ASBU Implementation Monitoring Report

ICAO EUR States

Reference Period 2017

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 harmonized 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 GANP represents a rolling, 15-year strategic methodology which leverages existing technologies and anticipates future developments based on State/industry agreed operational objectives. The Global Air Navigation Plan'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 realize 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 are organized 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 2030, was endorsed at the 39th ICAO Assembly in October 2016. A revised version of the GANP will be presented to the 40th ICAO Assembly in September 2019.

The resultant framework is intended primarily to ensure that the aviation system will be maintained and enhanced, that ATM improvement programmes are effectively harmonized, 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 Modules be required to be applied in every State and Region. Many of the Block Upgrade Modules contained in the GANP are specialized 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 Modules based on their specific operational requirements. Using the GANP, Regional and State planners should identify those Modules which provide any needed operational improvements. Although the Block Upgrades do not dictate when or where a particular Module 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.

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ABSTRACT

The ICAO/EUROCONTROL ASBU monitoring report presents an overview of the deployment planning dates and implementation progress achieved for the ICAO ASBU Block 0 Modules within the ICAO EUR Region during the reporting year 2017. The region covers 55 States and 54 of them (except Tunisia), provided monitoring information. The LSSIP mechanism was used to collect the data (42 States), complemented with a dedicated questionnaire for the States outside that mechanism.

The dashboard for implementation progress of ASBU Block 0 modules indicates what has been achieved so far and the outlook for 2020 and 2021 gives the future perspective of implementation in accordance with planning dates reported by States. A chart indicating the evolution of implementation progress during the last three years of reporting is included, it provides a good indication of the deployment trend and overall status for each Block 0 Module.

AUTHOR: Activity Manager	Ana Paula FRANGOLHO (EUROCONTROL)	**CONTACTS**: **Ana Paula Frangolho** **Email**: ana-paula.frangolho@eurocontrol.int **Tel**: +32 2 729 4702 **Sven Halle** **Email**: shalle@paris.icao.int **Tel**: +33 1 46418524	**DIRECTOR**:	DECMA Philippe MERLO
CONTRIBUTORS:	Sven HALLE (ICAO EUR/NAT) Vjaceslavs KARETNIKOVS (Chairman ATMGE)		**DIVISION**:	ACS Paul BOSMAN
SUPPORT TEAM: (EUROCONTROL)	Agnieszka DYBOWSKA Igor MARCETIC Jorge PINTO André DAUZAT		**UNIT**:	PRM Danny DEBALS
GRAPHIC DESIGN	Marianne Carpentiers (EUROCONTROL)			

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EDITION	DATE	REASON FOR CHANGE	SECTIONS PAGES AFFECTED
0.1	06/08/2018	First draft	All
0.2	16/08/2018	Editorial corrections and formatting. Draft conclusions and recommendations	All
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Executive summary

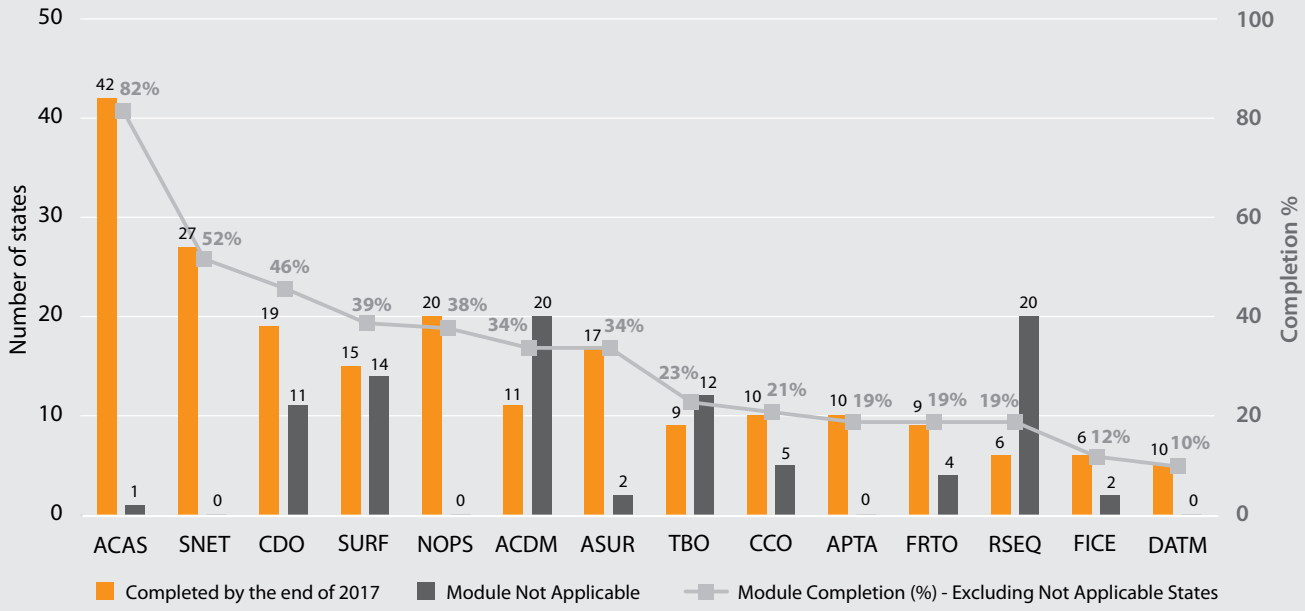
The fourth edition of the ICAO ASBU implementation monitoring report for the ICAO EUR Region (reference date December 2017) addresses the deployment of a selected number of ASBU Block 0 Modules and includes updated detailed progress and status implementation for 54 out of 55 States that are accredited to the ICAO EUR Region. Only Tunisia did not send monitoring information therefore data from the 2016 cycle was used in this report.

Two complementary processes are in place to collect the monitoring data. On one hand it reuses the information submitted by States participating in the LSSIP mechanism and on the other hand it collects data through the ASBU implementation monitoring questionnaires for the 10 States of the ICAO EUR Region that are outside the LSSIP reporting mechanism. It should be noted that Israel has joined the LSSIP mechanism in 2017 therefore that data is now used in this report.

The core of the document consists in two main chapters. Chapter 3 gives a consolidated view of the planning dates foreseen by States to finalise the implementation of each individual ASBU Block 0 module. This can be considered as a dashboard for ASBU Block 0 modules deployment in the ICAO EUR Region. Chapter 4 presents a global view on the implementation progress of the implementation objectives mapped to each module.

To summarize the implementation status and progress of ASBU Block 0 Modules, self-explanatory tables were developed, which are aimed at giving an overall and straightforward understanding of the ASBUs deployment so far.

The ASBU Block 0 Implementation Dashboard 2017 (below) presents the number of States that have achieved full implementation and gives the overall rate of "Completion" in % by the end of 2017. It excludes those States where the module is considered as "Not Applicable".



Implementation Dashboard year 2017

The Implementation Progress chart for 2015 and 2016 summarizes the overall deployment achieved and provides a comparative evolution of the progress in these last two cycles.

B0-AMET is not addressed in the tables and graphs because the data for 2017 cycle was not available when the report was prepared. Details on the evolution of progress will be presented in the report for next cycle.

***ICAO EUR B0 Modules** - Implementation Progress from 2015, 2016 and 2017*

1. Introduction

1.1 Objective and intended audience of the report

The ICAO/EUROCONTROL ASBU implementation monitoring report presents an overview of the planning dates and implementation progress for the ICAO ASBU Block 0 Modules (and its detailed elements) within the ICAO EUR Region (except for Tunisia) during the reporting year 2017.

The implementation progress information covers:

- Forty two States, plus three States where the information is included in another State's implementation progress information, that are part of the LSSIP mechanism;
- Nine 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 Traffic Management Group Eastern part of the ICAO EUR Region (ATMGE) meetings or during bilateral GANP ASBU implementation meetings.

It should be noted that in the context of a comprehensive agreement with EUROCONTROL, Israel joined the LSSIP process and reported their deployment situation in 2017 cycle using that mechanism.

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 ICAO European Air Navigation Planning Group (EANPG). 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.

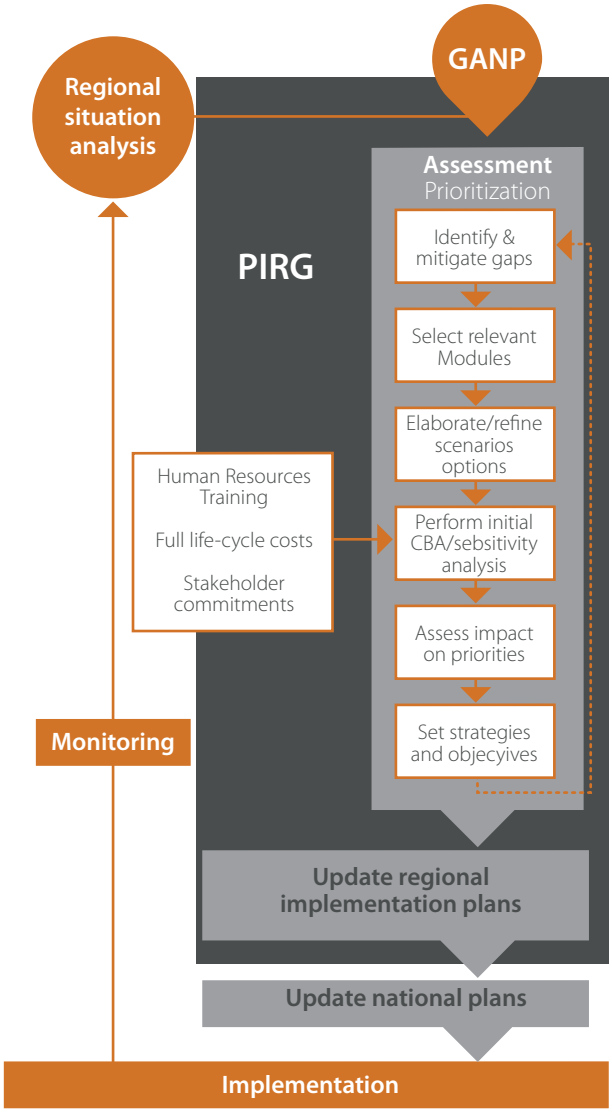


Fig 1 – Regional Planning

The ICAO/EUROCONTROL ASBU implementation monitoring report, which contains all information on the implementation process of the ASBU modules, is the key document for the EANPG to monitor and analyse the implementation within the 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 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 would address the initial high priority modules.

Pursuant to EANPG Conclusion 55/02a - the ASBU Block 0 Modules prioritisation table, as provided in Appendix G to EANPG/55 report, was endorsed as the initial version of the EUR ASBU Implementation Plan.

Pursuant to EANPG Conclusion 55/02b - the mechanism for monitoring and reporting the implementation status for ASBU of Priority 1 Modules, is using the combined efforts of EUROCONTROL LSSIP mechanism and the ICAO EUR questionnaire, in an effort to avoid duplication of reporting.

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 all 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 optimize 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 new (5th version) 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 calls upon States, planning and implementation regional groups (PIRGs), and the aviation industry to utilize the guidance provided in the GANP for planning and implementation activities which establish priorities, targets and indicators consistent with globally-harmonized objectives, taking into account operational needs. The 5th version of the Global Air Navigation Plan (2016-2030):

- Obliges States to map their national or regional programmes against the harmonized GANP, but provides them with far greater certainty of investment.
- Requires active collaboration among States through the PIRGs in order to coordinate initiatives within applicable regional Air Navigation Plans.
- Provides required tools for States and Regions to develop comprehensive business case analyses as they seek to realize their specific operational improvements.
- Provides a vision of the evolution of the Global ATM system and the potential requirements to industry, for better anticipation in its products.

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 Global Air Navigation Plan 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. The EANPG/58 finally endorsed the 2015 ICAO/EUROCONTROL ASBU implementation monitoring report with Statement 58/01.

Following the EANPG Conclusion 55/03, the ASBU Block O modules B0-WAKE, B0-AMET, B0-ASEP, B-OFPL and B0-CCO were not included into the monitoring report mechanisms. As some of these modules especially B0-CCO, which had become one of the key ICAO GANP priorities and its implementation was successfully completed in some States, or B0-AMET which is implemented by a number of States in the Region under the METG work programme objectives, the proposed inclusion of those two B0 modules into the implementation monitoring mechanisms for the 2016 reference period was supported by the meeting with EANPG Conclusion 58/22.

Furthermore, the EANPG/58 noted that the endorsed 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 and that relevant parts of the report will be used for the ICAO EUR eANP Vol III.

1.3 Scope of the report

This report addresses the deployment status, with reference date December 2017, for the defined ASBU Block 0 Modules.

The report is based, on one hand, on the information submitted by the 42 States which are participating in the LSSIP mechanism and on the other hand from the data which is reported in the ASBU implementation monitoring questionnaires for the 10 States within the ICAO EUR Region that are outside the LSSIP reporting mechanism. The questionnaire is fully aligned with the implementation objectives (formerly ESSIP objectives) and has been continuously updated and improved for every edition of the report.

In response to the EANPG59-RASG EUR/6 Conclusion /12, 9 States submitted their ASBU implementation questionnaire to either, the RDGE/28, the ATMGE/25 meeting, or directly to the ICAO EUR/NAT Office before the end of May 2018.

It must be highlighted that this report includes the updated progress/status of implementation of ASBU Block 0 modules (reference period 2017) for 54 out of 55 States that are accredited to the ICAO EUR Region. Only Tunisia did not send an updated questionnaire before the deadline, therefore the information from previous cycle (2016) was used for that State, as indicated in the figure below.

It must also be noted 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.

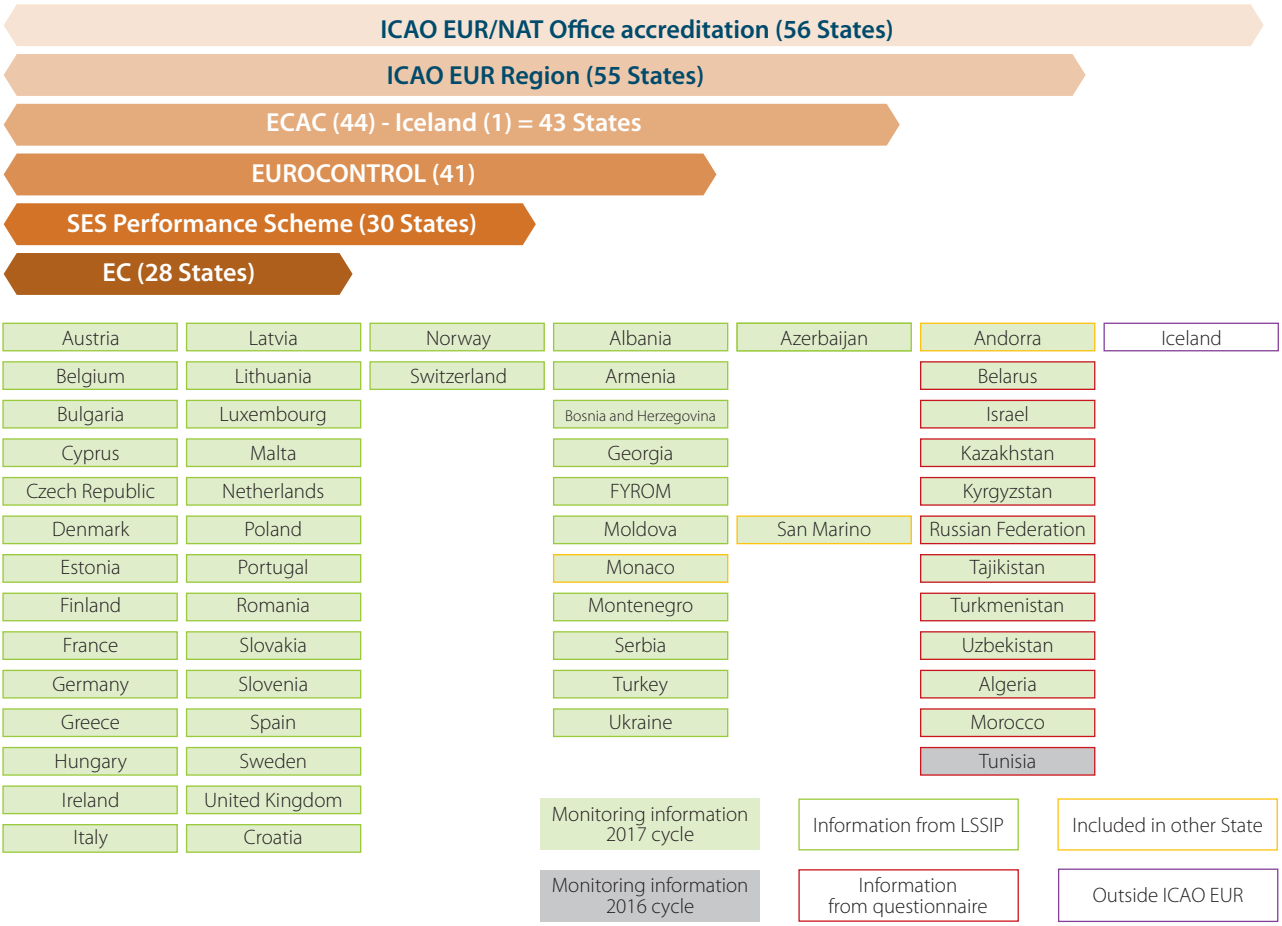


Fig 2 – Scope of the report

It must be noted that only Tunisia did not send updated monitoring information before the deadline, therefore the data from previous monitoring cycle (2016) was used for this report.

2. Methodology for data collection

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

1. The EUROCONTROL LSSIP mechanism that has been used by 42 States.

2. A questionnaire specifically targeted and designed for the remaining 10 States that are accredited to the ICAO EUR Region.

Both processes are briefly described in the paragraphs below.

To note that in the context of the SESAR Joint Undertaking (SJU) Programme a change in terminology was decided concerning some Master Plan related deliverables. The ESSIP Plan is now called "European ATM Master Plan Level 3 Implementation Plan" and the ESSIP Report changed to "Master Plan Level 3 Implementation Report". The scope and overall content of the deliverables remain the same.

In this ICAO Report the old terminology is sometimes used for continuity of previous reports and a better understanding of the context, giving due attention to those stakeholders outside the SJU framework that are not familiar with the new terminology.

Concerning the monitoring data related to B0-AMET, it should be noted that the information was prepared and derived from the ICAO Meteorology Group of the EANPG (METG).

2.1 LSSIP Process

EUROCONTROL LSSIP process is a robust mechanism to support Single European Sky (SES) and SESAR deployment planning and reporting. It covers 42 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, air navigation service providers 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 Web site: http://www.eurocontrol.int/articles/european-atm-master-plan-level-3-implementation-plan

2. Deployment reporting and monitoring at local (LSSIP documents) level Website: http://www.eurocontrol.int/articles/lssip

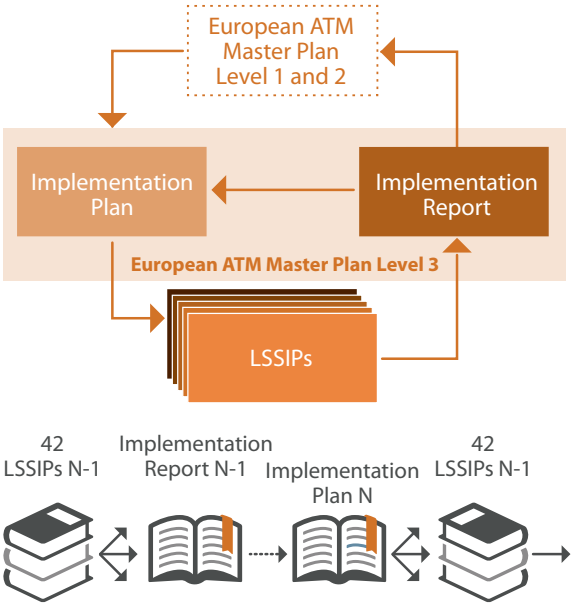
3. Deployment reporting and monitoring at European level: Master Plan Level 3 Implementation Report Web site: http://www.eurocontrol.int/articles/european-atm-master-plan-level-3-implementation-report

The European ATM Master Plan Level 3 Implementation Plan (formerly ESSIP Plan) and the Master Plan Level 3 Implementation Report (formerly ESSIP Report) together constitute the Level 3 of the ATM Master Plan as indicated in the picture.

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 every year.

The Master Plan Level 3 Implementation Report assesses the level of success in the implementation progress 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 it proposes remedial actions at network level. It is based on information gathered from the Local Single Sky ImPlementation (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 ASBU Questionnaire

With the objective to obtain monitoring information and facilitate the 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 send 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, that was used to collect data for this report. The following mapping of ASBU Block 0 modules and implementation Objectives was used:

ASBU Block 0 Priority1 Modules	Objective designator (ESSIP)	Other ASBU Block 0 Modules	Objective designator (ESSIP)
B0-ACAS	ATC16	B0-ACDM	AOP05
B0-APTA	NAV10 NAV03.1	B0-ASUR	ITY-SPI
B0-DATM	INF04 ITY-ADQ	B0-CCO	ENV03
B0-FICE	ATC17 ITY-COTR ITY-FMTP	B0-CDO	ENV01
B0-SNET	ATC02.2 ATC02.8	B0-FRTO	AOM19.1 AOM21.1
B0-SURF	AOP04.1 AOP04.2	B0-NOPS	FCM01 FCM03
-	-	B0-RSEQ	ATC07.1 ATC15.1
-	-	B0-TBO	ITY-AGDL
-	-	B0-AMET	-

The ASBU Implementation monitoring questionnaire is available from the following site:

https://www.eurocontrol.int/sites/default/files/content/documents/official-documents/guidance/2017-icao-questionnaire.pdf

This questionnaire indicates for each module a number of relevant actions defining the activities required to implement the concerning Module. The list of relevant actions is not exhaustive but they are fully aligned with related implementation objectives and additional information related to those actions can be found in the European ATM Master Plan Level 3 Implementation Plan.

The questionnaire includes 4 Annexes aimed at helping the State to better understand the scope of reporting and related activities:

I. Annex A presents the guidance on how to determine the progress of each Module.

II. Annex B contains the detailed description of relevant actions for Priority 1 Modules.

III. Annex C includes the detailed description of relevant actions for Other Block 0 Modules.

IV. Annex D contains a list of useful links and reference material with additional information on deployment of the activities.

The EANPG/59 invited States to use the revised ATMGE State Report format with the updated questionnaire and requested all States to provide their ASBU implementation data to the ATMGE/25 meeting in April 2018, so that the 2017 version of the ASBU implementation monitoring report could be presented at EANPG/60 in November 2018.

3. Deployment planning view

The ICAO Block Upgrades refer to the target availability timelines for a group of operational improvements (technologies and procedures) that will eventually realize a fully-harmonized global Air Navigation System. The technologies and procedures for each Block have been organized into unique Modules which have been determined and cross-referenced based on the specific Performance Improvement Area to which they relate.

Block 0 Modules are characterized by operational improvements which have already been developed and implemented in many parts of the world. It therefore has a near-term implementation period of 2013–2018, whereby 2013 refers to the availability of all components of its particular performance modules and 2018 refers to the target implementation date. ICAO will be working with its Member States to help each determine exactly which capabilities they should have in place based on their unique operational requirements.

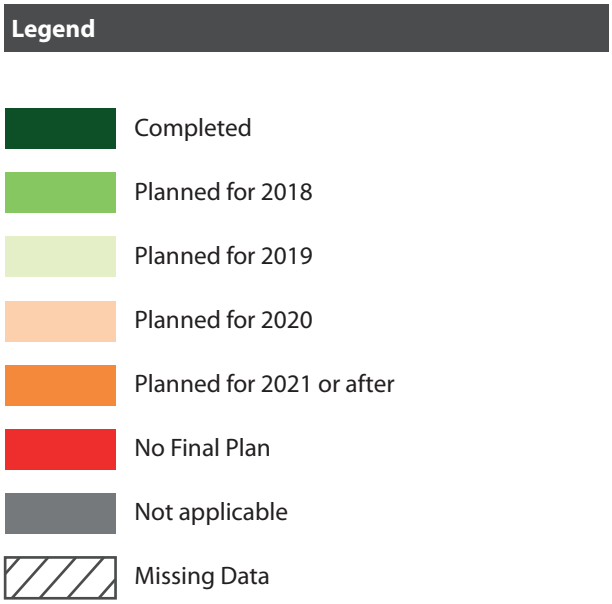
Based on the milestone framework established under the overall Block Upgrade strategy, ICAO Member States are encouraged to implement those Block 0 Modules applicable to their specific operational needs.

This chapter of the report gives an overview, mainly in the form of maps and statistics, of the dates when States plan to conclude, or have already completed, each of the ASBU Module Block 0.

The information contained in the maps was extracted from the reported implementation plans and progress taken from the LSSIP database and from the ASBU questionnaire of the State Report. The date indicated is the one corresponding to the implementation of the last activity of the questionnaire or of the implementation objective(s), required to fully complete the deployment of the ASBU. In case a State has more than one airport in the applicability area, the planning date retained is the one corresponding to the latest airport implementing the activity.

In a few cases, when some activities were indicated as "No Plan", the overall assessment date for the completion of the related ASBU module could not be done and therefore it had to be considered as "No Plan".

The following colour scheme is used:



It must be noted that "Missing Data" means that a final date for completion of all the activities related to the ASBU Module was not provided even if in some cases the status (Completed, Ongoing, Planned, etc) was indicated by the State.

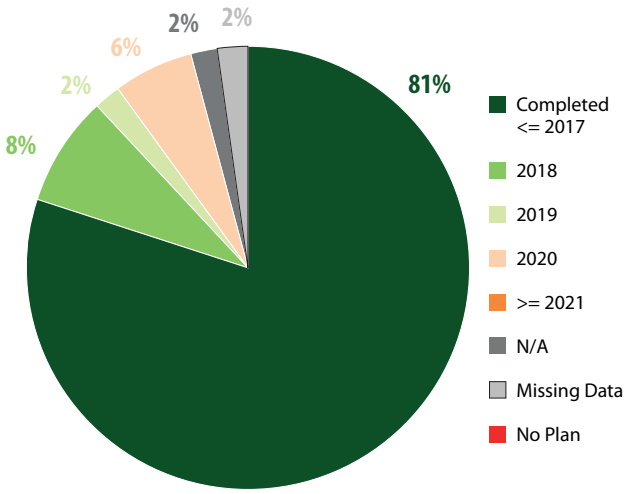
It must also be noted that the status of "Not applicable" is used when an operational improvement or system is not seen as necessary or beneficial within a State and therefore can be considered as equivalent to a "Completed" status.

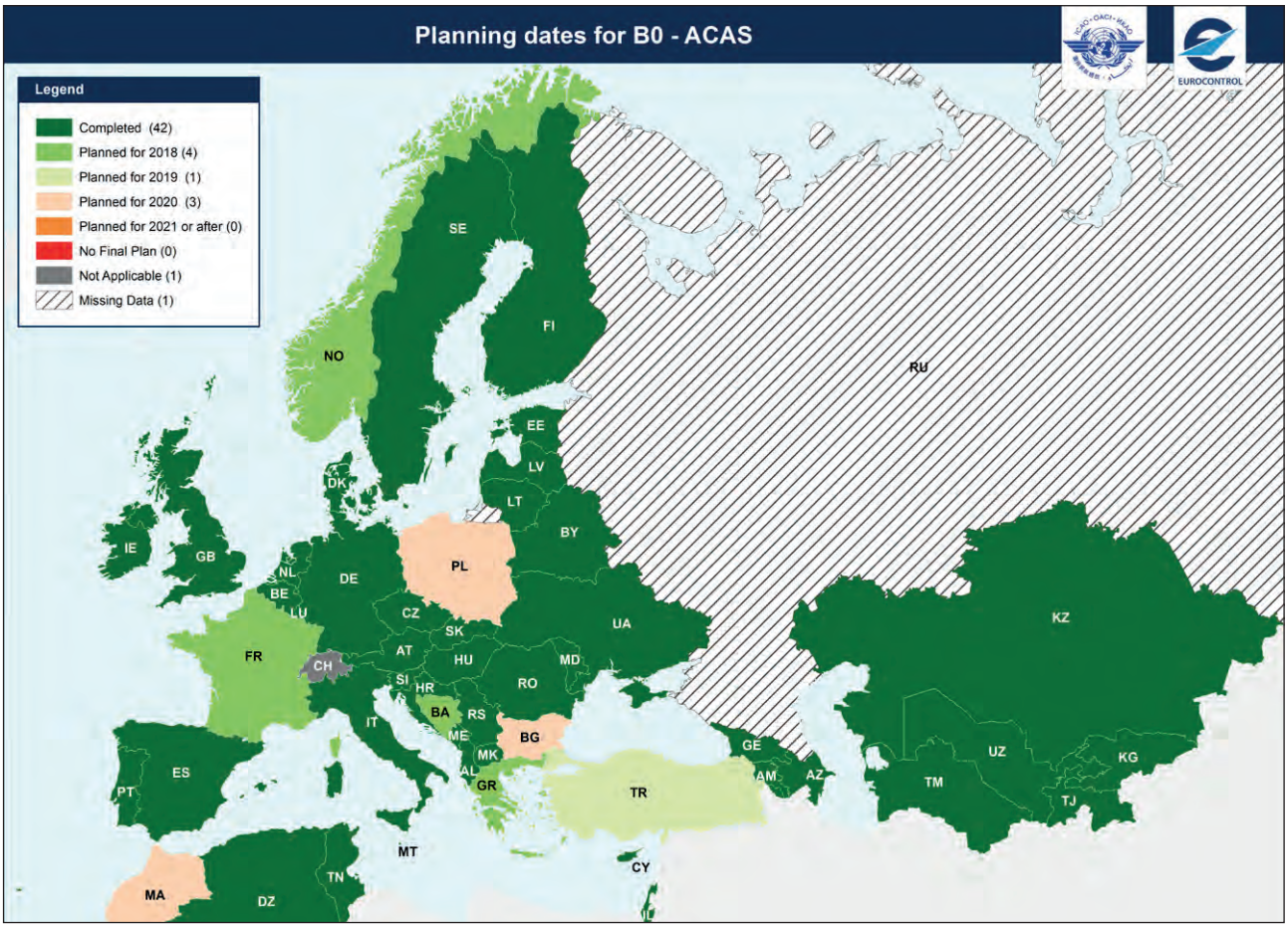
3.1 B0-ACAS

This module is about ACAS Improvements, provision of short term improvements to existing airborne collision avoidance systems (ACAS) in order to reduce nuisance alerts while maintaining existing levels of safety. This will reduce trajectory perturbation and increase safety in cases where there is a breakdown of separation.

The pictures indicate the implementation progress statistics (52 States), the correspondant status and planning dates for B0-ACAS.

The **progress of B0-ACAS is excellent** and keeps the same trend of evolution as in previous cycles. In the current reporting cycle there was an increase of 8% in completion. We have reached 81% of implementation and by 2019 about 91% of States are expected to have completed this module.



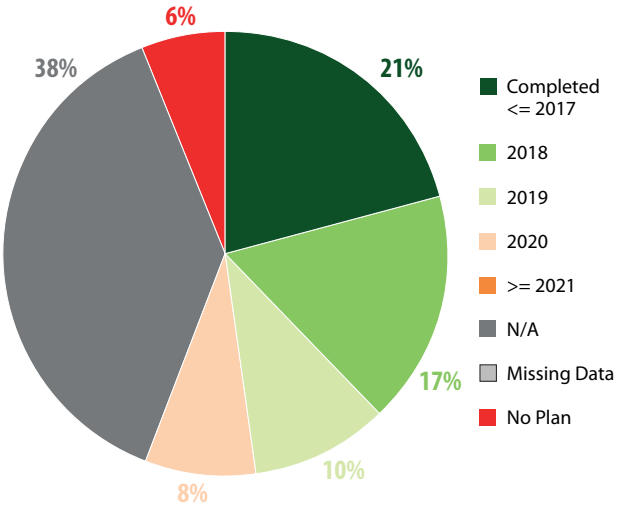


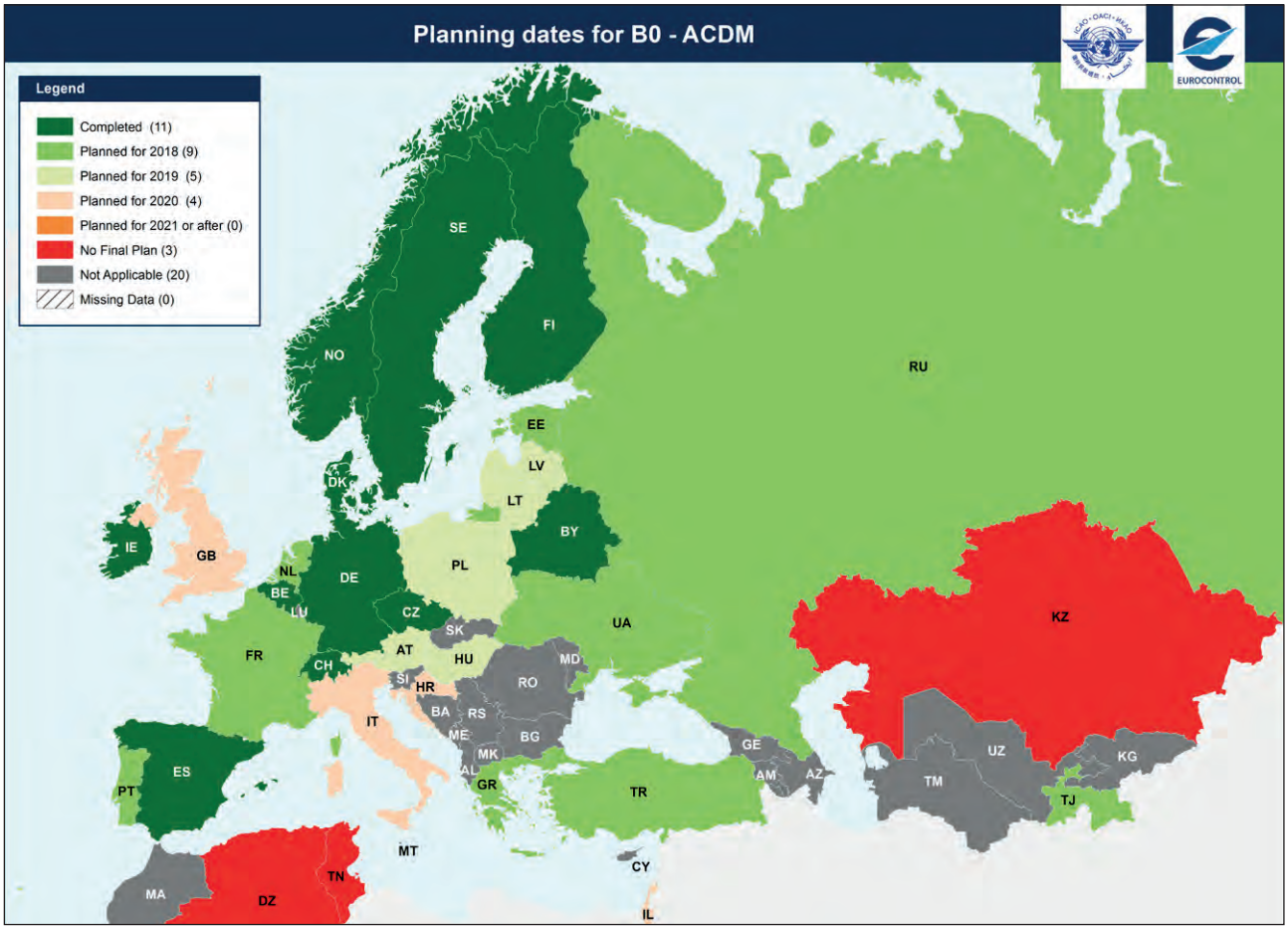
3.1 B0-ACDM

Improved Airport Operations through Airport-CDM and consists on Airport operational improvements through the way operational partners at airports work together.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-ACDM.

The overall progress up to 2017 can be **considered slow**, however when compared to the previous cycle there was an increase of 5% of States completed. Significant evolution is expected in 2018 (17%) and 2019 (10%). It must be noted that for 38% of States the B0-ACDM module is reported as "Not Applicable".





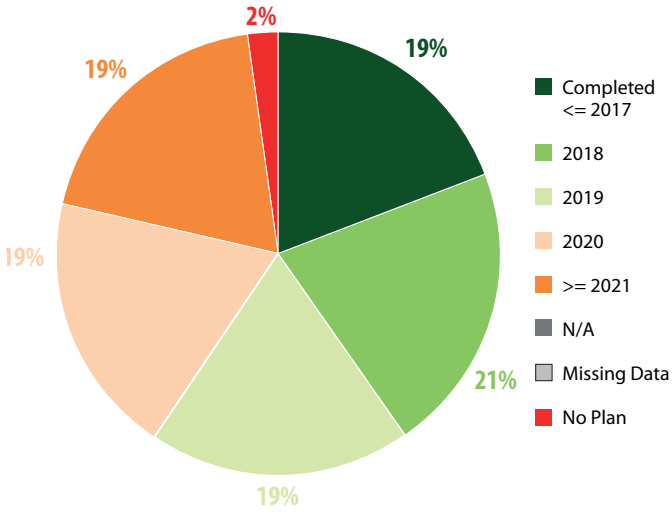
3.3 B0-APTA

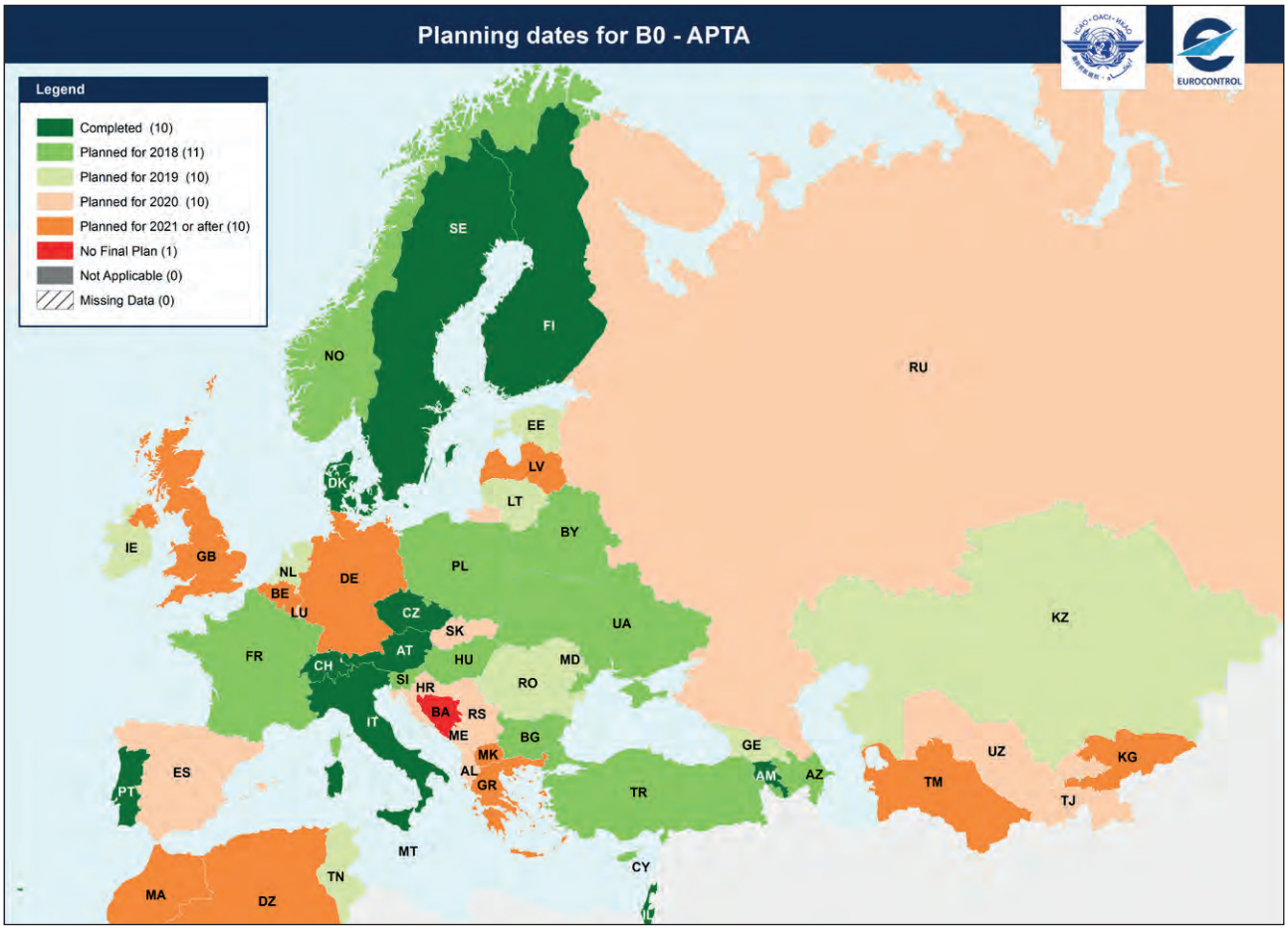
Optimization of Approach Procedures including vertical guidance.

