



**INTERNATIONAL CIVIL AVIATION ORGANIZATION  
SOUTH AMERICAN REGIONAL OFFICE**

**INSTRUCTIONS FOR USE OF THE TEMPLATE FOR  
VOLUME III OF THE REGIONAL  
AIR NAVIGATION PLAN – CAR/SAM ANP**

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REGIONAL AIR NAVIGATION PLAN - CAR/SAM ANP**

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Attachment – ANP VOL III TEMPLATE

## 1. INTRODUCTION

### 1.1 Reference documents

- Doc 9750, GANP, Sixth edition 2019 <https://www4.icao.int/ganpportal/>
- Doc 9854 Global air traffic management operational concept (GATMOC)
- Doc 9883 Manual on Global performance of the air navigation system
- Doc 9882 Manual on ATM system requirements

### 1.2 Definitions

*Note: Sources and references are from Doc 9883*

**SWOT analysis.** Strengths, weaknesses, opportunities and threats (SWOT) analysis is a business management term used to denote the analysis of a system or organization with the aim of developing an inventory of present and future strengths, weaknesses, opportunities and threats that may require performance management attention (Chapter 2, 2.3.2 and Appendix D, 3.2.7 refer).

**Key performance area (KPA).** KPAs are a way of categorizing performance subjects related to high-level ambitions and expectations. ICAO has defined 11 KPAs: safety, security, environmental impact, cost effectiveness, capacity, flight efficiency, flexibility, predictability, access and equity, participation and collaboration, interoperability (Chapter 2, 2.2.4, Appendix A, Figure I-A-2 and 3.3 refer).

**Performance management process.** This term refers to a repetitive or continuous process which applies the principles of the performance-based approach to manage (generally improve) selected performance aspects of an organization or system (*i.e.* the air navigation system). The process is executed through a sequence of well-defined steps, which are described in Chapter 2, Figure I-2-1.

Examples of performance management processes are safety management, security management, and capacity management.

### 1.3 Acronyms

A-CDM	Airport collaborative decision-making
AN-SPA	Air navigation system performance assessment
ASBU	Aviation system block upgrades
PPRC	GREPECAS programmes and projects review committee
DCB	Demand-capacity balancing
FUA	Flexible use of airspace
GANP	Global air navigation plan (Doc 9750)
GASP	Global aviation safety plan (Doc 1004)
KPI	Key performance indicator
KPA	Key performance area
PBA	Performance-based approach

PBN	Performance-based navigation
RPBANIP	CAR Regional performance-based air navigation implementation plan
SAMPBIP	SAM performance-based air navigation system implementation plan
TBD	To be determined
Vol.	Volume

#### 1.4 ICAO-driven planning

The International Civil Aviation Organization (ICAO) has developed Doc 9854 “Global ATM operational concept”, which describes the ICAO vision of a globally applicable ATM.

It also developed the global "Aviation System Block Upgrade" (ASBU) framework as a programmatic framework that presents a set of air traffic management (ATM) solutions or upgrades that builds on existing equipment and establishes an implementation framework to achieve global interoperability within given timelines.

The Sixth edition of the Global Air Navigation Plan (GANP - Doc 9750) enables members of the aviation community to participate together to achieve an agile, safe, secure, sustainable, high-performance and interoperable global air navigation system.

At the same time, new demands on the aviation system, emerging technologies, innovative ways of doing business and the changing human role pose challenges and also offer opportunities that call for an urgent transformation of the air navigation system so that aviation continues to drive social well-being in the CAR and SAM Regions.

#### 1.5 References for developing Vol. III

Conclusion PPRC/05-10 – Development of Volume III of the CAR/SAM e-ANP and preparation of national air navigation plans (NANPs), the main purpose of which is to coordinate efforts for the development of Vol. III of the CAR/SAM e-ANP and update the national air navigation plans.

AN/Conf-13 recommendation 4.3/1, item d) “encourage the planning and implementation regional groups (PIRGs) to embrace a performance-based approach for implementation and adopt the six-step performance management process, as described in the *Manual on Global Performance of the Air Navigation System* (Doc 9883), by reflecting the process in Volume III of all regional air navigation plans”.

#### 1.6 Purpose

The Instructions will be used by CAR/SAM States when preparing the tables and texts of Volume III of the CAR/SAM ANP, in accordance with the template provided by ICAO Headquarters (see the Attachment at the end of this document).

These Instructions address the following objectives:

- a. Standardise the understanding and practical application of the six-step approach to performance-based planning, as stipulated in the GANP, by area navigation specialists of CAR/SAM States in the process of filling in the Tables of Vol. III.
- b. Achieve a homogeneous application of the Vol. III template and simplify the development of tables and texts.
- c. Complement the use of the GANP tools (AN-SPA, performance dashboard, etc.).
- d. Carry out an orderly transition of the plans and activities under the RPBANIP and the SAM-PBIP to the CAR/SAM ANP Vol. III.

