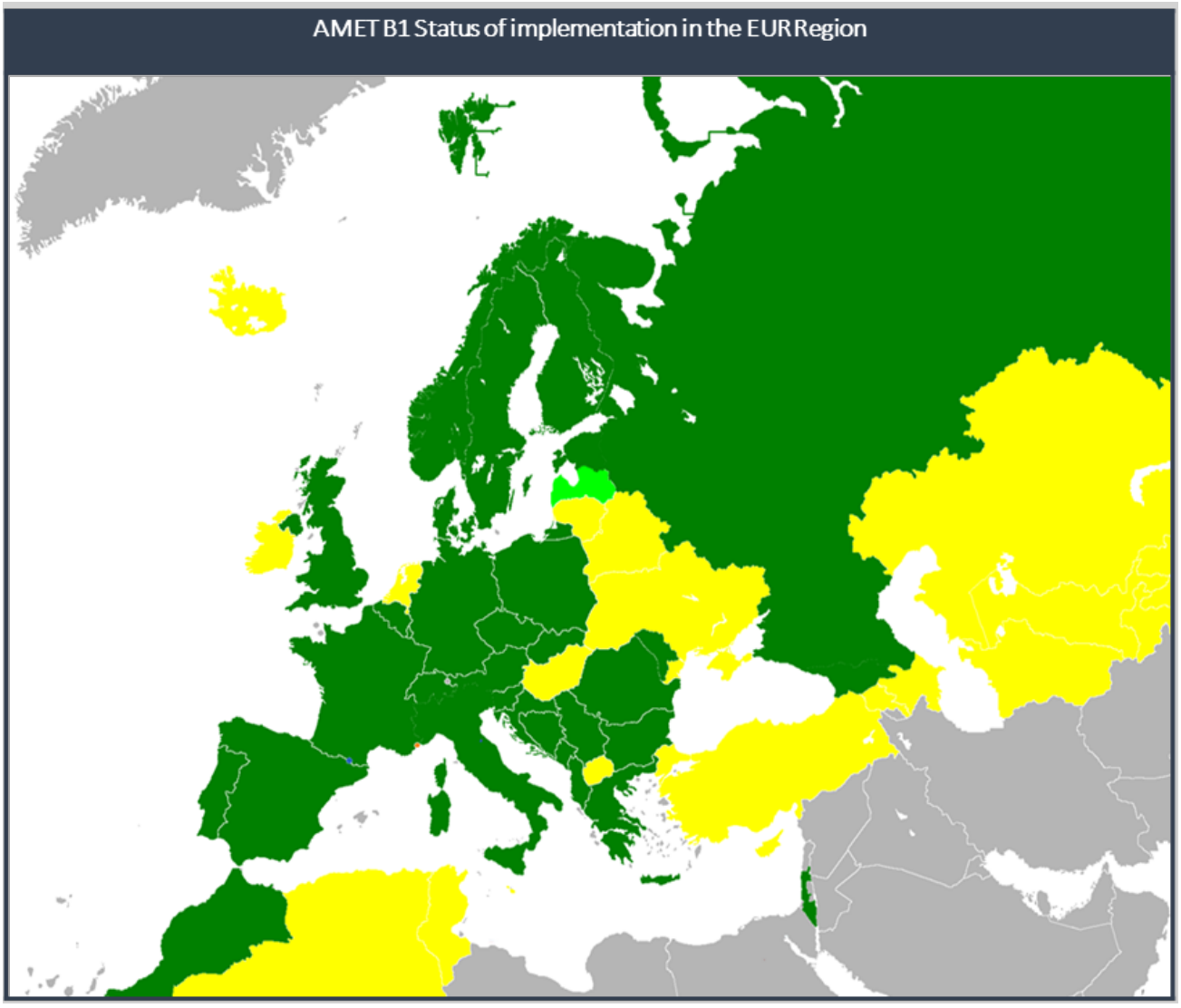
Elements in IWXXM format	*Applicability*	*Performance Indicators/Supporting Metrics*	*Targets*
	Volume II, Table MET II-2		
TAF	*States where TAF is required as per the EUR ANP Volume II, Table MET II-2*	Indicator: % of relevant States having implemented TAF in IWXXM format Supporting metric: number of relevant States having implemented TAF in IWXXM format	100% by Nov 2020
SIGMET	*States who designated a Meteorological Watch Office to provide SIGMET for a FIR (or FIRs) as per the EUR ANP Volume II, Table MET II-1*	Indicator: % of relevant States having implemented SIGMET in IWXXM format Supporting metric: number of relevant States having implemented SIGMET in IWXXM format	100% by Nov 2020
AIRMET	*States who designated a Meteorological Watch Office to provide AIRMET for a FIR (or FIRs) as per the EUR ANP Volume II, Table MET II-1*	Indicator: % of relevant States having implemented AIRMET in IWXXM format Supporting metric: number of relevant States having implemented AIRMET in IWXXM format	100% by Nov 2020
VAA	***France, United Kingdom***	Indicator: % of VAACs in the EUR Region having implemented Volcanic Ash Advisories (VAA) in IWXXM format Supporting metric: number of States hosting a VAAC having implemented VAA in IWXXM format	100% by Nov 2020
TCA	***Not applicable in EUR Region***	N/A	N/A

B1-AMET Status of implementation in the EUR Region

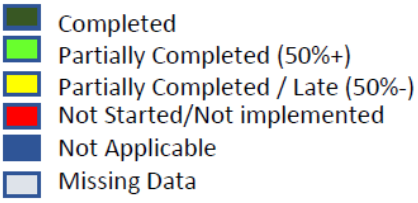





100
100
100
80
60
40
20
0
Percentage (%)
VAA - IWXXM format
2020 Target
Current Status


AMET B1 Status of implementation in the EUR Region

Legend



The progress for AMET B1 is on-going (with approximately 99% implementation). *Note that 21 of 54 States rely on translation services by the associated Regional OPMET Centre*.

Note: These high-level implementation elements are not applicable to Andorra and San Marino.

Module	Elements in IWXXM format	Albania	Algeria	Armenia	Austria	Azerbaijan	Belarus	Belgium	Bosnia and	Bulgaria	Croatia	Cyprus	Czechia	Denmark	Estonia	Finland
AMET B1	METAR/SPECI															
	TAF															
	SIGMET															
	AIRMET															
	VAA															
	TCA															

Module	Elements in IWXXM format	France	Georgia	Germany	Greece	Hungary	Ireland	Israel	Italy	Kazakhstan	Kyrgyzstan	Latvia	Lithuania	Luxembourg	Malta	Monaco
AMET B1	METAR/SPECI															
	TAF															
	SIGMET															
	AIRMET															
	VAA															
	TCA															

Module	Elements in IWXXM format	Montenegro	Morocco	Netherlands	North	Norway	Poland	Portugal	Republic of	Romania	Russian	Serbia	Slovakia	Slovenia	Spain	Sweden
AMET B1	METAR/SPECI															
	TAF															
	SIGMET															
	AIRMET															
	VAA															
	TCA															

Module	Elements in IWXXM format	Switzerland	Tajikistan	Tunisia	Türkiye	Turkmenistan	Ukraine	United	Uzbekistan
AMET B1	METAR/SPECI								
	TAF								
	SIGMET								
	AIRMET								
	VAA								
	TCA								

DAIM: Digital Aeronautical Information Management

Table ASBU-EUR-DAIM-3-1

Automated Data-Centric Environment

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory.

2 *Level of Automation*, shown by:

0 – Manual
1 – Data Centric
2 – Automated Workflow
3 – Full AIM Integration

Note 1 – Guidance on automation and description of different levels of automation are contained in Doc 8126 (Aeronautical Information Services Manual), Part II, Chapter 7 (7.4).

3 Implementation of *Automated processes - Data collection (interfaces with data originators)*, shown by:

FI – Fully Implemented: *when Data collection is at level 3 automation*
PI – Partially Implemented: *when Data collection is at level 1 or 2 automation*
NI – Not Implemented: *when Data collection is at level 0 automation*

Note 2 — Guidance on the levels of automation are contained in Doc 8126 (Aeronautical Information Services Manual), Part II, 7.4.

Note 3 — Additional guidance on the components of an automated AIM system (Data Input) are contained in Doc 8126 (Aeronautical Information Services Manual), Part II, 7.5.1.

Note 4 — EUROCONTROL Specification for the Origination of Aeronautical Data (DO) provides guidance and comprehensive requirements which should be met when originating aeronautical data within the aeronautical data supply chain.

4 Implementation of *Automated processes - Data processing*, shown by:

FI – Fully Implemented: *when Data processing is at level 3 automation*
PI – Partially Implemented: *when Data processing is at level 1 or 2 automation*
NI – Not Implemented: *when Data processing is at level 0 automation*

Note 5 — Guidance on the levels of automation are contained in Doc 8126 (Aeronautical Information Services Manual), Part II, 7.4.