This module is about the first step towards universal implementation of GNSS-based approaches.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-APTA.

The progress for B0-APTA **remains slow (19% Completed)** without evolution from previous cycle. However for the next two cycles it is expected an average of 20% increase per year, in accordance with the plans indicated by States.





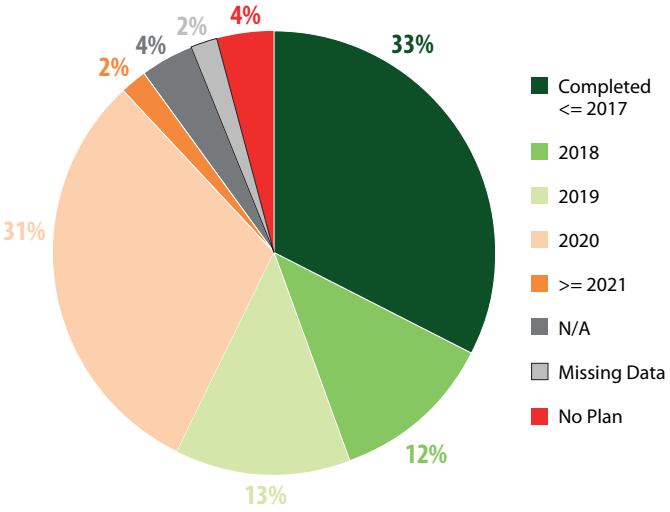
3.4 B0-ASUR

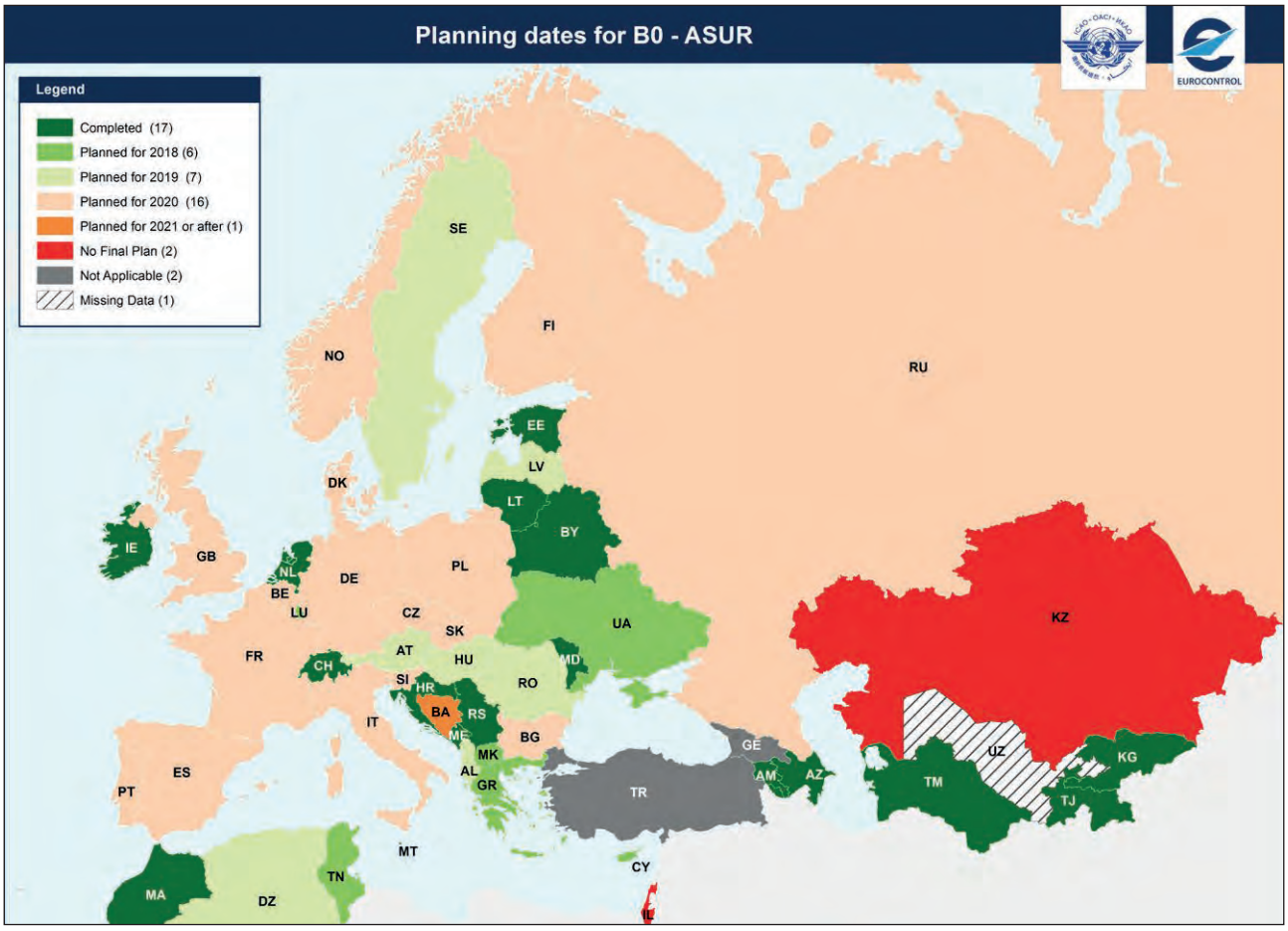
It addresses initial Capability for Ground Surveillance.

Ground surveillance supported by ADS-B OUT and/or wide area multilateration systems will improve safety, especially search and rescue and capacity through separation reductions. This capability will be expressed in various ATM services, e.g., traffic information, search and rescue and separation provision.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-ASUR.

This module is **progressing relatively well (33%)**, even though there was only an increase of 2% when compared to the previous cycle. It must be noted that by the end of 2020 an implementation of about 89% can be expected.





3.5 B0-CCO

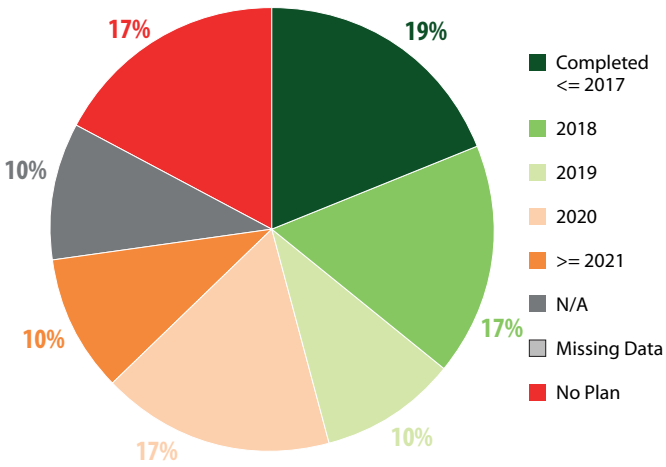
This module is about improved flexibility and efficiency in departure profiles - continuous climb operations (CCO).

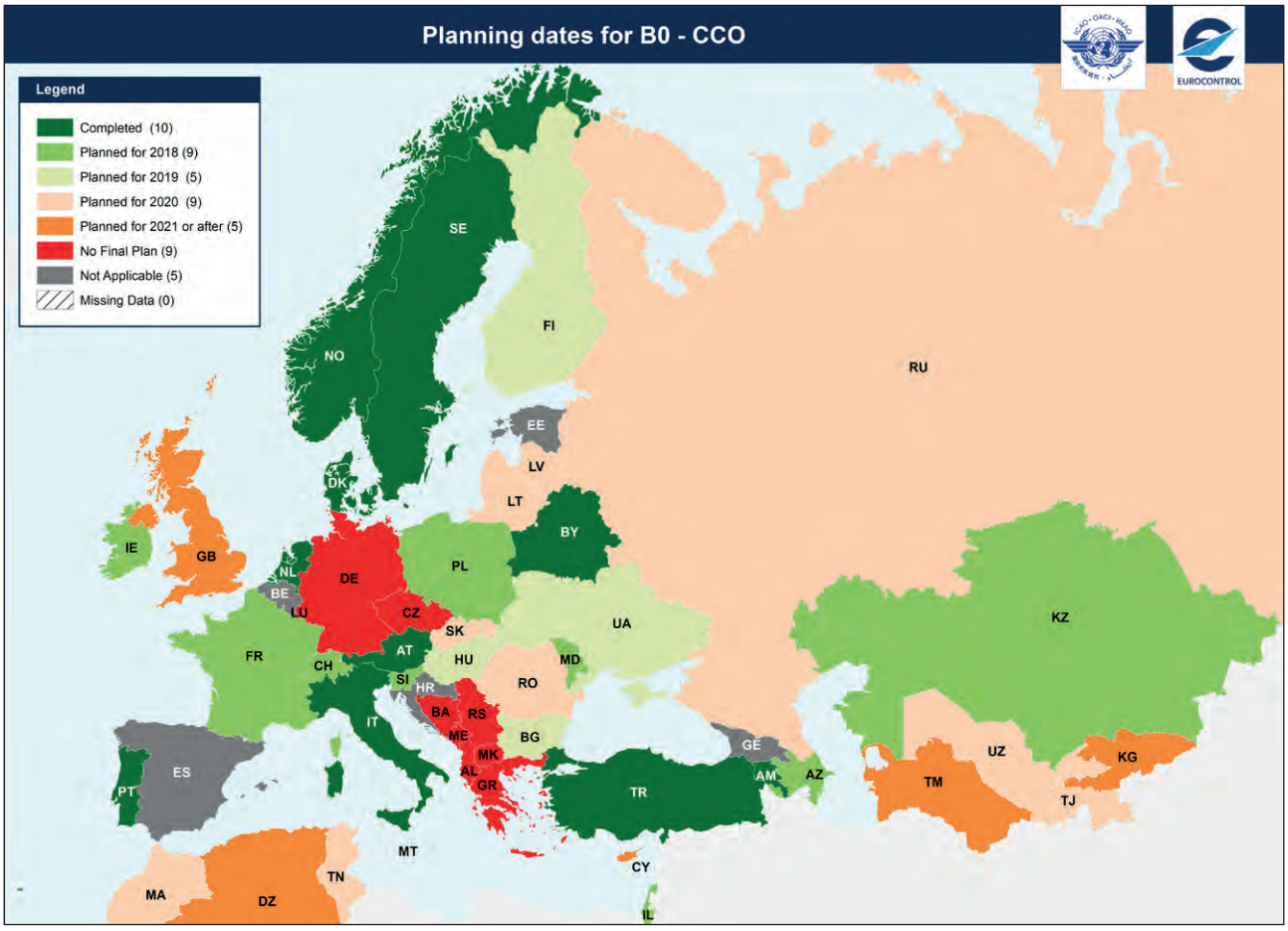
It consists in the deployment of departure procedures that allow an aircraft to fly its optimum aircraft profile taking account of airspace and traffic complexity with continuous climb operations.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-CCO.

A **slow progress for B0-CCO (19%)** with only 2% increase when compared to the previous cycle, however an important increase is expected by 2018 (17%).

It must be noted that 10% of States declared this module as "Not applicable" and 17% have no final Plan yet.





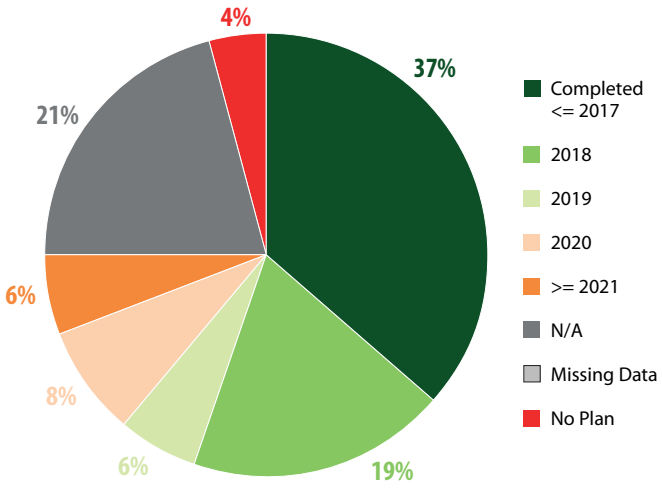
3.6 B0-CDO

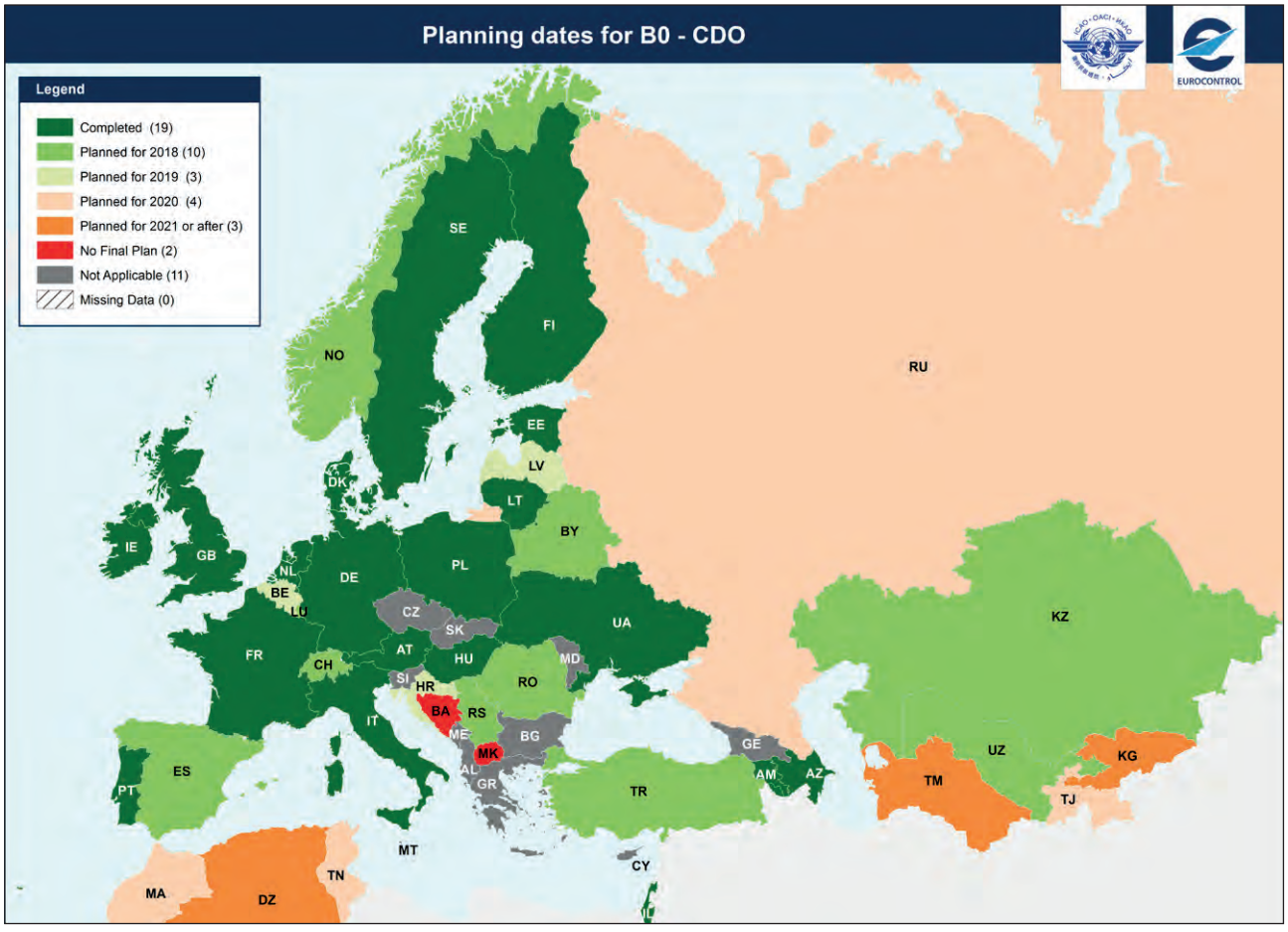
This module covers Improved Flexibility and Efficiency in Descent Profiles (CDO).

It is about the deployment of performance-based airspace and arrival procedures that allow the aircraft to fly its optimum aircraft profile taking account of airspace and traffic complexity with continuous descent operations (CDOs).

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-CDO.

The progress up to 2017 can be considered good with 37% completed, an increase of 4% when compared with the previous cycle. It must be noted that for 21% of States the B0-CDO module is reported as "**Not applicable**".





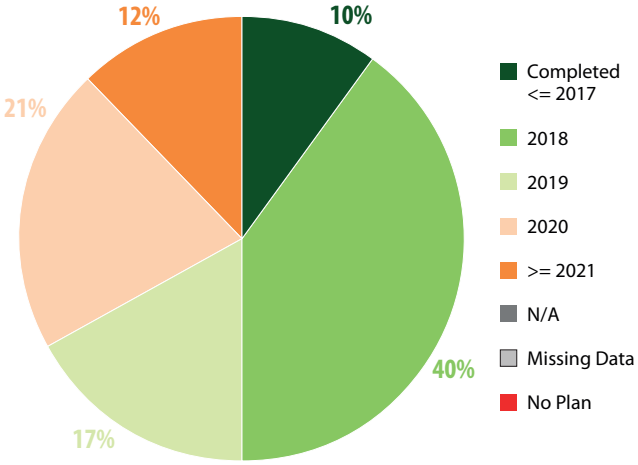
3.7 B0-DATM

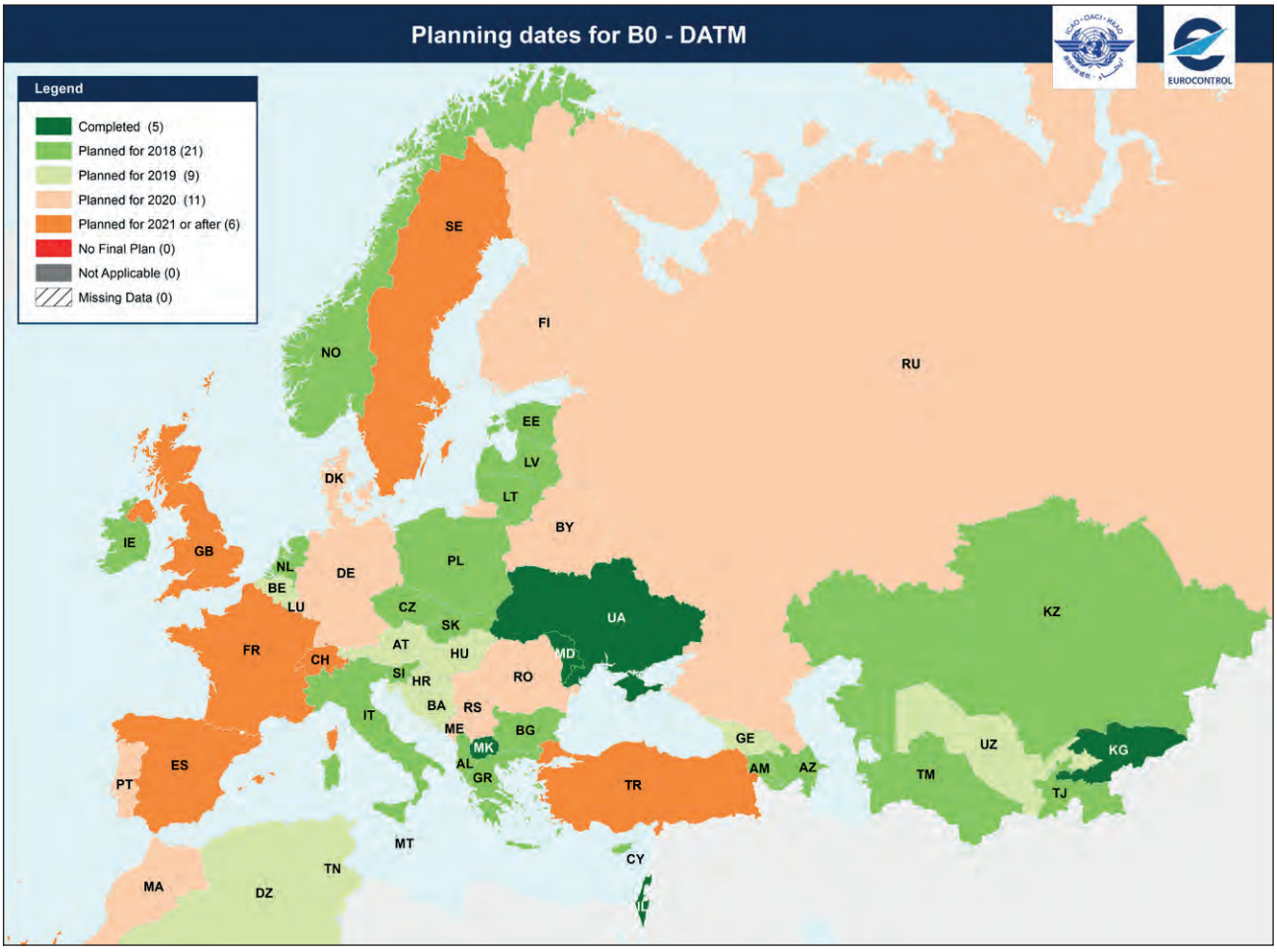
This module is about Service Improvement through Digital Aeronautical Information Management.

It concerns initial introduction of digital processing and management of information, by the implementation of AIS/AIM making use of AIXM, moving to electronic AIP and better quality and availability of data.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-DATM.

Progress of B0-DATM is **extremely slow** and there was **no evolution** in the current reporting period. The completion rate remains at 10%, however by 2018 an increase of 40% of completed implementation can be expected.





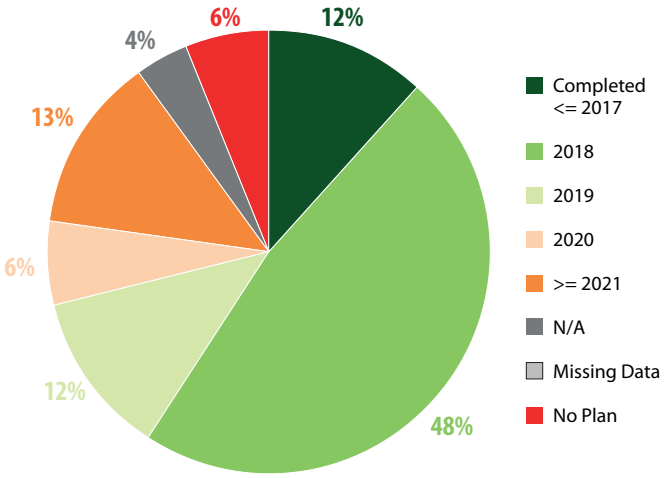
3.8 B0-FICE

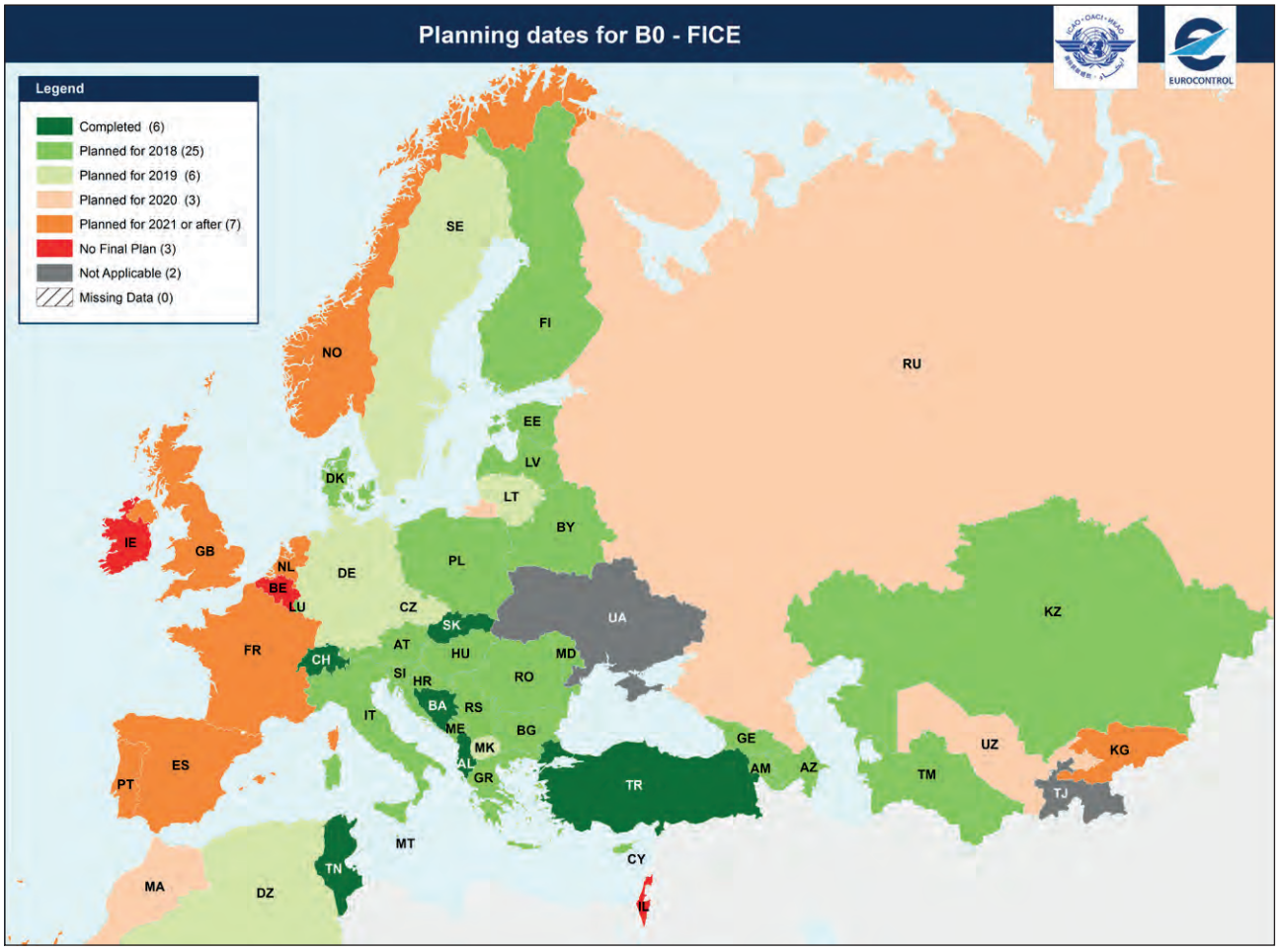
This module concerns increased Interoperability, Efficiency and Capacity through Ground- Ground Integration

It supports the coordination of ground-ground data communication between ATSU based on ATS Inter-facility Data Communication (AIDC) defined by ICAO Document 9694.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-FICE.

Progress of B0-FICE remains slow, there was an increase of 2% in progress when compared to previous cycle. However, by 2018 a significant evolution can be expected with an increase of 48% of completed implementation.



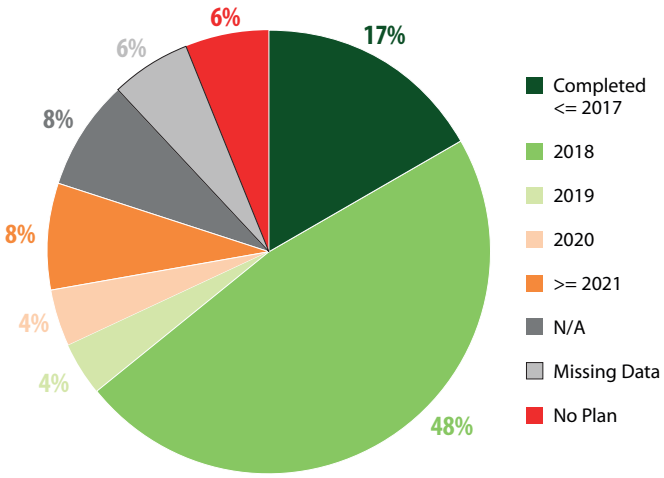


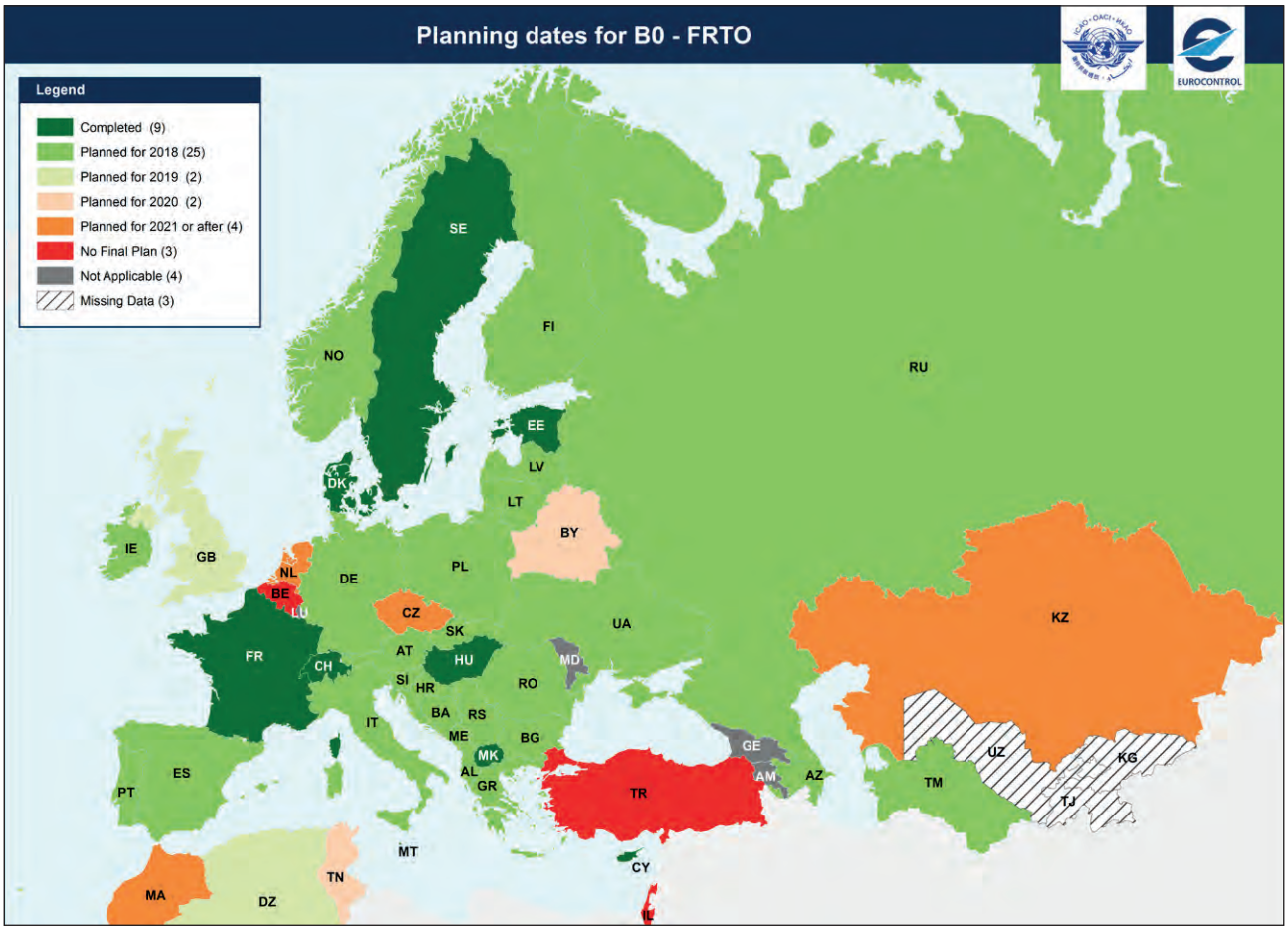
3.9 B0-FRTO

Improved Operations through Enhanced En-Route Trajectories in order to allow the use of airspace which would otherwise be segregated (i.e. Military airspace) along with flexible routing adjusted for specific traffic patterns. This will permit greater routing possibilities, reducing potential congestion on trunk routes and busy crossing points, resulting in reduced flight length and fuel burn.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-FRTO.

Slow progress up to now with only 17% of completion rate with an increase of 5% when compared to the previous cycle. An **important improvement can be** expected by 2018 where 48% of States foresee to complete the implementation.





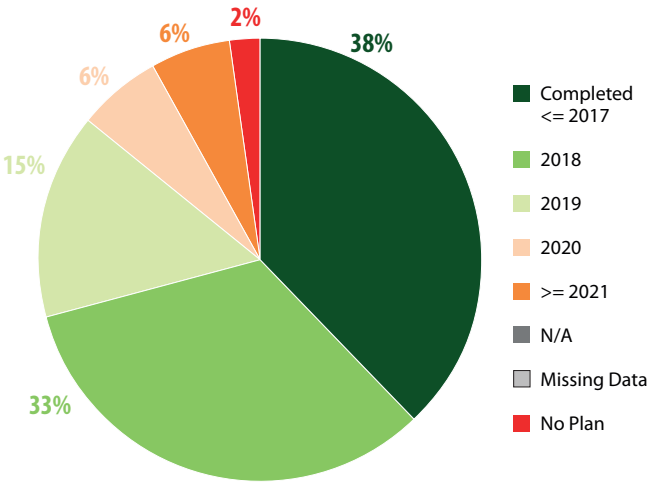
3.10 B0-NOPS

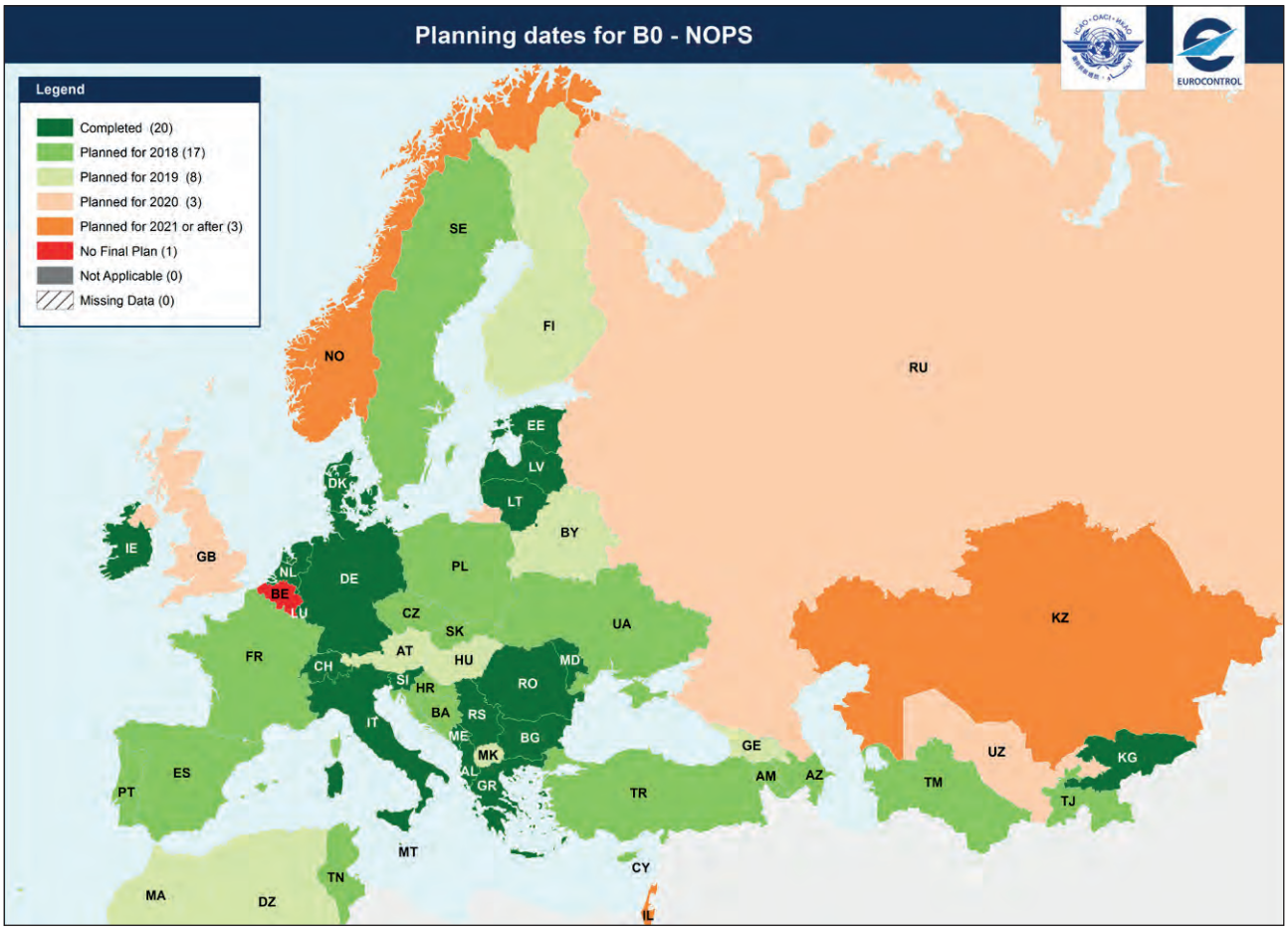
This module is about improved Flow Performance through Planning based on a Network- Wide view.

