EUROPEAN (EUR) AIR NAVIGATION PLAN

VOLUME III

ENDORSED BY EASPG
(by correspondence)

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Key to mark-up:
Green highlight = content to be reviewed and updated by relevant experts

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EUR ANP, VOLUME III
PART 0 – INTRODUCTION

1. INTRODUCTION

1.1 The background to the publication of ANPs in three volumes is explained in the Introduction in Volume I. The procedure for amendment of Volume III is also described in Volume I. Volume III contains dynamic/flexible plan elements related to the implementation of the air navigation system and its modernization in line with the ICAO Aviation System Block Upgrades (ASBUs) and associated technology roadmaps described in the Global Air Navigation Plan (GANP).

1.2 The information contained in Volume III is related mainly to:

- Planning: objectives set, priorities and targets planned at regional or sub-regional levels;
- Implementation monitoring and reporting: monitoring of the progress of implementation towards targets planned. This information should be used as the basis for reporting purposes (i.e.: global and regional air navigation reports and performance dashboards); and/or
- Guidance: providing regional guidance material for the implementation of specific system/procedures in a harmonized manner.

1.3 The management of Volume III is the responsibility of the European Aviation System Planning Group (EASPG).

1.4 Volume III should be used as a tool for monitoring and reporting the status of implementation of the elements planned here above, through the use of tables/databases and/or references to online monitoring tools, as endorsed by EASPG. The status of implementation is updated on a regular basis as endorsed by the EASPG.

2. AVIATION SYSTEM BLOCK UPGRADES (ASBUs)

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

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

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

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

EUR ANP, VOLUME III

PART I - GENERAL PLANNING ASPECTS (GEN)

1. PLANNING METHODOLOGY

1.1 Guided by the GANP, the regional planning process starts by identifying the homogeneous ATM areas, major traffic flows and international aerodromes. An analysis of this data leads to the identification of opportunities for performance improvement. Elements from the Aviation System Block Upgrades (ASBUs) are evaluated to identify which of those elements best provide the needed operational improvements. Depending on the complexity of the element, additional planning steps may need to be undertaken including financing and training needs. Finally, regional plans would be developed for the deployment of elements by drawing on supporting technology requirements. This is an iterative planning process which may require repeating several steps until a final plan with specific regional targets is in place. This planning methodology requires full involvement of States, service providers, airspace users and other stakeholders, thus ensuring commitment by all for implementation.

2. REVIEW AND EVALUATION OF AIR NAVIGATION PLANNING

2.1 The progress and effectiveness against the priorities set out in the regional air navigation plans should be annually reported, using a consistent reporting format, to ICAO.

2.2 Performance monitoring requires a measurement strategy. Data collection, processing, storage and reporting activities supporting the identified global/regional performance metrics are fundamental to the success of performance-based approaches.

2.3 The air navigation planning and implementation performance framework prescribes reporting, monitoring, analysis and review activities being conducted on a cyclical, annual basis. An Air Navigation Reporting Form (ANRF) reflecting selected key performance areas as defined in the Manual on Global Performance of the Air Navigation System (ICAO Doc 9883) has been developed for each ASBU Module. The ANRF is a customized tool which is recommended for the application of setting planning targets, monitoring implementation, and identifying challenges, measuring implementation/performance and reporting. If necessary, other reporting formats that provide more details may be used but should contain as a minimum the elements described in the ANRF template. A sample of the ANRF is provided in **Appendix A**. A sample Template of a planning table which may be used to show the elements planned in an ICAO region is provided in **Appendix B**. However, it must be noted that the ANRF templates are not used in the ICAO EUR Region.

3. REPORTING AND MONITORING RESULTS

3.1 Reporting and monitoring results will be analyzed by the PIRGs, States and ICAO Secretariat to steer the air navigation improvements, take corrective actions and review the allocated objectives, priorities and targets if needed. The results will also be used by ICAO and aviation partner stakeholders to develop the annual Global Air Navigation Report. The report results will provide an opportunity for the international civil aviation community to compare progress across different ICAO regions in the establishment of air navigation infrastructure and performance-based procedures.