Note 6 — Additional guidance on the components of an automated AIM system (Core Processing System and Data Storage) are contained in Doc 8126 (Aeronautical Information Services Manual), Part II, 7.5.2 and 7.5.3.

5 Implementation of *Automated processes - Data provision/distribution*, shown by:

FI – Fully Implemented: *when Data provision/distribution is at level 3 automation*
PI – Partially Implemented: *when Data provision/distribution is at level 1 or 2 automation*

NI – Not Implemented: *when Data provision/distribution is at level 0 automation*

Note 7 — Guidance on the levels of automation are contained in Doc 8126 (Aeronautical Information Services Manual), Part II, 7.4.

Note 8 — Additional guidance on the components of an automated AIM system (Data Product Preparation) are contained in Doc 8126 (Aeronautical Information Services Manual), Part II, 7.5.4.

Note 9 – The following EUROCONTROL Guidance Materials provide detailed information on aeronautical data/information distribution:

- *EUROCONTROL Specification for the Electronic Aeronautical Information Publication (eAIP)*
- *EUROCONTROL Guidelines for Aeronautical Information Publication (AIP) distribution on the Internet*
- *EUROCONTROL Guidelines Operating Procedures for AIS Dynamic Data (OPADD)*
- *EUROCONTROL Guidelines for harmonised AIP publication and data set provision*

Note 10 – Ref. Column 3-5: EUROCONTROL Guidelines on Aeronautical Data Processes describes a common process reflecting the latest advancement in automation and with a focus on a data-centric AIS/AIM environment (https://www.eurocontrol.int/publication/eurocontrol-guidelines-aeronautical-data-processes)

6 Action Plan – short description of the State's Action Plan with regard to the implementation of the items 2 to 5, especially for items with a "PI" or "NI" status, including planned date(s) of full implementation, as appropriate.

7 Remarks – additional information, including detail of "PI" and "NI", as appropriate.

State	Level of Automation (Overall)	Automated Processes			Action Plan	Remarks
		Data collection (interfaces with data originators)	Data Processing	Data provision/ distribution		
1	*2*	*3*	*4*	*5*	*6*	*7*
ALBANIA						
ALGERIA						
ARMENIA	0	NI	NI	NI	2025	After Implementation 373/2017 New formal arrangements with originators
AUSTRIA						
AZERBAIJAN	2	PI	PI	PI	The current AIM environment is planned to be upgraded till Dec 2023	Due to COVID, implementation of level 3 automation is delayed. The process planned to be resumed after end of system upgrade.
BELARUS						
BELGIUM						
BOSNIA AND HERZEGOVINA	1	PI	PI	PI		
BULGARIA						
CROATIA						
CYPRUS	1	PI	PI	PI	Transformation of aeronautical information in a digital form, enhancing the digital data scope to ensure 'Operational Data Completeness', and enabling generation of AIXM 5.1 data, including the automation and	

State	Level of Automation (Overall)	Automated Processes			Action Plan	Remarks
		Data collection (interfaces with data originators)	Data Processing	Data provision/ distribution		
1	*2*	*3*	*4*	*5*	*6*	*7*
					digitalization of exchanges with AISP data providers such as Airports in their role of aeronautical data originator. By 2025/Q4	
CZECH REPUBLIC	1	PI	PI	PI	SWIM implementation 2025	
DENMARK						
ESTONIA						
FINLAND	1 (2)	PI	PI	PI		
FRANCE	1	PI	FI	PI	New AIM System (SEPIA) planned for 2025	3 Data collection not fully automated with a workflow (planned with SEPIA) 5 Data distribution not fully automated (planned with SEPIA)
GEORGIA						
GERMANY	2	NI	PI	PI	Yes	
GREECE	1	PI	PI	PI	Following the next EAD migration steps higher level of automation will be achieved.	As we are partly migrated to EAD service, we are moving towards in upgrading the current level of automation.
HUNGARY	2	PI	PI	PI	TBD	
IRELAND						
ISRAEL						

State	Level of Automation (Overall)	Automated Processes			Action Plan	Remarks
		Data collection (interfaces with data originators)	Data Processing	Data provision/ distribution		
1	*2*	*3*	*4*	*5*	*6*	*7*
ITALY	2	PI	PI	PI	Action Plan in line with relevant EU Regulation. FI target 12/2025	
KAZAKHSTAN						
KYRGYZSTAN	1	PI	PI	PI		
LATVIA	2	PI	PI	PI	Enhanced Data collection process to be implemented by the end of 2024. Data processing and Data provision/distribution processes are planned to be SWIM and web service oriented by the end of 2025.	
LITHUANIA						
LUXEMBOURG	0	NI	NI	-	Luxembourg plans to implement an AIM database and workflow tool in 2025.	Ref. column 5: Data provision / distribution done by Belgium for Luxembourg (joint AIP).
MALTA						
MONTENEGRO	1	PI	PI	PI	NIL	For the time being, there is no State action plan.
MOROCCO						
NETHERLANDS						
NORTH MACEDONIA						
NORWAY						
POLAND	2	PI	PI	PI	2025/Q4	
PORTUGAL	2	PI	PI	FI	2024	All new AIM System

State	Level of Automation (Overall)	Automated Processes			Action Plan	Remarks
		Data collection (interfaces with data originators)	Data Processing	Data provision/ distribution		
1	*2*	*3*	*4*	*5*	*6*	*7*
						components will be in place until the end of 2023
REPUBLIC OF MOLDOVA	1	PI	PI	PI	3: 2025 - automated collection of data from the originator. 4: 2024 – Management Data Sets Tool (AIP Dat Set, Obstacle and Terrain data Sets, AMDB, Instrument flight procedure data set.) 5: 2025 - Digital NOTAM 2025: the graphical visualization of digital data sets	
ROMANIA						
RUSSIAN FEDERATION						
SERBIA	1	PI	PI	PI		For the time being, there is no State action plan. Progress in the automation fully depends on the evolution of (e)EAD.
SLOVAKIA						
SLOVENIA	1	FI	FI	FI		
SPAIN	2	PI	PI	PI	Planned	
SWEDEN	2	PI	PI	PI		Level 2 on overall

State	Level of Automation (Overall)	Automated Processes			Action Plan	Remarks
		Data collection (interfaces with data originators)	Data Processing	Data provision/ distribution		
1	*2*	*3*	*4*	*5*	*6*	*7*
						automation is regarded as the most appropriate, however recognising that some level 1-aspects in the total process remain and also that some level 3-aspects are implemente d. The input in columns 3, 4 and 5 corresponds to level 2.
SWITZERLAND	1	~~NI~~ PI	PI	PI	3: There is a project ongoing for Data Collection Services (DCS) and an appropriate roadmap schedule is followed and closely coordinated between DCS Provider, Skyguide and FOCA (planned date for Level 1: 31.12.23, planned date for Level 2: 31.12.24). 4: Level 2 (planned date: 31.12.24)	

State	Level of Automation (Overall)	Automated Processes			Action Plan	Remarks
		Data collection (interfaces with data originators)	Data Processing	Data provision/ distribution		
1	*2*	*3*	*4*	*5*	*6*	*7*
					5: Level 3 (planned date: 31.12.25)	
TAJIKISTAN						
TUNISIA						
TÜRKIYE						
TURKMENISTAN						
UKRAINE	0	NI	NI	NI		
UNITED KINGDOM	2	PI	PI	PI	UK Airspace Modernisation Strategy includes planned elements for the transition to SWIM with implementation of SWIM information services by 31/12/2025 in compliance with national legislation (UK Reg (EU) No.716/2014 the Pilot Common Project)	Automated workflow fully implemented but working towards transition to SWIM and full AIM integration.
UZBEKISTAN						

Table ASBU-EUR-DAIM-3-2

Aeronautical Data Quality

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory.

2 Implementation of Quality Assurance and Quality Control, shown by:

FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant

Note 1 – Guidance on the implementation of Quality Assurance and Quality Control are contained in Doc 8126 (Aeronautical Information Services Manual), Part II, Chapter 6.

3 Establishment of formal arrangements with originators, shown by:

FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant

Note 2 – Provisions and guidance on formal arrangements with originators are contained in Annex 15, 2.1.5 and Doc 8126 (Aeronautical Information Services Manual), Part II, 3.3.

Note 3 – Fully compliant (FC) means that the AIS has established formal arrangements with all data originators.

Note 4 – Relevant data quality requirements should be considered in the formal arrangements with originators. Since the Aeronautical Data Catalogue contains all the data elements that the AIS manages, each one being assigned an owner, the AIS can use the Aeronautical Data Catalogue to systematically establish and document formal arrangements with all identified data originators.

Note 5 – Formal arrangements with originators should include requirements related to the provision of metadata.

