INTERNATIONAL CIVIL AVIATION ORGANIZATION

MIDDLE EAST OFFICE

SUMMARY OF DISCUSSIONS

WORKSHOP ON THE GLOBAL AIR NAVIGATION PLAN AND NATIONAL AIR NAVIGATION PLAN (GANP & NANP)

(Cairo Egypt, 5 – 8 March 2023)

1. INTRODUCTION

1.1 The ICAO MID Workshop on the Global Air Navigation Plan and National Air Navigation Plan (GANP & NANP) was successfully held in the ICAO Middle East Office, Cairo, Egypt, 5 – 8 March 2023.

1.2 The Workshop was attended by a total of fifty-two (52) participants from ten (10) States (Egypt, Iraq, Jordan, Libya, Oman, Qatar, Saudi Arabia, Sudan, UAE and Yemen) and one (1) International Organization (IFATCA) The list of participants is at **Attachment A**.

1.3 The objective of this Workshop is to familiarize the participants with the 7th Edition of the GANP endorsed by the A41, and showcase the different ASBU Block 0 and Block 1 Threads & Elements, through online demonstration using the GANP Portal. The Workshop provided also an opportunity to explore ways and means to support the implementation of the agreed air navigation priorities taking into consideration airspace users' requirements, fleet equipage, infrastructure, interoperability and inter-regional coordination, and address the Regional and National planning for ASBU implementation.

2. OPENING REMARKS

2.1 Mr. Mohamed Smaoui opened the Workshop and welcomed all participants. He thanked Mr. Saulo Da Silva C/GIS Section in the ANB/ ICAO HQ for supporting the Workshop.

2.2 Mr. Smaoui highlighted the objectives of the Workshop and underlined that an important part of the Workshop would be dedicated to the implementation of the Performance Based Approach and to reflect this into the MID ANP Vol III and the National Air Navigation Plans (NANPs).

2.3 Mr. Smaoui highlighted that the outcome of the Workshop would be presented to MIDANPIRG/20 (Muscat, Oman, 14-18 May 2023) to endorse a revised MID Air Navigation Strategy and revised MID ANP Vol III.

2.4 At the end, Mr. Smaoui thanked States who prepared presentations and wished the participants productive and successful event.

3. WORK PROGRAMME

3.1 The Workshop programme was as follows:

Session 1:	Outcome of the A41 related to the GANP
Session 2:	GANP Portal Demonstrations
Session 3:	GANP Portal Demonstrations
Session 4:	Review of priority 1 ASBU Framework
Session 5:	Regional Implementation Status of ASBU & KPIs
Session 6:	Presentations by States
Session 7:	ANS PBA
Session 8:	Review of MID AN Strategy
Session 9:	Introduction of MID ANP Vol III
Session 10:	Hands on session for NANP & MID ANP Vol III
Session 11:	Hands on session for NANP & MID ANP Vol III
Session 12:	Key Takeaways & Closing

3.2 The Workshop's materials including, presentations and this Summary of Discussion are available at https://www.icao.int/MID/Pages/2023/GANP-NANP.aspx

4. DISCUSSIONS

4.1 The Workshop was apprised of the outcome of the A41 related to the GANP. It was highlighted that the GANP 7th edition encompassed minor updates, as follow:

a) Update of the GANP performance framework
   - Safety KPA - Strengthen the link with the GASP
   - Maintenance process for the performance framework

b) Mapping the Basic Building Blocks (BBBs) and the Universal Safety Oversight Audit Programme (USOAP)

c) Update the Aviation System Block Upgrade (ASBU) framework and the Basic Building Block (BBB) framework

4.2 The Workshop noted that the GANP 8th edition will include major changes including, but not limited to, update of performance and ASBU frameworks and manual on national air navigation planning, including a template aligned with the ANP.

4.3 The GANP portal (ASBU framework) was demonstrated; the Workshop noted the differences between the GANP 6th and 7th editions.

4.4 The Workshop reviewed and updated the MID Region Air Navigation Strategy (ICAO MID Doc 002) as at **Appendix A**. The draft revised MID AN Strategy will be presented to MIDANPIRG/20 for further review and endorsement.

4.5 The Workshop noted the regional implementation status of priority 1 ASBU Threads/Elements and the selected KPIs in the Draft MID AN Report 2022.

4.6 The Workshop received with appreciation presentations from States (Egypt, Qatar, Saudi Arabia and UAE). States shared their experience related to ASBU implementation and measurement of Air Navigation Services' performance, the challenges and best practices as well as the development of NANPs.

4.7 The Workshop was apprised of the performance management process (6-step approach). It was noted that the eANP tool and NANP template are under development. The Workshop was apprised of the capabilities of the Air Navigation Systems Performance Assessment tool (AN-SPA). The goal of this tool is to promote a performance-based approach for a cost-effective modernization of the air navigation system. This tool guides the States in the application of a six-step performance management process and in the selection of relevant operational improvements within the ASBU framework. The AN-SPA is available in the GANP Portal: https://www4.icao.int/ganpportal/Account/Login?ReturnUrl=%2Fganpportal%2FANSPA%2FReports

4.8 The Workshop reviewed and updated the proposed new MID Air Navigation Plan, Vol III as at **Appendix B**. The draft MID ANP Vol III contains dynamic/flexible plan elements related to the application of a performance-based approach for a cost-effective and benefit-driven modernization of the air navigation system in line with the Global Air Navigation Plan (GANP).

4.9 During the breakout/hands on sessions, the participants practiced the population of the MID Region Air Navigation Systems Performance Based Framework, as in the MID ANP Vol III.