The cited template is based on a printed format, which describes a sequence of tables that guide the insertion of planning data of each State/Territory, linked to designated airspaces and international airports, following the identification of air navigation performance optimisation objectives, leading to the definition of solutions derived from the ASBU framework or other regional initiatives. In the future, this template will be prepared in electronic format by ICAO, with a view to automating the management and updating of data and the monitoring of implementation activities.

## 1.7 Scope

1.7.1 Vol. III contains the dynamic/flexible elements of the CAR/SAM ANP and provides guidance for the implementation of air navigation systems and their upgrading, taking into account the ASBU framework as well as GANP technology roadmaps. Vol. III may also include additional implementation guides to supplement the material contained in Vol. I and Vol. II.

1.7.2 The six-step method of Doc 9883 is applied for the **drafting** and subsequent **management** of Vol. III, as follows:

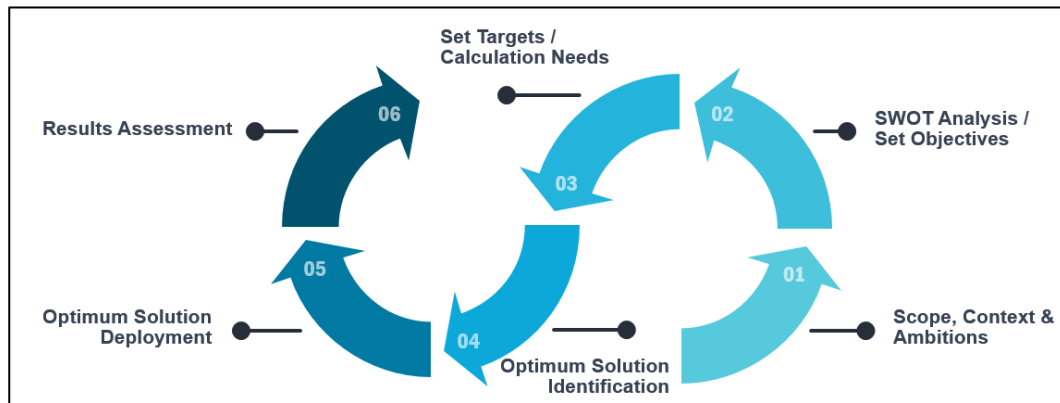
### **In the drafting phase:**

- Step 1: Define/review scope, context and general ambitions/expectations
- Step 2: Identify opportunities, issues and set (new) objectives
- Step 3: Quantify objectives
- Step 4: Select solutions to exploit opportunities and resolve issues

### **In the management phase:**

- Step 5: Implement solutions
- Step 6: Assess achievement of objectives

These instructions focus on the drafting phase of Vol. III based on the template provided. See Graph 1 below.



**Graph 1.- Six-step performance management process**

1.7.3 Once Vol. III has been developed, it must be approved by GREPECAS/PPRC and the implementation phase will start, which should be supported by a programme/project aimed at developing and/or continuing the action plans for the implementation of the solutions identified from the ASBU framework. These solutions, if applicable, will be supplemented with regional initiatives (also called non-ASBU solutions) as outlined in Step 4 of the method. This entails managing indicators and metrics to make sure that the process is delivering the expected performance results.

1.7.4 Vol. III, as approved by GREPECAS, shall have its respective amendment procedures, in accordance with the framework set forth in Volume I, Appendix A, Part C.

## 2. GENERAL ASPECTS AND REQUIREMENTS

### 2.1 Personnel and data requirements

2.1.1 The drafting of Volume III is done by GREPECAS State representatives, assisted by officers of the NACC and SAM Regional Offices. State counterparts should have the authority and/or designate a working group (WG) within their Administration to coordinate the drafting of Volume III with all the stakeholders. Such a group should be multidisciplinary in nature and have a coordinator to act as focal point (POC) for this Regional Office and, at the same time, to be the spokesperson for the State, supported by the following human and technological resources:

- a. Specialists and technicians from:
  - ✓ the CAA;
  - ✓ the air navigation service providers (ATS, ATFM, CNS, MET, AIM, SAR areas) and airports;
  - ✓ the State environmental agency;
  - ✓ the industry;
  - ✓ the users
- b. IT technicians and statisticians with expertise in business intelligence (BI) tools

- c. IT tools for efficient collection, analysis and management of air traffic data
- d. Collaborative arrangements with data originators to meet data quality requirements

### 2.1.2 Data management

Data management is the process of data collection, processing (including quality assurance), storage and reporting in support of the performance-based approach. In practical terms, data management is about:

- a. how to set up the data acquisition process needed for performance monitoring;
- b. how to aggregate performance data and exchange the data among States and planning groups;
- c. how groups can best manage their information base in which performance data are stored; and
- d. how to organise performance evaluations.