Note 6 – Provisions related to metadata are contained in Annex 15, 4.2 and PANS-AIM, 4.2. EUROCONTROL Guidelines for the provision of Metadata to support the Exchange of Aeronautical Data provides further guidance on metadata.

4 Action Plan – short description of the State's Action Plan with regard to aeronautical data quality requirements implementation and the establishment of formal arrangements with originators, especially for items with a "PC" or "NC" status, including planned date(s) of full compliance, as appropriate.

5 Remarks – additional information, including detail of "PC" and "NC", as appropriate.

State	Quality Assurance /Quality Control	Formal Arrangement with Originators	Action Plan	Remarks
1	*2*	*3*	*4*	*5*
ALBANIA		FC		
ALGERIA				
ARMENIA		PC		
AUSTRIA		PC		
AZERBAIJAN	FC	FC		
BELARUS		FC		
BELGIUM		FC		
BOSNIA AND HERZEGOVINA	PC	PC		
BULGARIA		FC		
CROATIA				
CYPRUS	FC	~~PC~~FC		
CZECH REPUBLIC	FC	~~PC~~FC		
DENMARK				
ESTONIA		PC		
FINLAND	FC	PC		
FRANCE	FC	~~PC~~FC		
GEORGIA		PC		
GERMANY	PC	PC	Yes	
GREECE	PC	PC	Additional FAs are expected to be signed by 31/12/2023.	The recent acquisition of the ISO 9001 certificate will enhance the overall process.
HUNGARY	FC	~~PC~~FC		
IRELAND				
ISRAEL				
ITALY	PC	PC	FI Target 12/2023	
KAZAKHSTAN		FC		
KYRGYZSTAN	PC	NC	Date of fully compliance of Quality Assurance and Control 25.05.2025	
LATVIA	FC	FC		
LITHUANIA		FI		
LUXEMBOURG	FC	~~NC~~FC		
MALTA				
MONTENEGRO	FC	PC	NIL	For the time being, there is no State action plan.
MOROCCO		PC		
NETHERLANDS				
NORTH MACEDONIA				
NORWAY		FC		
POLAND		~~PC~~FC		

State	Quality Assurance /Quality Control	Formal Arrangement with Originators	Action Plan	Remarks
1	*2*	*3*	*4*	*5*
PORTUGAL	PC	PC	Full IAID 2024	
REPUBLIC OF MOLDOVA	FC	FC		
ROMANIA		FC		
RUSSIAN FEDERATION		NC		
SERBIA	FC	PC		For the time being, there is no State action plan.
SLOVAKIA		FC		
SLOVENIA	FC	~~PC~~FC		
SPAIN	FC	FC		
SWEDEN	FC	FC		
SWITZERLAND	FC	PC	3: Formal arrangements with originators are established within DCS. Stepwise improving and concluding end 2024 with all originators. (planned date: 31.12.2024) Between the AISP Skyguide and the DCS Provider a base contract with different Annexes is established and the SLA was signed in June 2022.	
TAJIKISTAN		NC		
TUNISIA				
TÜRKIYE		NC		
TURKMENISTAN		NC		
UKRAINE		PC		
UNITED KINGDOM		FC		
UZBEKISTAN		NC		

Table ASBU-EUR-DAIM-3-3

National Plans for the provision of Digital Data Sets

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory.

2 AIP Data Set

3 Obstacle Data Set for area 1

4 Obstacle Data Sets for airports (area 2, 3, 4, as applicable)

5 Instrument Flight Procedures Data Sets (IFPD)

6 Airport Mapping Data Sets (AMD)
Note 1 – EUROCONTROL supporting material for (ICAO) Aerodrome Mapping Data Sets https://ext.eurocontrol.int/aixm_confluence/display/ACGAMD/%28ICAO%29+Aerodrome+Mapping+Data+Sets+-+Supporting+Material assists with the provision of AMD encoded in AIXM 5.1.1 and facilitation of data translations with Geographic Information System (GIS) solutions based on EUROCAE ED99() /RTCA DO272() and EUROCAE ED119() / RTCA DO 291().

7 Terrain Data Set for area 1

8 Terrain Data Sets for airports (area 2, 3, 4, as applicable)
Note 2 – Ref columns 3-4 and 7-8: European ATM Master plan Level 3 contains an implementing objective INF07 — Electronic Terrain and Obstacle Data (eTOD) https://www.atmmasterplan.eu/depl/essip_objectives/1000383. This objective includes actions for development of the national TOD policy and oversight by the regulator and planning of the relevant processes by the ANSP and Aerodrome operators, but not the actual provision of the Obstacle data set.
Note 3 – Ref columns 3-4 and 7-8 EUROCONTROL Terrain and Obstacle Data (TOD) Manual provides assistance to those tasked with implementing electronic terrain and obstacle data.

Note 4 – Ref columns 2-8 Note: EUROCONTROL Guidelines for harmonised AIP publication and data set provision https://www.eurocontrol.int/publication/eurocontrol-guidelines-harmonised-aip-publication-and-data-set-provision provides in chapter 3 'Data set provision guidelines' some additional guidance.

9 Removal of AIP tables

Note 5 – EUROCONTROL Guidelines for harmonised AIP publication and data set provision https://www.eurocontrol.int/publication/eurocontrol-guidelines-harmonised-aip-publication-and-data-set-provision provides in section 3.1.4 'Data set provision checklist' guidance on steps to be considered before removal of tables from the AIP.

Note 6 – When status of implementation is reflected in the table for digital datasets, it is shown by:
For required datasets: FC (Fully Compliant), PC (Partially Compliant), NC (Not Compliant), N/A (Not Applicable)
For recommended datasets: FI (Fully Implemented), PI (Partially Implemented), NI (Not Implemented), N/A (Not Applicable)

10 Date of last update/review

Table ASBU-EUR-DAIM-3-3

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Albania	2021/Q2	AIXM 5.1.1 (Eurocontrol Spec)		2021/Q2	AIXM 5.1.1 (Eurocontrol Spec); AIXM 4.5; CSV	FC	2021/Q2	AIXM 5.1.1 (Eurocontrol Spec); AIXM 4.5; CSV	2a: FC / 3: no info / 4: NA	2023/Q1	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Albania	TBD	TBD	Aerodrome mapping data sets are not made available for aerodromes regularly used by international civil aviation. Albania is working towards developing a policy that will enable compliance with the aerodrome mapping data sets requirements.	2019/Q2	GeoTIFF	FC Only available via the State Authority for Geospatial Information (ASIG)	2019/Q2	GeoTIFF	2a: FC / 3: no info / 4: NA Only available via the State Authority for Geospatial Information (ASIG)	Yes	ENR 5.4. and AD 2.10. already removed No other tables will be removed until there is a level of assurance that users are ready to use datasets instead of the AIP tables	23-Jan

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Algeria						NC			2a: NC / 3: no info / 4: NC		

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Algeria						NC			2a: NC / 3: no info / 4: NC			

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Armenia	2025/Q2	AIXM 5.1.1 (Eurocontrol Spec)	Depends on the deployment of an AIXM 5.1-based AIS production system, which depends on migration to AIXM 5.1 EAD SDD (expected Q2 2025).	2019/Q1	CSV (xls)	FC	2021/Q1	CSV (xls)	2: FC / 3: FC / 4: FC (UDYZ) 2:FC / 3:FC (UDSG) For further information see eAIP Armenia , Gen 3.1.6	TBD	NI

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Armenia	TBD	TBD	Details will be provided as soon as a plan is available	2019/Q1	CSV (xls)	FC	2019/Q1	CSV (xls)	2: FC / 3: FC / 4: FC (UDYZ) 2:FC / 3:FC (UDSG) For further information see eAIP Armenia , Gen 3.1.6	No	No	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Austria	2022/Q2	AIXM 5.1.1 (Eurocontrol Spec)		2020/Q4	AIXM 5.1.1 (Eurocontrol Spec); Other	PC	2021/Q2	AIXM 5.1.1 (Eurocontrol Spec); Other	2a: PC / 3: no info / 4: PC	TBD	Details will be provided as soon as a plan is available

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Austria	TBD	TBD	Details will be provided as soon as a plan is available	2023/Q2	GeoTIFF	FC (from 2023/Q2) Source: INSPIRE / BEV	2023/Q2	GeoTIFF	FC (for Area 2 from 2023/Q2) NC (for Area 3 and 4)	Yes	Will be implemented step by step (feature by feature)	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Azerbaijan	2022/Q2	AIXM 5.1.1 (Eurocontrol Spec)	We expect to provide this service based on our system but as we are DP in EAD this data will be available through EAD platform	2022/Q4	AIXM 5.1.1 (Eurocontrol Spec)	PC	2022/Q4	AIXM 5.1.1 (Eurocontrol Spec)	2a: NC / 3: no info / 4: NC	2022/Q4	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Azerbaijan	2022/Q4	TBD	we need upgrades in the current system. Initially planned to investigate during 2020	2023/Q4	TBD	NC	2024/Q2	TBD	2a: NC / 3: no info / 4: NC The AIM system is under adaptation, expect to finish till the end of the year 2023. After will start activities in the area of Terrain Data Sets	No	No	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Belarus						FC			2a: PC / 3: no info / 4: NC		