It includes collaborative ATFM measure to regulate peak flows involving departure slots, managed rate of entry into a given piece of airspace for traffic along a certain axis, requested time at a way-point or an FIR/sector boundary along the flight, use of miles-in-trail to smooth flows along a certain traffic axis and re-routing of traffic to avoid saturated areas.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-NOPS.

This module showed an important evolution from last year with **an increase of 13% in the implementation rate. For 2018 the outlook is**, as well, **very good** with a planned implementation rate of **33%**.



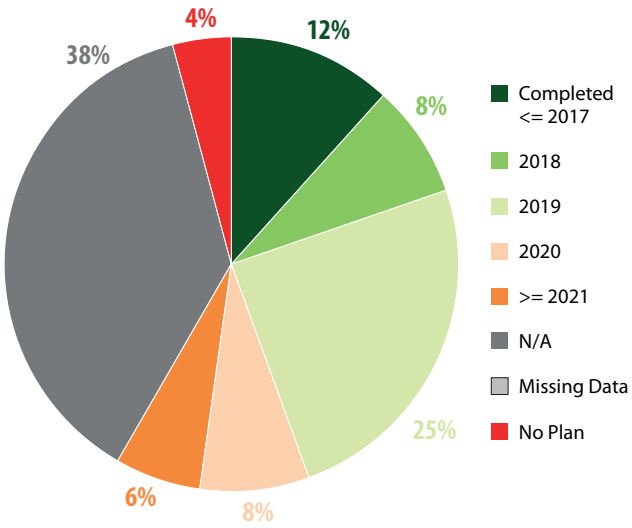


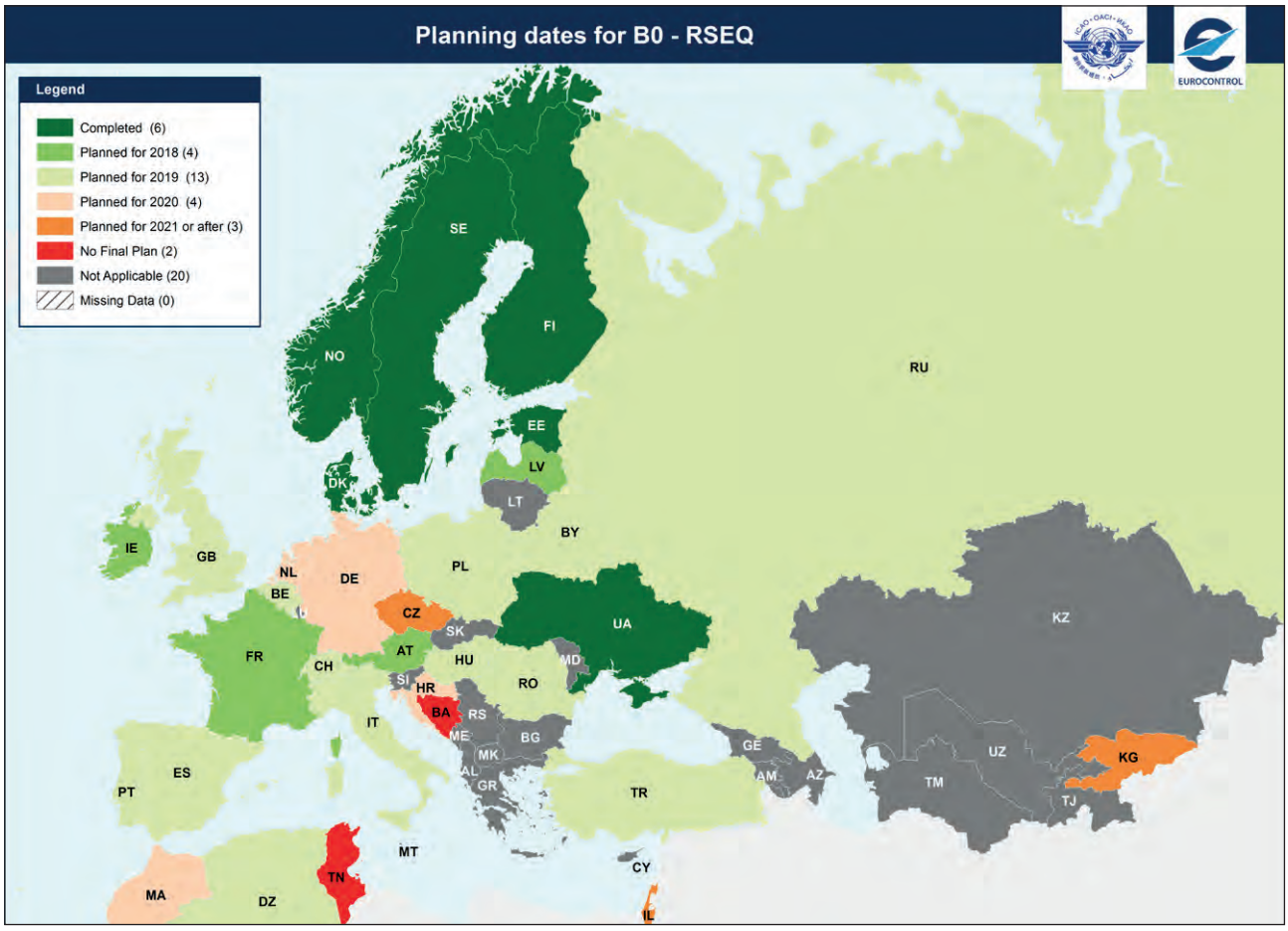
3.11 B0-RSEQ

This module is about improved Traffic Flow through Runway Sequencing (AMAN/DMAN) and time-based metering to sequence departing and arriving flights.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-RSEQ.

The **progress is very slow** with only **12% completed**, an increase of 2% when compared to the previous cycle. By 2020 a significant progress can be expected with 25% increase in implementation. It must be noted that for **38% of States** the B0-RSEQ module is reported as "**Not Applicable**".



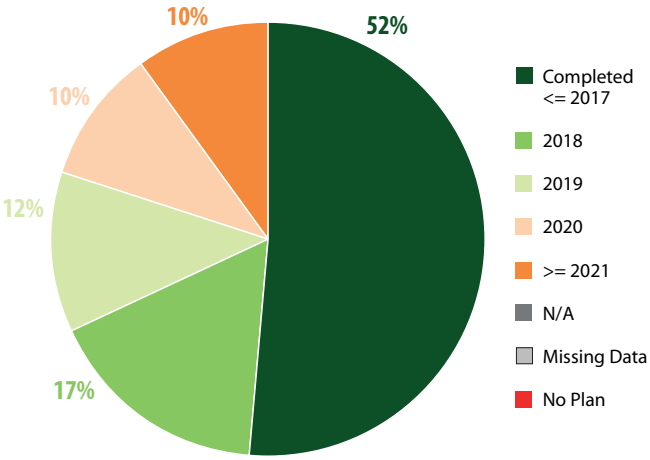


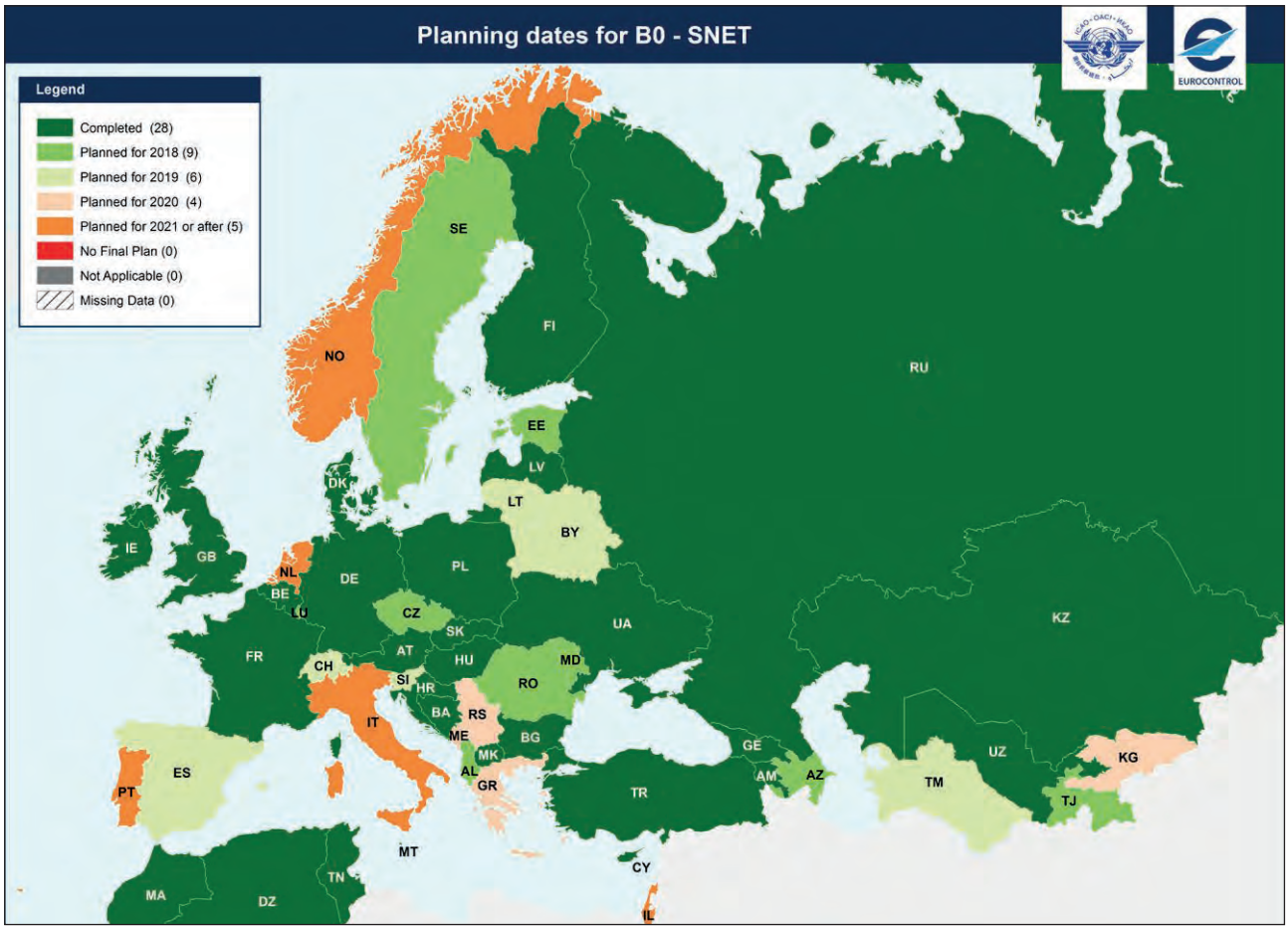
3.12 B0-SNET

It concerns "Increased Effectiveness of Ground-based Safety Nets". This module provides improvements to the effectiveness of the ground-based safety nets assisting the Air Traffic Controller and generating in a timely manner, alerts of proximity warning and minimum safe altitude.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-SNET.

The overall **implementation of B0-SNET is very good with 52% achieved** and a progress of 10% when compared to the previous cycle. **By the end of 2020 about 90%** of States are expected to have the implementation of this module completed.



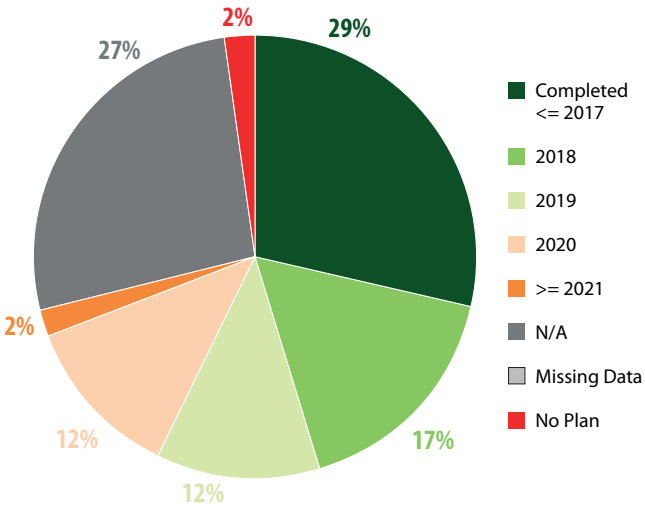


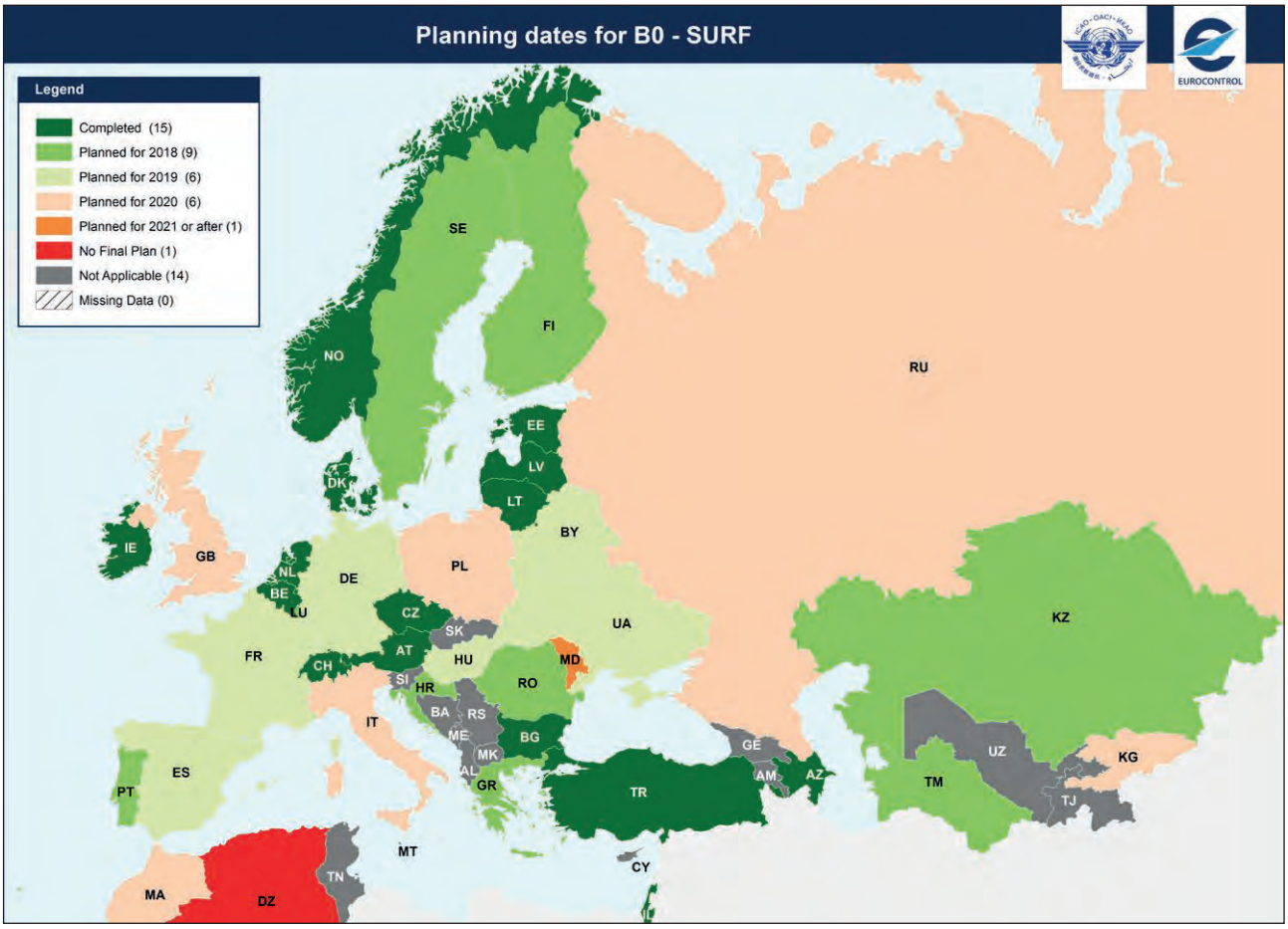
3.13 B0-SURF

This module is about Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2) and Airport surface surveillance for ANSP.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-SURF.

About **29% of States are "Completed"**, an increase of 2% when compared with previous cycle. The implementation progress up to now can be considered as relatively slow. It must be noted that for **27% of States** the B0-SURF module is reported as "**Not Applicable**".





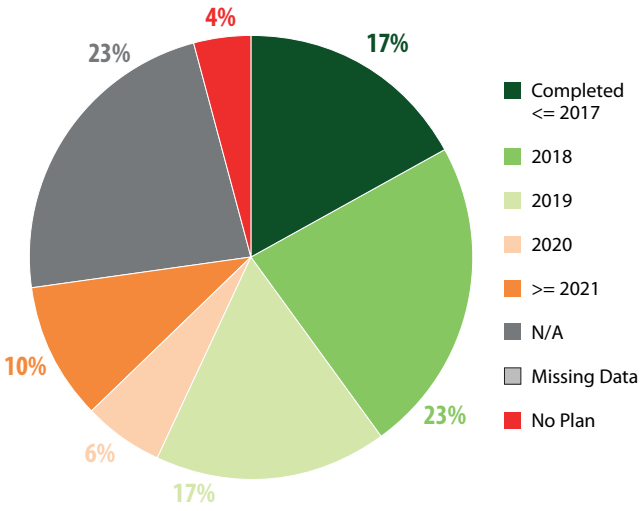
3.14 B0-TBO

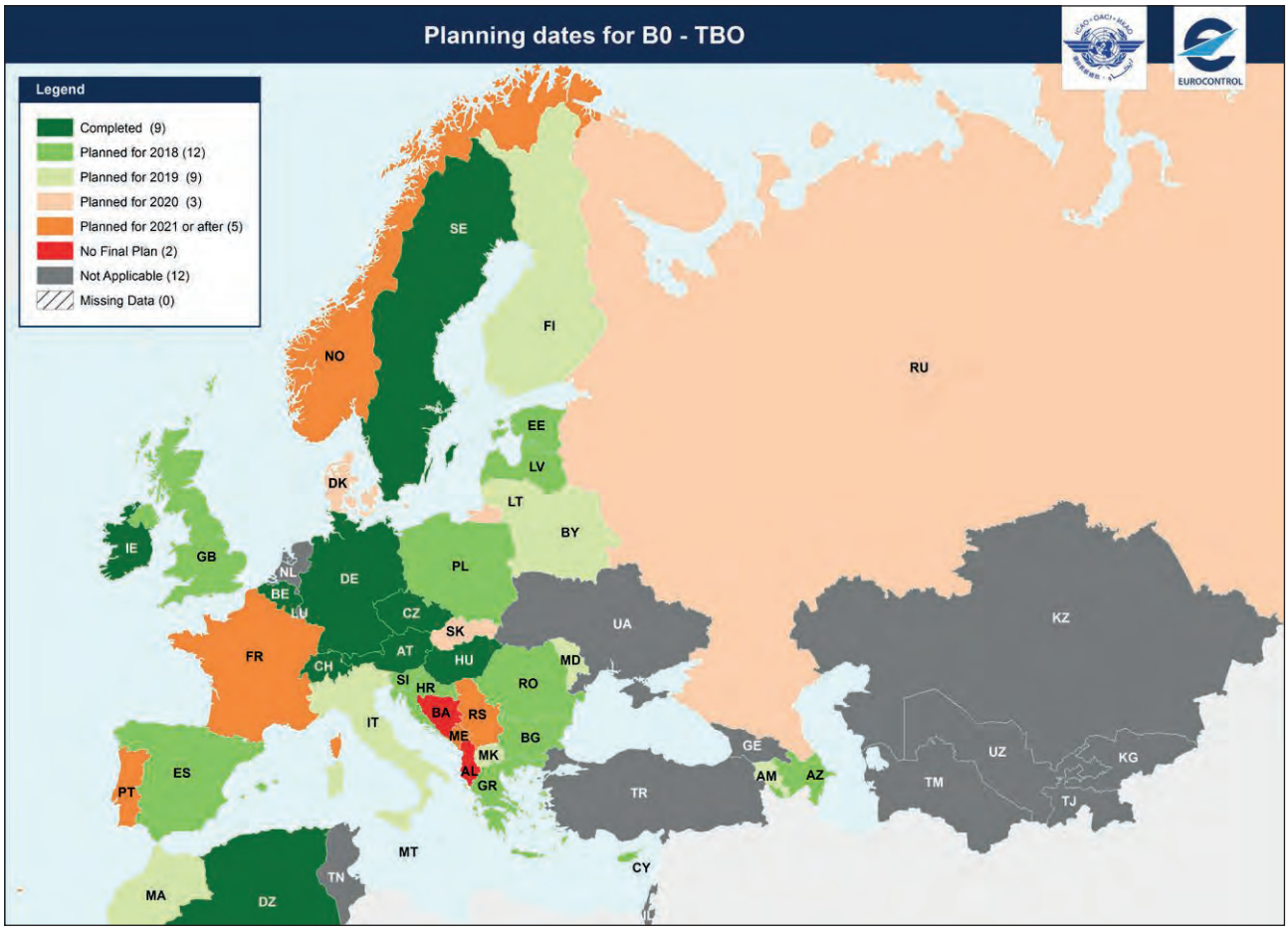
This module is about Improved Safety and Efficiency through the initial application of Data Link En-Route.

Implementation of an initial set of data link applications for surveillance and communications in ATC.

The pictures indicate the implementation progress statistics, the correspondant status and planning dates for B0-TBO.

A **slow progress for B0-TBO (17%)** with an increase of 2% when compared with the previous cycle. However an important increase in progress can be expected for 2018 (23%). It must be noted that **23%** of States declared that this module is "**Not applicable**".





4. Implementation progress view

This chapter presents a global view (in the form of a map) of the implementation Status for all ICAO EUR States concerning the implementation objectives linked to each ASBU module (see Chapter 2).

For those States that are part of the LSSIP mechanism, including Israel, the data taken as reference to prepare the maps was extracted from the LSSIP database for the cycle 2016. For the remaining 9 States, not included in that mechanism, data was extracted from the questionnaire mentioned in chapter 2. For Tunisia, which did not submit the questionnaire, the data from the 2016 cycle was retained.

It must be noted that Israel joined the LSSIP process in the current cycle but the overall deployment view assessment does not include this fact, therefore the current status and progress have been indicated separatly.

In addition to the global Implementation Status, this chapter also addresses the evolution of progress achieved from previous reporting cycles, for each objective and for those States inside the LSSP mechanism. Concerning the other remaining 10 States there is only an indication of the current progress status.

For airport related objectives, namely AOP04.1, AOP04.2, AOP05, ATC07.1, ENV01 and ENV03, maps contain detailed progress information for each airport in the applicability area. However when the State has reported the same status for all airports, this status is indicated in the map at States level only. The purpose is to simplify the representation and provide better readability of the maps.

For States outside the LSSIP mechanism, progress is indicated overall at State level because the same level of detailed information per airport is not available.

More information about States in LSSIP mechanism is available at the EUROCONTROL web site where it is possible to consult the LSSIP documents containing generic and detailed progress data for each individual State:

http://www.eurocontrol.int/articles/lssip

Explanation of the Progress Reporting

The following colour scheme is used in the maps for the assessment of progress of each implementation objective and for each ICAO State.

- Completed
- Ongoing
- Planned
- Late
- No Plan
- Not Applicable
- Missing Data

Definitions of **individual progress** have been defined as follows:

"PROGRESS"	"PROGRESS" DEFINITION
COMPLETED (100%)	The development or improvement aimed by a Stakeholder Lines of Actions (SLoA), by the Objective or at Stakeholder level is reportedly fulfilled (it is either in operational use or there is reported on-going compliance by the stakeholder(s) as applicable).
ONGOING (1-99%)	Implementation is reported on-going, however not yet fully completed: • Most of the Local Action(s) (LAs) or SLoAs are completed or implemented, but the aimed development or improvement is not yet operational; or • The development or improvement aimed through this SLoA is operational, but compliance with the applicable requirements or specifications is only partially achieved.
PLANNED (0%)	A planned schedule and proper (approved and committed budgeted) actions are specified within the agreed date for completion but implementation has not yet kicked off.
LATE (0-99%)	• Part or all of the actions leading to completion (of a SLoA or at Stakeholder or State level) are "Planned" to be achieved after the Implementation target date; or • The implementation is ongoing but will be achieved later than that date; or • The target date is already exceeded.
NO PLAN	1) The Stakeholder has not yet defined a project plan with assigned financial and human resources but has the intention to implement it; 2) The Stakeholder can not develop a project plan with relevant financial or human resources for the implementation due, for instance, to austerity measures but has the general intention to implement it; 3) The Stakeholder is in the scoping phase where he is developing a feasibility study including a cost benefit analysis and therefore has not yet started the project plan definition.
NOT APPLICABLE	The SLoA or Objective is found to be not applicable for this Stakeholder or State. It must also be noted that the status of "Not applicable" is used when an operational improvement or system is not seen as necessary or beneficial within a State and therefore can be considered as equivalent to a "Completed" status.
MISSING DATA	Lack of data from a Stakeholder makes it impossible to define "Progress", for a SLoA, Stakeholder or State.

Definitions of **Implementation Progress for the States in the ESSIP/LSSIP mechanism** have been defined as follows:

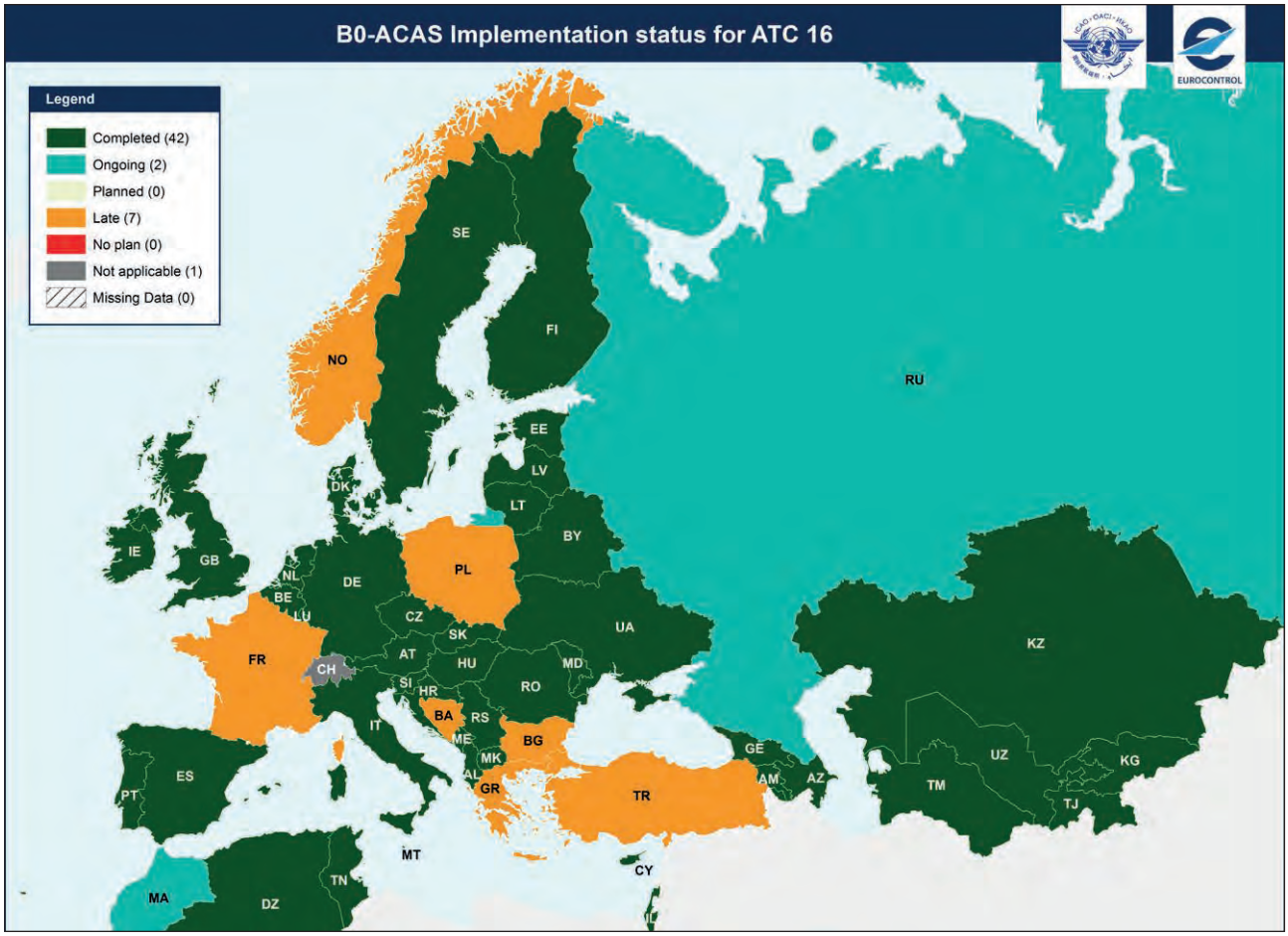
FOC - Full Operational Capability date as defined in the European ATM Master Plan Level 3 Implementation Plan Edition 2017. The FOC date is defined as the date by which full operational capability should be achieved by all stakeholders.

Estimated achievement – The date of estimated achievement is calculated as the year when objective implementation reaches 80% of completion in the applicability area.

STATUS	PROGRESS ASSESSMENT
ON TIME	Implementation progress is on time. No delays expected.
RISK OF DELAY	The estimated achievement date is in line with the FOC date, but there are risks which could jeopardise timely implementation of the implementation objective.
PLANNED DELAY	The estimated achievement date is beyond the FOC date. Stakeholders already envisage delays in implementation. FOC date is still in the future, some corrective measures can still be taken to achieve the objective in line with its FOC date.
LATE	The estimated achievement date is beyond the FOC date and the FOC date is in the past.
ACHIEVED	Objective has fulfilled the achievement criteria (80% completion in the applicability area). For some objectives (PCP/SES/ICAO ASBU related) the objective may be monitored until 100% achievement.
CLOSED	Objective can be declared as closed because it is replaced or renamed, or it is considered as no longer relevant nor contribution to the European ATM Network Performance.

4.1 B0-ACAS

ACAS IMPROVEMENTS	
ATC16	Implement ACAS II compliant with TCAS II change 7.1

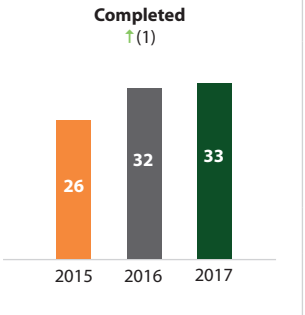


1. Progress for States in the LSSIP mechanism

The objective ATC16 reached 80% of achievement in the applicability area and was declared closed after the 2015 cycle. However those States that have not yet completed their activities were requested to update their progress in the LSSIP Database, for ICAO Monitoring purposes.

The following table is a summary of progress achieved in 2015, 2016 and 2017.

Status	2015	2016	2017
Completed	26 (AL, AT, AZ, HR, CY, CZ, DK, EE, FI, GE, DE, HU, IE, IT, LV, LT, LU, MT, MD, ME, NL, PT, RO, RS, SK, SI)	32 (AL, AM, AT, AZ, BE, HR, CY, CZ, DK, EE, FI, FYROM, GE, DE, HU, IE, IT, LV, LT, LU, MT, MD, ME, NL, PT, RO, RS, SK, SI, ES, SE, UK)	33 (AL, AM, AT, AZ, BE, HR, CY, CZ, DK, EE, FI, FYROM, GE, DE, HU, IE, IT, LV, LT, LU, MT, MD, ME, NL, PT, RO, RS, SK, SI, ES, SE, UA, UK)
Ongoing*	3 (ES, SE, CH)	1 (CH)	-
Late	12 (AM, BE, BA, BG, FR, FYROM, GR, NO, PL, TR, UA, UK)	8 (BA, BG, FR, GR, NO, PL, TR, UA)	7 (BA, BG, FR, GR, NO, PL, TR, UA)



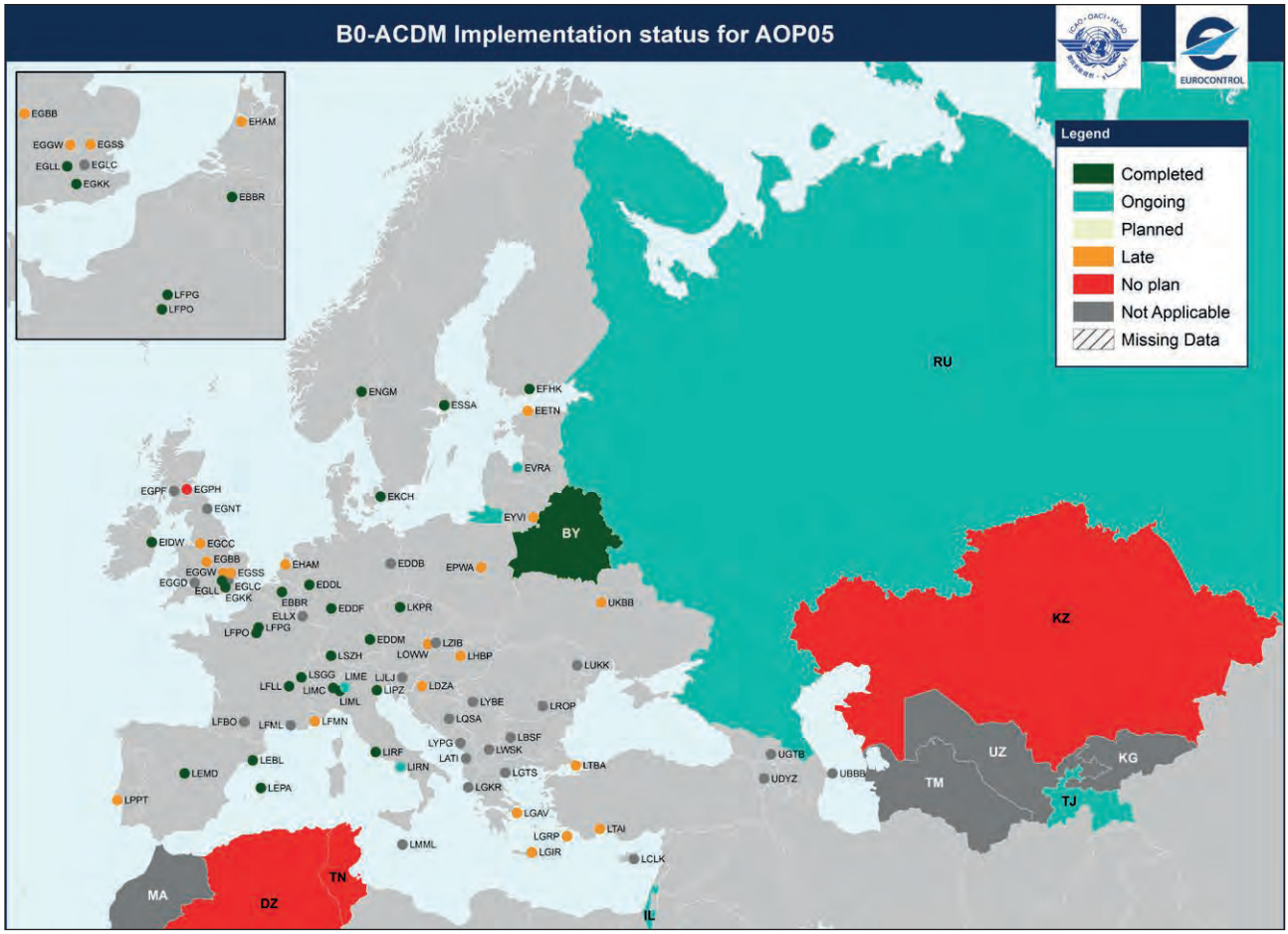
Israel	All Israeli air carriers engaged in commercial int'l air operations are equipped with TCAS II version 7.1, excluding 1 aircraft which is in equipage process.	Completed 06/2017

2. Status for remaining States

Algeria	Completed	Completed 12/2017
Belarus	Aircraft operators provide regular training for flight crew members based on the training programmes designed for flights with TCAS II version 7.1 (Operations Manual, Part D, Annex 5) approved by the Department of Aviation. Flight procedures using TCAS II version 7.1 (Operations Manual, Part A, Item 17.3.7.) have been developed and approved. Requirement to verify the activation of TCASII before take-off has been included in the checklists. Aircraft maintenance services and the training of aircraft maintenance technicians are accomplished in accordance with the Aircraft Maintenance Manuals developed by the aircraft operators and approved by the Director of the Department of Aviation. MELs are established per aircraft types and approved by the Director of the Department of Aviation. According to the manufacturer's provisions, ACAS II upgrade (TCAS II version 7.1) does not require introducing amendments into the Aircraft Maintenance Programme and MEL. ACAS II (TCAS II version 7.1) performance monitoring is carried out by the Aircraft Operator's Quality Manager taking into consideration pilot observations recorded in logbooks. Certification of activities is accomplished pursuant to the existing Aviation Rules AP 6.01-2012 (02190) "Certification of civil aircraft operator activities".	Completed 12/2015
Kazakhstan		Completed
Kyrgyzstan	Total 11 aircraft are equipped version 7.1 in July 2017. Airworthiness certification for ACAS II version 7.1 and operational approval for ACAS II version 7.1 equipped aircraft procedures are implemented.	Completed 07/2017
Morocco	An ACAS II version 7.1 Condition is included in the airworthiness certification process. ATC reporting of ACAS RAs is implemented in the ACC.	Ongoing (80%) 12/2020
Russian Federation	The aviation authorities have pointed out to operators that it is unacceptable for aircraft not equipped with TCAS II version 7.1 to operate flights in EUROCONTROL airspace. The re-equipment of aircraft is in progress according to plan.	Ongoing
Tajikistan	All aircraft registered in Tajikistan have installed TCAS 7.1	Completed 12/2016
Turkmenistan	All aircraft (which are required to be equipped with ACAS) registered in Turkmenistan have been already equipped, or have scheduled maintenance program to install ACAS II/TCAS 7.1 before the Annex 10 deadline. RA investigation process has been implemented together with other AIRPROX, LHD reports, etc.	Completed 12/2015
Tunisia (data from 2016 cycle)	Tunisian registered aircraft are all equipped TCAS version 7.1 Regarding the monitoring, Air operators are invited to comply with manufacture procedures ATC RA monitoring provision implemented.	Completed 12/2015
Uzbekistan	All aircraft (which are required to be equipped with ACAS) registered in Uzbekistan have been already equipped, or have scheduled maintenance program to install ACAS II/TCAS 7.1 before the Annex 10 deadline. RA monitoring is part of the normal reporting process , similar to AIRPROX, LHD reports, etc.	Completed 12/2015

4.2 B0-ACDM

IMPROVED AIRPORT OPERATIONS THROUGH AIRPORT- CDM	
AOP05	Implement Airport Collaborative Decision Making (CDM)



1. Progress for States in the LSSIP mechanism

Main 2017 developments:

Four (4) additional Airports (Dublin, Lyon, Palma and Stockholm) have completed the implementation during this new reporting cycle, leading to a total of twenty-four (24) A-CDM airports in Europe by the end of 2017 (it should be noted that due to a technical issue, automatic processing at Dublin has been stopped and DPI is not used operational at NMOC. Full reintroduction expected for Q2 2018). Also A-CDM has been implemented in 3 German airports (Berlin-Schönefeld, Stuttgart and Hamburg) which are not in the applicability area of the objective.