3.2 The reports will also provide the ICAO Council with detailed annual results on the basis of which tactical adjustments will be made to the performance framework work program, as well as triennial policy adjustments to the GANP and the Block Upgrade elements.

3.3 **Table GEN III-1** contains a set of Implementation Indicator(s) for the ASBU Block 0 and ASBU Block 1 elements (if identified as a priority for implementation at regional or sub-regional level). These indicators are intended to enable comparison between ICAO Regions with respect to ASBU Block 0 and 1 elements and will apply only to commonly selected ASBU elements. All Regions/PIRGs reserve the right to

select the ASBU elements relevant to their needs and to endorse additional indicators, as deemed necessary. No reporting is required for ASBU elements that have not been selected.

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TABLE GEN III-1 – IMPLEMENTATION INDICATOR(S) FOR ASBU BLOCK 0 AND BLOCK 1 ELEMENTS

Refer to Companion Document
ASBU Implementation Monitoring Report ICAO EUR Region 2022, from 05.12.2023

Appendix A

SAMPLE TEMPLATE

1. AIR NAVIGATION REPORT FORM (ANRF)

(This template demonstrates how ANRF to be used.
The data inserted here refers to ASBU B0-05/CDO as an example only)
Note: ANRFs are not used in the ICAO EUR Region

Regional and National planning for ASBU Modules

2. REGIONAL/NATIONAL PERFORMANCE OBJECTIVE – B0-05/CDO: Improved Flexibility and Efficiency in Descent Profiles **Performance Improvement Area 4: Efficient Flight Path – Through Trajectory-based Operations**					
3. ASBU B0-05/CDO: Impact on Main Key Performance Areas (KPAs)					
	Access & Equity	**Capacity**	**Efficiency**	**Environment**	**Safety**
Applicable	N	N	Y	Y	Y
4. ASBU B0-05/CDO: Planning Tables and Implementation Progress					
5. Elements			**6. Targets and implementation progress (Ground and Air)**		
1. CDO					
2. PBN STARs					
7. ASBU B0-05/CDO: Implementation Challenges					
Elements	**Implementation Area**				
	Ground system Implementation	**Avionics Implementation**	**Procedures Availability**	**Operational Approvals**	
1. CDO					
2. PBN STARs					

8. Performance Monitoring and Measurement 8A. ASBU B0-05/CDO: Implementation Monitoring	
Elements	**Performance Indicators/Supporting Metrics**
1. CDO	Indicator: Percentage of international aerodromes/TMAs with CDO implemented Supporting metric: Number of international aerodromes/TMAs with CDO implemented
2. PBN STARs	Indicator: Percentage of international aerodromes/TMAs with PBN STARs implemented Supporting metric: Number of international aerodromes/TMAs with PBN STARs implemented

8. Performance Monitoring and Measurement 8 B. ASBU B0-05/CDO: Performance Mo..g	
Key Performance Areas (Out of eleven KPAs, for the present until experienced gained, only five have been selected for reporting through ANRF)	**Where applicable, indica.. qualitati.. Benefits,**
Access & Equity	Not appli..ble
Capacity	Not applic..
Efficiency	C.. avings ..gh reduced fuel burn. Reduction in the number of ..ed radi.. missions.
Environment	Red.. c.. issio..s as a result of reduced fuel burn
Safety	..consistent flight paths and stabilized approach paths. Reduc..on in the incidence of controlled flight into terrain (CFIT).
9. Identification of perform..nce ..s: It is not necessary that every module contributes to all of the five KPAs. Cons..quently, a li..ed nu..ber of metrics per type of KPA, serving as an example to measure the module(s)' implementation ..enefits, without trying to apportion these benefits between module, have been identified ..or ..e family of ASBU modules selected for air navigation implementation, States/Region to choose the ..pplicable performance (benefit) metrics from the list available on page 5. This approach would fac..litate ..tates in collecting data for the chosen performance metrics. States/Region, however, could add ne.. metrics for different KPAs based on maturity of the system and ability to collect relevant data.	