The entities that will act, in each State, as performance data providers must be defined. Appendix A describes the KPIs and identifies, for reference, the required data and data providers for each KPI.

## 3. BASIC CONCEPTS

### 3.1 Performance-based approach (PBA)

The performance-based approach is a decision-making method based on three principles: strong focus on desired/required results; informed decision-making, driven by those desired/required results; and reliance on facts and data for decision-making. The PBA is a way of organising the performance management process.

### 3.2 Key performance area (KPA)

KPAs are a way of categorising performance subjects related to high-level ambitions and expectations (see the summary below).

ICAO has defined eleven KPAs: safety, security (cybersecurity), environmental impact, cost effectiveness, capacity, flight efficiency, flexibility, predictability, access and equity, participation and collaboration, interoperability.

### **Summary of GANP efficiency ambitions**

KPA	Ambition
ACCESS AND EQUITY	No aviation community member excluded or treated unfairly.
CAPACITY	Nominal capacity easily scalable with demand.
	Disruptive events do not interrupt service provision and do not significantly affect the performance of the system.
COST-EFFECTIVENESS	No increase of total direct ANS cost while maintaining the safety and quality of service.
	Significant increase of ANS productivity, irrespective of demand.
EFFICIENCY	Reduction of the gap between the flight efficiency achieved and the desired optimum trajectory of airspace users.
ENVIRONMENT	ANS-induced inefficiencies to be progressively removed to contribute to the global ICAO aspirational goals for CO <sub>2</sub> emissions.
	To benefit from achieved flight efficiency gains.
FLEXIBILITY	To absorb required changes to individual business and operational trajectories.
INTEROPERABILITY	Essential at an operational and technical level.
PARTICIPATION BY THE ATM COMMUNITY	Pre-agreed level of participation to make the maximum shared use of the air navigation resources.
PREDICTABILITY	No increase in ANS delivery variability including asset availability.
SAFETY	Zero ANS-related accidents and a significant (50%) reduction of ANS-related serious incidents.
SECURITY	Zero significant disruptions due to cyber incidents

### 3.3 Key performance indicator (KPI) and metrics

3.3.1 Current/past performance, expected future performance (estimated as part of forecasting and performance modelling), as well as actual progress in achieving performance objectives is quantitatively expressed by means of indicators, in this case called key performance indicators, or KPIs.

3.3.2 To be relevant, indicators need to correctly express the intention of the associated performance objective. Since indicators support objectives, they should be defined having a specific performance objective in mind.

Indicators are not often directly measured. They are calculated from supporting metrics according to clearly defined formulas, *e.g.* cost-per-flight indicator = sum (costs)/sum (flights).

Performance measurement is therefore done through the collection of data for the supporting metrics.

3.3.3 The tables and forms of the current regional air navigation implementation documents do not always reflect qualitatively the benefits of an ASBU module/element implementation in terms of performance, as metrics of a quantitative nature are applied.

3.3.4 Measuring implementation through the GANP KPIs will enable States to:

- a. organise the preparation of the ASBU modules/elements for their implementation; and
- b. measure and document the efficiency benefits of the modules/elements implemented.

### 3.4 ASBU Framework

The ASBU framework furthers the evolution of the global air navigation system towards the achievement of the identified performance ambitions by defining operational improvements and associated performance benefits derived from the specific operational concepts defined in the different evolutionary stages of the conceptual roadmap.

Once validated and available for introduction, these operational improvements will support the adoption of a holistic, performance-based approach to modernising the air navigation system in a cost-effective manner.

The adoption of a globally harmonised performance management process for upgrading the air navigation system is needed in order to achieve consistency of global, regional and national plans.

For the purpose of these instructions, the adoption of Block 0 (2013) and Block 1 (2019) modules/elements will be analysed first and foremost. However, if the necessary conditions and enablers are in place, planning for Block 2 (2025) could be undertaken, for example, for issues related to system-wide information management (SWIM).

See the list of GANP ASBU modules/elements in Appendix B.

## 4. PROCEDURES

### 4.1 Planning and implementation in progress

#### GANP and GASP Implementation

4.1.1 The development of Vol. III shall take into account that ICAO Assembly Resolution A40-1 stipulates that the GASP and GANP be implemented and maintained current in close cooperation and coordination with all stakeholders, and that these plans serve as a framework for the development and implementation of regional, sub-regional and national plans, thereby ensuring consistency, harmonisation and coordination of efforts to enhance the safety, capacity and efficiency of international civil aviation.