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Belarus						FC			2a: NC / 3: no info / 4: NC			

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Belgium	TBD	AIXM 5.1.1 (Eurocontrol Spec)		2019/Q1	AIXM 5.1.1 (Eurocontrol Spec)	FC Available at the National Geographical Institute	TBD	TBD	2a: NC / 3: no info / 4: NC	TBD	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Belgium	TBD	TBD		2019/Q1	ESRI Shape Files	FC Available at the National Geographical Institute	TBD	TBD	2a: NC / 3: no info / 4: NC	TBD	TBD	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Bosnia and Herzegovina	TBD	AIXM 5.1	We expect to provide this service but as we are DP in EAD (B2C client) this data will be available through EAD platform	NC	NC	NC	NC	NC	2a: NC / 3: no info / 4: FC	NC	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Bosnia and Herzegovina	NC	NC		NC	NC	FC	NC	NC	2a: NC / 3: no info / 4: FC	No info	No info	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Bulgaria	TBD	AIXM 5.1.1 (Eurocontrol Spec)	Finalisation of new AIM system is expected in 2022 as enabler for this functionality	TBD	AIXM 5.1.1 (Eurocontrol Spec)	NC Finalisation of new AIM system is expected in 2022 as enabler for this functionality. Currently the data is not available	TBD	AIXM 5.1.1 (Eurocontrol Spec)	2a: NC / 3: no info / 4: NC Finalisation of new AIM system is expected in 2022 as enabler for this functionality. Currently the data is not available.	TBD	Data set is under development in AIXM 5.1. No plan for provision until newer version is adopted

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Bulgaria	TBD	TBD	AMDB is not considered by any of the stakeholders	TBD	TBD	NC	TBD	TBD	2a: NC / 3: no info / 4: NC Finalisation of new AIM system is expected in 2022 as enabler for this functionality. Currently the data is not available.	Yes	TBD	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Croatia	2022/Q4	AIXM 5.1.1 (Eurocontrol Spec)	Precondition is a successful deployment of the local DB	2022/Q4	CSV	NC Awaiting State eTOD policy	2022/Q4	AIXM 5.1.1 (Eurocontrol Spec); CSV	2a: NC / 3: no info / 4: NC Awaiting State eTOD policy	TBD	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Croatia	TBD	TBD		TBD	TBD	NC	TBD	TBD	2a: NC / 3: no info / 4: NC	TBD	TBD	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Cyprus	TBD	AIXM 5.1.1 (Eurocontrol Spec)		2024/Q4	AIXM 5.1.1 (Eurocontrol Spec)	FC	2024/Q4	AIXM 5.1.1 (Eurocontrol Spec)	NC	TBD	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Cyprus	TBD	TBD		TBD	TBD	NC	TBD	TBD	NC	TBD	TBD	Feb 23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Czech Republic	2023	AIXM 5.1.1 (Eurocontrol Spec)		2023	AIXM 5.1.1 (Eurocontrol Spec); CSV	FC The ANS CR currently provides the Obstacle Data Set for Area 1 on request. This Data Set is not according to Eurocontrol Specification which has not been published yet.	2024/Q4	AIXM 5.1.1 (Eurocontrol Spec); CSV	2a: NC / 3: no info / 4: NC ANS CR has not received all the needed data from the relevant airports so far, therefore the provision of the Obstacle Data Sets for Airports depends on the provision of the data from the relevant airports.	2024/Q4	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Czech Republic	2024/Q4	AIXM 5.1; AMXM	ANS CR has not received all the needed data from the relevant airports so far, therefore the provision of the Airport Mapping Data Sets depends on the provision of the data from the relevant airports.	2020/Q1	GeoTIFF	FC	2023	GeoTIFF	2a: NC / 3: no info / 4: NC ANS CR has not received all the needed data from the relevant airports so far, therefore the provision of the Terrain Data Sets for Airports depends on the provision of the data from the relevant airports.	TBD	A discussion with the CAA is needed.	Feb 23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Denmark	2021/Q4	AIXM 5.1.1 (Eurocontrol Spec)	AIP data set provision depends on the deployment of a new AIXM 5.1-based AIS production system (expected in- operation 2021), which will enable provision and exchange of AIP data set as a service. The AIP data set is the prime targeted dataset service.	2021/Q4	AIXM 5.1.1 (Eurocontrol Spec)	NC Obstacle data set provision depends on the deployment of a new AIXM 5.1-based AIS production system, expected in operation in Q4 2021	2021/Q4	AIXM 5.1.1 (Eurocontrol Spec)	2a: NC / 3: no info / 4: NC The plan for providing airport obstacle data set in AIXM depends on the deployment of a new AIXM 5.1-based AIS production system, expected in operation Q4 2021.	2023	In planning stage.

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Denmark	2023	AIXM	In planning stage	2022	In planning state	FC	No info	No info	2a: NC / 3: no info / 4: NC	TBD	No decision has been made yet.	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Estonia	No info	No info		No info	No info	PC	No info	No info	2a: PC / 4: NA	No info	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Estonia	No info	No info		No info	No info	FC	No info	No info	2a: FC / 3: no info / 4: NA	No info	No info	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Finland	TBD	AIXM 5.2		2019	CSV	PC	2019	CSV	2a: PC / 4: PC	TBD	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Finland	TBD	TBD		2019/Q1	GeoTIFF	FC	2019/Q1	GeoTIFF	2a: FC / 3: no info / 4: FC depending on the State's policy	Yes	ENR 5.4-2020/Q1 AD 2.10-2020/Q1	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
France	2025 Q1	AIXM 5.1	The existing AIP data set (AIXM 4.5) will be updated when the new AIM system (SEPIA) is operational	2021/Q2	XLS	FC AIXM 5.1 Obstacle Data Set will be provided in 2025	2021/Q4	Shapefile	2a: FC / 4: PC (LFBO,LFST,LFPG,LFBD,LFLL,LFPO,LFSB,LFLC,LFBP) Obstacle Data Set is provided as a new AIS product	TBD	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
France	2025/Q1	AIXM 5.1	Aeronautical Mapping Data Set provision is depending on CINEA-funded Projects	Available	Available from the National Geographic Institute (IGN)	FC	2021/Q4	ASCII	2a: FC 4: FC (LFBO,LFST,LFPG,LFBD,LFLL,LFPO,LFSB,LFLC,LFBP, LFBL LFJL, LFOB, LFQQ, LFRB and LFOK)	Yes	ENR 5.4 - Q2 2021	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Georgia	2021/Q4	AIXM 5.1.1 (Eurocontrol Spec)	The existing AIP data set will be updated in accordance with national specification as soon as it (specification) is available.	2020/Q4	AIXM 5.1.1 (Eurocontrol Spec)	FC	2020/Q4	AIXM 5.1.1 (Eurocontrol Spec)	2a: NC / 4: NA The obstacle data set for Airports is available, however it has not been provided to the users (customers) yet.	2020/Q4	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Georgia	2024/Q4	TBD		2020/Q4	GeoTIFF	NC	2020/Q4	GeoTIFF	2a: NC / 3: no info / 4: NA	Yes	TBD	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Germany	2023/Q4	AIXM 5.1	Target date for the complete AIP dataset is 2023/Q4. Currently four data subsets are available.	2020/Q2	AIXM 5.1.1	FC	2024/Q1	AIXM 5.1.1	2a: NC / 4: NC Ongoing implementation based on national eTOD policy	2024/Q3	Under development

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Germany	tbd	AIXM 5.1.1	AIS Provider Germany has not received data from all effected aerodromes. First datasets will be made available in 2023.	2019/Q1	TBD	FC Provided by BKG	2019/Q1	TBD	2a: NC / 3: no info / 4: NC Provided by BKG	Yes	ENR 5.4-2020/Q2 AD 2.10-No	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Greece	2025/Q3	AIXM 5.1	The existing AIP data set (AIXM 4.5) will be updated, which depends on migration to AIXM 5.1 EAD SDD (expected 2025).	2025/Q3	AIXM 5.1	Depends on migration to AIXM 5.1 EAD SDD (expected 2025).	TBD	AIXM 5.1 (Eurocontrol Spec)	NC HASP/AIS Div is the authorised Aeronautical Dataset Service Provider - Depends on the implementation of eTOD	TBD	Details will be provided as soon as a plan is available