AIR NAVIGATION REPORT FORM
HOW TO USE - EXPLANATORY NOTES

1. **Air Navigation Report Form (ANRF):** This form is nothing but the revised version of Performance Framework Form that was being used by Planning and Implementation Regional Groups (PIRGs)/States until now. The ANRF is a customized tool for Aviation System Block Upgrades (ASBU) Modules which is recommended for application for setting planning targets, monitoring implementation, identifying challenges, measuring implementation/performance and reporting. Also, the PIRGs and States could use this report format for any other air navigation improvement programmes such as Search and Rescue. If necessary, other reporting formats that provide more details may be used but should contain as a minimum the elements described in this ANRF template. The results will be analysed by ICAO and aviation partners and utilized in the Regional Performance Dashboards and the Annual Air Navigation Report. The conclusions from the Air Navigation Report will serve as the basis for future policy adjustments, aiding safety practicality, affordability and global harmonization, amongst other concerns.

2. **Regional/National Performance objective:** In the ASBU methodology, the performance objective will be the title of the ASBU module itself. Furthermore, indicate alongside corresponding Performance Improvement area (PIA).

3. **Impact on Main Key Performance Areas:** Key to the achievement of a globally interoperable ATM system is a clear statement of the expectations/benefits to the ATM community. The expectations/benefits are referred to eleven Key Performance Areas (KPAs) and are interrelated and cannot be considered in isolation since all are necessary for the achievement of the objectives established for the system as a whole. It should be noted that while safety is the highest priority, the eleven KPAs shown below are in alphabetical order as they would appear in English. They are access/equity; capacity; cost effectiveness; efficiency; environment; flexibility; global interoperability; participation of ATM community; predictability; safety; and security. However, out of these eleven KPAs, for the present, only five have been selected for reporting through ANRF, which are Access & Equity, Capacity, Efficiency, Environment and Safety. The KPAs applicable to respective ASBU module are to be identified by marking Y (Yes) or N (No). The impact assessment could be extended to more than five KPAs mentioned above if maturity of the national system allows and the process is available within the State to collect the data.

4. **Planning Targets and Implementation Progress:** This section indicates planning targets and status of progress in the implementation of different elements of the ASBU Module for both air and ground segments.

5. **Elements related to ASBU module:** Under this section list elements that are needed to implement the respective ASBU Module. Furthermore, should there be elements that are not reflected in the ASBU Module (example: In ASBU B0-80/ACDM, Aerodrome certification and data link applications D-VOLMET, D-ATIS, D-FIS are not included; Similarly, in ASBU B0-30/DAIM, note that WGS-84 and eTOD are not included) but at the same time if they are closely linked to the module, ANRF should specify those elements. As a part of guidance to PIRGs/States, every Regional ANP will have the complete list of all 18 Modules of ASBU Block 0 along with corresponding elements, equipage required on the ground and in the air as well as metrics specific to both implementation and performance (benefits).

6. **Targets and implementation progress (Ground and Air):** Planned implementation date (month/year) and the current status/responsibility for each element are to be reported in this section. Please provide as much details as possible and should cover both avionics and ground systems. This ANRF being high level document, develop necessary detailed action plan separately for each element/equipage.

7. **Implementation challenges**: Any challenges/problems that are foreseen for the implementation of elements of the Module are to be reported in this section. The purpose of the section is to identify in advance any issues that will delay the implementation and if so, corrective action is to be initiated by the concerned person/entity. The four areas, under which implementation issues, if any, for the ASBU Module to be identified, are as follows:

- Ground System Implementation:
- Avionics Implementation:
- Procedures Availability:
- Operational Approvals:

Should be there no challenges to be resolved for the implementation of ASBU Module, indicate as "NIL".

8. **Performance Monitoring and Measurement:** Performance monitoring and measurement is done through the collection of data for the supporting metrics. In other words, metrics are quantitative measure of system performance – how well the system is functioning. The metrics fulfil three functions. They form a basis for assessing and monitoring the provision of ATM services, they define what ATM services user value and they can provide common criteria for cost benefit analysis for air navigation systems development. The Metrics are of two types:

A. **Implementation Monitoring**: Under this section, the indicator supported by the data collected for the metric reflects the status of implementation of elements of the Module. For example- Percentage of international aerodromes with CDO implemented. This indicator requires data for the metric "number of international aerodromes with CDO".