#### Technology and information threads

4.1.2 For the drafting of Vol. III, it must be noted that several ASBU modules/elements of the Technology (see note below) and Information thread are currently in the process of implementation through GREPECAS programmes. These modules/elements constitute the essential platform to ensure safety, efficiency and proper use of airspace capacity and services, in the context of the implementation of the operational thread.

*Note. - The GANP contains technology roadmaps, which can be found at:*

<https://www4.icao.int/ganportal/ASBU/Roadmap/Technology>

4.1.3 The GANP does not specifically define the linkage of technology and information modules/elements with specific KPIs. However, in some cases, the GANP recognises the KPA that may be associated to these modules/elements.

4.1.4 Therefore, in order to give continuity to the implementation of the technology and information threads, list 1 and list 2 below show the technology and information modules/elements associated to Block 0 and Block 1, which are to be considered in the planning scheme for Vol. III. As discussed in 4.1.9 below, these modules/elements must be analysed and included in [Table 11](#).

4.1.5 It must be recognised that the implementation of the technology and information threads meet certain performance objectives in various KPAs, *i.e.* interoperability, efficiency, capacity, safety, security, and cost-effectiveness. The ASUR and DAIM modules associated to GASP safety improvement initiatives are noteworthy.

4.1.6 The above would offer the possibility of measuring the implementation performance within a KPI; otherwise, a quantitative metric could be applied.

**List 1.- Technology modules/elements essential for the CAR/SAM Regions**

<i>ASBU - Block/element</i>	<i>Description</i>	<i>Thread</i>
<b>ASUR</b>	<b>Alternative surveillance</b> Initial ground surveillance capability	<b>Technology</b>
ASUR-B0/1	Automatic dependent surveillance - broadcast (ADS-B)	
ASUR-B0/2	Multilateration cooperative surveillance systems (MLAT)	
ASUR-B0/3	Cooperative surveillance radar downlink of aircraft parameters (SSR-DAPS)	
ASUR-B1/1	Reception of aircraft ADS-B signals from space (SB ADS-B)	
<b>COMI</b>	<b>Communication infrastructure</b> Improvement of AMS and AFS telecommunication infrastructure	<b>Technology</b>
COMI-B0/1	Aircraft communication addressing and reporting system (ACARS)	
COMI-B0/2	Aeronautical telecommunication network / Open systems interconnection (ATN/OSI)	
COMI-B0/3	VHF data link (VDL) Mode 0/A	
COMI-B0/4	VHF data link (VDL) Mode 2 Basic	
COMI-B0/5	Satellite communications (SATCOM) Class C data	
COMI-B0/6	High frequency data link (HFDL)	
COMI-B0/7	ATS message handling system (AMHS)	
COMI-B1/1	Ground-ground aeronautical telecommunication network / Internet protocol suite (ATN/IPS)	
COMI-B1/2	VHF data link (VDL) Mode 2 Multi-frequency	
COMI-B1/3	SATCOM Class B Voice and data	
COMI-B1/4	Aeronautical mobile airport communication system (AeroMACS) – ground-ground	
<b>COMS</b>	<b>Communication services/systems</b> Improvement of AMS and AFS communication services and systems	<b>Technology</b>
COMS-B0/1	CPDLC (FANS 1/A & ATN B1) for domestic and procedural airspace	
COMS-B0/2	ADS-C (FANS 1/A) for procedural airspace	
COMS-B1/1	PBCS approved CPDLC (FANS 1/A+) for domestic and procedural airspace	

<i>ASBU - Block/element</i>	<i>Description</i>	<i>Thread</i>
COMS-B1/2	PBCS approved ADS-C (FANS 1/A+) for procedural airspace	
COMS-B1/3	SATVOICE (incl. routine communications) for procedural airspace	
<b>NAVS</b>	<b>Navigation systems</b> Improvement of air navigation systems	<b>Technology</b>
NAVS-B0/1	Ground-based augmentation system (GBAS)	
NAVS-B0/2	Satellite-based augmentation system (SBAS)	
NAVS-B0/3	Aircraft-based augmentation system (ABAS)	
NAVS-B0/4	Navigation minimal operating networks (Nav MON)	
NAVS-B1/1	Extended GBAS	