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Greece	TBD	TBD	AMDB is depending on the EAD migration	2024/Q4	TBD	NC	2024/Q4	TBD	2a: NC / 3: no info / 4: NC	TBD	No decision has been made yet.	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Hungary	2024/Q4	AIXM 5.1.1 (Eurocontrol Spec)	The migrtion to the AIXM 5.1 EAD SDD is ongoing. A projekt will be planned after the successful migration.	2016/Q4	AIXM 5.1.1 (Eurocontrol Spec); CSV	FC	2018/Q4	AIXM 5.1.1 (Eurocontrol Spec); CSV	2a: PC / 4: FC (2a for LHBP, LHBC, LHDC, LHNY, LHPP, LHPR, LHSM, LHUD available)	TBD	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Hungary	TBD	TBD		2022/Q2	DDM10	NC	No info	TBD	2a: NC / 3: no info / 4: NC	Yes	AD 2.10-2018/Q4	Jan-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Ireland	No info	No info		No info	No info	NC	No info	No info	2a: no info / 4: NC	No info	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Ireland	No info	No info		No info	No info	FC	No info	No info	2a: no info / 3: no info / 4: NC	No info	No info	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Israel	2024/Q4	AIXM 5.1	Depends on the deployment of an AIXM 5.1-based AIS production system, which depends on migration to AIXM 5.1 EAD SDD (expected Q2 2024).	2023/Q1	CSV, EAD	NC	2023/Q3	CSV	2a: NC / 3: no info / 4: NA	TBD	all FP are implemented into the EAD

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Israel	2022/Q4	TBD	NC	No info	No info	FC	No info	No info	2a and 3:FC / 4: NA	LLBG removed.	LLBG - AD 2.10	Feb-22

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Italy	2024/Q4	AIXM 5.1.1 (Eurocontrol Spec)	According to the current EAD development program ESI clients are not included in this EAD capability	TBD	TBD	NC	TBD	TBD	2a: NC / 3: no info / 4: NC	2024/Q4	According to the current EAD development program ESI clients are not included in this EAD capability

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Italy	2024/Q4	TBD	According to the current EAD development program ESI clients are not included in this EAD capability	TBD	TBD	NC	TBD	TBD	2a: NC / 3: no info / 4: NC According to the current EAD development program ESI clients are not included in this EAD capability	No	No	Jan-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Kazakhstan	TBD					FC	2019/Q1	AIXM 5.1	2a: FC / 3: no info / 4: FC	2022/Q4	Instrument Flight Procedure Data can be provided in the AIXM 5.1

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Kazakhstan	TBD	TBD		No info	No info	NC	2019/Q1	GeoTIFF	2a: NC / 3: no info / 4: NC 2a, 3 for UAAA, UACC, UAII, UARR, UASK, UATE, UATG, UATT. 4 for UAAA, UACC, UATG	No	No	Mar-22

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Kyrgyzstan	2022	AIXM 5.1.1 (Eurocontrol Spec)				NC			2a: NC / 3: no info / 4: NC	2025	Instrument Flight Procedure Data can be provided in the AIXM 5.1

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Kyrgyzstan				No info	No info	NC	No info	No info	2a: NC / 3: no info / 4: NC	No	No	Mar-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Latvia	2020/Q2 - initialy planned 2022/Q1 - implemented	AIXM 5.1	FC AIP Data Set already provided since 2022/Q1. (WEF 27-JAN-2022). The source for AIP Data Set is Integrated AIM DB (AIXM 5.1).	2019/Q1	AIXM 5.1	FC Obstacle Data Set already provided. The source for Obstacle Data Set for Area 1 is Integrated AIM DB (AIXM 5.1).	2019/Q1	AIXM 5.1	Area 2:FC (EVRA, EVLA, EVGA, EVVA) Area 3:FC (EVRA, EVLA) Area 4:FC (EVRA) Obstacle Data Set source for Areas 2, 3 and 4 is Integrated AIM DB (AIXM 5.1).	2024/Q4	Instrument Flight Procedure Data Sets will be prepared using AIXM 5.2 when the appropriate EUROCONTROL Specification will be ready and national data base upgraded to AIXM 5.2.

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Latvia	TBD	AMXM 2.0	PANS-AIM specifies 5.3.3.3 Aerodrome mapping data sets. AMDB implementation for AD EVRA in progress.	2019/Q1	GeoTIFF	FC	2019/Q1	GeoTIFF	Area 2:FC (EVRA, EVLA, EVGA, EVVA) Area 3:FC (EVRA, EVLA) Area 4:FC (EVRA)	Yes	ENR 5.4. and AD 2.10. already removed Lateral limits of airspaces already removed from AIP by initial publication of AIP Data Set 2022/Q1, but based on user requirements will be temporarily provided also in the standardized presentation in the form of AIP SUP till 2023/Q1. All other tables (GEN 2.5, ENR 2.1, ENR 3.3, ENR 3.6, ENR 4.1, ENR 4.4, ENR 5.1, ENR 5.2, EN 5.5, AD 2.17, AD 2.19, AD 3.16) are planned to be removed from AIP 2023/Q4.	23-Feb

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Lithuania	2023/Q2	AIXM 5.1	AIP Data Set will be provided as a new aeronautical information product as specified in latest ICAO provisions, when the AIM system be implemented.	Availabe	AIXM 4.5	Obstacle Data Set (Area 1) is provided as aeronautical information product.	Available	AIXM 5.1	Obstacle Data Set for EYVI, EYKA, EYPA, EYSA Airports (Area 2, 3 and 4) are provided as aeronautical information product.	2023/Q2	AIXM 5.1

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Lithuania	2023/Q2	TBD		Available	GeoTIFF	FC	Available	GeoTIFF	2a: FC / 3: no info / 4: FC (EYVI)	Yes	AIP tables related to Aerodromes obstacle data are already removed.	Feb-22

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Luxembourg	2026/Q4	AIXM 5.1.1 (Eurocontrol Spec) or 5.2 if required	Luxembourg is focussing on the upstream data chain and the national data processes. Data sets will only be generated and provided after the required infrastructure is in place.	2024/Q4	AIXM 5.1.1 (Eurocontrol Spec) or 5.2 if required	NC Current TOD implementation approach under review.	2024/Q4	AIXM 5.1.1 (Eurocontrol Spec) or 5.2 if required	2a: NC / 3: no info / 4: NC Current TOD implementation approach under review.	2026/Q4	Will be considered based on user requirements.

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Luxembourg	TBD	TBD	At present no user requirement for AMDB Sets	2024/Q4	TBD	NC	2024/Q4	TBD	2a: NC / 3: no info / 4: NC will depend on the State's policy	Yes	Depending on user requirments the AIP tables provided as data sets may be removed from the AIP. All other tables will remain in the AIP	23-Feb

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Malta	No info	No info		No info	No info	NC	No info	No info	2a: no info / 3: no info / 4: NC	No info	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Malta	No info	No info		No info	No info	NC	No info	No info	2a: no info / 3: no info / 4: NC	No info	No info	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Montenegro	N/A	N/A	NI No implementation plans for the timebeing.	No info	No info	NC	No info	No info	2a: NC 2b, 2c, 2d and 3: NI 4: N/A	N/A	NI No implementation plans for the timebeing.

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Montenegro	N/A	N/A	NI AMDB is not considered, as there are no user requirements.	2012	No info	FC Terrain data for area 1 is provided by Property Administration, ref. AIP Serbia/Montenegro GEN 3.1.	TBD	TBD	2a: NC 2b, 2c, 2d and 3: NI 4: N/A	No	After data set implementation, removal of AIP tables provided as data sets will be considered depending on user requirments. All other tables will remain in the AIP.	Jan-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Morocco						NC			2a: NC / 3: no info / 4: NC		

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Morocco						NC			2a: NC / 3: no info / 4: NC			

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Netherlands	No info	No info		No info	No info	NC	No info	No info	2a: no info / 3: no info / 4: NC	No info	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Netherlands	No info	No info		No info	No info	NC	No info	No info	2a: no info / 3: no info / 4: NC	No info	No info	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
North Macedonia	2022/Q3	AIXM 5.1.1 (Eurocontrol Spec)		2022/Q1	AIXM 5.1.1 (Eurocontrol Spec)	NC	2022/Q3	AIXM 5.1.1 (Eurocontrol Spec)		2022/Q3	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
North Macedonia	2023/Q1	TBD		2022/Q1	TBD		2022/Q3	TBD		Yes	TBD	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Norway	2022/Q3	AIXM 5.1.1 (Eurocontrol Spec)		2019/Q1	AIXM 5.1.1 (Eurocontrol Spec); CSV	FC	2019/Q1	AIXM 5.1.1 (Eurocontrol Spec); CSV	2a: FC / 3: no info / 4: FC	TBD	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Norway	TBD	AMXM		2019/Q1	GeoTIFF; USGS DEM	FC	2019/Q1	GeoTIFF; USGS DEM	2a: FC / 3: no info / 4: FC	Yes	ENR 5.4-2019/Q3 AD 2.10-2019/Q3	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Poland	2022/Q1	AIXM 5.1	FC	2022/Q1	AIXM 5.1; CSV	FC	2022/Q1	AIXM 5.1; CSV	2a: NC / 3: no info / 4: NC Area 2 obstacle data set containing only data on obstacles penetrating Obstacle Limitation Surfaces (OLS) at the first stage.	2024/Q4	After Eurocontrol Specification Delivery