B. **Performance Monitoring**: The metric in this section allows to asses benefits accrued as a result of implementation of the module. The benefits or expectations, also known as Key Performance Areas (KPAs), are interrelated and cannot be considered in isolation since all are necessary for the achievement of the objectives established for the system as a whole. It should be noted that while safety is the highest priority, the eleven KPAs shown below are in alphabetical order as they would appear in English. They are access/equity; capacity; cost effectiveness; efficiency; environment; flexibility; global interoperability; participation of ATM community; predictability; safety; and security. However, out of these eleven KPAs, for the present until experienced gained, only five have been selected for reporting through ANRF, which are Access & Equity, Capacity, Efficiency, Environment and Safety. Where applicable, mention qualitative benefits under this section.

9. **Identification of performance metrics:** It is not necessary that every module contributes to all of the five KPAs. Consequently, a limited number of metrics per type of KPA, serving as an example to measure the module(s)' implementation benefits, without trying to apportion these benefits between module, have been identified on page 6. For the family of ASBU modules selected for air navigation implementation, States/Region to choose the applicable performance (benefit) metrics from the list available on page 6. This approach would facilitate States in collecting data for the chosen performance metrics. States/Region, however, could add new metrics for different KPAs based on maturity of the system and ability to collect relevant data.

Appendix B - Main Planning Table Template

	Objectives					Priorities and targets			Reference
Block	**ASBU modules and elements Enablers**	**Performance Improvement Area**	**Applicable or not in [Region] (Yes/No)**	**Regional planning elements**	**Enablers**	**Priority allocated in [Region]**	**Target(s) in [Region]**	**Indicator(s) / Metric(s)**	**Supporting Planning Document (ANRF, other)**

EUR ANP, VOLUME III

PART II – AIR NAVIGATION SYSTEM/ASBU IMPLEMENTATION

1. INTRODUCTION

1.1 The GANP and the ASBU concept and documents were developed to provide the framework and strategic direction for a global and harmonized aviation system. They provide strategic direction and define measurable operational improvements and include key civil aviation policy principles to assist ICAO Regions and States with the preparation and implementation of their air navigation plans.

1.2 The planning and implementation of required elements of selected ASBU t elements in the ICAO EUR Region should be undertaken within the framework of the EASPG with the participation and support of all stakeholders, including regulatory personnel so as to ensure global interoperability and harmonization of the aviation system.

1.3 The ASBU implementation monitoring report will be presented to the EASPG on an annual basis and can be, after PIRG endorsement, issued as a companion document to Volume III.

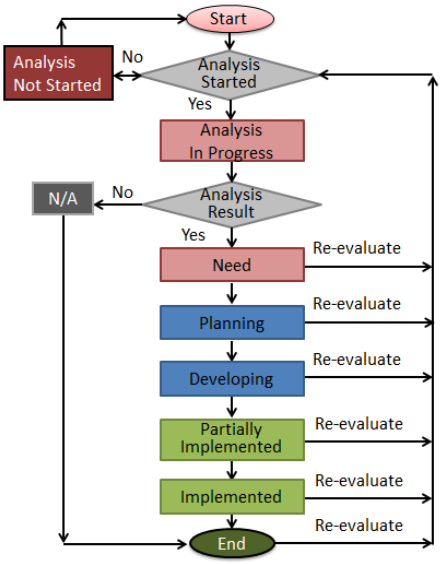
1.4 **Figure GEN III-1** depicts the workflow for analysing and implementing ASBU elements. This same method can be applied with respect to Regional Aviation System Improvements or national aviation system improvements.