**List 2.- Information modules/elements essential for the CAR/SAM Regions**

<i>ASBU - Block/element</i>	<i>Description</i>	<i>Thread</i>
<b>AMET</b>	<b>Advanced meteorological information</b> Meteorological information to improve efficiency and safety	<b>Information</b>
AMET-B0/1	Meteorological observations products	
AMET-B0/2	Meteorological forecast and warning products	
AMET-B0/3	Climatological and historical meteorological products	
AMET-B0/4	Dissemination of meteorological products	
AMET-B1/1	Meteorological observations information	
AMET-B1/2	Meteorological forecast and warning information	
AMET-B1/3	Climatological and historical meteorological information	
AMET-B1/4	Dissemination of meteorological information	
<b>DAIM</b>	<b>Digital aeronautical information management</b> Optimise the provision of digital aeronautical information	<b>Information</b>
DAIM-B1/1	Provision of quality-assured aeronautical data and information	
DAIM-B1/2	Provision of digital Aeronautical Information Publication (AIP) data sets	
DAIM-B1/3	Provision of digital terrain data sets	
DAIM-B1/4	Provision of digital obstacle data sets	
DAIM-B1/5	Provision of digital aerodrome mapping data sets	
DAIM-B1/6	Provision of digital instrument flight procedure data sets	
DAIM-B1/7	NOTAM improvements	

<i>ASBU - Block/element</i>	<i>Description</i>	<i>Thread</i>
<b>FICE</b>	<b>Flight and flow information for a collaborative environment</b> Increased interoperability, efficiency and capacity through ground-ground data integration	<b>Information</b>
FICE-B0/1	Automated basic inter facility data exchange (AIDC)	
<b>SWIM</b> <b>See Note*</b>	<b>System-wide information management</b> Improvement of information management performance through the application of SWIM	<b>Information</b>
SWIM-B2/1	Information service provision	
SWIM-B2/2	Information service consumption	
SWIM-B2/3	SWIM registry	
SWIM-B2/4	Air/ground SWIM for non-safety critical information	
SWIM-B2/5	Global SWIM processes	
SWIM-B3/1	Air/ground SWIM for safety-critical information	
*Note: The SWIM thread is planned for block 2 (year 2025) and block 3. However, procedure and infrastructure enablers for the exchange of information are currently being implemented.		

Operational threads

4.1.7 GREPECAS must maintain and enhance the results of its programmes and projects related to PBN implementation, based on the APTA module, which is associated to the mandate of ICAO Assembly Resolution A37-11, as well as the improvement of DCB, which involves the implementation of ATFM, FUA, FRTO and A-CDM (in airspace or airports that require it). Likewise, there are operational modules associated to GASP safety improvement initiatives, including APTA and SNET.

4.1.8 In this regard, list 3 below shows the modules/elements in the **Operational** category (Blocks 0 and 1) that are essential for planning in the CAR/SAM Regions, as reflected in Vol. III.

*Note. - Planning for the GADS operational module, associated to SAR optimisation, is discussed further below.*

4.1.9 The modules/elements analysed and selected from list 3 must be included in Table 11, indicating the appropriate KPI for measuring implementation performance. If this KPI is not contained in Table 8, it shall be included according to the references contained in Appendix D, and a baseline analysis will be conducted and annual improvement goals will be defined using Table 9 and Table 10 respectively.

**List 3.- Essential modules/elements of the operational category**

<i>ASBU - Block/element</i>	<i>Description</i>	<i>Thread</i>
<b>ACDM</b>	<b>Airport collaborative decision-making</b> Improved airport operations through airport CDM	<b>Operational</b>
ACDM-0/1	Aiport collaborative decision-making information sharing (ACIS)	
ACDM-0/2	Integration with ATM network function	
ACDM-1/1	Airport operations plan (AOP)	
ACDM-B1/2	Airport operations centre (APOC)	
<b>APTA</b>	<b>Airport accessibility</b> Optimisation of PBN-based instrument approach procedures	<b>Operational</b>
APTA-B0/1	PBN approaches (with basic capabilities)	
APTA-B0/2	PBN SID and STAR procedures (with basic capabilities)	
APTA-B0/3	SBAS/GBAS CAT I precision approach procedures	
APTA-B0/4	CDO (Basic)	
APTA-B0/5	CCO (Basic)	
APTA-B0/6	PBN helicopter point-in-space (PinS) operations	
APTA-B0/7	Performance-based aerodrome operating minima - Advanced aircraft	
APTA-B0/8	Performance-based aerodrome operating minima - Basic aircraft	
APTA-B1/1	PBN approaches (with advanced capabilities)	
APTA-B1/2	PBN SID and STAR procedures (with advanced capabilities)	
APTA-B1/3	Performance-based aerodrome operating minima - Advanced aircraft with SVGS	
APTA-B1/4	CDO (Advanced)	
APTA-B1/5	CCO (Advanced)	
<b>FRTO</b>	<b>Improved operations through enhanced trajectories</b> Capacity optimisation and flexible flights through enhanced en-route trajectories	<b>Operational</b>
FRTO-B0/1	Direct routing (DCT)	
FRTO-B0/2	Airspace planning and flexible use of airspace (FUA)	
FRTO-B0/3	Pre-validated and coordinated ATS routes to support flight and flow	
FRTO-B0/4	Basic conflict detection and conformance monitoring	
FRTO-B1/1	Free route airspace (FRA)	
FRTO-B1/2	Required navigation performance (RNP) routes	
FRTO-B1/3	Advanced flexible use of airspace (FUA) and management of real-time airspace data	
FRTO-B1/4	Dynamic sectorisation	
FRTO-B1/5	Enhanced conflict detection tools and conformance monitoring	
FRTO-B1/6	Multi-sector planning	
FRTO-B1/7	Trajectory options set (TOS)	
<b>NOPS</b>	<b>Network operations</b> Optimise air traffic flow management	<b>Operational</b>
NOPS-B0/1	Initial integration of collaborative airspace management with air traffic flow management	
NOPS-B0/2	Collaborative network flight updates	
NOPS-B0/3	Network operation planning basic features	
NOPS-B0/4	Initial airport/ATFM slots and A-ACDM network interface	
NOPS-B0/5	Dynamic ATFM slot allocation	