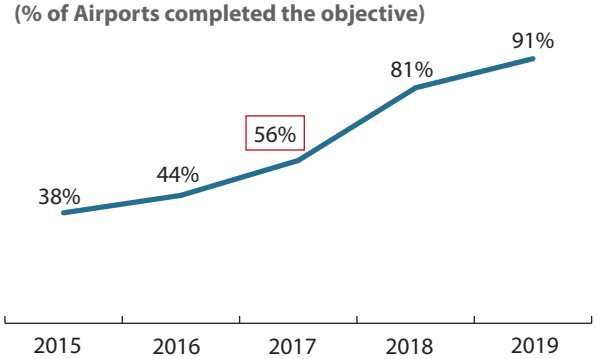
Regarding the PCP airports, out of twenty-five (25) airports mentioned in PCP-IR, seventeen (17) have now implemented A-CDM and are connected to the Network Manager Operational Centre (NMOC).

The implementation is ongoing, while late compared to the FOC date, at another eighteen (18) airports, with ten (10) airports are in the process of becoming operationally connected to NMOC (DPI exchanges) during year 2018: Naples, Bergen, Stavanger, Trondheim, Amsterdam, Lisbon, Vienna, Istanbul Ataturk, Warsaw and Nice.

FOC: 12/2016 **Late**

Estimated achievement: 04/2019

Completion Rate Evolution (% of Airports completed the objective)



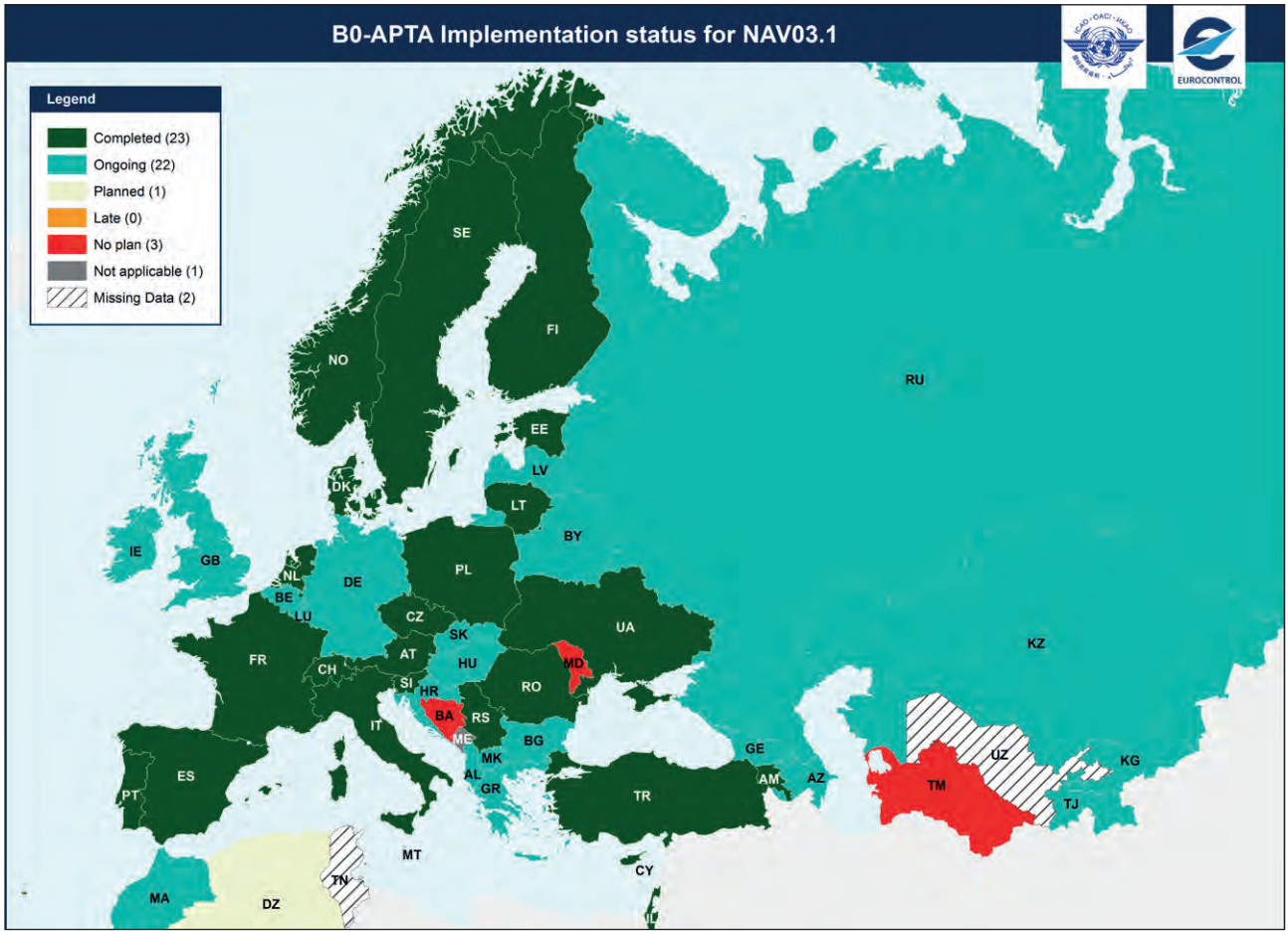
Israel	IAA decided to implement ACDM at Ben-Gurion airport.	Ongoing (6%) 12/2020

2. Status for remaining States

Algeria		No Plan
Belarus	The following improvements have been achieved at Minsk National Airport: - Local Air Navigation Service (ANS) procedures for information sharing have been implemented through Letters of Agreement (LoAs). - Special checklists using Kobra automated system have been implemented in order to perform apron operations, monitor the compliance with maintenance schedule and manage the resources available. - Agreements between the aerodrome operators and aircraft operators define variable taxi-time and pre-departure sequencing procedure. - CDM procedures have been implemented.	Completed 12/2016
Kazakhstan		No Plan
Kyrgyzstan	LoAs with airport operator and airport stakeholders (for airport functions) for coordination/cooperation are in place. Consultation with airspace users is currently done via bi-lateral meetings (ANSP-AO or Airport-AO). The objective is Not Applicable in Kyrgyz Republic.	Not Applicable
Morocco	Discussion in Morocco started to assess the eventual need of CDM.	Not Applicable
Russian Federation	A-CDM implementation is in progress at UUDD (Domodedovo), UUEE (Sheremetyevo), and UUWW (Vnukovo) airports.	Ongoing (25%) 12/2018
Tajikistan	Instructions and special procedures for coordination/cooperation between airports and ANSP are in place. Formalisation of arrangements with airspace users (as described in CDM functionality) need to be finalised.	Ongoing (60%) 12/2018
Turkmenistan	Consultation with airspace users is currently done via bi-lateral meetings (ANSP-AO or Airport-AO) and on a more ad-hoc/when necessary basis.	Not Applicable
Tunisia (data from 2016 cycle)	No current plans, but could be implemented by 2025 in Tunis Carthage, Djerba Zarzis, Monastir H. Bourguiba and Enfidha Hammamet airports, taking into consideration the traffic growth.	No Plan
Uzbekistan	No implementation planned for aerodromes of Uzbekistan, as all aerodromes, the national airline (Uzbekistan airlines) and ANSP are in one company. Discussions with foreign airlines are done on an ad hoc or when necessary basis.	Not Applicable

4.3 B0-APTA

OPTIMIZATION OF APPROACH PROCEDURES INCLUDING VERTICAL GUIDANCE	
NAV03.1	RNAV 1 in TMA operations



1. Progress for States in the LSSIP mechanism

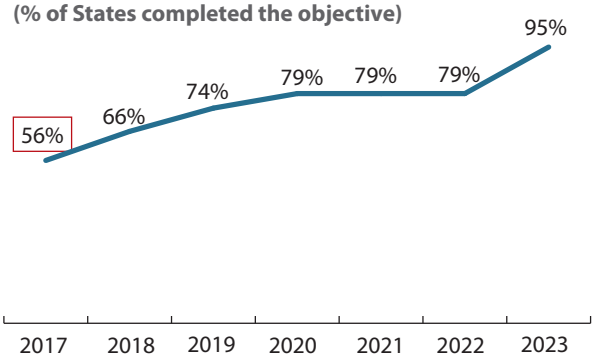
Main 2017 developments:

In the year 2017, CY, ES, SI and TR progressed to completed. A big bulk of 22 States which completed implementation at major aerodromes and TMAs, have plans for further implementation at smaller aerodromes too. Quite few States are very close to completion (AZ at 88%, BE at 91%, BG at 93%, HU at 70%, IE at 80 and UK at 77%). The states below 20% completion are AL, GE, LU, MK, MT and SK. The only two States that reported 'no plan' yet, are BA and MD. MN reported , IE at 80 and UK at 77%). The states below 20% completion are AL, GE, LU, MK, MT and SK. The only two States that reported 'no plan' have plans for further implementation. Taking into account quite long FOC date, no delays are expected at this time. According to the EUROCONTROL PRISME CNS business intelligence, in 2017 about 91% of the flights (ICAO FPLs) had RNAV1 capability, out of which 4% were "Non-GNSS" equipped.

FOC: 12/2023 **On time**

Estimated achievement: 12/2023

Completion Rate Evolution (% of States completed the objective)

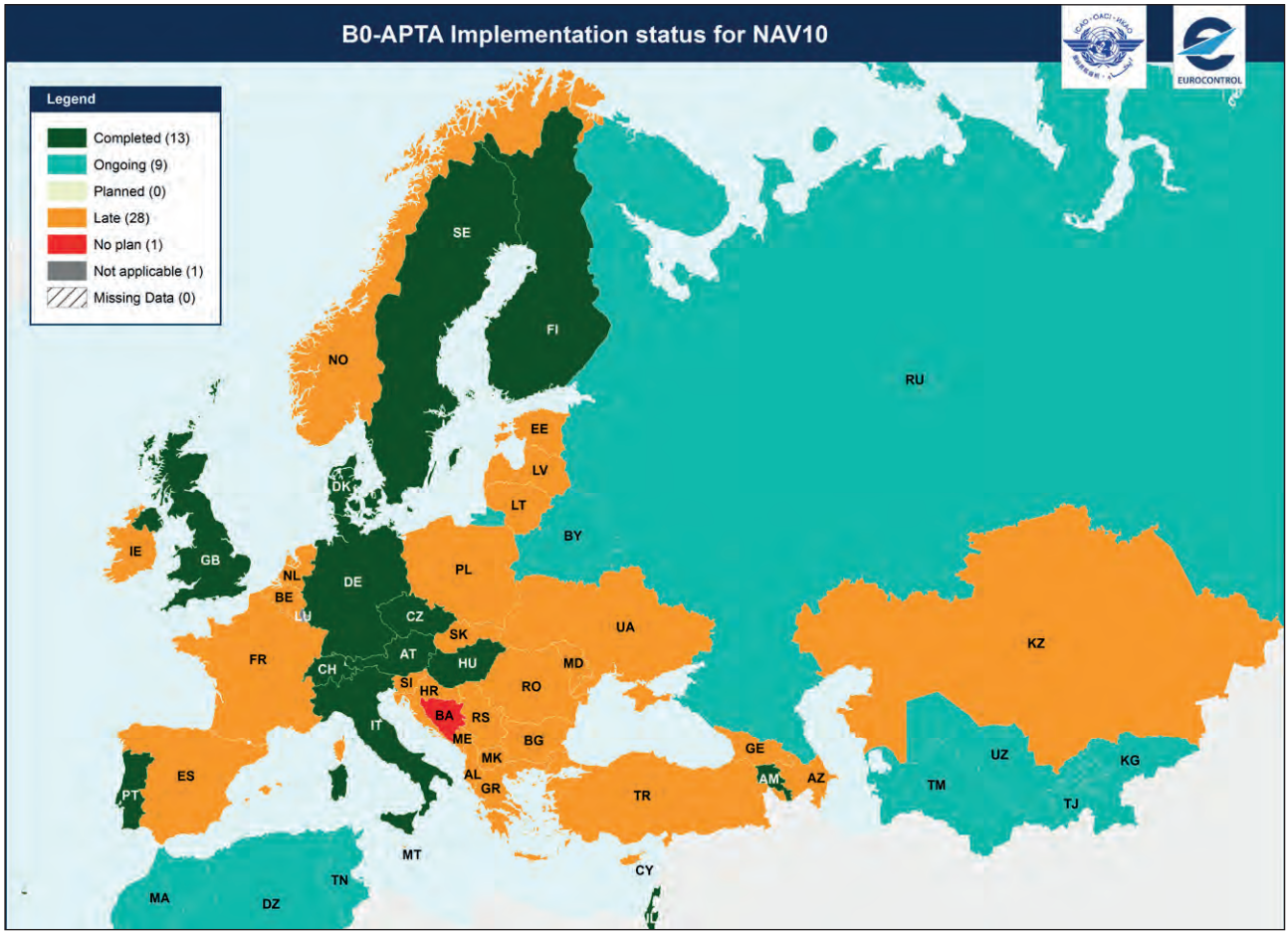


Israel	P-RNAV Routes, SIDs, STARs and CDRs are implemented throughout the Israeli airspace. Israel is engaged in advanced action with EC to allow EGNOS SBAS operations as soon as operational coverage will begin. Safety case has been performed per IFP, and a general ESARR compliant Safety case has been recently performed in collaboration with "Helios", in the framework of EC technical assistance team.	Completed 12/2014

2. Status for remaining States

Algeria	In accordance with the National PBN plan implementation, ENNA plans to implement RNAV1 for TMA operation for Algiers, Oran, Annaba, Constantin and Hassi Messaoud airports.	Planned 12/2021
Belarus	DME stations are being installed at Minsk TMA, to support RNAV1 operations. It is planned to put them into operation in May 2018. RNAV 1 arrival and departure procedures based on DME/DME have been developed and are ready for flight validation. Safety assessment has been completed. After the DME stations are put into operation, the flight check is accomplished and the flight validation of RNAV 1 arrival and departure procedures based on DME/DME is carried out, the outcomes of these activities will be submitted to the CAA, and the authority will take decision on the publication of this information in Belarus AIP and the implementation of the new procedures.	Ongoing (80%) 12/2018
Kazakhstan	Based on RNAV 1 SID and STAR procedures for Astana and Almaty aerodromes will be developed and implemented by the end of 2018. Implementation of RNAV 1 SID/STAR at the remaining aerodromes will be completed by 2019.	Ongoing (20%) 12/2019
Kyrgyzstan	Kyrgyz Republic has developed procedures based on RNAV 1 arrival and departure GNSS only. But in 2020 KR going implement appropriate terrestrial navigation infrastructure to support RNAV 1 in Manas. Now KR develops a local RNAV 1 safety assessment, work in progress.	Ongoing (30%) 12/2020
Morocco	On-going project on the first phase was issued for implementing RNAV 1 procedures in major TMA: - Marrakech TMA - Oujda TMA RNAV 1 Procedures are based only on GNSS.	Ongoing (40%)
Russian Federation	The development and implementation of RNAV 1 SID/STAR terminal operations for aircraft equipped with DME/DME and GNSS is under way, while procedures based on traditional navigation aids remain valid, and air traffic services are provided in a mixed environment.	Ongoing (75%) 12/2020
Tajikistan	National PBN implementation plan has been developed and PBN implementation will be gradually started after completion of WGS-84 data. RNAV 5 routes are a part of the national PBN plan and are expected to be implemented from 2018 onwards.	Ongoing (20%) 12/2018
Turkmenistan	National PBN plan still under development.	No Plan
Tunisia (data from 2016 cycle)	RNAV5 is implemented above FL155. RNAV5 implementation will be expanded down to FL095 by 2018.	Missing data
Uzbekistan		Missing data

OPTIMIZATION OF APPROACH PROCEDURES INCLUDING VERTICAL GUIDANCE	
NAV10	Implement APV procedures



1. Progress for States in the LSSIP mechanism

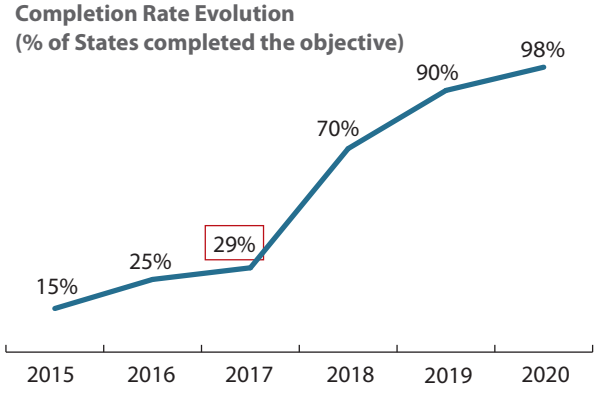
Main 2017 developments:

Two States have completed the objective in 2017 (IT and HU). The states very close to completion are BE at 90%, SK at 98%, PL at 85%, above 75% are BG, FR, IE, NL and NO. These states estimate completion date by December 2018. Low level of completion below 30% is reported AL, EE, GR and LT. The objective is assessed as 'late' at ECAC level, as the official FOC date was reached at the end of 2016. Some reluctance exists in implementation, as well as in update of the objective NAV10 e.g. FOC date, probably caused by PBN IR uncertainty. According to the EUROCONTROL PRISME CNS business intelligence, in 2017 about 71% of the flights (ICAO FPLs) were RNP APCH by any means capable, out of which 59% of had LNAV/VNAV (Baro) and 2,7% LPV (SBAS) capability. However it should be noted that the EGNOS Service area is not covering yet the entire ECAC area neither the EU28 states, potentially impeding the full deployment of the objective.

FOC: 12/2016 **Late**

Estimated achievement: 12/2019

Completion Rate Evolution (% of States completed the objective)



Israel	Israel has implemented APV procedures in accordance with the objectives of ICAO Assembly resolution 37-11.	Completed 12/2017

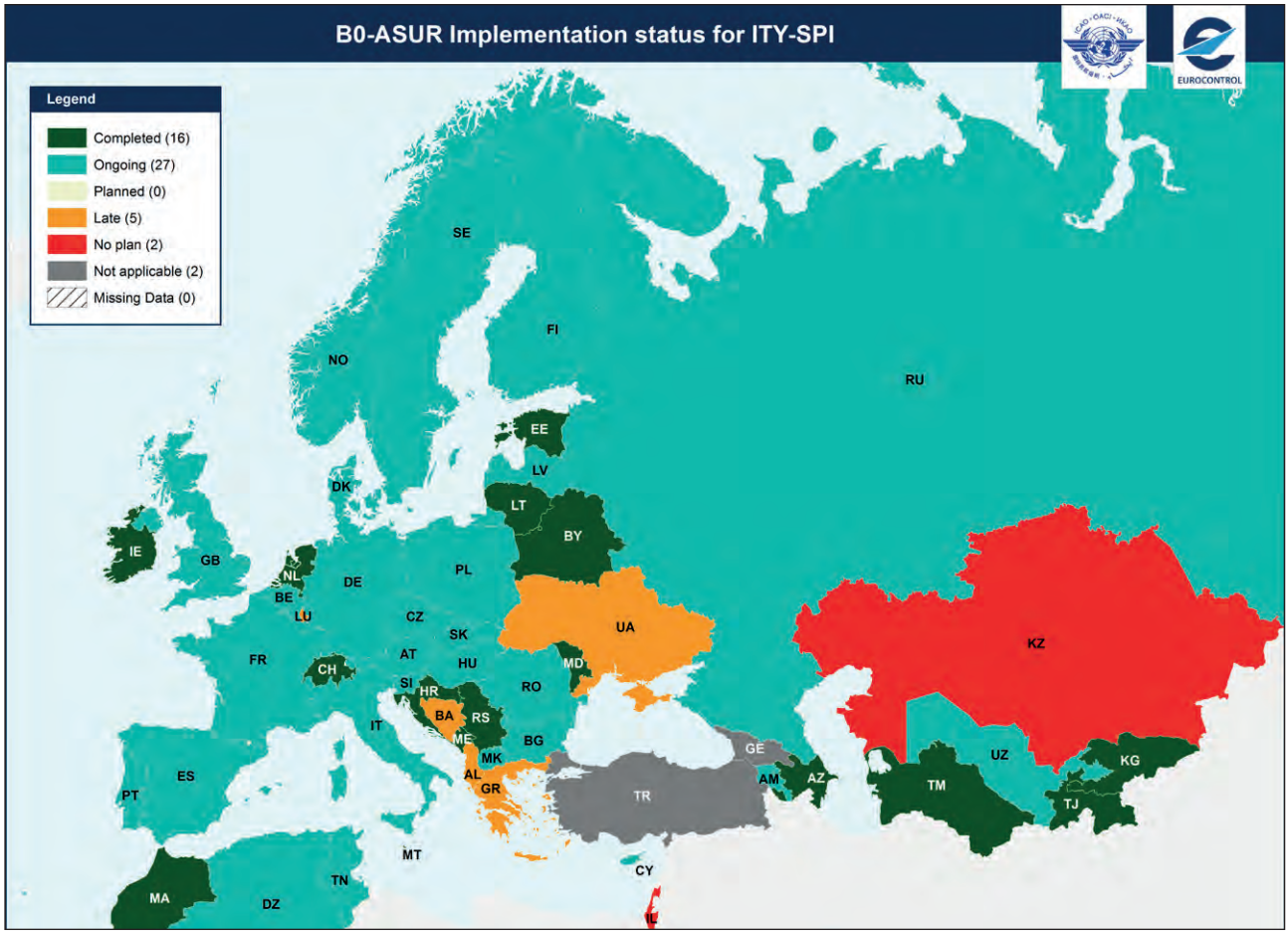
2. Status for remaining States

Algeria	A national PBN implementation plan was developed in 2015. In accordance with the National PBN plan, the ANSP (ENNA) has developed a plan and APV/Baro procedures will be implemented for Approaches of Algiers, Oran, Annaba, Constantine and Hassi Messaoud. All coordinates data are already published in WGS-84.	Ongoing (40%) 12/2021
Belarus	National PBN Implementation Plan was developed, and it was approved on 24 June 2010. National Airspace Concept was approved on 17 December 2014. Automated aeronautical facilities (flight procedures design system, aeronautical charting system, airspace design system) have been upgraded and adapted to support the Aeronautical Information Exchange Model (AIXM) 5.1. Coordinates data are published in Belarus AIP in WGS-84 (since 17 December 2009). APV Procedures have been designed. Publication of APV Procedures in Belarus AIP: December 2018.	Ongoing (80%) 12/2018
Kazakhstan	All coordinates data in AIP with effective date of 30th of March 2017 are published in WGS-84 in accordance with ICAO Annex 15 requirements. Astana and Almaty airports serving the major of international flights are planned to be introduced with APV/Baro by the end of 2018. Implementation of APV/Baro at the rest airports will be completed by 2019.	Late (20%) 12/2019
Kyrgyzstan	Kyrgyz Republic is not yet going to introduce APV/BARO or APV/SBAS procedures until 2029. Kyrgyz Republic publishes in AIPs all coordinates data in WGS-84 in accordance with ICAO Annex 15 requirements since 2/07/2014.	Ongoing (20%) 12/2029
Morocco	There are 17 international airports - Casablanca and Marrakech airports have the major part of the passenger traffic with 68 %. On-going project on the first phase was issued for implementing new PBN procedures including APV/Baro in major airports: - Casablanca airport : Runway 17L/R – 35L/R . - Rabat Airport: Runway 21. - Benslimane Airport: Runway 14/32. The Air navigation capabilities for APV as DME, GPS and SBAS are on going. Moroccan PBN Plan was developed in 2013 and includes the phased implementation of APV/ Baroprocedures for all runway Thresholds. All coordinates data published in AIP are in WGS-84.	Ongoing (40%) 12/2023
Russian Federation	The implementation of approach procedures is governed by the 2014 PBN Implementation Plan in the Russian Federation Airspace. The timeframe and application for APV/SBAS will be clarified after the finalization of SDCM deployment and confirmation of APV/SBAS procedure support by SDCM.	Ongoing 12/2020
Tajikistan	International airport Dushanbe is equipped with ILS, Cat I on RWY09, RWY 27 installation was finished in March 2017. The WGS-84 project (with CAIGA) is going to start in 2017 for Tajikistan including Dushanbe and 3 other international airports: - Hujand: ILS installed on both runway sides but no category assigned. - Hujand: ILS installed on both runway sides but no category assigned. - Qurgontepa: no ILS approach. National PBN implementation plan has been developed and the design of GNSS procedures for international airports included in national PBN plan, which will start after completion of WGS-84 project.	Ongoing (20%) 12/2020

Turkmenistan	A project to implement WGS-84 as geodetic reference system for air navigation purposes in the airspace of Turkmenistan and for all international airports has started in 2016. Ashgabat airport was finalised in 2017, Turkmenbashi and Dashoguz aiports planned for completion in 2018 and full completion for all international airports in 2019. Discussions have started on the development of an eTOD data server and a possible migration to EAD. Work on a national PBN implementation plan (GNSS procedures for all international airports), as part of the Mid-Asia PBN project, has started but has not been completed. All 5 international airports in Turkmenistan (Asgabat ILS CAT III on RWYs 30/12, Turkmenbashi RWY 16/34 with ILS, Turkmenabat ILS CAT II on RWY 31/13, Dashoguz ILS CAT II on RWY 26/08 and Mary RWY 06L with ILS, RWY 18R with NDB) are equipped with ILS or NDB Approaches.	Ongoing (50%) 12/2021
Tunisia (data from 2016 cycle)	According to national PBN plan, all international airports in Tunisia will have APV procedures by the end of 2019. 04 LNAV/VNAV procedures are already designed for Tunis Carthage airport (Approval in progress)	Ongoing 12/2019
Uzbekistan	There are 11 international airports in Uzbekistan with Tashkent being the main airport. Tashkent has 2 parallel runways (210m apart) with 08L CAT II, 26 R CAT I, 08R CAT I, 26L VOR/DME approaches. Navoi airport has ILS CAT II on both runways and all other airports have either CAT I on some runways or VOR/NDB approaches. Uzbekistan has implemented WGS-84 as geodetic reference system for air navigation purposes in the airspace of Uzbekistan. The implementation of a national PBN plan has started. GNSS procedures for all international airports reflected in the national PBN plan.	Ongoing (70%) 12/2020

4.4 B0-ASUR

INITIAL CAPABILITY FOR GROUND SURVEILLANCE	
ITY-SPI	Surveillance performance and interoperability



1. Progress for States in the LSSIP mechanism

Main 2017 developments:

The implementation progress is good. However, there are EU States (GR, LU) which have missed the 2015 milestones and are currently late. Based on the reported plans, it is expected that they will catch up with this delay in 2018. There is also good visibility from the Military stakeholders with regard the equipage plans of their fleets. It should be noted that the level of implementation of the objective does not provide a full picture with regard the level of implementation of the Regulation (EU) No 1207/2011, as amended, and multiple sources of information, in particular at State level, should be corroborated in order to obtain a complete picture of the implementation. It is also encouraging to observe that voluntary implementation is taking place outside the Applicability Area (EU+) making it a truly pan-European implementation.

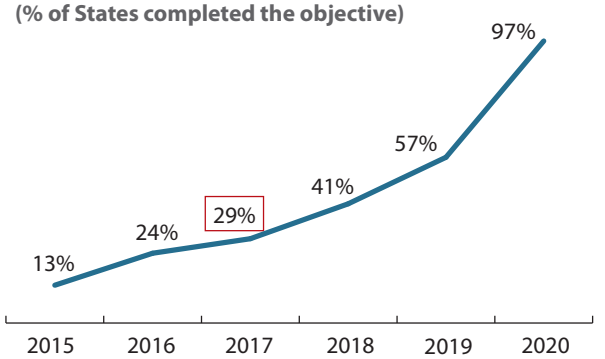
Regarding the airspace users capabilities, information indicates that in the core area of Europe (Paris area) more than 80% of the flights are compliant with the requirements for Mode S ELS and about 15% of the flights are compliant with the ITY-SPI requirements for ADS-B v2.

FOC: 06/2020

Risk of delay

Estimated achievement: 06/2020

Completion Rate Evolution (% of States completed the objective)



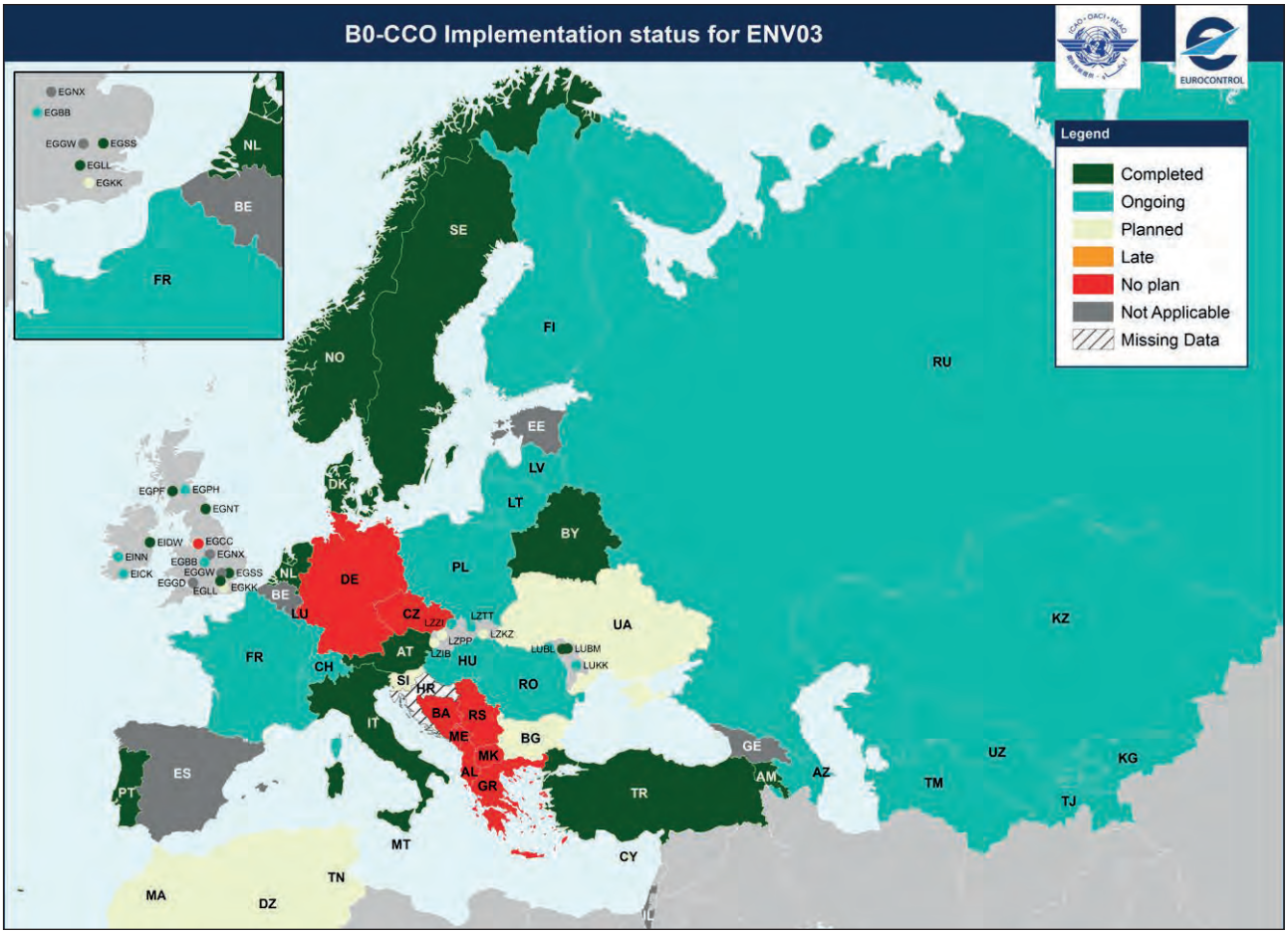
Israel	No Plan yet. Objective to be reconsidered in due time in the context of the deployment of the new ATM system. With regards the surveillance infrastructure, all Tel-Aviv FIR is covered by a variety of surveillance infrastructure – PSR/SSR/Mode S and MLAT.	No Plan

2. Status for remaining States

Algeria	5 SSR Mode C Sensors and 1 PSR are installed in the northern part of Algiers FIR. Since 2008 ADS-C is used for surveillance functions in the southern part of the Algiers FIR. For the southern and northern part of the Algiers FIR the deployment of ADS-B and SSR Mode S ground stations are planned within the framework of the Project PDGEA.	Ongoing (50%) 12/2019
Belarus	Safety assessment of the existing CNS facilities is carried out in accordance with the national regulations. Interoperability of surveillance data from all ground surveillance systems and relevant surveillance data processing systems is provided. Surveillance data are not transmitted to other ANS providers since this is not required. Safety assessment is carried out for all existing ground surveillance systems, surveillance data processing systems and "ground-ground" communication systems used for dissemination and processing of surveillance data. Safety assessment is accomplished when any changes are introduced into the systems and relevant procedures. State aircraft are not equipped with Mode S Elementary Surveillance equipment and ADS-B Out transponders.	Completed 12/2016
Kazakhstan		No Plan
Kyrgyzstan	Kyrgyz ANSP has surveillance equipment with Mode S and ADS-B.	Completed 12/2016
Morocco	Mode-S level-2 in 2009. ADS-B for en route 2011. ADS-B as a secondary back-up in some airports (Marrakech, Fes, Tangier, Agadir, Oujda) in 2015.	Completed 12/2015
Russian Federation	A risk assessment is under way to identify risks associated with the surveillance systems in question being used in various combinations with the existing surveillance facilities infrastructure. Data transfer is performed in accordance with the specified requirements.	Ongoing (10%) 12/2020
Tajikistan	Tajikistan has installed SSR radar at Dushanbe and Hujand airport. A MLAT system (ERA) covering the whole FIR was installed in 2013. Surveillance data is shared with all other airports.	Completed 12/2013
Turkmenistan	Turkmenistan airspace is covered with SSR Mode 3A/C surveillance radars (range up to 400 km). At all 5 aerodromes additional PSR radars (range 110-120 km) were installed. There are no plans for ADS-B, ADS-C or MLAT installations.	Completed 12/2000
Tunisia (data from 2016 cycle)	New radar stations Mode S and 3 ADS-B will be operational in 2018 (Project in progress) Current ATM information process system (FDPs and RDPs) process Mode S and ADS-B information.	Ongoing (0%) 12/2018
Uzbekistan	Uzaeronavigation has installed SSR Mode 3A/C and PSR radars which cover most (90%) of the airspace in Uzbekistan. At Tashkent airport an ASR has been installed (80 NM coverage). The Mode 3A/C surveillance radars coverage is up to 200 NM and PSR coverage is also around 200 NM. 8 aerodromes have a SSR or PSR/SSR radar installation and 3 aerodromes (Namangan, Karshi and Andizan) have no radar installed. There are currently no plans for ADSB/ADSC/MLAT installations.	Ongoing (60%)

4.5 B0-CCO

IMPROVED FLEXIBILITY AND EFFICIENCY IN DEPARTURE PROFILES (CCO)	
ENV03	Continuos Climb Operations



1. Progress for States in the LSSIP mechanism

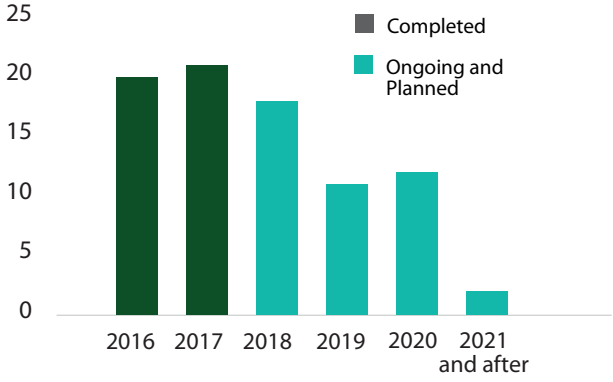
Main 2017 developments:

The Objective is in its first year of monitoring. As it is a Local Objective, reporting is on a voluntary basis. However, this Objective should be considered in relation to Objective ENV01-Continous Descent Operations. A total of 84 Airports reported on its implementation status. By end of 2017, 42 airports reported the completion of this Objective. Another 30 reported that the implementation is er, this Objective should be considered in relation to Objective ENV01-Continous Descent Operations. Twelve (12) Airports reported that the implementation is "Planned" with the latest projected implementation date for EGKK-London Gatwick by December 2024.