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Poland	2025/Q4	AIXM 5.1 + extension		Not planned	Not planned	Digital Elevation Model (DEM) and Digital Sufrace Model (DSM) are made available by the the Main Office of Geodesy and Cartography on: https://www.geoportal.gov.pl/dane/numeryczny-model-terenu or https://www.geoportal.gov.pl/dane/numeryczny-model-pokrycia-terenu	2025/Q4	TBD	2a: no info / 3: no info / 4: TBD	TBD	Depending on user requirments. Decision will be taken after public consultations.	Mar-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Portugal	2024/Q2	AIXM 5.1.1 (Eurocontrol Spec)	Depends on the deployment of a new AIXM 5.1-based system (expected to enter in operation in 2022/Q2) and development of eEAD	No info	AIXM 5.1.1 (Eurocontrol Spec); CSV; GeoJSON	PC Depends on the deployment of a new eTOD database and on originators capability in providing data. Awaiting State eTOD policy	2024/Q3	AIXM 5.1.1 (Eurocontrol Spec); CSV; GeoJSON	eTOD area 2 & 4 will be available on 2024 Q3	TBD	On planning stage

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Portugal	No info	No info	The provision of the Airport Mapping Data Sets depends on the provision of the data from the relevant airports	TBD	TBD	FC Only available via the National Geodetic Institute	2024/Q3	TBD	Area 2 and 4 terrain data will be available on 2024 Q3	TBD	No decision has been made yet	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Republic of Moldova	2024/Q4	AIXM 5.1.1 (Eurocontrol Spec)		2017/Q1	AIXM 5.1.1 (Eurocontrol Spec); AIXM 5.1	FC	2017/Q1	AIXM 5.1.1 (Eurocontrol Spec); AIXM 5.1	2a: FC / 3: no info / 4: FC	2024/Q4	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Republic of Moldova	2024/Q4	ESRI shape file format		2012/ Q1	ESRI Grid; GeoTIFF	FC	2017/Q1	ESRI Grid; GeoTIFF	2a: FC / 3: no info / 4: FC	No	No	23-Feb

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Romania	2023	AIXM 5.1.1 (Eurocontrol Spec)	AIP data set provision depends on the deployment the new AIXM 5.1-based AIM System (expected in operation 2023), which will enable provision and exchange of AIP data set as a service.	2023	AIXM 5.1.1 (Eurocontrol Spec), CSV, ESRI Shape	NC Obstacle Data Set provision depends on the deployment the new AIXM 5.1-based AIM System (expected in operation 2023) and on originators capability in providing data. No State eTOD policy for Area 1.	2023	AIXM 5.1.1 (Eurocontrol Spec), CSV, ESRI Shape	2a: NC / 3: no info / 4: NC Obstacle Data Set provision depends on the deployment the new AIXM 5.1-based AIM System (expected in operation 2023) and on originators capability in providing data.	TBD	After Eurocontrol Specification Delivery

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Romania	No info	No info	The provision of the Airport Mapping Data Sets depends on the provision of the data from the data originators (airports).	Available	GeoTIFF; USGS DEM	FC	2023	GeoTIFF; USGS DEM	2a: NC / 3: no info / 4: NC	TBD	No decision has been made yet.	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Russian Federation	2023	AIXM 5.1	Implementation planned after approval AIXM 5.1 national standards	2023/Q4	AIXM 5.1	PC	2023/Q4	AIXM 5.1	2: PC / 3: PC / 4: PC (area 2 is not divided into zones)	2023/Q4	AIXM 5.1

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Russian Federation	TBD	TBD	N/A	2023/Q4	GeoTIFF	PC	2023/Q4	GeoTIFF	2: PC / 3: PC / 4: PC (area 2 is not divided into zones)	TBD	TBD	Mar-22

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Serbia	N/A	N/A	NI	No info	No info	NC	No info	No info	2a: NC / 3: no info / 4: NC	N/A	NI

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Serbia	N/A	N/A	NI	2013	ASCII xyz; shapefile	FC; Area 1 terrain dataset is provided by Republic Geodetic Authority	TBD	TBD	2a: NC / 3: NC / 4: NC	No	Removal of AIP tables shall be based on user requirments once digital data sets are implemented.	Jan-23

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Slovakia	TBD	TBD	No such data available	2019/Q1	ESRI Grid; Other	FC	Area 2 AD by AD from 2022/Q2 to 2023/Q2. Area 3 TBD Area 4 FC from 2019/Q1	ESRI Grid; Other	Area 2 from ICAO perspectivie - FC. Area2 from EU perspective LZIB, LZPP - FC. LZZI, LZTT, LZKZ - NC, follows LIDAR scanning of state teritory. Area 3 fully depends on AD operators Area 4: FC	No	-	Oct-22

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Slovakia	TBD	TBD	No such data available	2019/Q1	ESRI Grid; Other	FC	Area 2 AD by AD from 2022/Q2 to 2023/Q2. Area 3 TBD Area 4 FC from 2019/Q1	ESRI Grid; Other	Area 2 from ICAO perspectivie - FC. Area2 from EU perspective LZIB, LZPP - FC. LZZI, LZTT, LZKZ - NC, follows LIDAR scanning of state teritory. Area 3 fully depends on AD operators Area 4: FC	No	-	Oct-22

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Slovenia	2024/Q4	AIXM 5.1.1 (Eurocontrol Spec)		2019/Q1	CSV, ESRI Shape	FC	2019/Q1	CSV, ESRI Shape	2a: FC / 3: no info / 4: FC	TBD	Details will be provided as soon as a plan is available

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Slovenia	TBD	TBD	Details will be provided as soon as a plan is available	2019/Q1	ASCII file format (*.XYZ)	FC	2019/Q1	ASCII file format (*.XYZ)	2a: FC / 3: no info / 4: FC	No	AIP tables will remain in AIP, for use of the GAT	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Spain	2022/Q3	AIXM 5.1.1 (Eurocontrol Spec)	PI. The AIP dataset is partially available with ussage limitations.	2020/Q4	AIXM 5.1.1 (Eurocontrol Spec); CSV; GeoJSON	FC Digital obstacle data already available on the AIP. Current work is to fix existing AIXM5.1 format known errors and prepare the processes to claim Obstacle Datasets availability	2020/Q4	AIXM 5.1.1 (Eurocontrol Spec)	2a: FC / 3: no info / 4: PC Digital obstacle data already available on the AIP. Current work is to fix existing AIXM5.1 format known errors and prepare the processes to claim Obstacle Datasets availability	TBD	Waiting to have more information on the coding guidelines and what is expected to be in this datasets. No current plans to develop them as part of the official AIP but some flight procedure data will be made accessible as digital data on an alpha digital data service.

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Spain	TBD	TBD	Waiting to have more information on the coding guidelines and what is expected to be in this datasets. No current plans to develop them as part of the official AIP but some flight procedure data will be made accessible as digital data on an alpha digital data service.	2022/Q4	WMS; GeoTIFF	FC	2022/Q4	WMS; GeoTIFF	2a: NC / 3: no info / 4: PC Most of the terrain datasets are already available with some limitations. New data is being acquired to provide full quality compliant datasets.	No	No	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Sweden	2023/Q3	AIXM 5.1.1 (Eurocontrol Spec)	AIP data set provision depends on the deployment of a new AIXM 5.1-based AIS production system (expected in- operation 2023), which will enable provision and exchange of AIP data set as a service. The AIP data set is the prime targeted dataset service.	2023/Q4	AIXM 5.1.1 (Eurocontrol Spec); Other	Partially implemented. Obstacle data set for area 1 is provided since a number of years in csv.format. Obstacle data set in AIXM 5 is planned based on implementation of updated AIS database, planned in operations Q4/2023.	2023/Q4	Other	2a: PC / 3: no info / 4: PC The plan for providing airport obstacle data set in AIXM depends on the deployment of a new AIXM 5.1-based AIS database, planned in operation Q4/2023.	2023/Q4	In planning-stage. This data set product/service is depending on originators capability in providing data, and how LFV can support with relevant interface/tools. The service depends on the deployment of the implementation of AIXM 5.1-based AIS production system, planned in operation Q4/2022.