<i>ASBU - Block/element</i>	<i>Description</i>	<i>Thread</i>
NOPS-B1/1	Short-term ATFM measures	
NOPS-B1/10	Collaborative trajectory options program (CTOP)	
NOPS-B1/2	Enhanced network operations planning	
NOPS-B1/3	Enhanced integration of airport operations planning with network operations planning	
NOPS-B1/4	Dynamic traffic complexity management	
NOPS-B1/5	Full integration of airspace management with air traffic flow management	
NOPS-B1/6	Initial dynamic airspace configurations	
NOPS-B1/7	Enhanced ATFM slot swapping	
NOPS-B1/8	Extended arrival management supported by the ATM network function	
NOPS-B1/9	Target times for ATFM purposes	
NOPS-B2/1	Optimised ATM network services in the initial TBO context	
NOPS-B2/2	Enhanced dynamic airspace configuration	
NOPS-B2/3	Collaborative network operation planning	
NOPS-B2/4	Multi ATFM slot swapping and airspace user priorities	
NOPS-B2/5	Further airport integration within network operation planning	
NOPS-B2/6	ATFM adapted to cross-border free-route airspace (FRA)	
NOPS-B2/7	UTM network operations	
NOPS-B2/8	Upper airspace network operations	
NOPS-B3/1	ATM network services in full TBO context	
NOPS-B3/2	Cooperative network operations planning	
NOPS-B3/3	Innovative airspace architecture	
<b>SNET</b>	<b>Ground-based safety networks</b>	<b>Operational</b>
	Improved efficiency of ground-based safety networks	
SNET-B0/1	Short-term conflict alert (STCA)	
SNET-B0/2	Minimum safe altitude warning (MSAW)	
SNET-B0/3	Area proximity warning (APW)	
SNET-B0/4	Approach path monitoring (APM)	
SNET-B1/1	Enhanced STCA with aircraft parameters	
SNET-B1/2	Enhanced STCA in complex TMAs	

Search and rescue (SAR) service and GADSS

4.1.10 The implementation of the GANP GADSS (Global Aeronautical Distress and Safety System) module improves the performance of the SAR service, as its purpose is to optimise the warning service to ATS by improving aircraft management in abnormal or distress situations. See Appendix B.

4.1.11 Planning for the implementation of the GADS module shall take into account the planning and implementation of activities to improve and maintain SAR in CAR/SAM States, *inter alia*:

- a. Support States in establishing an entity to provide 24-hour SAR services within their territory and areas where the State has accepted responsibility for providing SAR to ensure that assistance is provided to persons in distress;
- b. Promote the harmonisation of aeronautical/maritime SAR policies, regulations, practices and procedures in accordance with ICAO and IMO provisions;
- c. Develop and update SAR agreements between rescue coordination centres (RCCs) of adjacent States and international SAR service agencies, as appropriate;
- d. Promote the establishment of joint aeronautical/maritime SAR committees, including voluntary SAR organisations, and the formulation of agreements among all national SAR service stakeholders; and
- e. Develop a human resource planning and training strategy in line with ICAO SAR provisions.

#### 4.2 Formulation of the planning tables in Vol. III

The AN-SPA (air navigation system performance assessment) tool guides the user in the application of the six-step method described in Doc 9883, leading to an understanding and the identification of relevant improvements within the ASBU framework based on the description of problems, limitations or gaps affecting the operational scenario of a State or region, focusing on aerodromes, TMAs or en-route airspace.

It is highly recommended to carry out practices and exercises with this tool in multidisciplinary groups of the ANS community. To use it, you must register and login at:

<https://www4.icao.int/ganportal/Account/Login?ReturnUrl=%2Fganportal%2FANSPA%2FReports>

The planning procedure based on ICAO Doc 9883 and the six-step method are shown below.