FOC: Not available

Estimated achievement: Not available

Implementation progress (number of airports completed the objective)



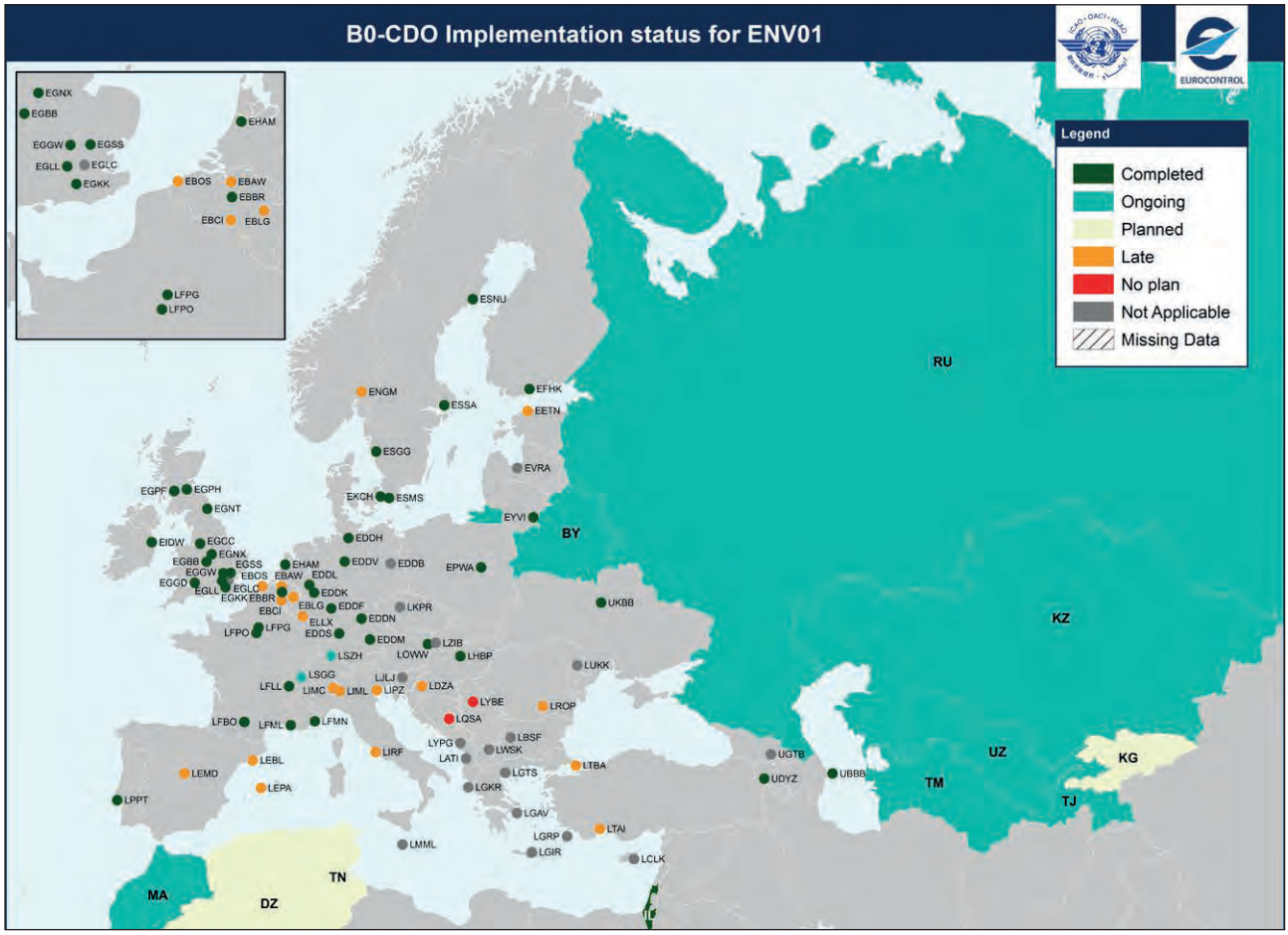
Israel	The objective can not be applied due to the constraints in the airspace surrounding Israeli airports.	Not Applicable

2. Status for remaining States

Algeria	In accordance with the National PBN plan implementation, ENNA plans to implement CCOs for Algiers, Oran, Annaba, Constantine and Hassi Messaoud airports.	Planned 12/2021
Belarus	CCO techniques have been developed. Training of ATM personnel has been provided.	Completed 12/2016
Kazakhstan	Astana and Almaty airports serving the major of international flights are planned to be introduced with CCO by the end of 2018. Implementation of CCO in the remaining airports will continue as required.	Ongoing (30%) 12/2018
Kyrgyzstan	Ongoing.	Ongoing (25%) 12/2022
Morocco	Implementing new PBN procedures including CCOs is planned.	Planned 12/2020
Russian Federation	The procedure is being implemented as part of terminal procedure development in accordance with the 2014 Plan for PBN Implementation in the Russian Federation Airspace.	Ongoing (10%) 12/2020
Tajikistan	National PBN implementation plan has been developed and PBN implementation will be gradually started after completion of WGS-84 data. CCOs/CDOs are a part of the national PBN plan and are expected to be implemented from 2018 onwards.	Ongoing (20%) 12/2020
Turkmenistan	Full scale CCOs/CDOs are currently not implemented in Turkmenistan, but aircraft are cleared for STARs without level-offs. Departure Clearances include the climb up to the filed FL. CCOs/CDOs could be included in national PBN plan.	Ongoing (50%) 12/2021
Tunisia (data from 2016 cycle)	To be developed based on the results of Tunis TMA restructuring that will be carried out (network for 3 airports: Tunis Carthage, Monastir H. Bourguiba, Enfidha Hammamet).	Planned 12/2020
Uzbekistan	Full scale CCOs/CDOs are currently not implemented in Uzbekistan, but aircraft are cleared for STARs without level-offs and most SIDs have only a limited number (sometimes only one to FL140 for APP) level-off segment. Departure clearances can include sometimes the climb up to the filed cruising FL. CCOs/CDOs developments have been included into the national PBN plan.	Ongoing (25%) 12/2020

4.6 B0-CDO

IMPROVED FLEXIBILITY AND EFFICIENCY IN DESCENT PROFILES (CDO)	
ENV01	Continuos Descent Operations (CDO)



1. Progress for States in the LSSIP mechanism

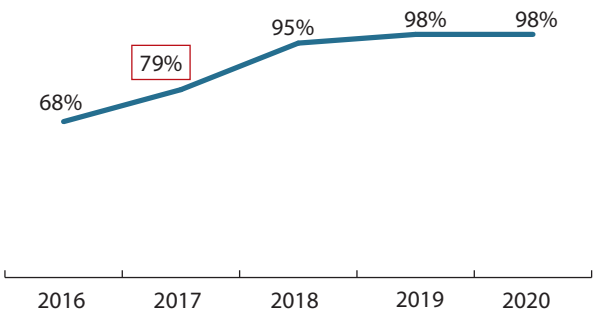
Main 2017 developments:

The objective completion was delayed for one more **year comparing to last year estimate (12/2018)**. The overall number of airports that have completed this functionality is slowly progressing with regard to the FOC date. In 2017, three more airports, namely Charleroi, Liege and Tallinn have completed this functionality. Around 15% of airports in applicability area report delays in implementation, whereby Spanish airports plan the completion of this functionality by March 2018 and the majority of airports plan the completion of this functionality by the end of 2018. It seems that actions relating to monitor performance are the most challenging for implementation. It was also reported that some airports are performing CDO only at the pilot requests, some others only at night time. It should also be mentioned that some airports reported an ongoing status reflecting the performance as measured by the PRU, even if such report is not aligned with the LSSIP taxonomy. This is the case for Swiss airports Geneva and Zurich.

FOC: 12/2013 **Late**

Estimated achievement: 12/2018

Completion Rate Evolution (% of Airports completed the objective)



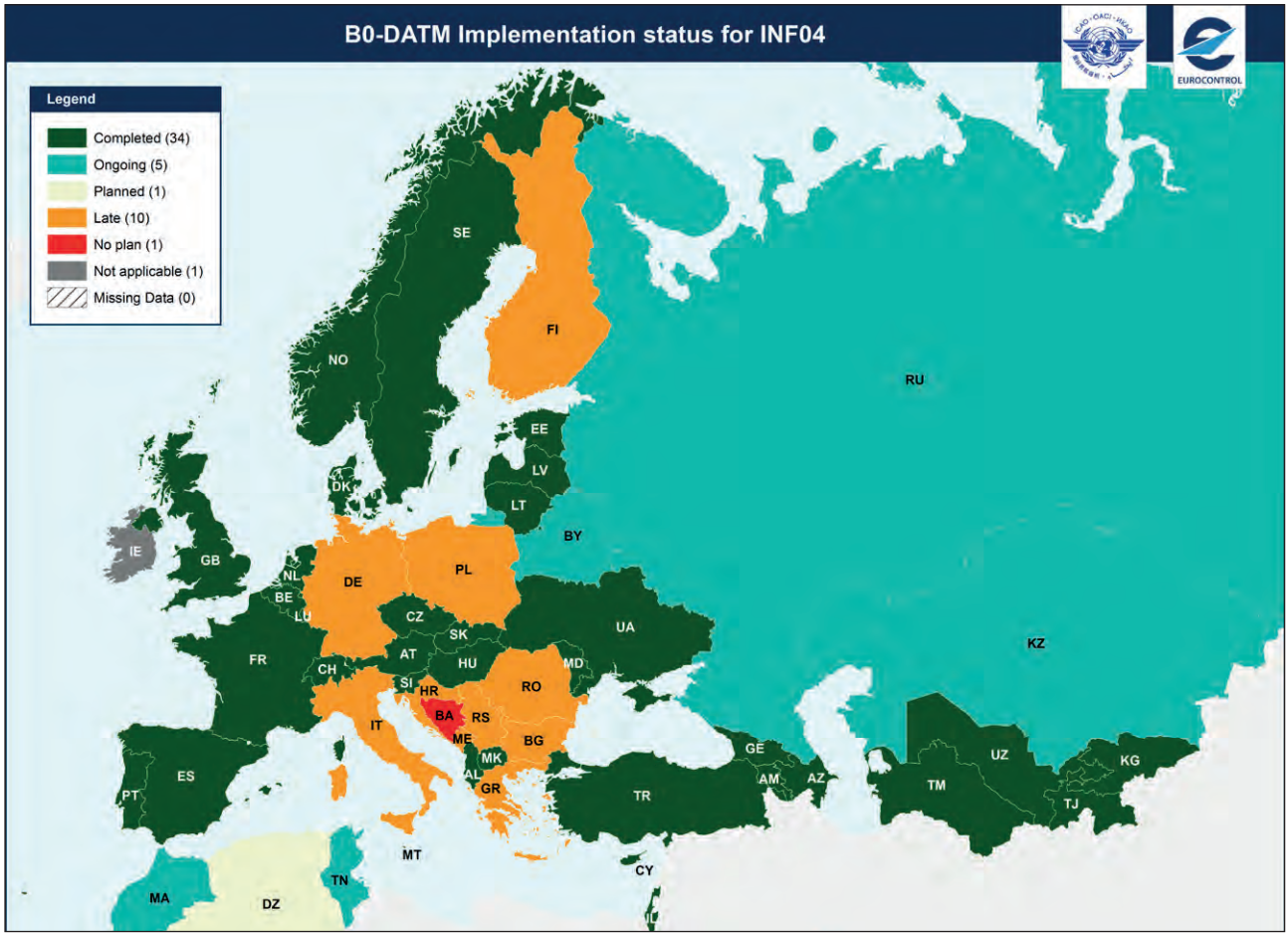
Israel	CDOs are implemented wherever possible (in IAPs and STARs) in Israel. CAAI supports the implementation with the ANSP and Israeli operators have full awareness of CDO, and conduct it in daily operations. CAAI is considering receiving reference for a complete CDO plan from ANSP.	Completed

2. Status for remaining States

Algeria	In accordance with the National PBN plan implementation, ENNA plans to implement CDOs for Algiers, Oran, Annaba, Constantine and Hassi Messaoud airports.	Planned 12/2021
Belarus	Regulations are being updated to include rules and procedures for the application of CDO techniques. CDO techniques are included into the Training Manual for Flight Crew Members.	Ongoing (80%) 12/2018
Kazakhstan	Astana and Almaty airports serving the major of international flights are planned to be introduced with CDO by the end of 2018. Implementation of CDO in the remaining airports will continue as required.	Ongoing (30%) 12/2018
Kyrgyzstan	It is not yet due to lack of agreement between neighboring countries and mountainous terrain. CDO/CCO are part of the national PBN Plan.	Planned 12/2025
Morocco	Implementing new PBN procedures including CDOs is planned. New CDO procedure for Marrakech airport will be published by the end of 2018.	Ongoing (20%) 12/2020
Russian Federation	The procedure is being implemented as part of terminal procedure development in accordance with the 2014 Plan for PBN Implementation in the Russian Federation Airspace.	Ongoing (10%) 12/2020
Tajikistan	National PBN implementation plan has been developed and PBN implementation will be gradually started after completion of WGS-84 data. CCOs/CDOs are a part of the national PBN plan and are expected to be implemented from 2018 onwards.	Ongoing (20%) 12/2020
Turkmenistan	Full scale CCOs/CDOs are currently not implemented in Turkmenistan, but aircraft are cleared for STARs without level-offs. Departure Clearances include the climb up to the filed FL. CCOs/CDOs could be included in national PBN plan.	Ongoing (30%) 12/2021
Tunisia (data from 2016 cycle)	To be developed based on the results of Tunis TMA restructuring that will be carried out (network for 3 airports: Tunis Carthage, Monastir H. Bourguiba, Enfidha Hammamet).	Planned 12/2020
Uzbekistan	Full scale CCOs/CDOs are currently not implemented in Uzbekistan, but aircraft are cleared for STARs without level-offs and most SIDs have only a limited number (sometimes only one to FL140 for APP) level-off segment. Departure Clearances can include sometimes the climb up to the filed cruising FL. CCOs/CDOs developments have been included into draft the national PBN plan.	Ongoing (25%) 12/2018

4.7 B0-DATM

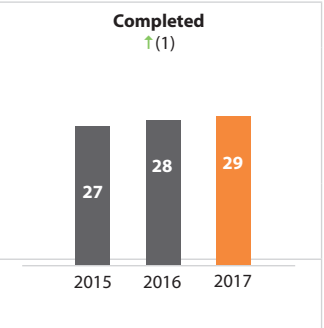
SERVICE IMPROVEMENT THROUGH DIGITAL AERONAUTICAL INFORMATION MANAGEMENT	
INF04	Implement integrated briefing



1. Progress for States in the LSSIP mechanism

The objective INF04 was declared closed after the 2015 cycle. However those States that have not yet completed their activities were requested to update their progress in the LSSIP Database for ICAO Monitoring purposes.The following table is a summary of progress achieved in 2015, 2016 and 2017.

Status	2015	2016	2017
Completed	27 (AL, AM, AT, AZ, BE, CY, CZ, EE, DK, FR, FYROM, HU, LV, LT, MT, MD, NL, NO, PT,SK, SI, SE, ES, CH, TR, UA, UK)	28 (AL, AM, AZ, AT, BE, CY, CZ, DK, EE, FR, FYROM, GE, HU, LV, LT, MT, MD, NL, NO,PT, SK, SI, ES, SE, CH, TR, UA, UK)	Completed in 2017: LU
Late	13 (BA, BG, HR, FI, GE, DE, GR, IT, LU, ME, PL, RO, RS)	12 (BA, BG, HR, FI, DE, GR,IT, LU, ME, PL, RO, RS)	10 (BG, HR, FI, DE, GR, IT, ME, PL, RO, RS)
Not Applicable	1 (IE)	1 (IE)	1 (IE)

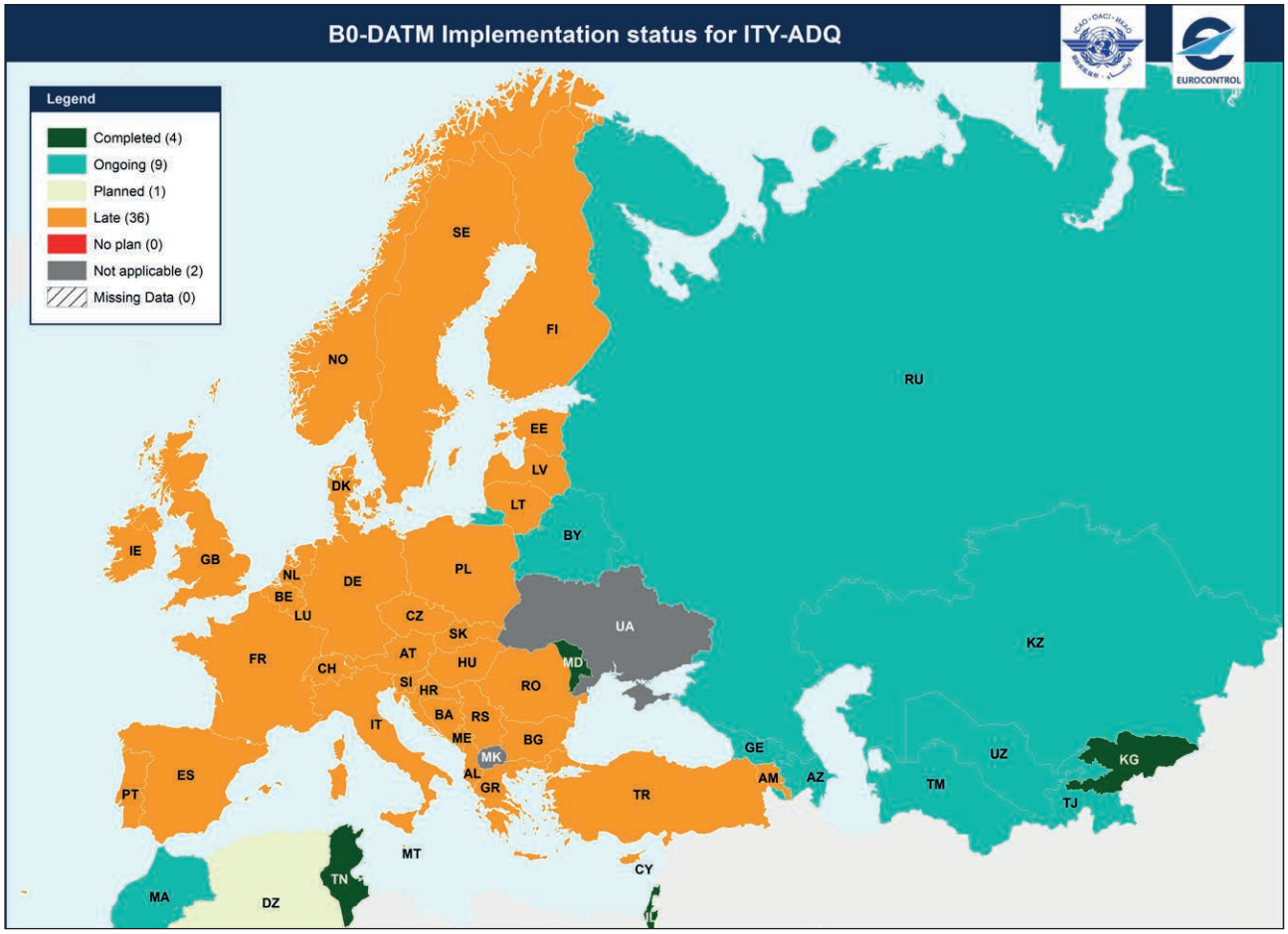


Israel	IAA AIS, (a licensed ATS provider who's granted the rights for providing NOTAM and PIBs services within Tel-Aviv FIR), is operating an Automated Flight-Plan, NOTAM and PIB system - PSB (A shelf product issued by a commercial vendor). The PSB - Pilot Self Briefing is incorporating aeronautical data from the AIP AMDT, AIP SUP, AIC, NOTAM and MET; therefore enables an automated web service for the provision of Flight Plan filing, pre-flight briefing, NOTAM/MET query, etc	Completed

2. Status for remaining States

Algeria	In accordance with the Actions Plan of ENNA: training (during 2017) and upgrade (2018-2019) of the AIS system is planned.	Planned 12/2019
Belarus	Airport and airline briefing offices operate at Belarus civil aerodromes and provide airspace users with pre-flight information. Activities aimed at creating integrated briefing are in progress.	Ongoing (50%) 12/2020
Kazakhstan	Hardware and software of EAD Briefing Facilities is installed in Astana and Almaty airports serving the major of international flights. AIS, FPL, MET and ATFM information will be integrated into one single source. The system works in test mode.	Ongoing (80%) 12/2018
Kyrgyzstan	Kyrgyz Republic will make with EAD Digital AIP plus digital FPL at the end of 2017. At the present moment, the allowed submission of flight plans and the receipt of weather information by e-mail in the frames of a special agreement.	Completed 12/2014
Morocco	A new digital system for the management of aeronautical information will be installed from mid-2017 till end of 2019; this system will consider the following services: AIS, MET, Flight Plan and ATFM.	Ongoing (20%) 12/2019
Russian Federation	Software and hardware systems are installed in FATA, in its regional bodies and are being installed in FSUE "State ATM Corporation" facilities. In the next step, airports will be equipped.	Ongoing (30%) 12/2020
Tajikistan	Integrated briefing (AIS, FPL, MET and ATFM information) was implemented in all international airports.	Completed 12/2012
Turkmenistan	An integrated briefing function (AIS, FPL, MET and partially ATFM information) was implemented in Ashgabat during 2003. The 4 other international airports (Turkmenbashi, Turkmenabat, Dashoguz and Mary) have no integrated briefing functionality and the briefing data is/will be prepared in Ashgabat.	Completed 12/2003
Tunisia (data from 2016 cycle)	WGS-84 is fully implemented. A new survey campaign for eTOD was held in 2016 at Tunisian airports level. QMS is fully implemented: Certification of the Management System for the Quality of the AIS and the AIO of the Tunisian Airports according to the international standard ISO 9001 since 2006. e-AIP and Digital NOTAM will be implemented in 2017. Integrated briefing function is planned for Implementation in 2018.	Ongoing (0%) 12/2019
Uzbekistan	An integrated briefing function (AIS, FPL, MET and partially ATFM information for all 11 airports) is part of the national Uzbekistan airlines briefing section.	Completed 12/2000

SERVICE IMPROVEMENT THROUGH DIGITAL AERONAUTICAL INFORMATION MANAGEMENT	
ITY-ADQ	Ensure quality of aeronautical data and aeronautical information



1. Progress for States in the LSSIP mechanism

Main 2017 developments:

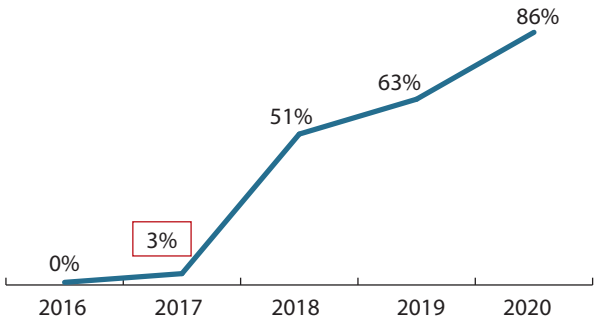
The FOC(06/2017) date was reached and at State level there is only one declared completion – Moldova. This poor progress was expected taking into account the high number of States that declared being "Late" in the last cycle. Some SLoAs that are on the critical path for ADQ implementation, such as Formal Arrangements (ASP02), did show some good progress with 16 ANSP declaring "Completed" (see map). It needs to be recognised that a lot of individual progress has been made by many stakeholders, mostly ANSP, nevertheless overall compliance is disappointing. This is notably due to strong dependencies on a wide range of data originators, challenging requirements, tool adaptions or procurement or a lack of resources. States are strongly urged to recover existing delays since ADQ compliance will provide an optimum baseline for later certification in accordance with the upcoming EASA rule Part-AIS.

Note: EASA Opinion 02/2018 has been published on 8/3/2018 and the OJEU publication of Part-AIS is envisaged for the first half of 2019.

FOC: 06/2017 **Late**

Estimated achievement: 12/2020

Completion Rate Evolution (% of States completed the objective)



Israel	Implementation of a quality management system (QMS) is completed. A QMS is fully implemented by CAAI with respect to AIP processes which is a service provided by CAAI (ISO certified). With respect to NOTAM and PIB, which are services provided by the IAA, a QMS implementation process is completed. Implementation of data quality requirements is completed. Implementation of common dataset and digital exchange format are completed. The establishment of formal arrangements are completed. CAAI AIS unit has established a set of procedures regarding the exchange of aeronautical data and information with data originators.	Completed 12/2017

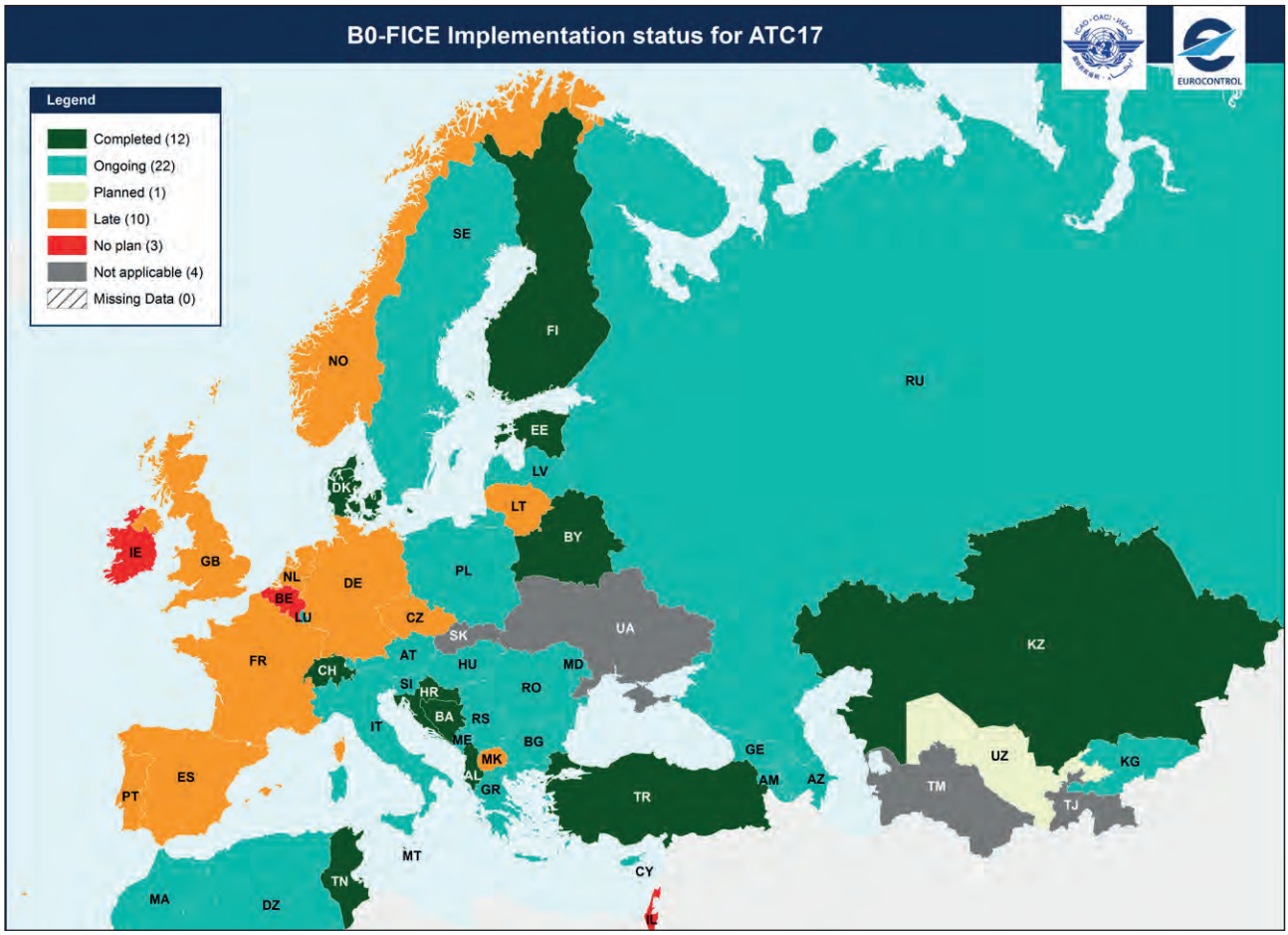
2. Status for remaining States

Algeria	In accordance with the Actions Plan of ENNA, QMS will be implemented as part of the planned AIS system upgrade (2018-2019).	Planned 12/2019
Belarus	QMS for Aeronautical Information Services was implemented in 2014. ISO Certificate 9001: implemented in 2015 No. BY228888Q-U, was issued by Bureau Veritas on 26 June 2017. Additionally safety management and security management objectives are included in the QMS as described in Art 10 of EU regulation 73/2010. Data quality requirements have been implemented as per Annex 15, in terms of completeness, timeliness, consistency, accuracy, resolution and integrity, in accordance with the Order of the Department of Aviation No. 139 dd 07 July 2015 "On approval of the regulation for the provision of aeronautical information". Aeronautical data are provided in AIXM 4.5 format. Upon upgrade of the database and software for creation of aeronautical charts the aeronautical data will be provided as datasets (AIP, TOD, Aerodrome Mapping Data) in AIXM 5.1 format, pursuant to Annex 15. Agreements have been concluded between aeronautical information providers and data originators for the exchange of aeronautical data/information, in accordance with the Order of the Department of Aviation No. 139 dd 07 July 2015 "On approval of the regulation for the provision of aeronautical information". LoAs for Provision or Aeronautical Information and Data Integration between AIS of Belarus and AIS of Latvia and AIS of Lithuania have been agreed.	Ongoing (80%) 12/2018
Kazakhstan	Certificate of Quality Management System, including the provision of aeronautical information obtained in 2016 and 2017. ICAO standards on quality requirements for aeronautical information are applied. Agreements with providers of aeronautical information are established, including requirements for the quality of information are on an agenda. At the moment, ANSP is developing an aeronautical information exchange mechanism with the transition to a digital format.	Ongoing (65%) 12/2018
Kyrgyzstan	Implemented a quality management system in 2017 May. Kyrgyz Republic is fully migrated in the EAD group.	Completed 12/2016
Morocco	Quality management system (QMS) is fully implemented since 2009. .A new digital system for the management of aeronautical information will be installed from mid-2017 till end of 2019..The whole data for Morocco will be filled in the future database for completeness, consistency, data quality requirements, resolution and integrity analysis (end of 2020).	Ongoing (30%) 12/2020
Russian Federation	Work is under way, 60% completed.	Ongoing (60%) 12/2020
Tajikistan	AIM QMS developing is ongoing, cooperation with CAIGA established but QMS aspects need to be verified.	Ongoing (20%) 12/2018

Turkmenistan	All aeronautical information for Turkmenistan is managed by the FSUE in the Russian Federation. They are also publishing the Turkmenistan AIP. There are no plans for a separate AIS QMS implementation, but these digital aeronautical information management issues could be part of the WGS/eTOD data server development project and/or the possible EAD migration project..	Ongoing (50%) 12/2018
Tunisia (data from 2016 cycle)	QMS fully implemented: Certification of the Management System for the Quality of the AIS and the AIO of the Tunisian Airports according to the international standard ISO 9001 since 2006.	Completed 12/2006
Uzbekistan	Data quality requirements standards, implementation of common dataset and digital exchange formats, establish formal arrangements satisfied is part of the WGS-84 program, which has started after State approval. Annual QMS audit is successfully completed.	Ongoing (40%) 12/2019

4.8 B0-FICE

INCREASED INTEROPERABILITY, EFFICIENCY AND CAPACITY THROUGH G/G INTEGRATION	
ATC17	Electronic Dialogue as Automated Assistance to Controller during Coordination and Transfer



1. Progress for States in the LSSIP mechanism

Main 2017 developments:

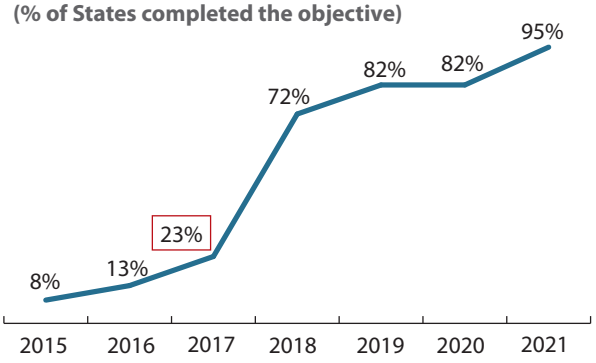
This objective complements the services implemented with ITY-COTR, a regulated provision based on IR. Achievement of it is delayed, compared to last year reports, with a current estimated achievement date of 2019. By the FOC date completion should reach 72%, which is a much lower ratio of the target 79% reported, for the same date, only one year ago. Four (4) States (AL, BA, MT and TR) completed the objective in 2017. The number of administrations declaring delays went up from six (6) in 2016, to ten (10) in 2017. In a good number of cases, this follows the scheduled implementation of a new ATM system. Most OLDI messages are already available in many ATM systems across the applicability area but, in a number of cases their operational introduction is pending on the signing of an agreement between adjacent ACCs.

FOC: 12/2018

Estimated achievement: 12/2019

Planned delay

Completion Rate Evolution (% of States completed the objective)

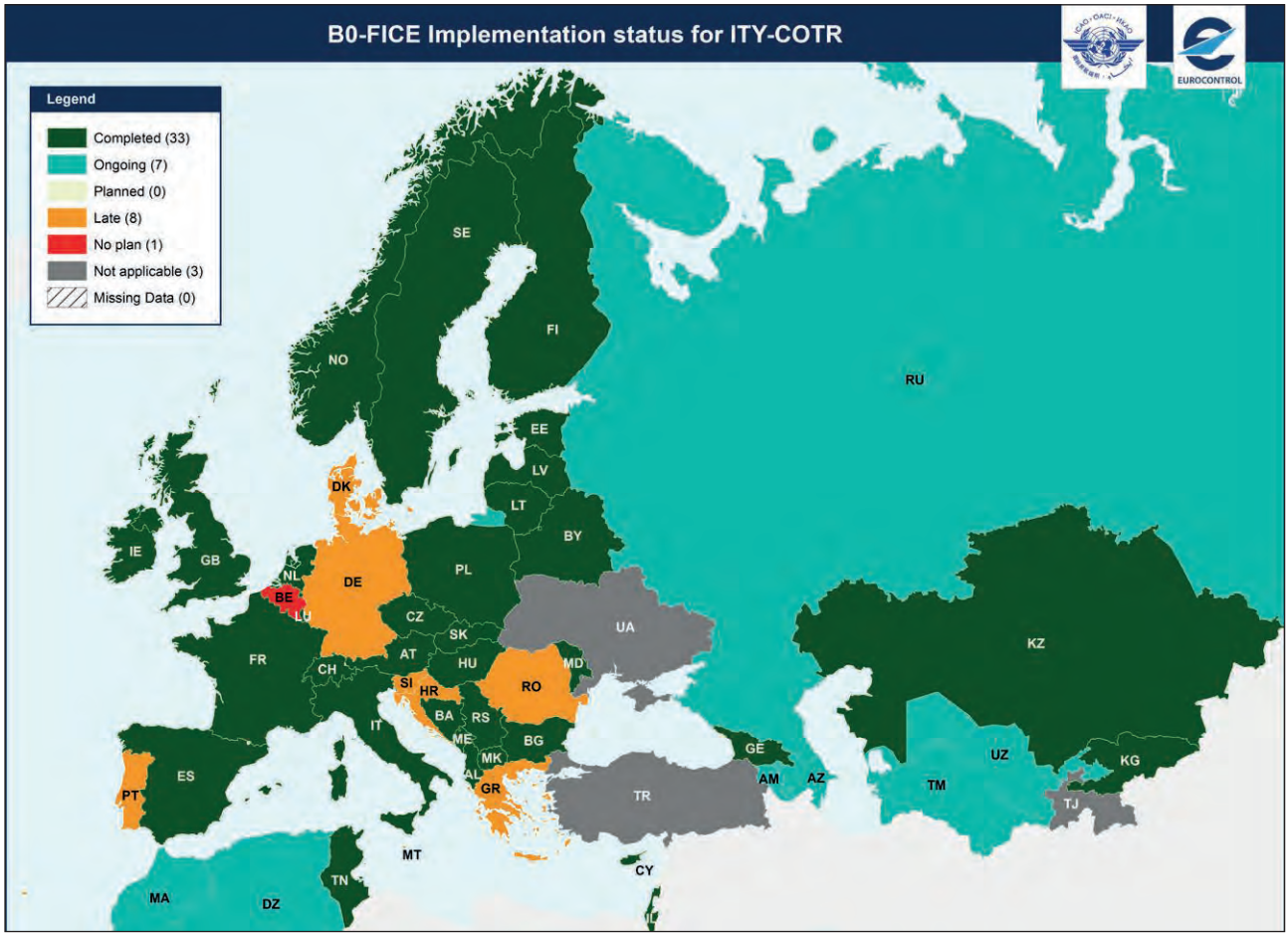


Israel	Objective not reviewed yet.	No Plan

2. Status for remaining States

Algeria	The current system includes Basic OLDI messages. PAC and COD but are not into service, ACT message is operational since 2006 .The future ATC system (as part of the PDGEA project) will integrate the Transfer and Coordination messages in ground-ground communication.	Ongoing (30%) 12/2019
Belarus	The following improvements have been introduced at Minsk ACC and at Minsk Tower: - PAC and COD messages have been implemented. - Electronic dialogue procedures in transfer of control and coordination processes among the ACC sectors and among the adjacent ATS units have been implemented. - Safety assessment is carried out in accordance with national regulations.	Completed 12/2015
Kazakhstan	Ground systems have been upgraded with the functions to support Basic procedure.	Completed 12/2016
Kyrgyzstan	All ATS system in Kyrgyz Republic support the Basic procedure, OLDI (for procedures Coordination and communication) will be implement with Republic Kazakhstan in the beginning 2019. Developing a safety assessment for changes has not yet been conducted	Ongoing (20%) 12/2019
Morocco	The PAC is implemented since 2007. Implementation of COD and other procedures is planned in the framework of new system of Casablanca ACC implementation.The majority of requirements are related to transfer of communication and coordination dialogue messages. Besides, COD and PAC there are 12 another messages that will be implemented in the ATM systems for radar and flight data processing.	Ongoing (25%) 12/2020
Russian Federation	The basic functionalities of OLDI-based voiceless communication were implemented in 60% of current automated ATC systems. Level 2 functionalities have been implemented in two automated ATC systems. All newly developed automated ATC systems are designed to support basic functionalities of OLDI-based voiceless communication.	Ongoing (60%) 12/2020
Tajikistan	ATC System (Master from Peleng) was installed 2012 and ground-ground ATC system functionality was not installed.	Not Applicable
Turkmenistan	A new ATC system upgrade (Thales TopSky) has been installed in the Ashgabat ACC in March 2016. The system includes AFTN and FPL/FDPS functionalities. The automatic ground-ground ATC system coordination functionality is not put into operation. The coordination (COTR) between ACC/APP Sectors within Ashgabat ACC, and with any other neighbouring ACC is done via phone and will also be done in the future via phone.	Not Applicable
Tunisia (data from 2016 cycle)	Current FDPs support the different levels of data online exchange (OLDI messages), including COD and PAC.	Completed 12/2014
Uzbekistan	After new ATC system for Uzbekistan will be operational, the use of OLDI is planned. Based on bilateral agreement with adjacent countries OLDI procedures will be used.	Planned 12/2019

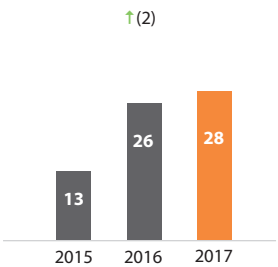
INCREASED INTEROPERABILITY, EFFICIENCY AND CAPACITY THROUGH G/G INTEGRATION	
ITY-COTR	Implementation of ground-ground automated co-ordination processes



1. Progress for States in the LSSIP mechanism

The objective ITY-COTR was declared closed after the 2015 cycle. However those States that have not yet completed their activities were requested to update their progress in the LSSIP database for ICAO Monitoring purposes. The following is a summary of progress achieved in 2015, 2016 and 2017.