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Sweden	2024/Q4	AIXM; AMXM	In planning-stage. Airport Mapping Data Set provision is planned in conjunction with airports own production/services and LFV's capability to produce/make data set available. To be continued.	Compliant	Other	Electronic terrain data meeting the ICAO Annex 15 for Area 1 requirementis maintained and stored by the Swedish National Land Survey, link made available i AIP GEN 3.1.6.	Partly compliant	Other	2a: FC / 3: no info / 4: FC Electronic terrain data meeting the ICAO Annex 15 for Area 2 and 4 requirementis maintained and stored by the Swedish National Land Survey, link made available i AIP GEN 3.1.6.	Planned	LFV considers removal of AIP tables as a step towards an efficient AIS provision, once data sets are established by consumers and as a service. There is currently no timetable for removal of AIP tables. Removal of other tables will be planned in-line with the capability of providing AIP data set (AIXM 5.1), communication with users of AIS and will likely be a phased approach. The first AIP table to be removed is ENR 5.4 (En-route obstacles), currently published in parallel with the Obstacle data set available on LFV web. This is planned for Q4/2023.	Jan-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Switzerland	2019/Q4	AIXM 5.1.1 (Eurocontrol Spec)	NC The AIP Data Set is available from Skyguide upon customer request, however not intended for operational use as not yet formally approved by the national CAA (FOCA).	2019/Q1	Other	NC Currently provided by the Federal Office of Civil Aviation (REF AIP Switzerland GEN 3.1 § 6.2) Full Compliance is planned by end of 2023, provision of the Data Set by the AISP Skyguide.	2020/Q1	Other	2a: NC / 3:NC/ 4: NC Currently only partially provided by the Federal Office of Civil Aviation (REF AIP Switzerland GEN 3.1 § 6.2) Full Compliance is planned by end of 2023, provision of the Data Set by the AISP Skyguide.	2020/Q1	NC Not yet planned, as some Eurocontrol specifications are not available (e.g. conventional navigation flight procedures). However, PBN PROC data sets are available on customer request from Skyguide, however not intended for operational use as not yet formally approved by the national CAA (FOCA).

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Switzerland	No info	No info	NI Is not provided in Switzerland currently	2019/Q1	ESRI Grid, GeoTiff	PC Currently provided by the Federal Office of Topography swisstopo (https://shop.swisstopo.admin.ch/en/products/height_models/dhm25) REF AIP Switzerland GEN 3.1 § 6.1	2019/Q1	ESRI Grid, GeoTiff	2a: PC / 3: PC / 4: PC Currently provided by the Federal Office of Topography swisstopo (https://shop.swisstopo.admin.ch/en/products/height_models/alti3D) REF AIP Switzerland GEN 3.1 § 6.1	Partly	The removal of tables other than for obstacles is not yet decided. Discussions with the national CAA (FOCA) are ongoing.	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Tajikistan				2023/Q3	ESRI, GeoTiff, DEM	NC	2023/Q3	ESRI, GeoTiff, DEM	2a: NC / 3: no info / 4: NC	2023/Q3	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Tajikistan				2023/Q3	ESRI, GeoTiff, DEM	NC	2023/Q3	ESRI, GeoTiff, DEM	2a: NC / 3: no info / 4: NC			Feb-22

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Tunisia						NC			2a: NC / 3: no info / 4: NA		

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Tunisia						NC			2a: NC / 3: no info / 4: NA			

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Türkiye	2025/Q4	AIXM 5.1.1 (Eurocontrol Spec)		2014/Q4	AIXM 5.1.1 (Eurocontrol Spec); CSV	FC Digital obstacle data already available on the AIP as of 2014/Q4	2014/Q4	AIXM 5.1.1 (Eurocontrol Spec); CSV	2a: FC / 3: no info / 4: FC Digital obstacle data for some AD already available on the AIP as of 2014/Q4, Currently all AD obstacle data set available on the AIP.	2025/Q4	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Türkiye	TBD	TBD		2014/Q4	DTED; GeoTIFF	FC	2016/Q4	DTED; GeoTIFF	2a: FC / 3: no info / 4: FC	Yes	AIP tables related to obstacle data are already removed. ENR 5.4-2014/Q4 AD 2.10-2014/Q4	

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Turkmenistan						NC			2a: NC / 3: no info / 4: NC		

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Turkmenistan						NC			2a: NC / 3: no info / 4: NC			

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Ukraine	TBD	AIXM 5.1.1 (Eurocontrol Spec)		2021/Q4	AIXM 5.1.1 (Eurocontrol Spec)	FC	TBD	AIXM 5.1.1 (Eurocontrol Spec)	2a: PC / 3: no info / 4: PC (UKHH, UKBB, UKLL)	TBD	

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Ukraine	No info	No info		2020/Q1	ESRI Shape Files; GDB	FC	TBD	TBD	2a: NC / 3: no info / 4: NC (UKHH, UKBB, UKLL)	No	No	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
United Kingdom	2024/Q4	AIXM 5.1.1 (Eurocontrol Spec)	Deliverables will be AIXM files compliant with the relevant ICAO Annex 15 SARPs and PANS-AIM, created using ECTL specifications and made available securely online. Trial AIXM files will be provided as part of the implementation plan - Timescales for operational delivery are currently being discussed between UK CAA and UK AIS.	2024/Q4	AIXM 5.1.1 (Eurocontrol Spec); CSV	PC Deliverables will be AIXM files compliant with the relevant ICAO Annex 15 SARPs and PANS-AIM, created using ECTL specifications and made available securely online. Trial AIXM files will be provided as part of the implementation plan - Timescales for operational delivery are currently being discussed between UK CAA and UK AIS.	2024/Q4	AIXM 5.1.1 (Eurocontrol Spec); CSV	2a: PC / 3: no info / 4: PC Deliverables will be AIXM files compliant with the relevant ICAO Annex 15 SARPs and PANS-AIM, created using ECTL specifications and made available securely online. Trial AIXM files will be provided as part of the implementation plan - Timescales for operational delivery are currently being discussed between UK CAA and UK AIS.	2024/Q4	As Procedures are provided. Deliverables will be AIXM files compliant with the relevant ICAO Annex 15 SARPs and PANS-AIM, created using ECTL specifications and made available securely online. Trial AIXM files will be provided as part of the implementation plan -Timescales for operational delivery are currently being discussed between UK CAA and UK AIS.

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
United Kingdom	2024/Q4	AIXM	Deliverables will be AIXM files compliant with the relevant ICAO Annex 15 SARPs and PANS-AIM, created using ECTL specifications and made available securely online. Trial AIXM files will be provided as part of the implementation plan - Timescales for operational delivery are currently being discussed between UK CAA and UK AIS.	2019/Q1	GML; ESRI Shape Files; GeoPackage	PC UK Area 1 terrain dataset is widely available, more information to be provided in GEN 3.1.6.	2022/Q1	GeoTIFF; GML	2a: PC / 3: no info / 4: PC Terrain datasets for Areas 2-4 provided directly by the aerodorme operators. More information to be provided in GEN 3.1.6.For Area 1: GML 3.2 and ASCII (DTM grid); GeoPackage, GML 3.2 and Esri shapefile (Contours).	Yes	UK CAA support the implementation of ICAO datasets, but also recognises the importance of keeping information in the AIP during a transition period, which will be as long as needed. No tables will be removed until there is a level of assurance that users are ready to use datasets instead of the AIP tables and no data will become unavailable to users.	Feb-23

(1) STATE	(2) AIP Data Set			(3) Obstacle Data Set for Area 1			(4) Obstacle Data Sets for Airports (Area 2, 3, 4, as applicable)			(5) Instrument Flight Procedures Data Sets (IFPD)	
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Remarks
Uzbekistan						NC			2a: NC / 3: no info / 4: NC		

(1) STATE	(6) Airport Mapping Data Sets (AMD)			(7) Terrain Data Set for Area 1			(8) Terrain Data Sets for Airports (Area 2, 3, 4, as applicable)			(9) Removal of AIP tables		(10) Date of last update/review
	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Provision date	Specification / Format	Remarks	Will remove tables	Remarks (list of tables planned to be removed incl. removal date)	
Uzbekistan						NC			2a: NC / 3: no info / 4: NC			

5 Recommendations

Based on the analysis of the reported implementation status and the lessons learned from the development of this report, the following recommendations are proposed:

Recommendation 1:

Continue to ensure that no duplication of reporting activities will be requested from the States, meaning that the data available through existing reporting mechanisms such as the Local Single Sky Implementation Monitoring (LSSIP) shall be always used.

Recommendation 2:

States need a continuous support with ASBU workshops (with French and Russian language support) in individual States or group of States so that the details and dependencies between ASBU Elements can be explained. The presentation of the evolved Questionnaires will not only increase the quality of the reported data but will also ensure that implementation data can be (again) collected from all 55 States in the ICAO EUR Region. Subsequently this will allow that the regional developments and deployment actions can be coordinated across the whole EUR Region and that interoperability can be ensured at the highest level.