1.5 The significance of each step in the workflow as it pertains to regional planning is as follows:

- **Analysis Not Started** – The requirement to implement this ASBU element has not yet been assessed by any State in the Region
- **Analysis In Progress** – A Need Analysis as to whether or not this ASBU element is required is in progress by at least one State in the Region
- **N/A** – The State in the Region has decided not to implement this ASBU element, as it is not applicable or as there had been no need identified
- **Need** - One or more States in the Region have determined the ASBU element is required, but none have begun planning for the implementation
- **Planning** – Implementation of this ASBU element is planned, but not started
- **Developing** – Implementation of this ASBU element is in the development phase, but not yet operational
- **Partially Implemented** – Implementation of this ASBU element is partially completed and/or operational in at least one area of the Region
- **Implemented** - Implementation of this ASBU element has been completed and/or is fully operational in all areas of the Region where the need was identified

1.6 The analysis and implementation status determined in accordance with the above is reflected in the ASBU Implementation Status Tables in the Companion Document *ASBU Implementation Monitoring Report ICAO EUR Region.*

FIGURE GEN III-1 – ANALYSIS AND IMPLEMENTATION WORKFLOW



2. MONITORING OF ASBU ELEMENTS IMPLEMENTATION

2.1 The monitoring of the regional implementation progress should be done by the EASPG for all planned elements. Due to the level of effort required, development of, and monitoring of, performance metrics/indicators should only be done for highest priority implementations.

2.2 The EASPG has determined the mechanisms and tools for the monitoring and collection of necessary data at regional levels.

3. ASBU IMPLEMENTATION MONITORING MECHANISM IN THE EUR REGION

3.1 At EANPG/55 (25-28 November 2013), it was 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 utilization of the EUROCONTROL LSSIP process complemented by a specific ICAO EUR ASBU questionnaire. The EANPG/58 (28 November – 1 December 2016) expanded the number Block 0 modules which need to be monitored and also recommended that the progress/status of implementation of ASBU Block 0 modules be reported, for monitoring purposes, by States regardless of their assigned priority in the EANPG/55 Conclusions. The current edition is the 9th edition of the Report in a series of ASBU Implementation Monitoring Reports for the ICAO EUR Region and is the first one based on the 7th edition of the Global Air Navigation Plan (GANP), as endorsed at the 41st ICAO Assembly in October 2022.

3.2 The *ICAO/EUROCONTROL ASBU Monitoring Report - Reference Period 2022* presents an overview of progress achieved so far in the implementation of the ICAO ASBU elements (Block 0 and Block 1) within the ICAO EUR Region during the reference year 2022. The report summarizes the implementation progress of 80 ASBU Block 0 and Block 1 Elements and indicates what has been achieved so far, together with the future perspective of implementation in accordance with planning dates reported by 53 out of 55 States that are accredited to the ICAO EUR Region. It must also be noted that that Monaco, San Marino and Andorra are not addressed separately in this report, neither in related statistics, because for monitoring purposes they are included in other hosting States. Therefore there are 52 Member States considered individually in the statistics shown in the *ASBU Implementation Monitoring Report ICAO EUR Region*.

TABLE ASBU-III-EUR-1 – EUR REGION IMPLEMENTATION STATUS OF BLOCK 0 ELEMENTS

Refer to Companion Document
ASBU Implementation Monitoring Report ICAO EUR Region 2022, from 05.12.2023

TABLE ASBU-III-EUR-2 – EUR REGION IMPLEMENTATION STATUS OF BLOCK 1 ELEMENTS

Refer to Companion Document
ASBU Implementation Monitoring Report ICAO EUR Region2022, from 05.12.2023

TABLE ASBU-III-EUR-3 – EUR REGION IMPLEMENTATION STATUS OF BLOCK 2 ELEMENTS

FURTHER WORK REQUIRED

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TABLE ASBU-III-EUR-4 – EUR REGION IMPLEMENTATION STATUS OF BLOCK 3 ELEMENTS

FURTHER WORK REQUIRED

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EUR ANP, VOLUME III

PART III - AIR NAVIGATION SYSTEM/REGIONAL AVIATION SYSTEM IMPROVEMENT (RASI) IMPLEMENTATION

1. INTRODUCTION

1.1 Part III indicates the implementation status of planned improvements to the EUR Region aviation system which are not covered in Part II. (e.g. additional functionalities exceeding Block 0 requirements such as detailed in the European ATM Master Plan, etc.)

1.2 To be developed…

- END -

Companion Document

ASBU Implementation Monitoring Report, ICAO EUR States, Reference Period 2022