Status	2015	2016	2017
Completed	13 (AL, AT, EE, GE, IE,LU, ME, NL, PL, RS, SE, CH, UK)	26 (AL, AT, CY, CZ, EE, FI, FR, FYROM, GE, HU, IE, IT, LU, LT, LV, MD, ME,NL, NO, PL, RS, SK, ES, SE, CH, UK)	Completed in 2017: BA, BG
Partly Completed/ Ongoing	14 (AM, BE, BG, HR, FI, FYROM, HU, LV, LT, MT, MD, NO, RO, ES)	2 (AM, AZ)	2 (AM, AZ)
Planned	4 (AZ, CY, CZ, IT)	0	
Late	8 (BA, DK, FR, DE, GR, PT, SK, SI)	10 (BA, BG, HR, DK, DE,GR, MT, PT, RO, SI)	8 (HR, DK, DE, GR, MT, PT, RO, SI)
No plan		1 (BE)	1 (BE)
Not Applicable	2 (TR, UA)	2 (TR, UA)	

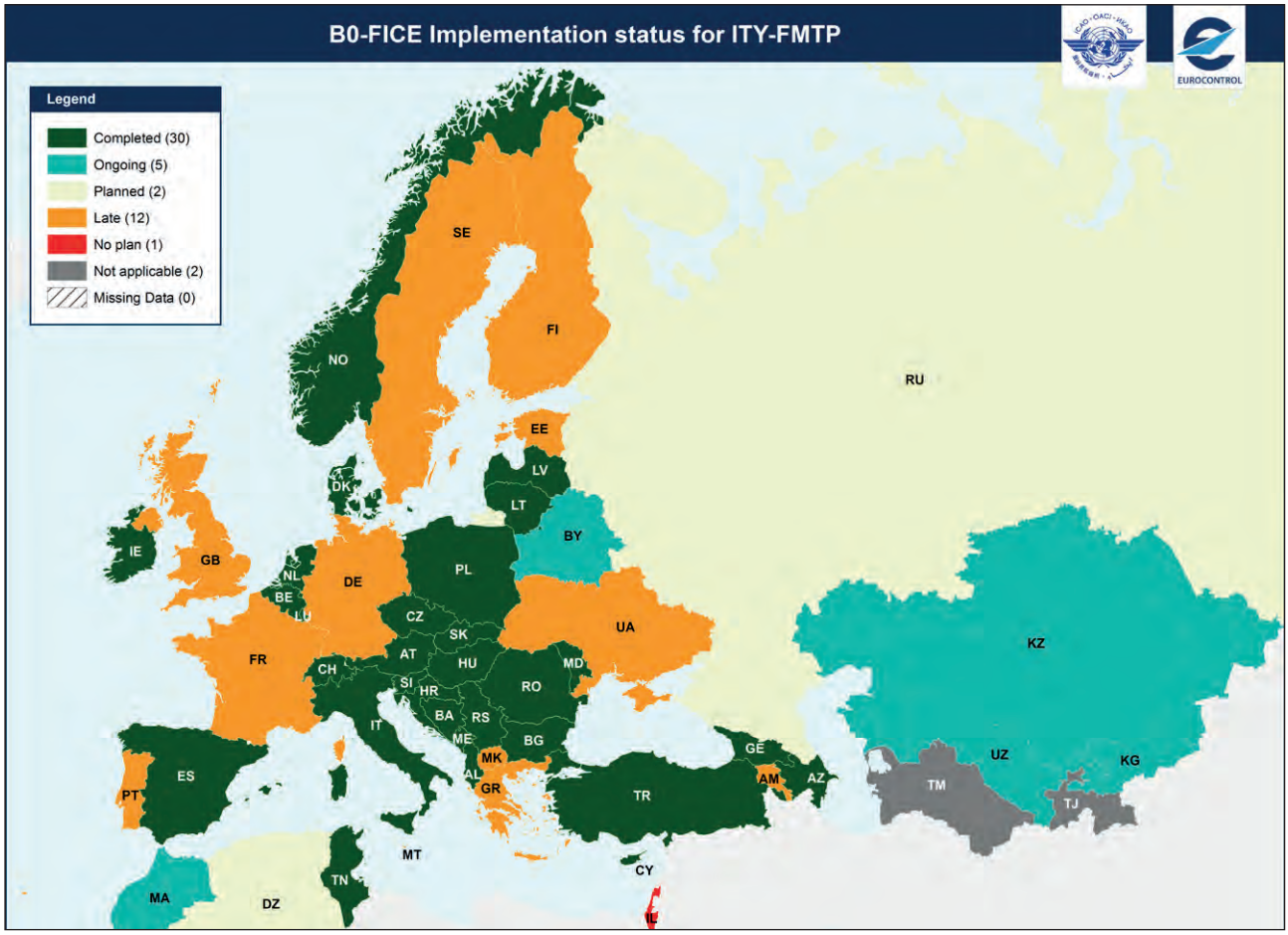


Israel	The IAA has implemented the Electronic Flight Strip (EFS) since Q3 2015 which provides automated coordination capabilities between the Israeli ATC units. The civil-military exchanges are not-applicable as the system uses the same data base.	Completed 09/2015

2. Status for remaining States

Algeria	The current system includes Basic OLDI messages (ABI, ACT, PAC, LAM) and some AIDC messages. An OLDI connection exists between Algiers ACC and Aix-en-Provence ACC and is fully operational since 2006.The future ATC system (as part of the PDGEA project) will implement the Full OLDI protocol and the AIDC protocol.	Ongoing (70%) 12/2019
Belarus	OLDI connection (ABI, ACT, REV, PAC, MAC, LAM) was implemented between Minsk ACC and the following adjacent ATS centres: with Lviv ACC in December 2004, with Kyiv ACC in May 2005, with Riga ACC in July 2006, with Vilnius ACC in December 2006, with Warsaw ACC in July 2007, with St-Petersburg ACC in March 2014, with Moscow ACC in July 2015. Relevant amendments have been introduced into LoAs with the adjacent ATS Centres.	Completed 12/2015
Kazakhstan	Completed in 2016.	Completed 12/2016
Kyrgyzstan	All ATC systems in the Kyrgyz Republic meet these requirements.	Completed 12/2009
Morocco	The OLDI system links Morocco's ACC to those at Canary, Seville and Lisbon. An OLDI link will be established with ALG FIR when they implement required functionality.	Ongoing (80%) 12/2020
Russian Federation	Work is under way to implement automated OLDI communication while putting into operation new automated ATC systems or upgrading existing ones.	Ongoing (60%) 12/2020
Tajikistan	New ATC System (Master from Peleng) was installed 2012 and ground-ground ATC system functionality was not installed.	Not Applicable
Turkmenistan	A new ATC system upgrade (Thales TopSky) has been installed in the Asgabat ACC in March 2016. The system includes AFTN and FPL/FDPS functionalities. The automatic ground-ground ATC system coordination functionality is not in operation. The coordination (COTR) between ACC/APP Sectors within Asgabat ACC, and with any other neighbouring ACC is done via phone and will also be done in the future via phone. A system to system coordination via AFTN has been implemented with Iran in 2017. A system to system coordination via AFTN between Ashgabat ACC, Turkmenabat ACC and Dashoguz ACC is implemented. A system upgrade is also planned for Turkmenbashi ACC within the next 2 years.	Ongoing (80%) 12/2018
Tunisia (data from 2016 cycle)	Current FDPs support and process the different coordination messages.	Completed 12/2014
Uzbekistan	The current ATC System (Thomson/Peling Master) includes AFTN and FPL/FDPS/ RDPS functionalities. The automatic G/G ATC system coordination functionality is operational in Tashkent ACC with coordination between ACC, APP and TWR. The coordination (COTR) between Samarkand and Nukus ACC, and with any other adjacent ACC is done via phone. .ANP will announce tendering (selection of new ATC system in 2018) for new ATC system for Uzbekistan that will include the ground-ground automated co-ordination functionalities.	Ongoing (50%) 12/2020

INCREASED INTEROPERABILITY, EFFICIENCY AND CAPACITY THROUGH G/G INTEGRATION	
ITY-FMTP	Apply a common flight message transfer protocol (FMTP)



1. Progress for States in the LSSIP mechanism

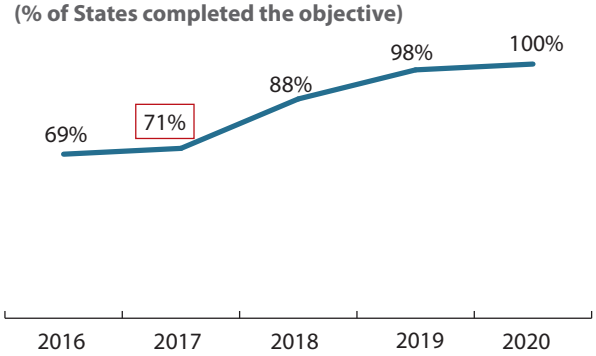
Main 2017 developments:

Implementation is late, with 4 years of delay. Only DK completed the objective in June 2017. Twelve (12) States (AM, EE, FI, FR, DE, GR, MT, PT, SE, MK, UA & UK) reported the Objective "Late" with the latest projected implementation date foreseen by UK for December 2020, thus with a delay of 6 years. The main problems for delay are slow migration from IPv4 to IPv6 (for MK, EE & PT), foreseen implementation during next major system upgrades (for UA) and especially the ability of neighbouring ACC's to support FMTP (example: DE-FR-UK, depending on FR system upgrades planned by end 2018 and PENS availability, or FI-SE depending on FI system upgrades planned by March 2018). Delay also occurred due to budget restrictions and introduction of new ATM Systems. E.g: GR-MK-MT.

FOC: 12/2014 **Late**

Estimated achievement: 12/2018

Completion Rate Evolution (% of States completed the objective)



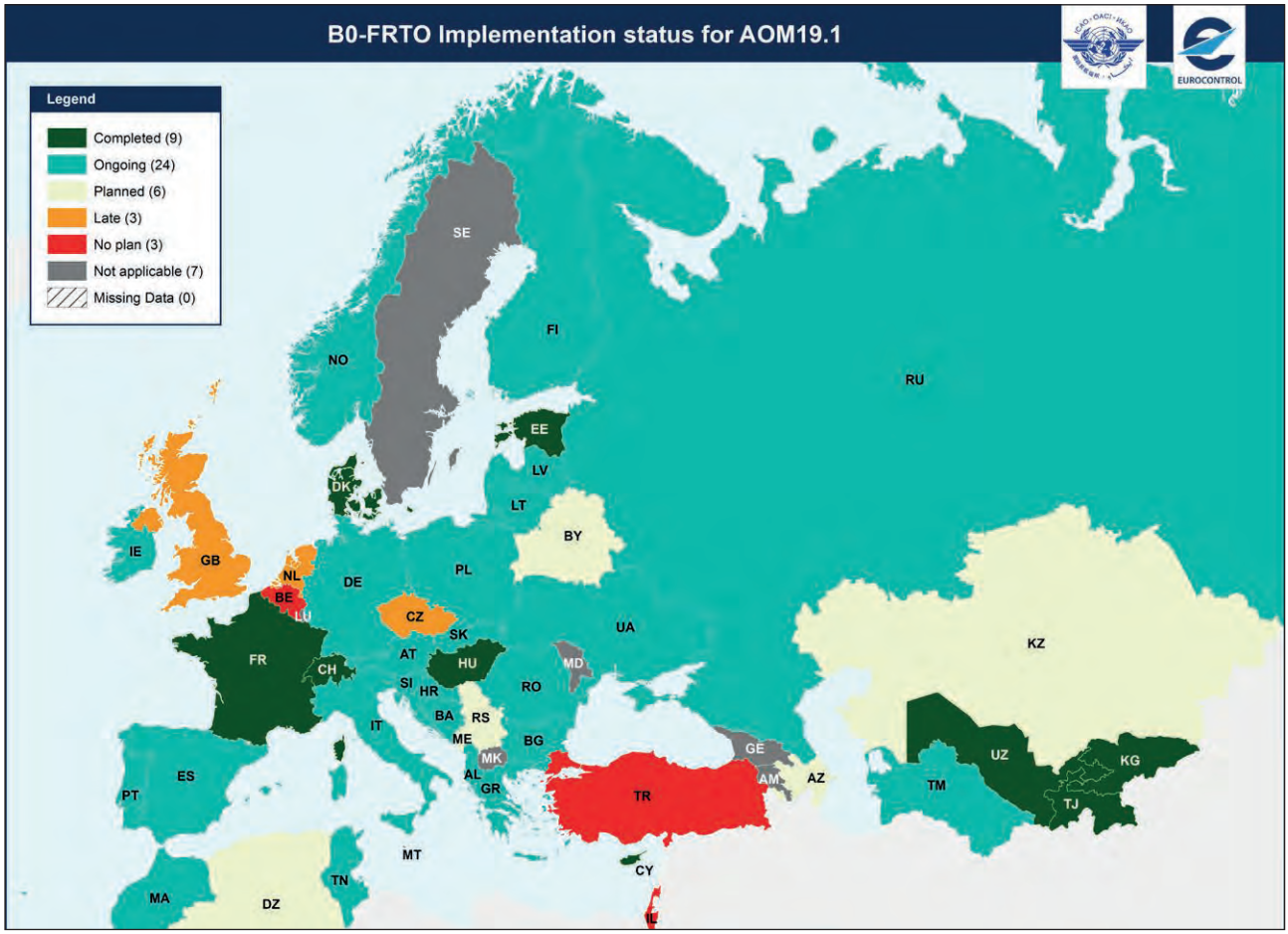
Israel	No Plans yet. Implementation may be reconsidered in context of the new ATM system planned for 12/2023.	No Plan

2. Status for remaining States

Algeria	The future ATC system (as part of the PDGEA project) will integrate the Full IP for OLDI protocol (FMTP).	Planned 12/2019
Belarus	Communication equipment has been upgraded to support FMTP. Information exchange via FMTP has been implemented between Minsk ACC and St-Petersburg ACC. Migration from X.25 protocol to FMTP protocol is accomplished in agreement with the adjacent ATS Centres. Relevant agreements have been reached with Warsaw ACC, Kyiv ACC and Lviv ACC. Safety assessment is carried out for the migration to FMTP protocol, in accordance with national rules.	Ongoing (30%) 12/2018
Kazakhstan	ANSP has planned discussions with ATC systems manufacturers to have FMTP realized by the end of 2018.	Ongoing (40%) 12/2018
Kyrgyzstan	Between all ATC units in Kyrgyz Republic using a peer-to-peer communication mechanism, unfortunately this is not the case with neighboring countries.	Ongoing (30%) 12/2025
Morocco	Upgrade and put into service communication systems to support information exchange via FMTP between FDPS(s) for the purpose of notification, coordination and transfer of the flights between ATC units. Develop safety assessment for the changes ongoing.	Ongoing (80%) 12/2018
Russian Federation	OLDI implementation based on FMTP is planned at consolidated ACCs. A number of actions to develop a communication grid to provide for OLDI data exchange are planned as part of a Federal Target Programme.	Planned 12/2020
Tajikistan	ATC System (Master from Peleng) was installed 2012 and ground-ground ATC system functionality was not installed.	Not Applicable
Turkmenistan	A new ATC system upgrade (Thales TopSky) has been installed in the Ashgabat ACC in March 2016. The system includes AFTN and FPL/FDPS functionalities. The automatic ground-ground ATC system coordination functionality is not put into operation. The coordination (COTR) between ACC/APP Sectors within Ashgabat ACC, and with any other neighbouring ACC is done via phone and will also be done in the future via phone.	Not Applicable
Tunisia (data from 2016 cycle)	Current FDPs support information exchange via FMTP.	Completed 12/2014
Uzbekistan	FMTP functions are done by the ARO in Tashkent via AFTN. After new ATC system has been installed. Requirements specification of a new ATC system provides for availability of FMTP.	Ongoing (30%) 12/2020

4.9 B0-FRTO

IMPROVED OPERATIONS THROUGH ENHANCED EN-ROUTE TRAJECTORIES	
AOM19.1	Implement AMS support tools to support A-FUA



1. Progress for States in the LSSIP mechanism

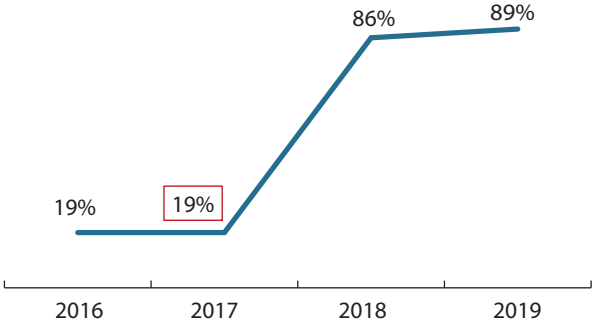
Main 2017 developments:

The objective is an important enabler for the PCP sub-functionality 3.1. Seven (7) States have completed it (CH, CY, DK, EE, FR, HU and MAS) and most of the remaining States report plans within the deadline of 12/2018. However it is for the first year that 3 States (CZ, NL and UK) report plans that go beyond the deadline, whereas two (GE and SE) report that there is no operational need for an automated ASM tool and one (TR) is considering its implementation.
Fifteen States have implemented local ASM tools; some are local solutions but a majority of them rely on LARA (Local and sub-Regional ASM Support System). Eleven out of these fifteen are connected to NM through a B2B connection.
Considering the proximity of the deadline and the still low level of completion, the status of the objective is changed to 'Risk of delay'.

FOC: 12/2018 **Risk of delay**

Estimated achievement: 12/2018

Completion Rate Evolution (% of States completed the objective)

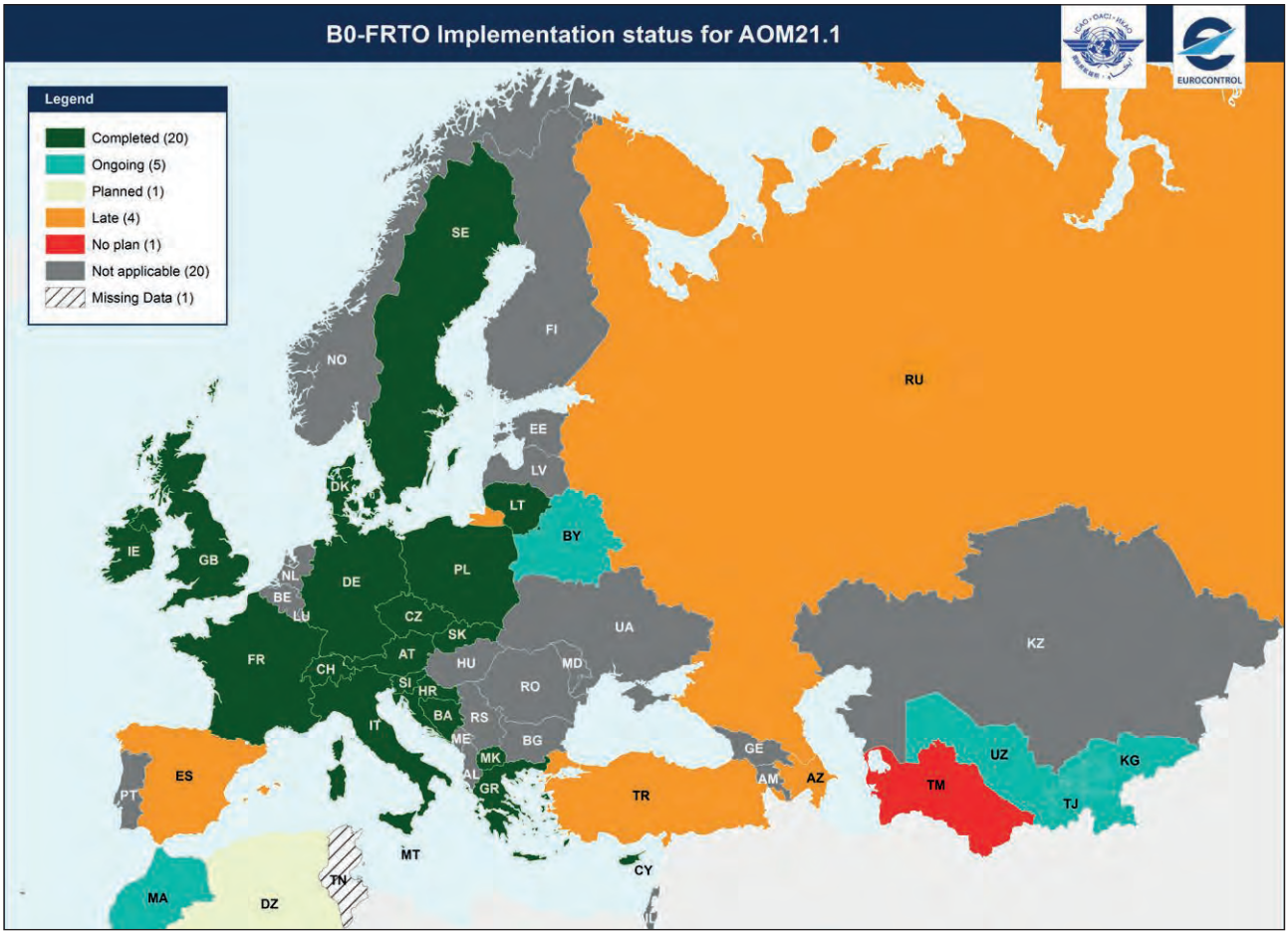


Israel	No plan (the objective has been reviewed but no implementation decision has been taken yet). At tactical level there is a local tool supporting ASM.	No Plan

2. Status for remaining States

Algeria	There is a national Airspace management board made up of highly civil and military personal where FUA enhancements are under discussion. LoAs have been established between the civil and military aviation stakeholders and coordination of ASM is done in regular quarterly meetings. Following the recommendations of the last ICAO seminar on civil / military coordination held in Algiers from 26 to 28 March 2018, a joint transport / ANSP and military committee is set up to put in place a progressive concept of the concept. FUA in FIR Algiers.	Planned 12/2019
Belarus	Belarus intends to implement A-FUA concept at a later stage.	Planned 12/2020
Kazakhstan	Kazakhstan ASM systems supporting the airspace planning and allocation will be deployed by 2022.	Planned 12/2020
Kyrgyzstan	Kyrgyzstan is operating a combined civil military ATFM Unit which provides the describe services. The SAR coordination center is an integrated part of this unit.	Completed
Morocco	Implementation of FUA is planned in the "AREA-M" project in three phases. FMP implemented in Casablanca since 2007.	Ongoing (40%) 12/2025
Russian Federation	The system is in operation, the next level of automation with functionalities equivalent to LARA is being implemented.	Ongoing (50%) 12/2018
Tajikistan	The Tajikistan Main Air Navigation Center includes an ATFM Unit which provides the describe services.	Completed 12/2012
Turkmenistan	Turkmenistan is operating a combined civil military Airspace Management (ASM) Unit which provides the describe services. Asgabat ACC and Turkmenbashi ACC have also integrated a military CWP. The coordination with adjacent units/ACCs is done verbally and ATFM is done at tactical level (ATC supervisor) only. The main ATFM unit is Asgabat and the coordination with other ATFM units is done via NOTAM and phone.	Ongoing (75%) 12/2018
Tunisia (data from 2016 cycle)	Basic coordination for ASM aspects are currently conducted by Tunis FMP. Strategic and pre-tactical levels are implemented. To be developed with EUROCONTROL to ensure the process of advanced ASM activities.	Ongoing (0%) 12/2020
Uzbekistan	Uzaeronavigation has a combined civil military Airspace Management (ASM) Unit which provides some of the ATFM services. All ACCs (Tashkent, Samarkand and Nukus) have an integrated military CWP. The coordination with adjacent units/ ACCs is done verbally and ATFM is done at tactical level (ATC supervisor). The main ATFM unit is located in Tashkent and the coordination with other ATFM units is done via phone. No regional coordination is done with Moscow ATFMU or the NMOC in Brussels..Due to low traffic, no additional implementation actions are planned for aerodromes of Uzbekistan.	Completed 12/2017

IMPROVED OPERATIONS THROUGH ENHANCED EN-ROUTE TRAJECTORIES	
AOM21.1	Implementation of Direct Routing



1. Progress for States in the LSSIP mechanism

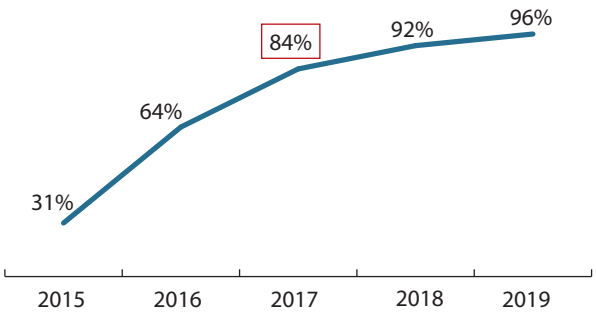
Main 2017 developments:

Among the applicable States twenty two (22) report full implementation of this Objective. It has to be noted that Seventeen (17) States report it as 'not applicable' due to the fact that they have already implemented full FRA or planed to deploy full FRA before 1 January 2018 (fifteen (15) States) and due to no service provision above FL310 (three (3) States). Within the "regulated" area (EU+, above FL310), the implementation of Direct Routes (AOM21.1) is virtually completed with only one State (ES) having only partly implemented the functionality. In a very limited number of States, outside the regulated applicability area, the implementation will continue, with implementation plans extended until end-2019. It is therefore recommended to consider the objective as 'Achieved'.

FOC: 12/2017 **Achieved**

Estimated achievement: 12/2017/18

Completion Rate Evolution (% of States completed the objective)



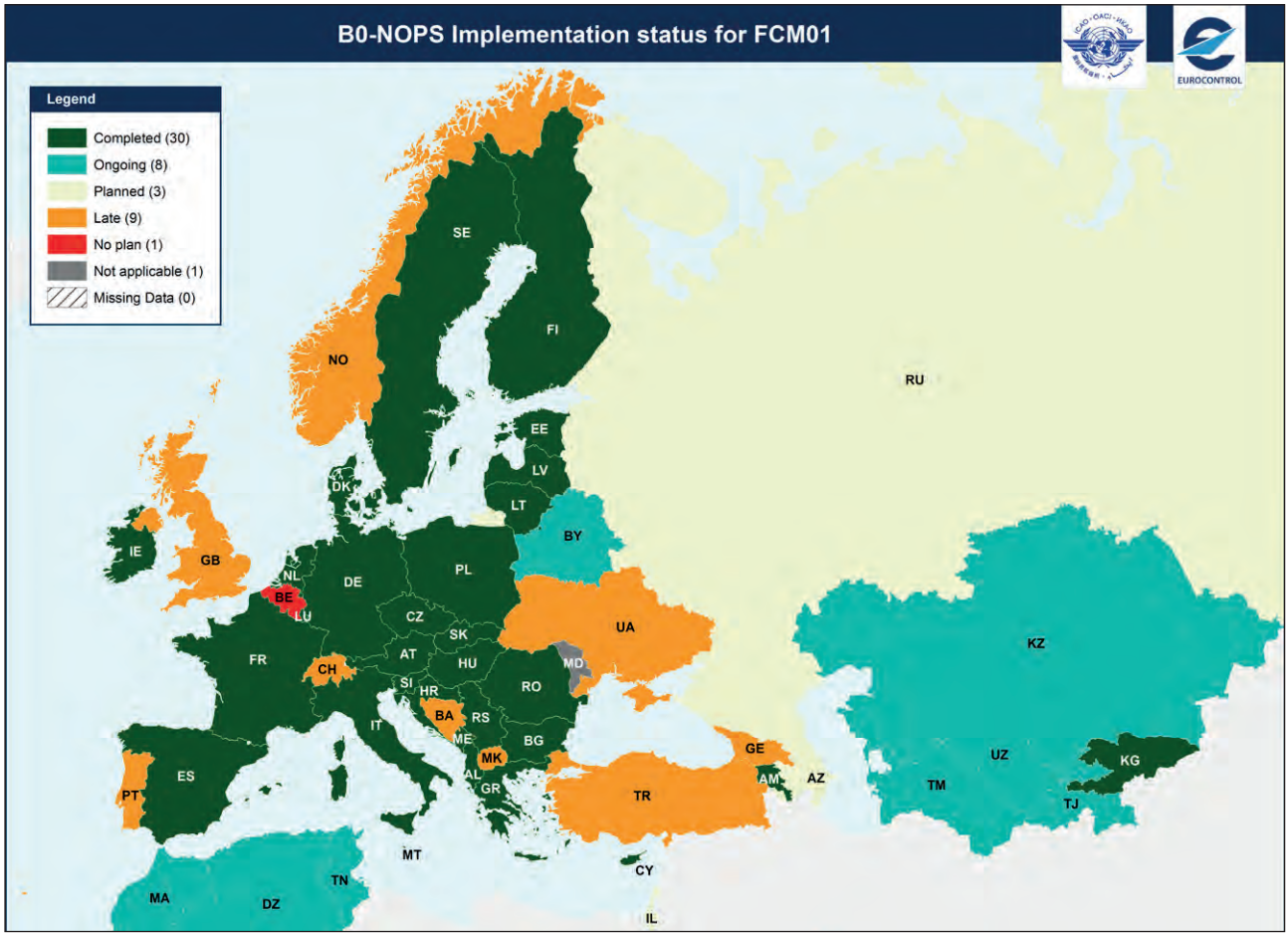
Israel	For the time being there are no IFR/GAT over flights above FL310. Objective will be reconsidered in due time taking into account the airspace reorganisation.	Not Applicable

2. Status for remaining States

Algeria	Identification of the direct routing airspace volume and adaptation of airspace design to ensure DIRECT ROUTING are planned in 2019. A formal letter has been sent to EUROCONTROL to include DAAA FIR into NM ATFM area of responsibility which will provide the necessary means to implement the abovementioned actions.	Planned 12/2019
Belarus	Road Map for implementation of free route operations in Belarus airspace has been developed. Relevant consultations with EUROCONTROL experts have been held. Working meeting was organized on 04-05 April 2018 at EUROCONTROL office in order to discuss operational aspects of FRA implementation in Belarus, using simulation of air traffic environment. Taking into account EUROCONTROL recommendations, it is planned to implement free route operations in Belarus airspace starting from 08 November 2018, in the airspace layer of FL 305 to FL 660 during the time period of 23.00h to 05.00h UTC.	Ongoing (80%) 11/2018
Kazakhstan		Not Applicable
Kyrgyzstan		Ongoing
Morocco	Implementation of CDT is planned in the "AREA-M" project in three phases.	Ongoing (30%)
Russian Federation	The concept of Flexible Use of Airspace is planned to be developed in the Russian Federation.	Late
Tajikistan		Ongoing
Turkmenistan		No Plan
Tunisia (data from 2016 cycle)		Missing data
Uzbekistan		Ongoing

4.10 B0-NOPS

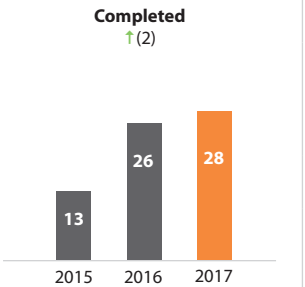
IMPROVED FLOW PERFORMANCE THROUGH PLANNING BASED ON A NETWORK-WIDE VIEW	
FCM01	Implement enhanced tactical flow management services



1. Progress for States in the LSSIP mechanism

The objective FCM01 was declared closed after the 2015 cycle. However those States that have not yet completed their activities were requested to update their progress in the LSSIP Database for ICAO Monitoring purposes.
The following is a summary of progress achieved in 2015, 2016 and 2017.

Status	2015	2016	2017
Completed	27 (AL, AM, AT, BG, HR, CY, CZ, EE, FI, FR, DE, GR,HU, IE, IT, LT, LU, MT, ME, NL, PL, RO, RS, SK, SI, ES, SE)	27 (AL, AM, AT, BG, HR, CY, CZ, EE, FI, FR, DE, GR, HU, IE, IT, LT, LU, MT, ME, NL, PL, RO, RS, SK, SI, ES, SE)	Completed in 2017: DK, LV
Planned	1 (AZ)	1 (AZ)	1 (AZ)
Late	10 (BE, DK, FYROM, GE, LV, NO, PT, TR, UA, UK)	11 (BA, DK, FYROM, GE, LV, NO, PT, CH, TR, UA, UK)	9 (BA, DK, FYROM, GE, LV, NO, PT, CH, TR, UA, UK)
No plan	0	1 (BE)	1 (BE)
Not Applicable	1 (MD)	1 (MD)	

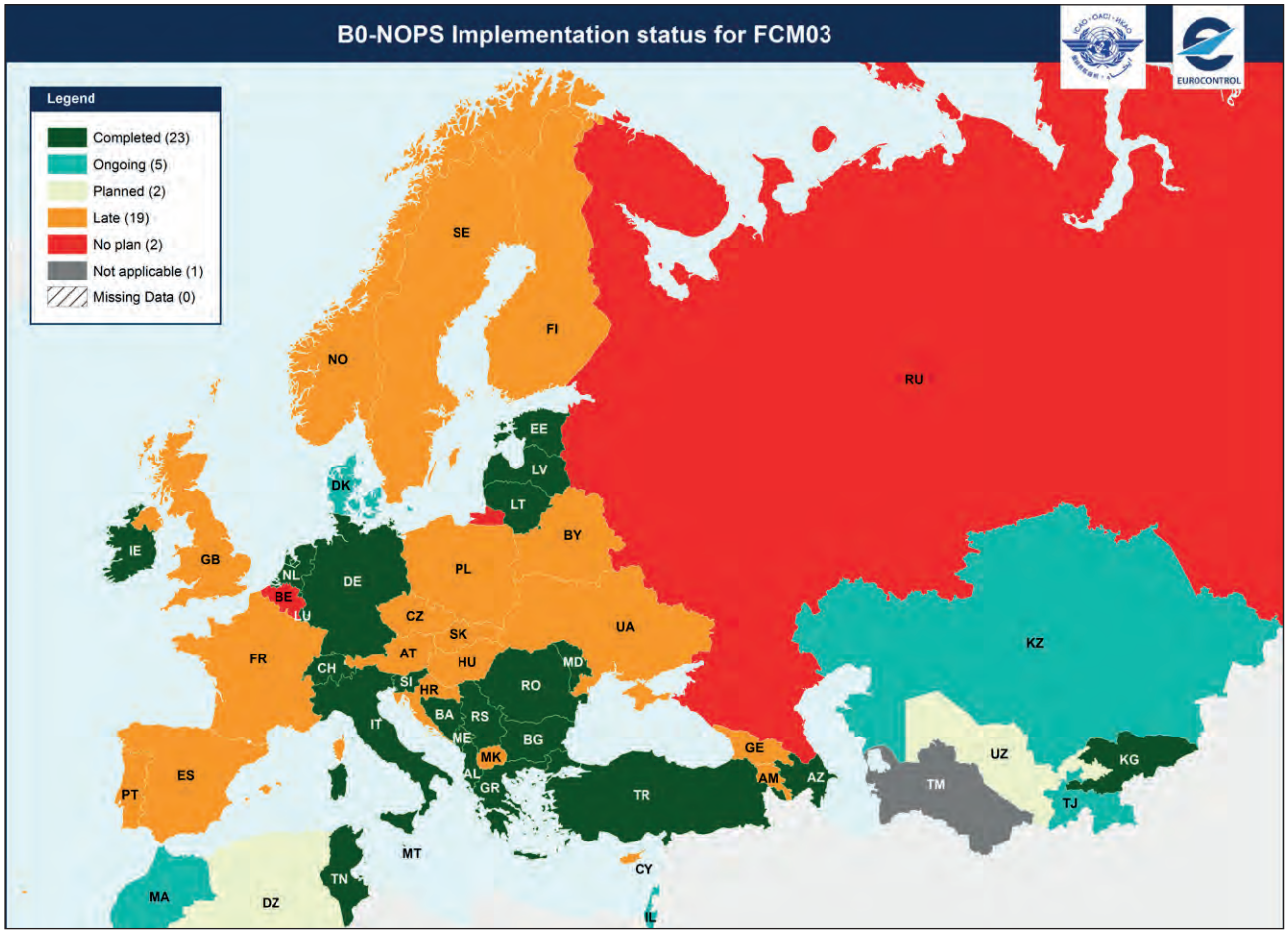


Israel	Implementation (e.g. FSA transmission) is planned with the new ATM system, expected for 12/2023.	Planned 12/2023

2. Status for remaining States

Algeria	An Eurocontrol FMP has been installed in Algiers ACC and Algiers ACC is considered as an adjacent area for operational purposes. We include in the PDGEA project the following elements of the present Module: - Receive and process ATFM data from the NM. - Inform NM of flight activations and estimates for ATFM purposes. The remaining elements (re-routings inside FDPA, aircraft holding, Departure Planning Information) are not applicable and therefore not planned. A formal letter has been sent to EUROCONTROL to include DAAA FIR into NM ATFM area of responsibility.	Ongoing (10%) 12/2019
Belarus	FMP was established at Minsk ACC in 2010. Information about traffic flows is disseminated by the FMP to all interested users. If necessary, ATFM measures can be taken by ATC in Minsk FIR. In order to arrange for applying ATFM measures in Belarus airspace and adjacent states, the following agreements have been concluded: - Agreement for Air Traffic Flow Management between EUROCONTROL and the Department of Aviation No. 00/74 dd 05/07/2000 as amended by Protocol dd 31/07/2008. - Agreement for Coordination of Flights over Belarus airspace aiming at reducing overload in congested areas within CFMU zone dd May 2010.	Ongoing (60%) 12/2019
Kazakhstan	ANSP has planned discussions with Automated Traffic Flow Management system manufacturer. Technical specifications are being developed (Preliminary stage).	Ongoing (10%) 12/2022
Kyrgyzstan	The ATFM unit coordinates a number of ATFM measures with adjacent ATFMUs in neighbouring States and the Moscow Main ATFM Center, by either AFTN, direct phone lines or specific SATCOM lines. New functions are planned with the upgrade of the ATS system in 2022.	Completed
Morocco	FMP implemented in Casablanca since 2007. FSA messages are provided by Moroccan ATM system since 2011. The provision of CPR messages to the ETFMS is planned for 2017/2018. Process of CPR implementation is on-going during year 2018.	Ongoing (80%) 12/2018
Russian Federation	The functions are planned to be implemented as part of an upgrade of the Russian Joint ATM System Main Centre and all zonal centers.	Planned 12/2020
Tajikistan	The ATFM unit coordinates a number of ATFM measures with adjacent ATFMUs in neighbouring States and the Moscow Main ATFM Center. Further clarification needed, if this relates to the EURASIA CC regional ATFM project.	Ongoing (60%) 12/2018
Turkmenistan	The ATFM unit in Ashgabat coordinates a number of ATFM measures with all adjacent ATFMUs in neighboring States.	Ongoing (50%) 12/2018
Tunisia (data from 2016 cycle)	Tunis FMP linked to ETFMS system through CIFLO. ATFM activities are provided as an adjacent FMP. FSA messages are sent by Tunis and Djerba FDPs to the NM ETFMS operational system since July 2016.	Ongoing 12/2018
Uzbekistan	A ATFM unit has been established in Tashkent ACC, as published in AIP ENR 1.9, which coordinates with military units and other ACCs. Some of the ATFM functions are performed and ATFM measures are coordinated with all adjacent ATFMUs in neighbouring States. One of the activities of the Eurasia coordination council is the establishment of a sub-regional ATFM Center and Uzbekistan is supporting these developments	Ongoing (50%)

IMPROVED FLOW PERFORMANCE THROUGH PLANNING BASED ON A NETWORK-WIDE VIEW	
FCM03	Collaborative Flight Planning



1. Progress for States in the LSSIP mechanism

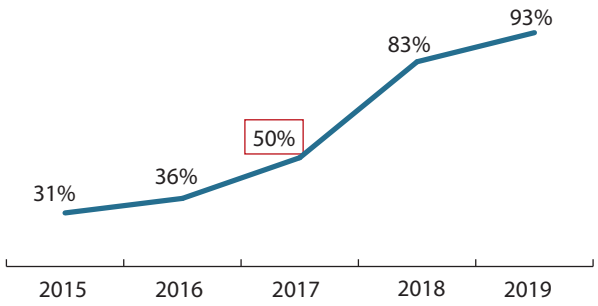
Main 2017 developments:

Implementation continues to be slow. Overall, only half of the States have declared completion. The expected surge in implementation in 2017 has been missed and a substantial increase in completion rate is now provisionally expected for 2018. However, full implementation over the entire area of applicability is expected only in 2021. It should be noted that the objective is considered implemented when the NM has integrated the received messages in the operational system. This requires the capability of the local ANSP systems to generate and transmit AFP messages but also a testing and validation period with the NM. It should also be noted that only automatic AFPs should be considered as the manual AFPs in most of the cases contain incorrect data. It is observed that for several States (e.g. AZ, DE, GR, IE, MD, TR, SI) having reported completion, the integration within NM has not yet been tested (or the tests have failed) and the AFP messages are not yet integrated in the operational NM system or the messages are not sent automatically as required by the Objective (ME, RS). Therefore the real completion rate, reported by NM following the AFP integration in the NM system is lower than the one reported by the States.