### STEP 1: DEFINE/REVIEW SCOPE, CONTEXT AND GENERAL AMBITIONS/EXPECTATIONS

#### Scope

- Time period: Immediate planning of achievements that can support aviation recovery in the CAR/SAM Regions in the short term (2021 - 2024) is foreseen, with a changing scenario expected in that period, depending on the evolution of the pandemic.
- Key performance areas: The **11 KPAs** of the GANP are analysed.
- Geographically: CAR/SAM airspace, within the scope of airports, terminal control areas (TMAs) and en-route segments.
- Operations under consideration: Air traffic operating under IFR.

#### Context

##### Ambitions and expectations

The general expectation of States, industry, ANSP providers, airports, and the ATM community at large is to improve the system, aiming to support the initiatives deployed for the reactivation and recovery of regional aviation in face of COVID 19.

The area navigation system must also be strengthened in order to show resilience to temporary disruptions or loss of capacity, and environmental protection aspects must be analysed.

**Procedure:** The following table allows for the identification of the scope of airspace: ALL FIRs and TMAs to be covered by State planning must be included:

**Table 1**

State	FIR(s)	TMA(s)		NOTES
		ICAO Indicator	Name	

**STEP 2: IDENTIFY OPPORTUNITIES, ISSUES AND SET (NEW) OBJECTIVES**

2.1 Develop a list of present and future opportunities and issues that require performance management attention

**Procedure:** Based on the scope, context and general ambitions/expectations which were agreed upon during the previous step, the system should be analysed in order to develop an inventory of present and future opportunities and issues (weaknesses, threats) that may require performance management attention. See graph below:



This part of the process is generally known as strengths, weaknesses, opportunities and threats (SWOT) analysis:

- Strengths are (internal) attributes of a system or an organisation that help in the realisation of ambitions or in meeting expectations.
- Weaknesses are (internal) attributes of a system or an organisation that are a detriment to realising ambitions or meeting expectations.
- Opportunities are external conditions that help in the realisation of ambitions or in meeting expectations.
- Threats are external conditions that are a detriment or harmful to realising ambitions or meeting expectations.

Appendix C contains an example of a SWOT analysis.

**CAR/SAM REGIONAL SWOT ANALYSIS**

**Table 2**

<b>STRENGTHS</b>	Notes

<<<<

**Table 3**

<b>WEAKNESSES</b>	Notes

<<<

**Table 4**

OPPORTUNITIES	Notes

<<<

**Table 5**

THREATS	Notes

Based on the above SWOT analysis, in the following Table it is recommended to identify the main key performance areas (KPAs) that can help moderate or reverse the weaknesses (internal front), as well as mitigate the threats (external front).

**Table 6**

Related KPAs	Weaknesses	Threats
Safety		
Access and equity		
Participation of the ATM community		
Cost effectiveness		
Capacity		
Predictability		
Interoperability		
Security (cybersecurity)		
Flexibility		
Efficiency		
Environmental impact		

2.2 Define performance objectives

**IMPORTANT**

*For analysis and development of Tables 7 to 11, please refer to Appendix D, which contains the list "ASBU Elements - Expected Performance Impact on KPAs and specific KPIs", the purpose of which is to summarise*

the information presented in the GANP and provide a functional description of each operational ASBU element (Blocks 0 and 1). The cited Appendix has the following layout:

ASBU Element	KPA	Focus Areas	Performance objective	KPI
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**List of performance objectives for KPAs and selected KPIs**

**Table 7**

**(Examples)**

*Note.- The performance objective is selected from Appendix D. Also, refer to the GANP Catalogue of performance objectives.*

KPA	Focus areas	Performance objective	Notes
Capacity	Capacity, performance and utilisation	Reduce approach minima (ceiling and visibility)	
Capacity	Capacity, performance and utilisation	Increase arrival rate	

**STEP 3: QUANTIFY OBJECTIVES, SET GOALS AND CALCULATE REQUIREMENTS**

3.1 Link key performance areas, performance objectives and indicators

**List of KPIs and KPAs**

**Table 8**

**(Examples)**

KPA	Performance objective	KPI	Definition
Capacity	Reduce approach minima (ceiling and visibility)	KPI10 Airport peak throughput	The 95th percentile of the hourly number of operations recorded at an airport, in the “rolling” hours sorted from the least busy to the busiest hour. Can be computed for arrivals, departures or arrivals+departures.
Capacity	Increase arrival rate	KPI10 Airport peak throughput	

3.2 Define the desired speed of progress in terms of baseline and target performance

**Baseline performance for the selected KPIs**

**Table 9**

(Examples)

FIR /TMA/AIRPORT	BASELINE KPIs (2019)						Operations measured [units]
	KPI10	KPIxx					
Airport XYZA	12 ACFT/ h						