Recommendation 3:

States are invited to further address carefully the completeness of the reported data and their timely availability. Based on the current experience, States should continue to ask for additional support and clarification of the data before the final submission of the questionnaire.

Recommendation 4:

The EASPG is invited to remove the Element FRTO-B1/2 “Required Navigation Performance (RNP) routes” from the monitoring scope of future editions of the Report as the collected evidence shows that the implementation of choice in the EUR Region is RNAV5.

ANNEX A – GANP Minor Update

The 39th session of the ICAO Assembly agreed to expand the Global Air Navigation Plan (GANP) lifecycle through three-year minor and six-year major updates as relevant. In addition, in order to maximize the input from the aviation community, the GANP is updated following ICAO's global air navigation events schedule. According to this schedule there would be a High-Level Safety Conference, with an air navigation stream, before a minor update of the GANP and a High-Level Air Navigation Conference before a major update of the GANP. The High-Level Conferences would take place between two ICAO Assembly sessions.

Following the above principles, the 6th edition of the GANP, endorsed at the 40th Assembly, constituted a major update of the GANP, while the 7th edition of the GANP, endorsed by the 41st session of the ICAO Assembly in October 2022 is representing a minor update.

This edition of the ASBU implementation monitoring Report is the first one based on the 7th edition of the GANP and reflects therefore the changes brought by the minor update of the 6th edition. Given that the scope of the Report is limited to the Block 0 and Block 1 Elements, the drafting team of the Report has focussed on the assessment of changes brought to these Blocks by the minor GANP update, in order to reflect them in the monitoring Report.

The most important changes brought by the minor update were the move of three Block 1 Elements to Block 2 due to the unavailability of one of the reference documents (ICAO Doc 9971) as well as of operational procedures and training enablers. As these 3 Elements (ACDM-B1/1, ACDM-B1/2, APTA-B1/3) used to be within the 87 Block 0 and Block 1 Elements identified in 2021 by the EURGANT-PT to be monitored in the EUR Region, following the minor update of the GANP the monitoring scope has been reduced from 87 to 84 Block 0 and Block 1 Elements.

All the other changes brought by the update were mostly editorial, with no substantial impact on the reflection of the implementation progress in the annual monitoring Report.

In summary, the changes to the Block 0 and Block 1 Elements following the minor update of the GANP are:

- COMI B1/1 – "future" added in one of the sentences in the description of the New Capabilities.
- ACDM B1/1 - moved to Block 2.
- ACDM B1/2 - moved to Block 2.
- DAIM B1/1 - part of the text removed from the description as overtaken by events.
- DAIM B1/7 – update of the dependencies list with the addition of some SWIM elements.

- GADS B1/2 – change in the name of the Element and in the descriptive text on new capabilities.
- ASUR B1/1 – change in the maturity level.
- COMI B1/3 – change in the dependencies list (this Element is not on the list identifies by the EURGANT-PT for monitoring within the EUR Region).
- APTA B1/3 – moved to Block 2.
- RATS B1/1 – Became DATS B1/1 (“Digital” instead of “Remote”).

ANNEX B – Acronyms

A	
ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
A-CDM	Airport Collaborative Decision Making
ACM	ATC Communication Management
ADQ	Aeronautical Data Quality
ADS-B	Automatic Dependent Surveillance – Broadcast
ADS-C	Automatic Dependent Surveillance - Contract
AGDL	Air-Ground Data Link
AL	Albania
AM	Armenia
AMAN	Arrival Manager
AMHS	ATS Message Handling Service
ANSP	Air Navigation Service Provider
AOP	Airport Operations Plan
APTA	Airport Accessibility
APV	Approach with Vertical Guidance
APO	Airport Operations
APW	Airborne Proximity Warning
ASBU	Aviation System Block Upgrade
ASM	Airspace Management
ASMGCS	Advanced Surface Movement Guidance and Control System
ASP	Air Navigation Service Providers
AT	Austria
ATC	Air Traffic Control
ATFCM	Air Traffic Flow and Capacity Management
ATFM	Air Traffic Flow Management
ATCO	Air Traffic Control Officer
ATM	Air Traffic Management
ATMGE	Air Traffic Management Group - East
ATN	Aeronautical Telecommunication Network
AUP	Airspace Use Plan
AZ	Azerbaijan
B	
BA	Bosnia and Herzegovina
BBB	Basic Building Blocks
BE	Belgium
BG	Bulgaria
BY	Belarus
C	
CBA	Cost Benefit Analysis
CCO	Continuous Climb Operations
CDM	Collaborative Decision Making
CDO	Continuous Descent Operations
CH	Switzerland
CNS	Communication, Navigation and Surveillance
COTR	Coordination and Transfer
CTOP	Collaborative Trajectory Options Program
CY	Cyprus
CZ	Czech Republic
D	
DAIM	Digital Aeronautical Information Management
DATM	Digital Air Traffic Management
DE	Germany
DK	Denmark
DMAN	Departure Manager
DZ	Algeria
E	
EAD	European Aeronautical Database
EANPG	European Air Navigation Planning Group
EASA	European Aviation Safety Agency
EASPG	European Aviation System Planning Group
ECAC	European Civil Aviation Conference
EE	Estonia
ES	Spain
ENV	Environment
EU	European Union
EURGANT-PT	EUR Region GANP Transition Project Team
F	
FAB	Functional Airspace Block
FCM	Flow and Capacity Management
FF-ICE	Flight & Flow Information for a Collaborative Environment
FI	Finland
FR	France
FIR	Flight Information Region
FMTP	Flight Message Transfer Protocol
FO	Flight Object
FOC	Flight Operations Centre
FOC	Full Operational Capability
FP	Flight Plan
FPL	Filed Flight Plan
FRA	Free Route Airspace
FRTO	Free-Route Operations

G

GADS	Global Aeronautical Distress and Safety System
GANP	ICAO Global Air Navigation Plan
GAT	General Air Traffic
GBAS	Ground Based Augmentation System
GDP	Gross Domestic Product
GE	Georgia
GR	Greece
GLS	GNSS Landing System

H

HR	Croatia
HU	Hungary

I

ICAO	International Civil Aviation Organisation
IE	Ireland
IL	Israel
INF	Information Management
IPS	Internet Protocol Suite
IR	Implementing Rule
IT	Italy

K

KG	Kyrgyzstan
KZ	Kazakhstan

L

LSSIP	Local Single Sky ImPlementation
LT	Lithuania
LU	Luxembourg
LV	Latvia
L3	Level 3

M

MA	Morocco
MD	Moldova
ME	Montenegro
MET	Meteorology
MIL	Military Authorities
MK	North Macedonia
MP L3	Master Plan Level 3
MT	Malta
MTCD	Medium Term Conflict Detection
MUAC	Maastricht Upper Area Control (Centre)

N

NAV	Navigation
NewPENS	New Pan-European Network Services
NL	Netherlands
NM	Network Manager
NO	Norway
NOP	Network Operations Plan
NOPS	Network Operations
NOTAM	Notice to Airmen

O

OI	Operational improvements
OLDI	On-Line Data Interchange
OSI	Open System Interconnection

P

PBN	Performance Based Navigation
PENS	Pan-European Network Service
PIA	Performance Improvement Areas
PinS	Points in Space
PL	Poland
PT	Portugal

R

RATS	Remote Air Traffic Services
REG	National Regulatory Authorities/NSAs
RMCA	Runway Monitoring and Conflict Alerting
RNAV	Area Navigation
RNP	Required Navigation Performance
RO	Romania
RS	Serbia
RSEQ	Runway Sequencing
RU	Russian Federation

S

SAF	Safety
SBAS	Satellite-Based Augmentation System
SE	Sweden
SES	Single European Sky
SESAR	Single European Sky ATM Research
SI	Slovenia
SK	Slovak Republic
SLoA	Stakeholder Line(s) of Action
SNET	Safety Nets

SPI	Surveillance Performance and Interoperability
SSR	Secondary Surveillance Radar
STAR	Standard Terminal Arrival Route
STCA	Short Term Conflict Alert
SURF	Surface Operations

T

TBO	Time-Based Operations
TCAS	Traffic Alert and Collision Avoidance System
TJ	Tajikistan
TOD	Terrain and Obstacle Data
TOS	Trajectory Options Set
TM	Turkmenistan
TMA	Terminal Control Area
TN	Tunisia
TR	Türkiye

U

UA	Ukraine
UK	United Kingdom
UUP	Updated Airspace Use Plan
UZ	Uzbekistan

V

VDL	VHF Digital Link
VFE	Vertical Flight Efficiency
VHF	Very High Frequency
VNAV	Vertical Navigation

W

WAM	Wide Area Multilateration
WAKE	Wake Turbulence Separation

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