FOC: 12/2017 **Late**

Estimated achievement: 12/2018

Completion Rate Evolution (% of States completed the objective)



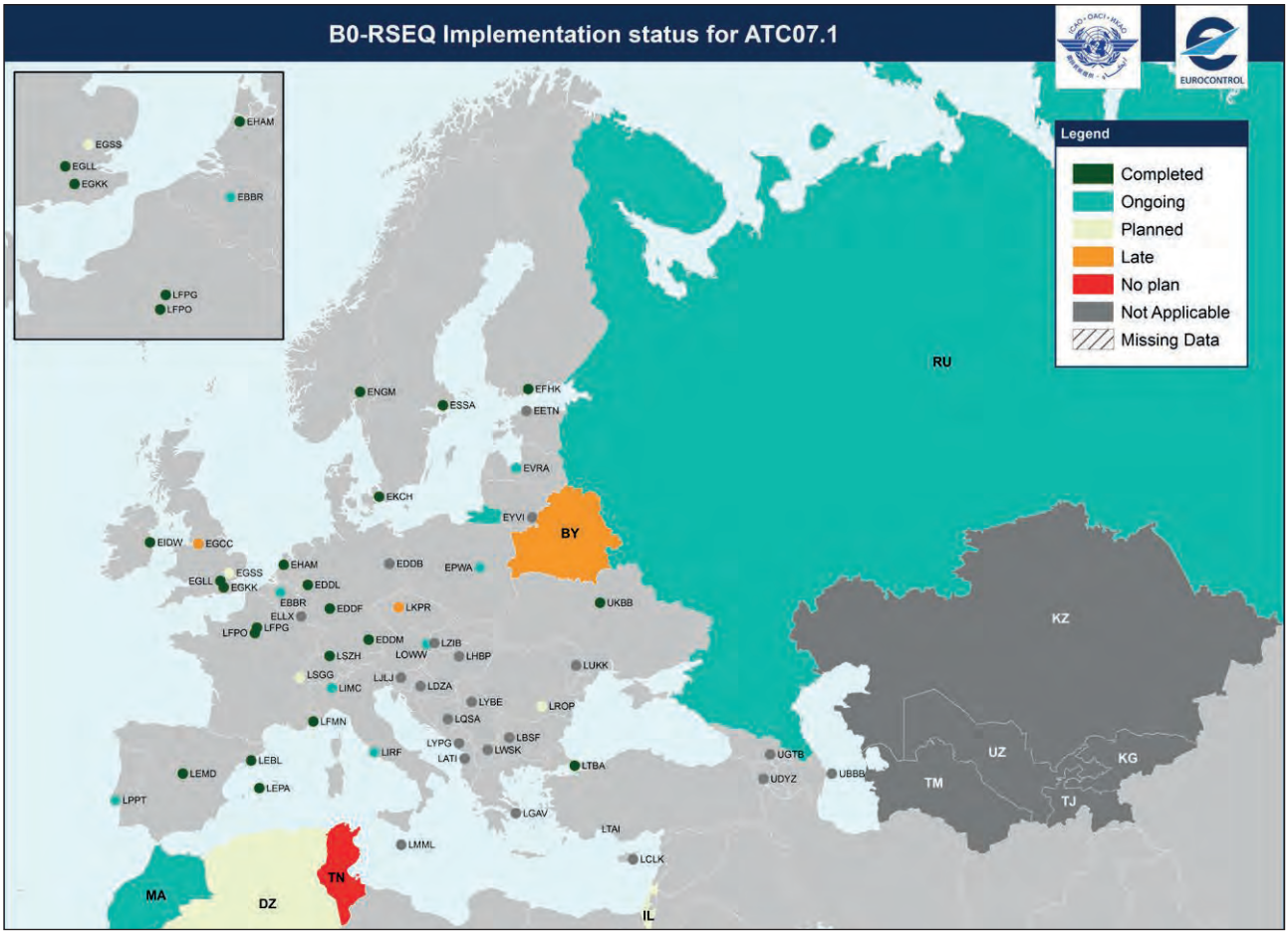
Israel	First steps in implementation have been taken through Israel joining the IFPZ (therefore the "Ongoing" status at objective level and the overwritten percentage). Full completion is expected with the deployment of the new ATM system planned for 12/2023.	Ongoing (6%) 12/2023

2. Status for remaining States

Algeria	Current system process FPLs derived from RPLs, FPL handling is managed by a converter. Other functions will be included in the new system (PDGEA).	Planned 12/2019
Belarus	Flight plan messages in ICAO format are processed manually. FPL and ACH messages are processed manually. Flight plan message processing in ADEXP format is not provided. Automatically provision of AFP messages is not accomplished.	Late 12/2019
Kazakhstan	The automated Traffic Flow Management system provides part of specified functions of Collaborative Flight Planning. AFP message for a change of flight rules or flight type is not applicable. AFP message for a change of requested cruising level is not applicable. AFP message for a change of aircraft equipment is not applicable.	Ongoing (50%) 12/2020
Kyrgyzstan	The ATFM unit coordinates a number of ATFM measures with adjacent ATFMUs in neighbouring States and the Moscow Main ATFM Center, by either AFTN, direct phone lines or specific SATCOM lines. New functions are planned with the upgrade of the ATS system in 2022.	Completed
Morocco	Morocco integrated IFPS zone and CFMU area since 2007. All FPLs and associated messages are processing by IFPS since 2008 and our ATC system process automaticallyin ADEXP format. Automatically process FPLs derived from RPLs is received from IFPS. Processing of APL and ACH messages in ATC. The implementation of other messages is planned in the framework of the new system (acquisition of new ATM system planned for 2019) of Casablanca ACC.	Ongoing (60%) 12/2019
Russian Federation	Messages are processed in compliance with ICAO Standards and Recommended Practices. FPL processing in ADEXP format is planned no earlier than 2020. AFP messages are not planned to be used, as the procedure for interaction between air traffic planning units and airspace users is based on national rules.	No Plan
Tajikistan	ICAO FPLs are processed but not in ADEXP format.	Ongoing (50%) 12/2018
Turkmenistan		Not Applicable
Tunisia (data from 2016 cycle)	Latest function implemented through new FDPs systems in 2014.	Completed 12/2014
Uzbekistan	After new ATC system for Uzbekistan will be operational.	Planned 12/2020

4.11 B0-RSEQ

IMPROVE TRAFFIC FLOW THROUGH RUNWAY SEQUENCING (AMAN/DMAN)	
ATC07.1	Implement arrival management tools



1. Progress for States in the LSSIP mechanism

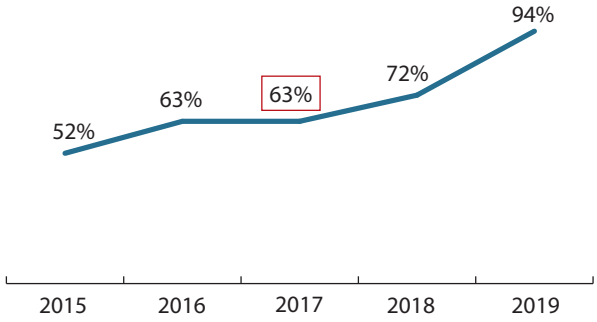
Main 2017 developments:

A moderate, positive trend in the implementation of basic AMAN is confirmed for 2017, with one additional operational introduction with respect to 2016. Basic AMAN is deployed in 20 locations, with another 7 on their way to implement it by the deadline of 12/2019. Of these, the progress in 2017 varies from 20% to 66% completion of the required actions. Two airports (Prague and Manchester) have plans to implement this objective beyond the FOC date, with a target completion by 2022. Another 3 airports (Bucharest, London Stansted and Geneva) have plans to complete the implementation by the FOC date, but deployment actions had not yet started in 2017.
Finally, the voluntary applicability area of the objective has grown to 33 locations, from 20 in 2014.

FOC: 12/2019 **On time**

Estimated achievement: 12/2019

Completion Rate Evolution (% of Airports completed the objective)

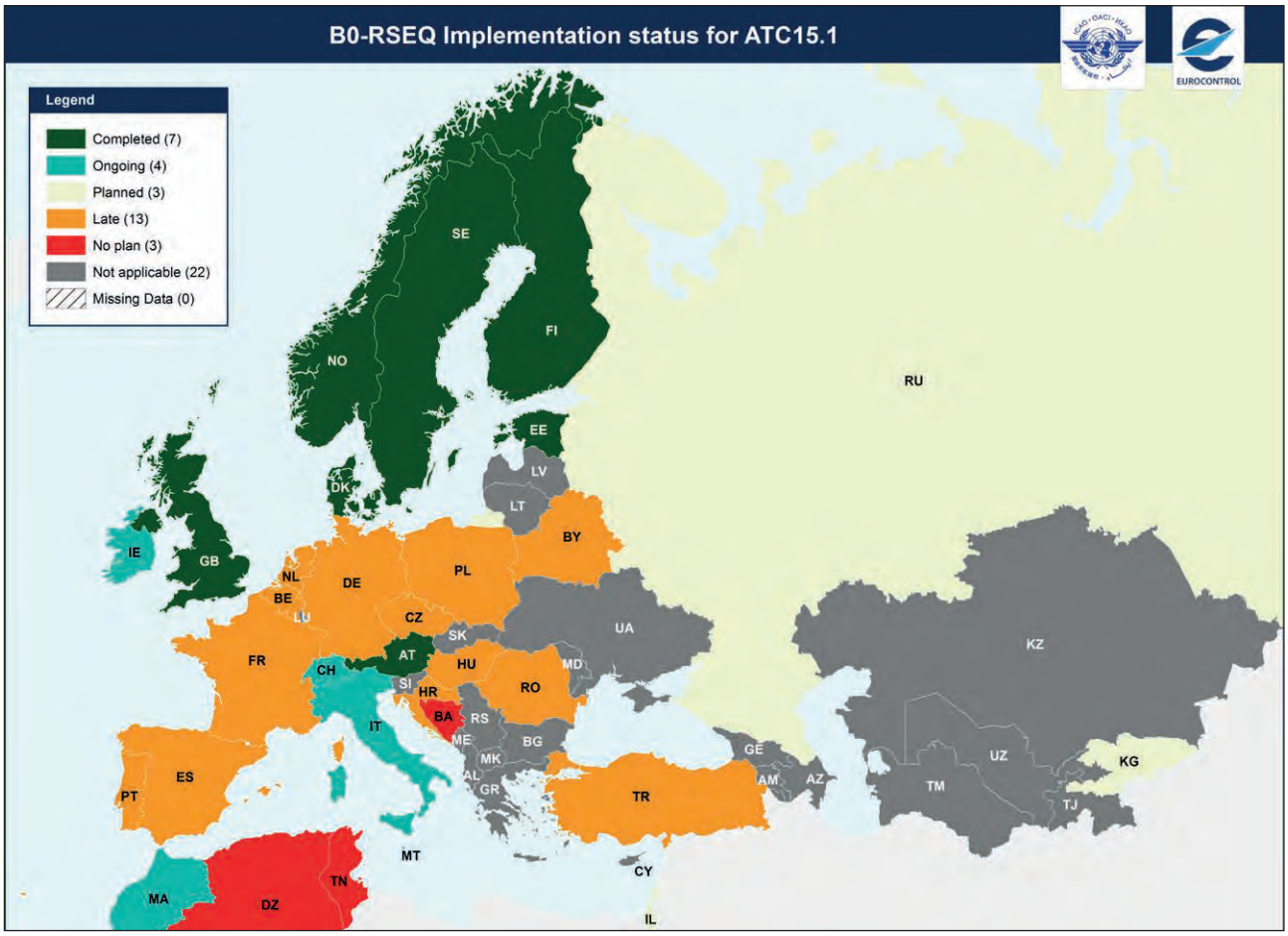


Israel	Functionality is planned to be included in the new ATM system expected for the 12/2023.	Planned 12/2023

2. Status for remaining States

Algeria	The future system (PDGEA) will integrate the Arrival sequencing function for Airports with Approach services, especially for Algiers Approach.	Planned 12/2019
Belarus	AMAN/DMAN functions will be implemented at the new Automated ATC System to be put into operation at Minsk-2 aerodrome.	Late 12/2019
Kazakhstan		Not Applicable
Kyrgyzstan	No implementation planned for airports in Kyrgzystan (Bishkek airport has currently 40-45 aircraft movements per day, Osh airport around 20-25 movements per day).	Not Applicable
Morocco	The CFT of the new ATC System will be launched during Q4 2018, The acquisition and installation are planned from 2019. The implementation is planned in the new system (acquisition of new ATC system in 2019) of Casablanca ACC and in some airport.	Ongoing (10%) 12/2020
Russian Federation	At present, the AMAN/DMAN function implementation is being finalized at the newly established Samara and Moscow consolidated ACCs. AMAN/DMAN is planned to be implemented at 7 more terminal control centres catering for Russia's busiest airports.	Ongoing 12/2019
Tajikistan	No implementation planned for airports in Tajikistan (Dushanbe airport has currently 40-45 flight per day).	Not Applicable
Turkmenistan	No implementation planned for the international airports in Turkmenistan (Ashgabat airport has currently 60 aircraft movements per day, Turkmenbashi airport has around 20 movements per day, Turkmenabat and Dashoguz airports have around 15 movements per day and Mary airport has 10 movements per day).	Not Applicable
Tunisia (data from 2016 cycle)	To be implemented in Tunis Carthage, DjerbaZarzis, Monastir H. Bourguiba and Enfidha Hammamet airports, taking into consideration the traffic growth (by 2025).	No Plan
Uzbekistan	No implementation planned for aerodromes of Uzbekistan due to low traffic figures.	Not Applicable

IMPROVE TRAFFIC FLOW THROUGH RUNWAY SEQUENCING (AMAN/DMAN)	
ATC15.1	Implement, in En-Route operations, information exchange mechanisms, tools and procedures in support of Basic AMAN operations



1. Progress for States in the LSSIP mechanism

Main 2017 developments:

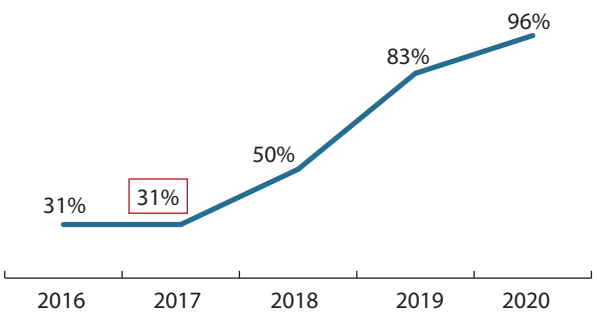
The objective requires information exchange between AMAN systems supporting the respective TMAs and the first upstream ATS systems of the adjacent ACC sectors. FOC date of this objective will be aligned to that of Basic AMAN (12/2019) in the MPL3 Plan ed. 2018 as this objective builds on ATC07.1.

There was no evolution in its implementation in 2017, with 8 States declaring it completed. The number of States reporting a planned delay has grown from 7 in 2016, to 12 in 2017. The number of States reporting the objective as not applicable grew from 16 in 2016, to 18 in 2017. With only a 31% of completion in the applicability area (discounting those declaring the objective as not applicable), it could be argued that even the forecast completion in 2019 may be difficult to achieve for a number of States, in particular those (BE, PT, HR and RO) who have reported a progress close to 0%. In some cases the problem is linked to lack of resources, in others to the coordination with adjacent centres/ANSPs, or change to a new ATM system.

FOC: 12/2017 **Late**

Estimated achievement: 12/2019

Completion Rate Evolution (% of States completed the objective)



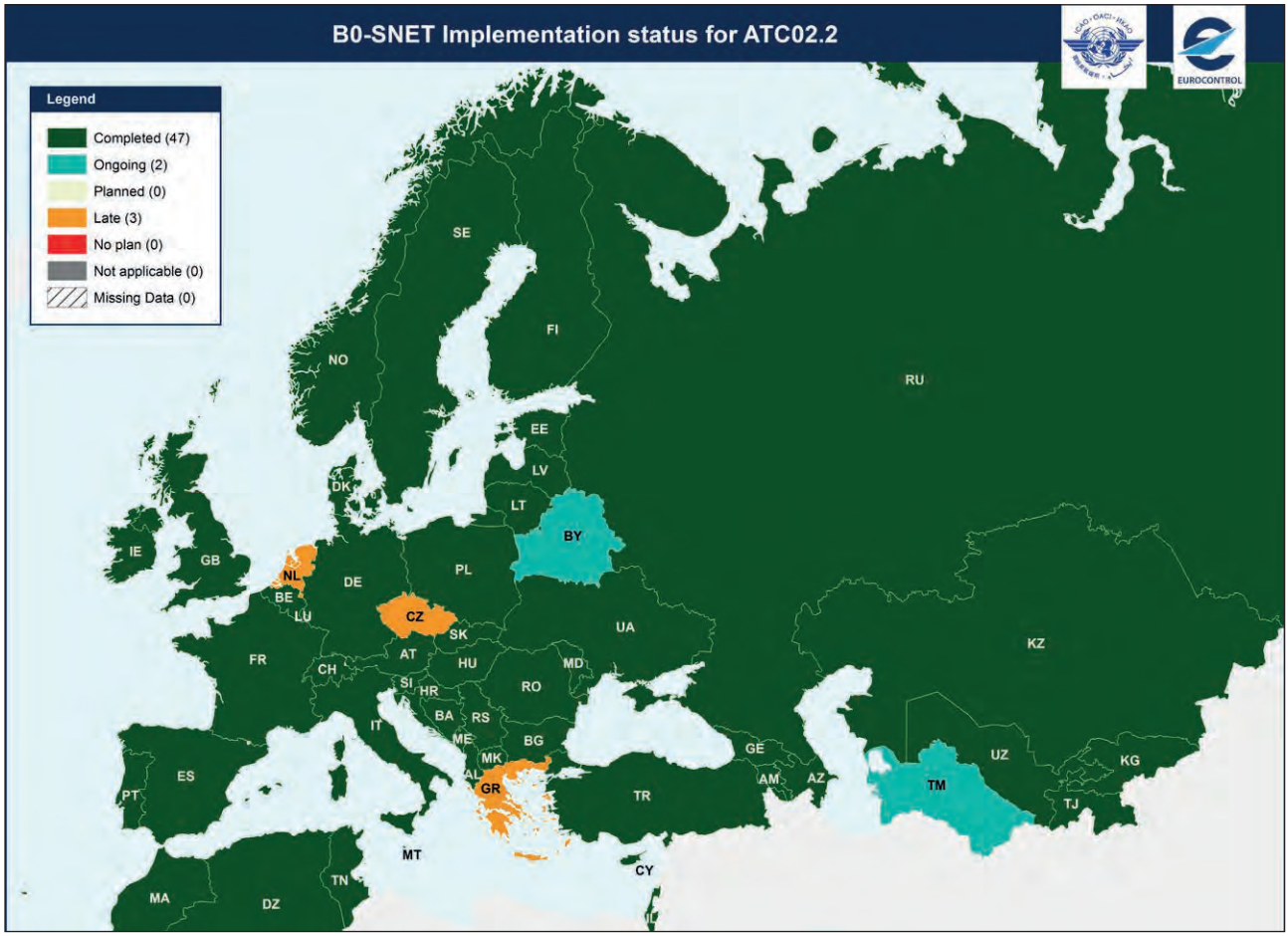
Israel	Functionality is planned to be included in the new ATM system expected for the 12/2023 (Refer also to ATC07.1 information).	Planned 12/2023

2. Status for remaining States

Algeria		No Plan
Belarus	AMAN/DMAN functions will be implemented at the new Automated ATC System to be put into operation at Minsk-2 aerodrome, and upon commissioning of the second runway.	Late (50%) 12/2019
Kazakhstan		Not Applicable
Kyrgyzstan	Planned with upgrade ATS system.	Planned 12/2022
Morocco	The CFT of the new ATC System will be launched during Q4 2018, The acquisition and installation are planned from 2019.The implementation is planned in the new system (acquisition of new ATC system in 2019) of Casablanca ACC and in some airport.	Ongoing (10%) 12/2020
Russian Federation	Implementation is planned as part of air traffic planning systems upgrade at all consolidated ACCs.	Planned 12/2019
Tajikistan	No implementation planned for airports in Tajikistan (Dushanbe airport has currently 40-45 flight per day).	Not Applicable
Turkmenistan	No implementation planned for the international airports in Turkmenistan (Asgabat airport has currently 60 aircraft movements per day, Turkmenbashi airport has around 20 movements per day, Turkmenabat and Dashoguz airports have around 15 movements per day and Mary airport has 10 movements per day).	Not Applicable
Tunisia (data from 2016 cycle)	To be implemented in Tunis Carthage, DjerbaZarzis, Monastir H. Bourguiba and Enfidha Hammamet airports, taking into consideration the traffic growth (by 2025).	No Plan
Uzbekistan	No implementation planned for aerodromes of Uzbekistan due to low traffic figures.	Not Applicable

4.12 B0-SNET

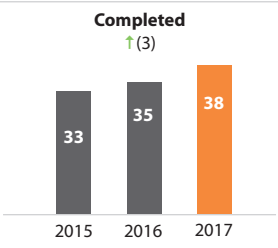
INCREASED EFFECTIVENESS OF GROUND-BASED SAFETY NETS	
ATC02.2	Implement ground based safety nets – Short Term Conflict Alert (STCA) - level 2



1. Progress for States in the LSSIP mechanism

The objective ATC02.2 reached 80% of achievement in the applicability area and was declared closed after the 2014 cycle. However those States that have not yet completed their activities were requested to update their progress in the LSSIP Database for ICAO Monitoring purposes.
The following is a summary of progress achieved in 2015, 2016 and 2017.

Status	2015	2016	2017
Completed	33 (AL, AM, AT, AZ, BE,BG, HR, CY, DK, EE, FI, FR, FYROM, DE, HU, IE, LU, LT, LV, MT, MD, ME,NO, PL, PT, RO, RS, SK,SI, SE, CH, UA, UK)	35 (AL, AM, AT, AZ, BE, BG, HR, CY, DK, EE, FI, FR, FYROM, GE, DE, HU, IE, LV, LT, LU, MT, MD, ME, NO, PL, PT, RO, RS, SK, SI, SE, CH, TR, UA, UK)	Completed in 2017: BA, IT, ES
Late	8 (BA,CZ,GE,GR,IT,NL,ES, TR)	6 (BA, CZ, GR, IT, NL, ES)	4 (CZ, GR, IT, NL)

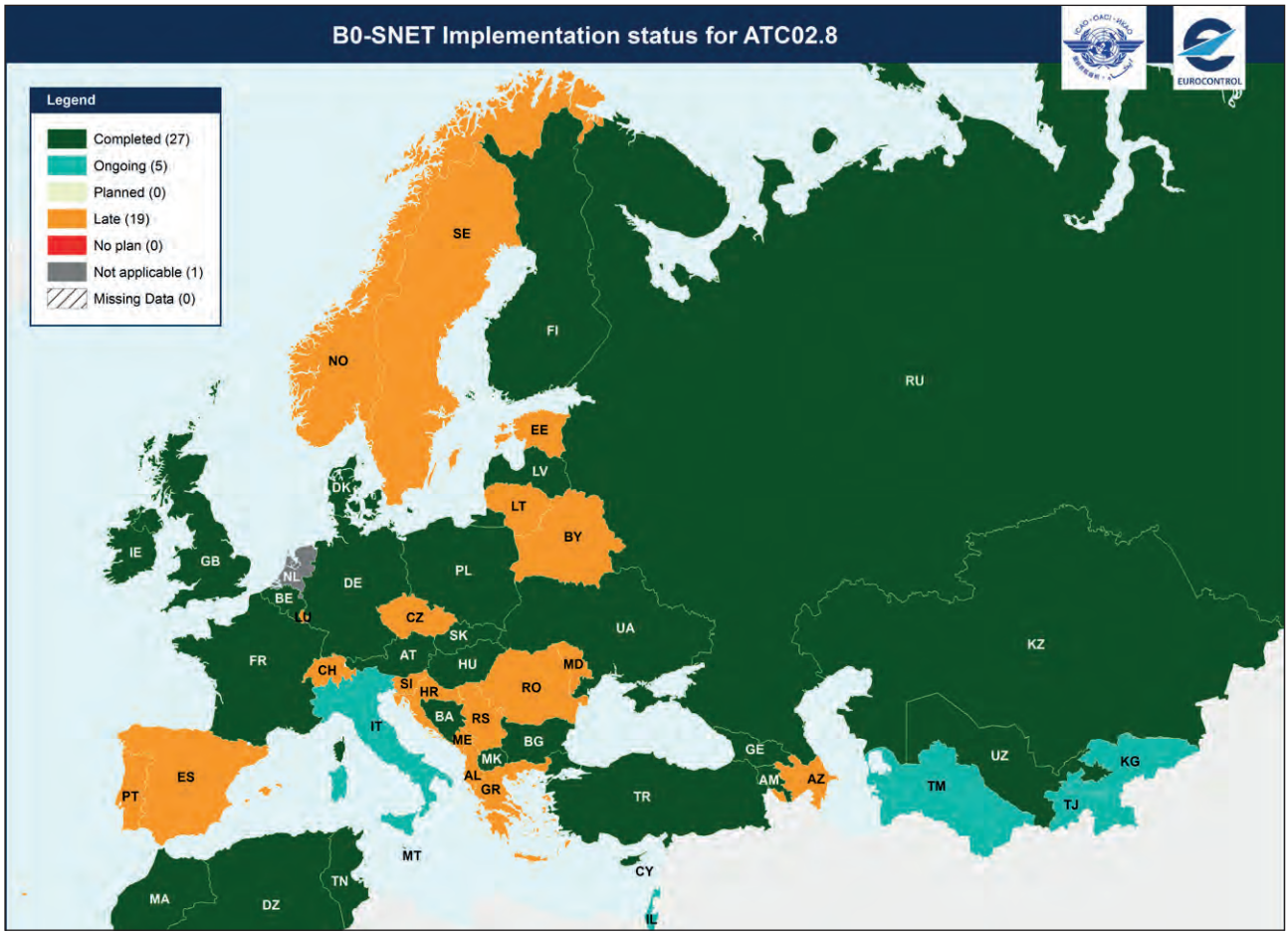


Israel	STCA functions are implemented at all ATM units.	Completed

2. Status for remaining States

Algeria	The current system includes the STCA function.	Completed 12/2004
Belarus	STCA Level 1 has been implemented for TMA and for ATS routes. Activities for implementation of STCA Level 2 are in progress. Level 2 will be implemented at the new Automated ATC system to be put into operation at Minsk-2 aerodrome.	Ongoing (80%) 12/2019
Kazakhstan	The STCA function and associated procedures have been implemented in line with Kazakhstan regulations at all ATC centres providing radar services throughout the country since 2013 with the exception of Military ATC units.	Completed 12/2016
Kyrgyzstan	All ATC systems in the Kyrgyzyz Republic meet these requirements.	Completed 12/2009
Morocco	The STCA function is implemented since 2007. The changes safety oversight equipment is implemented in some approach system since 2014.	Completed 12/2007
Russian Federation	The function is part of the equipment standard. It is employed by all automated ATM systems in operation.	Completed
Tajikistan	ATC System (Master from Peleng) was installed in 2012 and STCA functionality was installed for CWPs in ACC.	Completed 12/2012
Turkmenistan	STCA has been implemented in Asgabat ACC since 1998 and in Turkmenbashi ACC since 2010. A new ATC system upgrade (Thales TopSky) has been installed in the Asgabat ACC in March 2016. The safety net part of the new system includes the STCA functionalities. The same Thales system with the same ATC safety net functions was installed in Dashoguz ACC in February 2017 and in Turkmenabat ACC in February 2018. A system upgrade is also planned for Turkmenbashi ACC within the next 2 years. The TWR/APP system upgrade (ex-ATC system from Asgabat with 60 km APP range) for Mary will also include this function.	Ongoing (80%) 12/2019
Tunisia (data from 2016 cycle)	Functionalities implemented through the current RDP system.	Completed 12/2014
Uzbekistan	The current ATC System (Thomson/Peling Master which was installed after QNH implementation in 2014) system includes STCA functions. The system is installed in all 3 ACCs (Tashkent, Samarkand, Nukus).	Completed 12/2014

INCREASED EFFECTIVENESS OF GROUND-BASED SAFETY NETS - STCA	
ATC02.8	Implement ground based safety nets - Short Term Conflict Alert (STCA)- level 2



1. Progress for States in the LSSIP mechanism

Main 2017 developments:

Five (5) additional States have completed the implementation in 2017, bringing the total to twenty-two (22) (corresponding to ~54% of the applicability area).

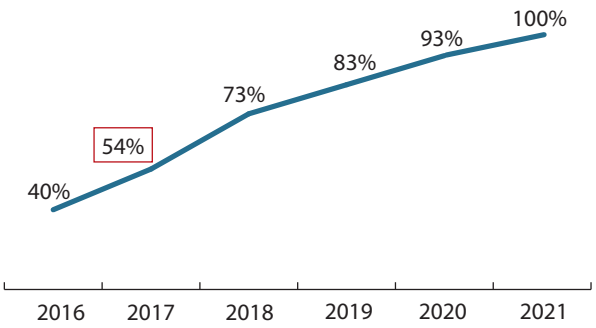
This is however insufficient as the target date for completion was set at the end of the year 2016.

This delay is, in several cases, reported as due to alignment with a major upgrade, or replacement, of the ATM system. The overall objective completion is expected by end 2019.

FOC: 12/2016 **Late**

Estimated achievement: 12/2019

Completion Rate Evolution (% of States completed the objective)



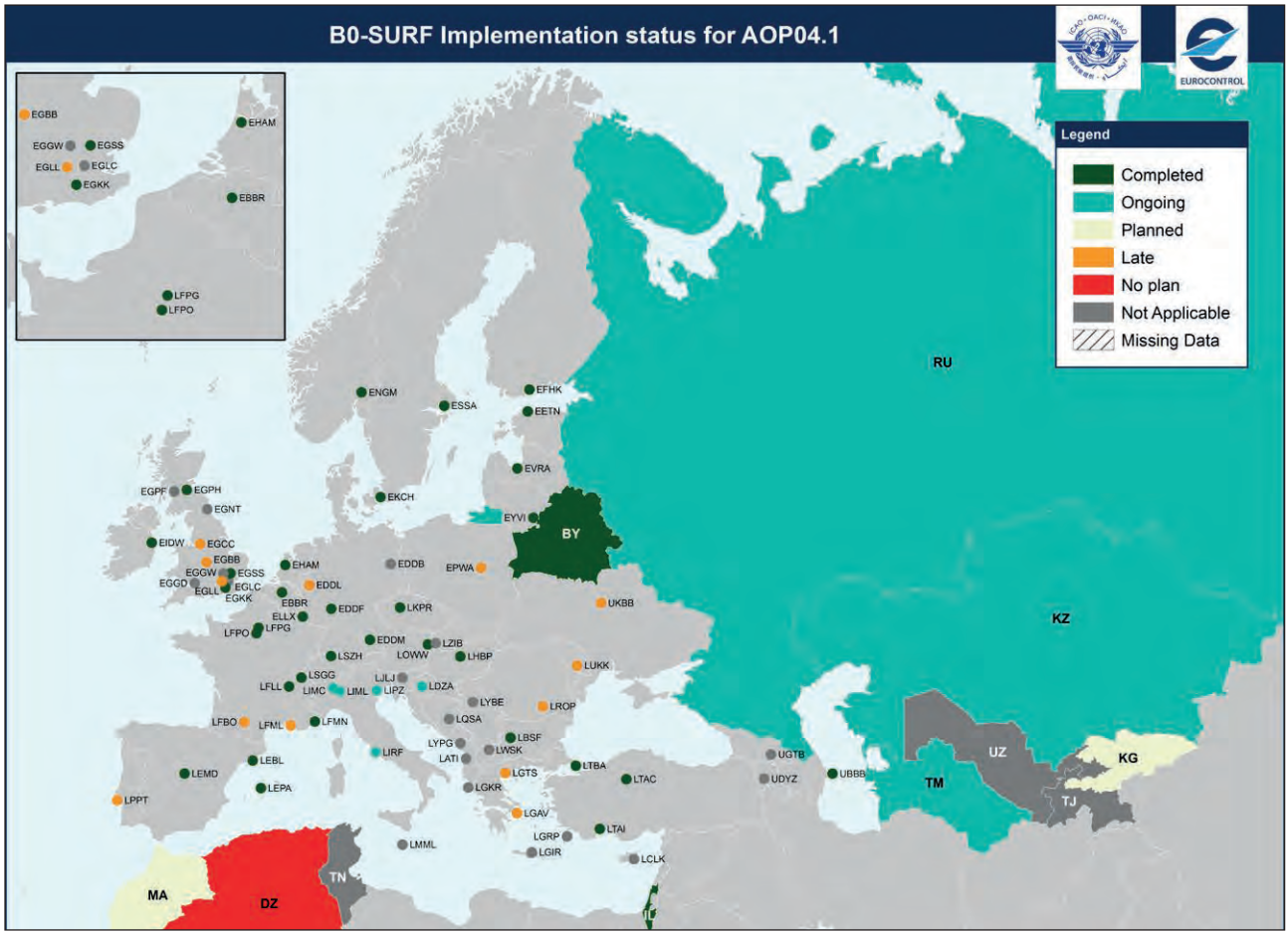
Israel	Implementation of APW function is estimated for 31/12/2018 for ACCs and 31/12/2022 for Ben-Gurion Airport. Implementation of MSAW function: - MSAW functions are implemented at Ben-Gurion airport (radar only). - MSAW function for ACC is planned to be implemented until 31/12/2022. APM functionality is planned with the new system for 12/2023.	Ongoing (7%) 12/2023

2. Status for remaining States

Algeria	The current system includes the MSAW end APW function.	Completed 12/2004
Belarus	These actions will be carried out upon commissioning of the new Automated ATC system.	Late (50%) 12/2019
Kazakhstan	Ground systems have been upgraded to support the APW function. APW function is in operational use. Ground systems have been upgraded to support the MSAW function. MSAW function is in operational use.	Completed 12/2016
Kyrgyzstan	Minimum Safe Altitude Warning implement - 100% in 2009. Area Proximity Warning implement only in ATS system Issyk-Kul.	Ongoing (60%) 12/2020
Morocco	The APW and MSAW functions are implemented since 2007.	Completed 11/2007
Russian Federation	The function is part of the equipment standard. It is employed by all automated ATM systems in operation.	Completed
Tajikistan	ATC System (Master from Peleng) was installed 2012 and APW functionality was installed for CWPs in ACC. With the new ATC System installation, MSAW was not put into operation (lack of terrain data), the final integration of MSAW could be started after completion of WGS-84 project.	Ongoing (60%) 12/2018
Turkmenistan	MSAW/APW has been implemented in Asgabat ACC since 1998 and in Turkmenbashi ACC since 2010. A new ATC system upgrade (Thales TopSky) has been installed in the Asgabat ACC in March 2016. The safety net part of the new system includes the MSAW functionalities. The same Thales system with the same ATC safety net functions was installed in Dashoguz ACC in February 2017 and in Turkmenabat ACC in February 2018. A system upgrade is also planned for Turkmenbashi ACC within the next 2 years. The TWR/APP system upgrade (ex-ATC system from Asgabat with 60 km APP range) for Mary will also include this function.	Ongoing (80%) 12/2019
Tunisia (data from 2016 cycle)	Functionalities implemented through the current RDP system.	Completed 12/2014
Uzbekistan	The current ATC System (Thomson/Peling Master) system includes ATC system provides MSAW and APW functions. The system is installed in all 3 ACCs (Tashkent, Samarkand, Nukus). The MSAW functionality could be enhanced with the integration of eTOD data after WGS-84 program completion.	Completed 12/2014

4.13 B0-SURF

SAFETY AND EFFICIENCY OF SURFACE OPERATIONS (A-SMGCS LEVEL 1-2)	
AOP04.1	Implement Advanced Surface Movement Guidance and Control System (A-SMGCS) Level1



1. Progress for States in the LSSIP mechanism

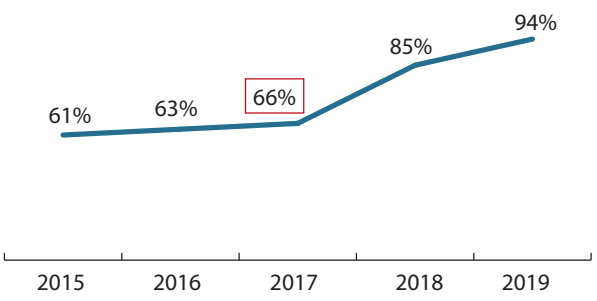
Main 2017 developments:

This baseline objective sets-up the infrastructure to build up all the functionalities related to surface movement and guidance. According to 2017 reporting, 66% of the airports in applicability area have completed the objective. In 2017, two additional airports have completed the A-SMGCS surveillance project, and these are Sofia Airport (LBSF) and London Stansted airport (EGSS). There are still six (6) PCP airports that have not completed this objective yet (EDDL, EDDB, LIMC, LIRF, EGLL and EGCC).This could jeopardize the timely implementation of subsequent functionalities related to A-SMGCS. There is an impression that A-SMGCS surveillance is a part of PCP. However, Regulation (EU) 716/2014 specifies that A-SMGCS Level 1 is a pre-requisite and should to be implemented before the other functionalities. It should also be mentioned that some airports reported an ongoing status instead of late (LIRF, LIPZ, LIMC, LIML).