**Annual performance targets and requirements**

**Table 10**

(Examples)

FIR /TMA/AIRPORT	TARGETS [KPIs]					Notes
	KPI10	KPIxx	KPIxx	KPIxx	KPIxx	
Airport XYZA	18 ACFT/ h					KPI10 increase “x” ACFT / hour or % annual improvement


**STEP 4: SELECT SOLUTIONS TO EXPLOIT OPPORTUNITIES AND RESOLVE ISSUES**

**Solutions based on ASBU elements/modules or regional initiatives to exploit opportunities (associated to the KPI)**

*Note 1.- The ASBU elements are selected from Appendix D. Also refer to the GANP performance dashboard.*

*Note 2.- Other improvements outside the ASBU framework (non-ASBU), developed in the form of Regional Initiatives, may be included, which could address identified gaps or opportunities, thus contributing to the achievement of the expected level of performance.*

**Table 11**  
**(Examples)**

<b>FIR /TMA/AIRPORT</b>	<b>KPI or metric</b>	<b>ASBU elements / Regional initiatives</b>	<b>Start</b>	<b>End</b>	<b>Notes</b>
TMA	Metric: ADS B system installed	ASUR-B0/1 Automatic dependent surveillance - broadcast (ADS-B)	2021	2025	Essential technology element
Airport	Metric: Digital terrain data set available and published	DAIM-B1/3 Provision of digital terrain data sets	2021	2025	Essential information element
Airport	KPI10 Airport peak throughput	APTA-B0/1 PBN approaches (with basic capabilities)	2021	2023	Essential operational element
Airport	KPI10 Airport peak throughput	APTA-B0/2 PBN SID and STAR procedures (with basic capabilities)	2021	2023	Essential operational element
Airport	KPI10 Airport peak throughput	RSEQ-B0/1 Arrival management	2023	2025	Performance objective, Increase arrival rate

## STEP 5: IMPLEMENT SOLUTIONS<sup>1</sup>

Step 5 is the implementation phase of the performance management process. This is where the changes and improvements selected during the previous step are organised into detailed plans that are implemented and begin to produce benefits.

### Status of implementation of selected ASBU improvements or Regional Initiatives

**Table 12**

**(Examples)**

<b>FIR/TMA /AIRPORT</b>	<b>ASBU elements / Regional Initiatives</b>	<b>Start</b>	<b>End</b>	<b>Status of implementation</b>	<b>Notes</b>
Airport XYZA	APTA-B0/1 PBN approaches (with basic capabilities)	2021	2023	<i>In progress</i>	.
Airport XYZA	APTA-B0/2 PBN SID and STAR procedures (with basic capabilities)	2021	2023	<i>In progress</i>	
				<i>100% completed</i> <i>1% - 99% in progress</i> <i>0% planned</i> <i>Delayed*</i>	<i>*Delayed means that implementation is or will be delayed beyond end date</i>

## STEP 6: ASSESS ACHIEVEMENT OF OBJECTIVES

The purpose of Step 6 is to continuously keep track of performance and monitor whether performance gaps are being closed as planned and expected.

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<sup>1</sup> For reference only, because Steps 5 and 6 will be deployed in the management phase

First of all, this implies data collection to populate the supporting metrics with the data needed to calculate the performance indicators. These indicators are then compared with the targets defined in Step 3 in order to draw conclusions on the speed of progress in achieving the objectives.

This step includes monitoring the progress of implementation projects, particularly in those cases where the implementation of solutions takes several years, as well as checking periodically whether all assumptions are still valid and the planned performance of the solutions is still meeting the requirements.

With regard to the review of actually achieved performance, the output of Step 6 is simply an updated list of performance gaps and their causes. In practice, the scope of the activity is often interpreted as being much wider and includes recommendations to mitigate the gaps. This is then called performance monitoring and review, which in addition to Step 6 includes Steps 1, 2 and 3 of the performance management process.

**Performance benefits derived from the implementation of selected ASBU improvements or Regional Initiatives**

**Table 13**

(Examples)

FIR/TMA/AIRPORT	ASBU elements / Regional Initiatives	KPI			Notes
		KPI10	KPIxx	KPIxx	
Airport XYZA	APTA-B0/1 PBN approaches (with basic capabilities)	15 ACFT/ h			2022: half of the expected improvement was achieved
	APTA-B0/2 PBN SID and STAR procedures (with basic capabilities)	15 ACFT/ h			2022: half of the expected improvement was achieved

## **APPENDICES**

Appendix A – GANP KPI Overview

Appendix B – GANP ASBU threads

Appendix C - Regional SWOT analysis examples

Appendix D - ASBU elements of operational thread

Attachment – ANP VOL III TEMPLATE