FOC: 12/2011 **Late**

Estimated achievement: 12/2018

Completion Rate Evolution (% of Airports completed the objective)

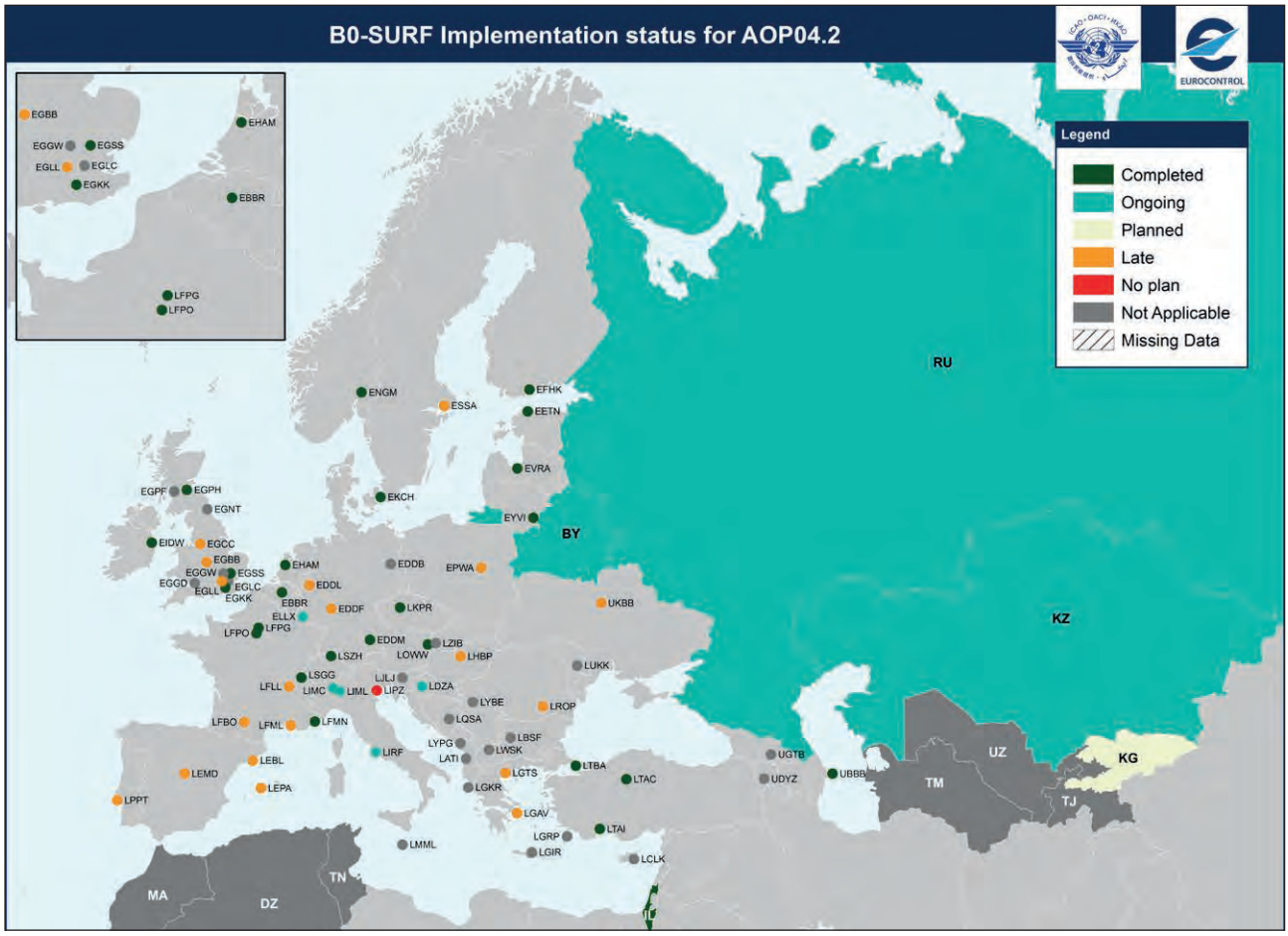


Israel	A-SMGCS level 1 is implemented by IAA (Israel Airports Authority – the only ANSP in Israel) at Ben-Gurion international airport which is the main international airport in Israel (more than 99% of international traffic in Israel).	Completed

2. Status for remaining States

Algeria		No Plan
Belarus	A-SMGCS Level 1 system was put into operation at Minsk-2 aerodrome on 01 September 2016. Ground vehicles have been equipped with ADS-B transponders. ASMGCS operational procedures have been implemented.	Completed 12/2016
Kazakhstan	A-SMGCS level 1 is installed at Almaty and Astana. There no plans for A-SMGCS installation at other airports. Operational procedures will be developed. A-SMGCS procedures (including transponder operating procedures) are not published in national AIP. Vehicles operating on the maneuvering area of airports are equipped with necessary systems.	Not Applicable
Kyrgyzstan	Kyrgyz Republic will make it in 2020 and install surveillance equipment at Manas international airport.	Planned 12/2020
Morocco	Project of new Casablanca tower include the implementation of an A-SMGCS Level1 due to low visibility impact. Planned for Casablanca and Marrakech airports.	Planned 12/2020
Russian Federation	The equipment installation is in progress according to the internal plan for implementation of surface movement guidance and control facilities. The plan provides for 20 aerodromes being equipped. A-SMGCS is in place at UUDD (Domodedovo), ULLI (Pulkovo), UUEE (Sheremetyevo), UUWW (Vnukovo), and URSS (Sochi) airports. MLAT is operational at UUDD (Domodedovo) and URSS (Sochi) airports; ground vehicles operating in the manoeuvring area are equipped with Mode S beacons. Further equipment installation is in progress.	Ongoing (25%) 12/2020
Tajikistan	No implementation planned for airports in Tajikistan (The largest Dushanbe airport has currently 40-45 flight per day).	Not Applicable
Turkmenistan	Due to low airport traffic figures (around 60 aircraft movements per day in Asgabat and between 15-20 aircraft movements per day at the other 4 airports) there is currently no implementation planned for the 5 airports in Turkmenistan, even if there would be a benefit during the periods (less than 30 days per year for main airport Asgabat) of LVPs low visibility operations. As part of the runway incursion prevention measures for Asgabat airport, an optical beam system was installed that would give a warning to the TWR for any object higher than 30 cm which passes this bar. The monitoring of the movement area at Asgabat airport (all vehicles with transponders) has been partially implemented with the opening of the new terminal in September 2016.	Ongoing (50%) 12/2018
Tunisia (data from 2016 cycle)	No need to implement A-SMGCS in Tunisian airports (no operational requirement for the time being).	Not Applicable
Uzbekistan	Due to low traffic implementation no planned for aerodromes of Uzbekistan.	Not Applicable

SAFETY AND EFFICIENCY OF SURFACE OPERATIONS (A-SMGCS LEVEL 1-2)	
AOP04.2	Implement Advanced Surface Movement Guidance and Control System (A-SMGCS) Level 2



1. Progress for States in the LSSIP mechanism

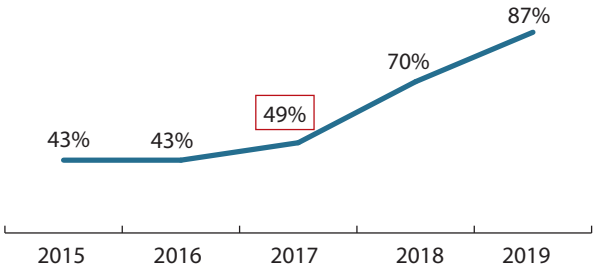
Main 2017 developments:

A-SMGCS RMCA implementation builds on the implementation of AOP04.1 and it is an important pre-requisite towards the implementation of PCP AF2. Since 2015, the risks of delayed implementation of this objective have been reported and notified, mainly due to AOP04.1 delays. Now in 2017, the objective FOC date is definitely passed and objective is assessed as 'late'. In 2016, two airports achieved the objective (EFHK, EGSS), leading to a total of 23 airports having this functionality operational. 11 PCP airports still have not implemented this functionality, which is a significant number taking into account that this implementation objective is an important pre-requisite for AF2 functionalities. The main reason for delays is reported to be a need for a system upgrade to integrate the warning function. It should also be mentioned that some airports reported an ongoing status instead of late (LIRF, LIMC, LIML).

FOC: 12/2017 **Late**

Estimated achievement: 12/2019

Completion Rate Evolution (% of Airports completed the objective)



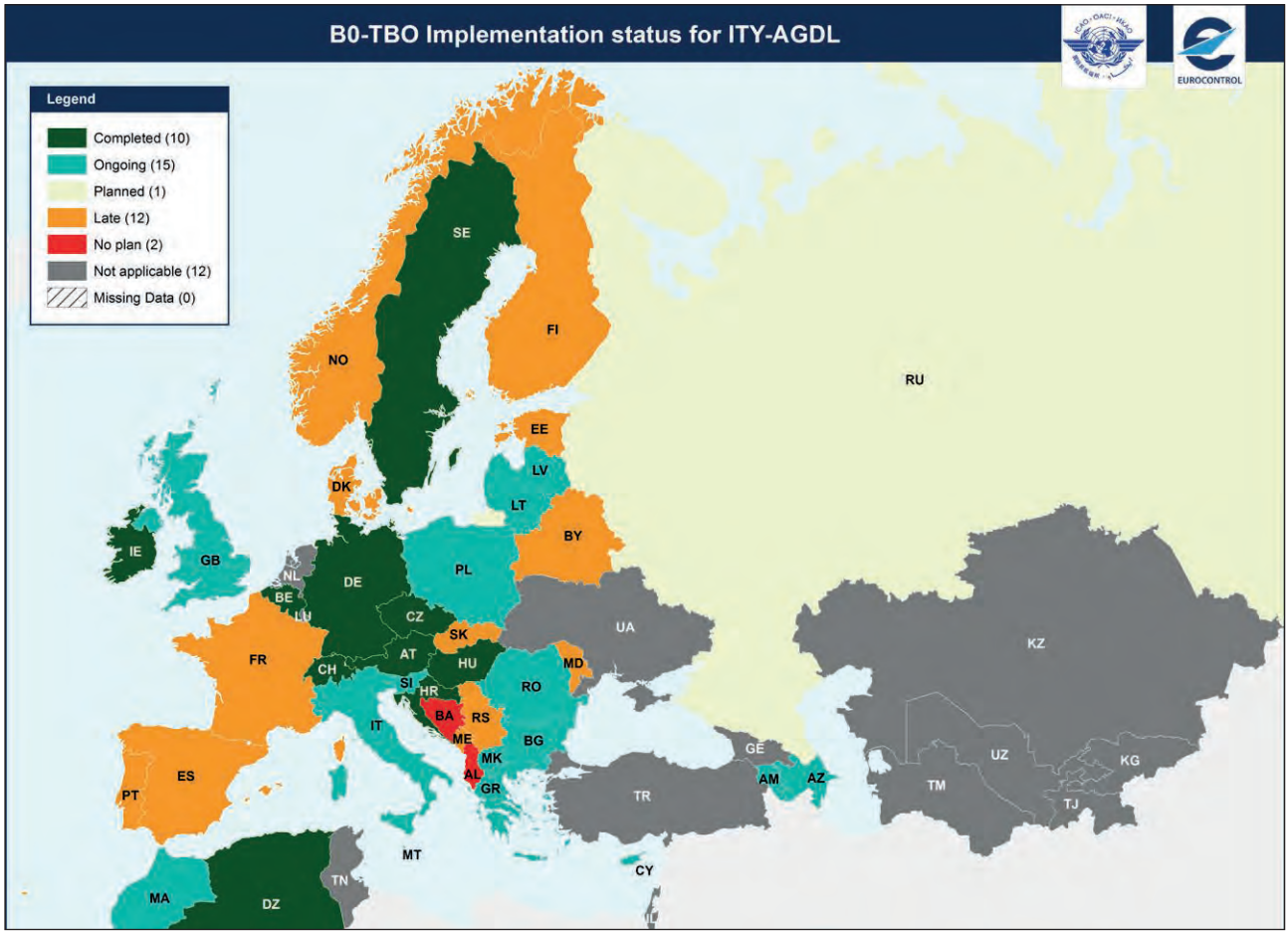
Israel	The IAA has implemented A-SMGCS level 2 since Q1/2015.	Completed 03/2015

2. Status for remaining States

Algeria		Not Applicable
Belarus	Construction of the second runway at Minsk-2 aerodrome is in progress. A-SMGCS Level 2 will be implemented alongside with commissioning of the second runway. Aiming at improving A-SMGCS procedures, the Call for Tender for supply of MLAT system for Minsk-2 aerodrome has been announced.	Ongoing (50%) 12/2019
Kazakhstan	A-SMGCS level 2 is implemented at Almaty and Astana. Control function equipment for detection of conflicts and intrusions is installed in accordance with A-SMGCS level 2 requirements.	Ongoing (80%) 12/2018
Kyrgyzstan	SE "Kyrgyzaeronavigatsia" plans install a system with predict and detect of conflict function at Manas international airport.	Planned 12/2020
Morocco	After installation of level 1, review of potential extension to level 2 at Casablanca and Marrakech.	Not Applicable
Russian Federation	Work is under way at UUDD (Domodedovo), ULLI (Pulkovo), UUEE (Sheremetyevo), and UUWW (Vnukovo) airports to extend A-SMGCS functionalities up to the specified level.	Ongoing (25%) 12/2020
Tajikistan	No implementation planned for airports in Tajikistan (The largest Dushanbe airport has currently 40-45 flight per day).	Not Applicable
Turkmenistan	No implementation planned for 5 international or any national airports in Turkmenistan.	Not Applicable
Tunisia (data from 2016 cycle)	No need to implement A-SMGCS in Tunisian airports (no requirement for the time being).	Not Applicable
Uzbekistan	Implementation no planned for aerodromes of Uzbekistan.	Not Applicable

4.14 B0-TBO

IMPROVED SAFETY & EFFICIENCY THROUGH INITIAL APPLICATION OF DATA LINK EN- ROUTE	
ITY-AGDL	Initial ATC air-ground data link services above FL 285



1. Progress for States in the LSSIP mechanism

Main 2017 developments:

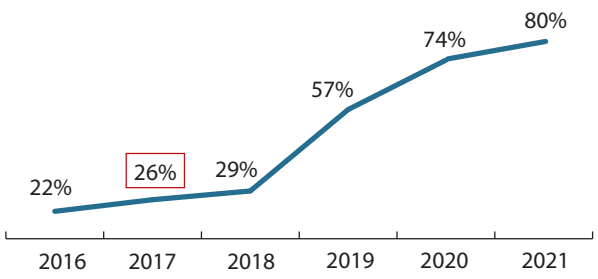
In 2016, the SESAR Deployment Manager has been mandated by the EC to act as Data Link Services (DLS) Implementation Project Manager and on this basis, it developed a DLS Recovery Plan aiming to set a realistic path from today's implementation status. Only one State (CZ) reported the completion of the objective in February 2017 instead of December 2016. Seven States reported the status "Ongoing" with a projected implementation date by February 2018 and another five States with a projected implementation date after February 2018. Eleven States reported the status "Late" with a projected implementation date as late as December 202. The main reason for delay is the late procurement of New ATM systems capable to handle DLS functionalities and required VDL Infrastructure. According to the EUROCONTROL PRISME CNS business intelligence, at the end of 2017, almost 30% of the flights were equipped and ready to use CPDLC via ATN VDL2, as prescribed in the DLS Regulation.

ATS unit ops. capability: 02/2018
Aircraft capability: 02/2020

Planned delay

Estimated achievement: 12/2020

Completion Rate Evolution (% of States completed the objective)



Israel	Since the volume of over flight operations over Israel is relatively very low, there is no need at the moment to implement ATC air to ground data link above FL- 285.	Not Applicable

2. Status for remaining States

Algeria	The current system includes Data-link services using FANS/ACARS since 2011 for CPDLC, especially for the operations in the southern part of Algiers FIR..The future system will integrate ATN protocol for data-link services, no plan for VDL2 equipments.	Completed 12/2011
Belarus	These actions have been planned.	Late 12/2019
Kazakhstan		Not Applicable
Kyrgyzstan		Not Applicable
Morocco	Moroccan ANSP has chosen an alternative communication technology using ARINC infrastructure to ensure the provision of datalink services in oceanic and west sectors. Concluant trials have been performed in Agadir ACC.	Ongoing (80%) 12/2019
Russian Federation	Work is under way to initiate the CPDLC Digital Communication System Fragment pilot project in Moscow TMA based on VDL-2 data link.	Planned 12/2020
Tajikistan	Not planned. There are no interested users.	Not Applicable
Turkmenistan	No implementation planned for Turkmenistan.	Not Applicable
Tunisia (data from 2016 cycle)	Functionality is in the new ATC system, will be used according to traffic growth and ATC capacities needs.	Not Applicable
Uzbekistan	No implementation is planned for Uzbekistan.	Not Applicable

4.15 B0-AMET

METEOROLOGICAL INFORMATION SUPPORTING ENHANCED OPERATIONAL EFFICIENCY AND SAFETY

This module is about global, regional and local meteorological information including:

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.

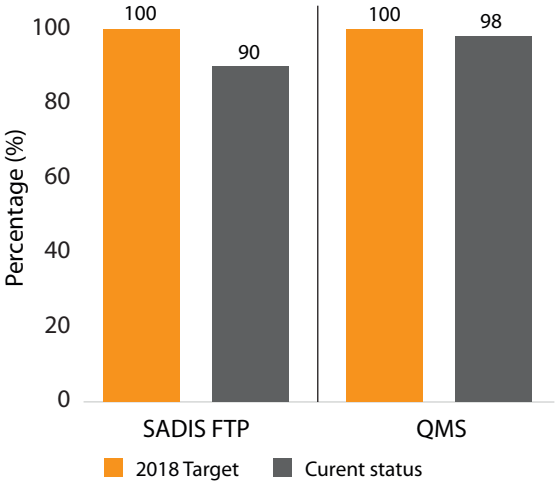
The source of the monitoring information for B0-AMET indicated in this chapter is the ICAO EUR METG.

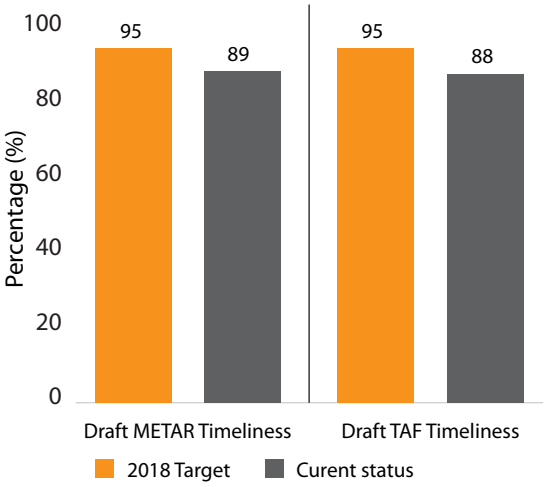
The overall progress for B0-AMET is very good as indicated in the elements of the tables and graphs below.

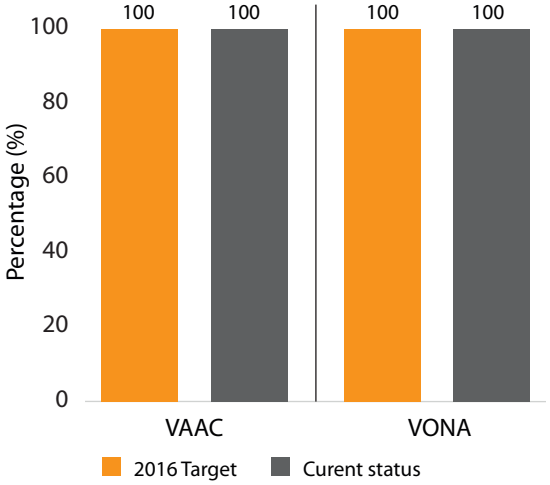
B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety			
Elements	**Applicability**	**Performance Indicators**	**Targets**
SADIS FTP	All States	**Indicator:** % of States having implemented SADIS FTP service. **Supporting metric:** number of States having implemented SADIS FTP service.	100% by Dec. 2018
QMS	All States	**Indicator:** % of States having implemented QMS for MET. **Supporting metric:** number of States having implemented QMS for MET.	100% by Dec. 2018
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. 2016
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. 2016

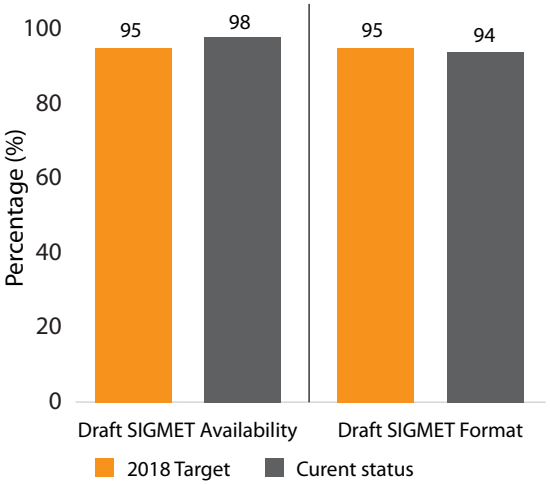
Elements	Applicability	Performance Indicators	Targets
METAR Availability	All States	**Indicator:** % of States providing METAR as per requirements in the eANP, Volume II Table MET II-2. **Supporting metric:** number of States providing METAR as per requirements in the eANP Volume II Table MET II-2.	95% by Dec 2018
TAF Availability	All States	**Indicator:** % of States providing TAF as per requirements in the eANP, Volume II Table MET II-2. **Supporting metric:** number of States providing TAF as per requirements in the eANP Volume II Table MET II-2.	95% by Dec 2018
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.	95% by Dec 2018
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.	95% by Dec 2018
SIGMET Availability	All States with a FIR	**Indicator:** % of States providing SIGMET **Supporting metric:** number of States providing SIGMET.	95% by Dec 2018
VONA	All States with a FIR	**Indicator:** % of States providing SIGMET format in accordance with WMO AHL in EUR Doc 014. **Supporting metric:** number of States providing SIGMET format in accordance with WMO AHL in EUR Doc 014.	95% by Dec 2018

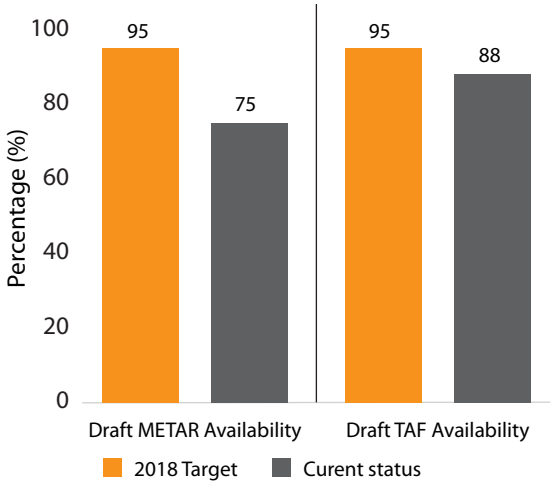
B0-AMET Status of implementation in the EUR Region











Detailed Status information of B0-AMET implementation for the following States:

It should be noted that the table below does not address specifically activities related to SADIS implementation.

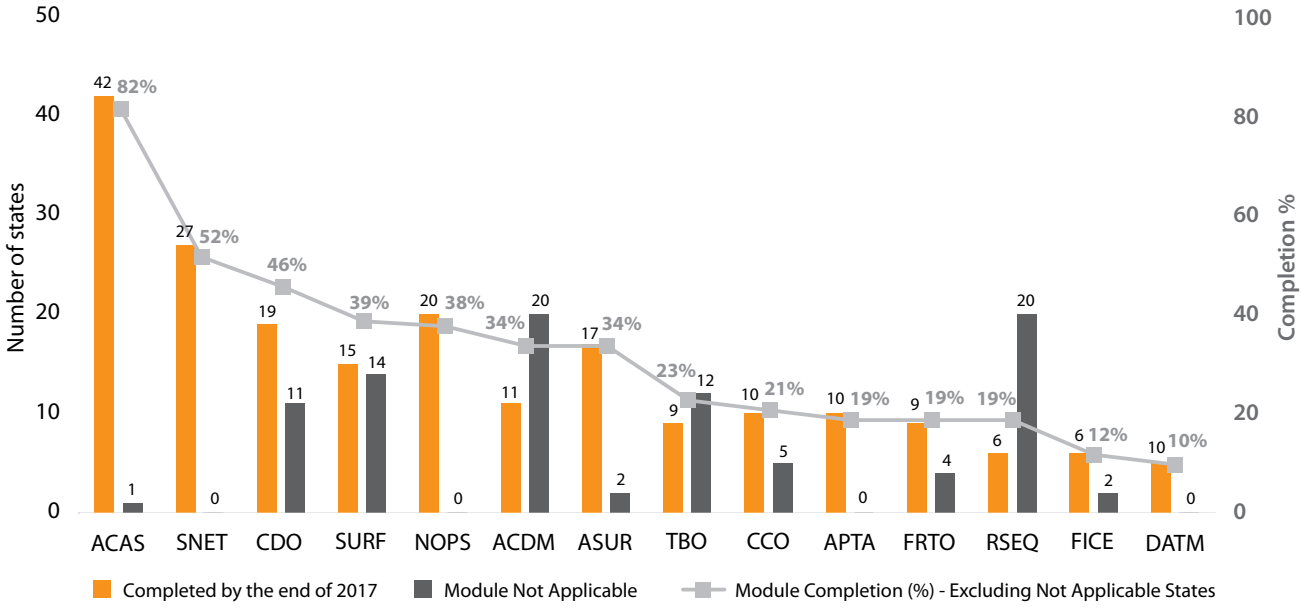
Algeria	The forecasts provided by the various forecast centers are distributed by the ONM Office National Meteorologique Algerienne. SIGMETS, METAR/SPECI, TAF and operational meteorological information are available.	Completed
Belarus	The following data is provided to ATM personnel: - OPMET information, including METAR/SPECI and TAF - SIGMETs to provide information on occurrence of specific en-route weather phenomena. Forecasts are available, provided by: - Moscow World Area Forecast Centre (WAFC)	Completed 12/2016
Israel	The Israel Airports Authority has not installed any systems to provide wind shear warnings and alerts. All other requirements of B0-AMET are fully implemented.	Ongoing (90%)
Kazakhstan	Forecast WAFC and advisory centres VAAC are available for meteorological Service of Kazakhstan. SIGMET and OPMET information are available to the aeronautical users (International BAMD, AFTN). The installation of the meteorological radars at the airports of Kazakhstan is in the process and planned to be completed by 2021.	Completed 12/2016
Kyrgyzstan	Synoptic situation: Volcanic ash and tropical cyclone not applicable in Kyrgyz republic. Systems to provide wind shear warnings will be installed in Issyk-Kul international airport in 2019.	Ongoing (60%) 2019
Morocco	All forecasts provided by WAFAC, VACC and TCAC and operational meteorological information are available through agreement signed between ANSP and Direction of National Meteorology. A study conducted by ANSP and Direction of National Meteorology proved that wind shear phenomena is very rare in Morocco therefore we don't need that kind of information.	Completed
Russian Federation		Completed 2016
Tajikistan	TAN MET receive info from world area forecast centres (WAFC) using "GIS Meteo" programme since 2005. TAN MET receive volcanic ash info by AFTN. TAN MET receive tropical cyclone info by AFTN upon request. Info on SIGMET and other OPMET info (METAR, SPECI and TAF) are available. All the international banks of meteo information receive our information.	Ongoing (60%)

Tunisia (data from 2016 cycle)	QMS fully implemented: The National Meteorology Institute (INM) has been attributed the ISO 9001 certification in the area of air navigation meteorology services since 2010.	Completed 2014
Turkmenistan	Messages VACC and TCAC are taken through the AFTN line. Turkmenistan does not have a wind shear warning system, planned in 2020. Wind shear warnings are compiled on the basis of crew reports. SIGMET METAR/SPECI and TAF information are issued by the meteorological service on the prevention of flight routes and transmitted through the AFTN for transfer to other airports and international data bases.	Ongoing (60%) 2020
Uzbekistan	ATS units are providing with all necessary information.	Completed 2016

5. Conclusions and Recommendations

In order to summarize the information presented in chapters 3 and 4, namely the planning views and implementation progress, the following graphs and tables were developed. They are aiming to give an overall and straightforward understanding of the ASBUs Implementation status so far.

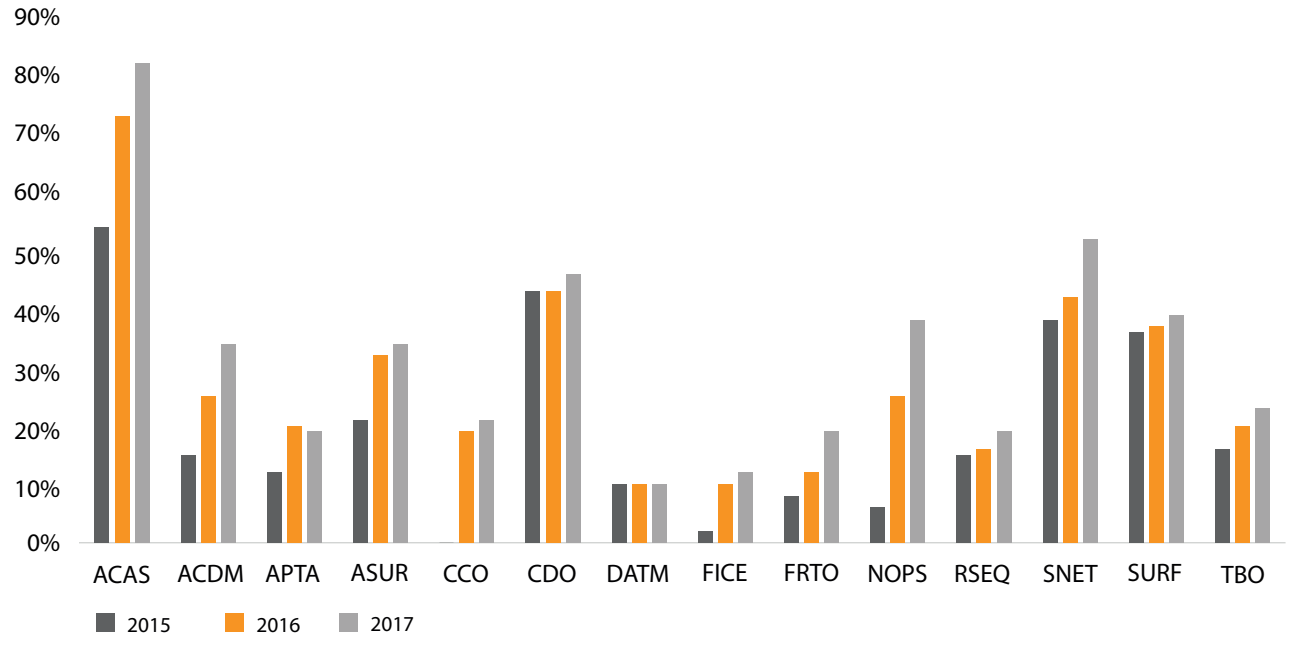
The "**ASBU Block 0 Modules Implementation Dashboard**" compares, in a simple way, the evolution of implementation/achievement/completion of the modules. It presents the number of States that have achieved full implementation and gives the overall rate of "Completion" % by the end of 2017. It excludes those States where the module is considered as "Not Applicable".



Implementation Dashboard year 2017

Evolution of Implementation Progress:

Using the information from the 2 previous reference periods (2015 and 2016) and the information reported by States for the 2017 reference cycle, the following comparative evolution of implementation progress can be presented:



***ICAO EUR B0 Modules** - Implementation Progress from 2015, 2016 and 2017*

ASBU Block 0 Modules Implementation Outlook 2020 and 2021

The following tables present the "Completion" status (number of States and rates) that is expected to be achieved by the end of 2020 and 2021, in accordance with the planning dates reported by States in the ICAO EUR Region. The aim of this table is to project implementation scenarios for 2020 and 2021.

ASBU B0 Module	Number of States Completed by the end of 2020	Not Applicable States	Completion by the end of 2020 (%) - Excludes States where the module is Not Applicable
ACAS	50	1	98%
ACDM	29	20	91%
APTA	41	0	79%
ASUR	46	2	92%
CCO	33	5	70%
CDO	36	11	88%
DATM	46	0	88%
FICE	40	2	80%
FRTO	38	4	79%
NOPS	48	0	92%
RSEQ	27	20	84%
SNET	47	0	90%
SURF	36	14	95%
TBO	33	12	83%

ASBU Block 0 Modules Implementation Outlook for 2020

ASBU B0 Module	Number of States Completed by the end of 2021	Not Applicable States	Completion by the end of 2021 (%) - Excludes States where the module is Not Applicable
ACAS	50	1	98%
ACDM	29	20	91%
APTA	43	0	83%
ASUR	47	2	94%
CCO	35	5	74%
CDO	38	11	93%
DATM	47	0	90%
FICE	45	2	90%
FRTO	39	4	81%
NOPS	49	0	94%
RSEQ	27	20	84%
SNET	50	0	96%
SURF	36	14	95%
TBO	35	12	88%

ASBU Block 0 Modules Implementation Outlook 2021

Shaded grey: Completion rate below 80%

It must be noted that B0-AMET is not addressed in the tables and graphs because the data for 2017 cycle was not available when this report was prepared. Details on the evolution of progress will be presented in the report for next cycle.

Recommendations:

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

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 LSSIP shall be always used.

2. Ensure that future evolution of ICAO GANP Monitoring mechanism/tool will not require from EUR States to report through a separate reporting channel thus creating a double effort for them. The new ICAO GANP Monitoring mechanism/ tool should rather make use of existing reporting mechanisms, which are utilized in the EUR Region, such as the LSSIP process.

3. Clarify further how the outcome of the discussions on the new GANP and the global GANP portal at the AN-Conf/13 will affect the collaborative implementation monitoring approach.

4. States are invited to further address carefully the completeness of the reported data and their timely availability. In this context, States are encouraged to ask for further support and clarification if required.

5. Support States with ASBU workshops in individual States or group of States so that implementation data from all 55 States would be again available. They proved to be very successful in 2016 and were instrumental to promote the collaborative implementation monitoring approach.

6. Consider the organization of a yearly meeting with Algeria, Morocco and Tunisia in order to provide the clarifications required for the timely submission of the ASBU questionnaire. These proposed meetings would replace, partially, the discussions and information exchange that are undertaken with other States in the context of the ATMGE Meeting (where those 3 States do normally not participate).

Acronyms

A	
ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
A-CDM	Airport Collaborative Decision Making
ADQ	Aeronautical Data Quality
ADS-B	Automatic Dependent Surveillance – Broadcast
AGDL	Air-Ground Data Link
AMAN	Arrival Manager
ANSP	Air Navigation Service Provider
AOP	Airport Operations
APTA	Airport Accessibility
APV	Approach with Vertical Guidance
ASBU	Aviation System Block Upgrades
ASM	Airspace Management
A-SMGCS	Advanced Surface Movement Guidance and Control System
ASUR	Alternative Surveillance
ATC	Air Traffic Control
ATM	Air Traffic Management
ATMGE	Air Traffic Management Group-East
AU	Airspace Users
C	
CDO	Continuous Descent Operations
COTR	Coordination and Transfer
D	
DATM	Digital Aeronautical Information Management
DMAN	Departure Manager

E	
EAD	European AIS Database
EANPG	European Air Navigation Planning Group
EASA	European Aviation Safety Agency
EC	European Commission
ECAC	European Civil Aviation Conference
ENV	Environment
ESSIP	European Single Sky Implementation
EU	European Union
F	
FCM	Flow and Capacity Management
FICE	Flight and Flow Information for a Collaborative Environment
FIR	Flight Information Region
FMTP	Flight Message Transfer Protocol
FOC	Full Operational Capability
FRTO	Free-Route Operations
G	
GANP	Global Air Navigation Plan
I	
ICAO	International Civil Aviation Organisation
IFPS	Initial Flight Plan Processing System
INF	Information Management
IP	Internet Protocol
IR	Implementing Rule
ITY	Interoperability

L	
LPV	Localizer Performance with Vertical Guidance
LSSIP	Local Single Sky Implementation
M	
MIL	Military Authorities
MUAC	Maastricht Upper Area Control Centre
N	
NAV	Navigation
NM	Network Manager
NOPS	Network Operations
O	
OI	Operational Improvements
OLDI	On-Line Data Interchange
P	
PBN	Performance Based Navigation
PCP	Pilot Common Project
PIRG	Planning and Implementation Regional Group
PRISME	Pan-European Repository of Information Supporting the Management of EATM
R	
RATS	Remote Air Traffic Services
REG	Regulatory Authorities
RNAV	Required Navigation Performance
RSEQ	Runway Sequencing

S	
SBAS	Satellite-Based Augmentation System
SES	Single European Sky
SESAR	Single European Sky ATM Research
SLoA	Stakeholder Lines of Actions
SNET	Safety NETs
SPI	Surveillance Performance and Interoperability
SURF	Surface Operation
SWIM	System-Wide Information Management
T	
TBO	Trajectory-Based Operations
TCAS	Traffic Alert and Collision Avoidance System
TMA	Terminal Control Area
V	
VDL	VHF Digital Link
W	
WAKE	WAKE Turbulence Separation

EUROCONTROL

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Note

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