4.10 Participants provided ICAO with a list of proposed improvements to the GANP Portal.

4.11 The Workshop noted the following challenges related to the ASBU and PBA implementation:

a) Lack of understanding of the performance based approach and its benefits and necessary coordination between all stakeholders at National level;

b) Lack of automated tools to collect the data necessary for the measurement of the ANS Performance (KPIs);

c) Lack of historical data in some States;

d) Lack of human and financial resources in some States;

e) Lack of guidance related to the implementation of the 6 step approach and development of the NANP.

5. WORKSHOP CONCLUSIONS/KEY TAKEAWAYS

a) The Draft MID Region Air Navigation Strategy (ICAO MID Doc 002) and Draft MID ANP Vol III will be presented to MIDANPIRG/20 for further review and endorsement.

b) States are encouraged to establish a mechanism including, inter-alia, establishment of Committee/Technical Task Force at national level and designation of Focal Point(s) to support an expeditious implementation of the performance based approach and development of the NANP.

c) States are encouraged to use the AN-SPA tool to implement the performance based approach at national level

d) States should conduct a thorough analysis of their system to ensure that the Basic Building Blocks of any robust air navigation system is in place to support aircraft operations in a safe and efficient manner and, based on the analysis, select the necessary ASBUs elements that could contribute to the improvement of their system.

e) ICAO to develop a Tutorial to assist States in the use of the GANP Portal specially the AN-SPA and the dashboard.

f) States requested ICAO MID to conduct assistance missions/Workshops at National level on the subject.

g) States are strongly encouraged to report on annual basis the implementation status of the priority 1 ASBU Threads/ Elements and PBA.

h) States are strongly encouraged to raise awareness at national level among all stakeholders on the PBA.

6. CLOSING

6.1 Mr. Mohamed Smaoui, thanked all the participants for their active participation, fruitful discussion, and valuable outcomes; and re-iterated that the implementation of performance based approach is an iterative process, which requires the repetition of several steps; and which requires full involvement of regulators (CAAs), service providers, airspace users and other stakeholders, thus ensuring commitment by all for implementation.

6.2 The participants thanked ICAO for organizing such an important Workshop.

APPENDIX A

MID DOC 002

INTERNATIONAL CIVIL AVIATION ORGANIZATION

MIDDLE EAST AIR NAVIGATION PLANNING AND IMPLEMENTATION REGIONAL GROUP (MIDANPIRG)

MID REGION

AIR NAVIGATION STRATEGY

EDITION MARCH, 2023

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AIR NAVIGATION PRIORITIES AND MONITORING OF THE STATUS OF IMPLEMENTATION

AIR NAVIGATION PRIORITIES AND MONITORING OF THE STATUS OF IMPLEMENTATION

1. Introduction

1.1 As traffic volume increases throughout the world, the demands on air navigation service providers in a given airspace increase, and air traffic management becomes more complex.

1.2 It is foreseen that the implementation of the components of the ATM operational concept will provide sufficient capacity to meet the growing demand, generating additional benefits in terms of more efficient flights and higher levels of safety. Nevertheless, the potential of new technologies to significantly reduce the cost of services will require the establishment of clear operational requirements.

1.3 Taking into account the benefits of the ATM operational concept, it is necessary to make many timely decisions for its implementation. An unprecedented cooperation and harmonization will be required at both global and regional level.

1.4 ICAO introduced the Aviation System Block Upgrades (ASBU) framework as a systemic manner to achieve a harmonized implementation of the air navigation services. An ASBU designates a set of improvements that can be implemented globally from a defined point in time to enhance the performance of the ATM system.

1.5 In accordance, with the Resolutions of the 40th Session of the ICAO Assembly, particularly Resolution A40-1 "ICAO global planning for safety and air navigation", the ICAO Assembly urged States and PIRGs 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. In response to this, the MID Region developed the MID Region Air Navigation Strategy – Part 1, which is aligned with the GANP 6th Edition and ASBU Framework.

1.6 Stakeholders including service providers, regulators, airspace users and manufacturers are facing increased levels of interaction as new, modernized ATM operations are implemented. The highly integrated nature of capabilities covered by the block upgrades requires a significant level of coordination and cooperation among all stakeholders. Working together is essential for achieving global harmonization and interoperability.

2. Strategic Air Navigation Capacity and Efficiency Objective

2.1 The Strategic Objective related to Air Navigation Capacity and Efficiency is to realize sound and economically-viable civil aviation system in the MID Region that continuously increases in capacity and improves in efficiency with enhanced safety while minimizing the adverse environmental effects of civil aviation activities.

3. MID Air Navigation Objectives

3.1 The MID Region air navigation objectives are set in line with the global air navigation objectives and address specific air navigation operational improvements identified within the framework of the Middle East Regional Planning and Implementation Group (MIDANPIRG).

3.2 Blocks ‘0’ and “1” feature Elements are characterized by operational improvements, which have already been developed and implemented in many parts of the world. The MID Region priority 1 Block 0 & 1 Elements are reflected in **Table 1** below.

3.3 The MID Region Air Navigation Strategy aims to maintain regional harmonisation. The States should develop their National Air Navigation Plan (NANP), including action plans for the implementation of relevant priority 1 ASBU Elements and other ASBU elements or non ASBU solutions based on the States’ operational requirements and cost benefits analysis.

3.4 The implementation of the ASBU Block 0 Elements in the MID Region started before 2013 and is continuing. For the short and medium term, the MID Region priorities include identified ASBU Elements from Block 0 and Block 1.

4. MID Region ASBU Threads/Elements Prioritization and Monitoring

4.1 On the basis of operational requirements and taking into consideration the associated benefits, **Table 1** below shows the priority associated for each ASBU element from Block 0 and Block 1, as well as the MIDANPIRG subsidiary bodies that will be monitoring and supporting the implementation of these Threads/Elements:

Priority 1 ASBU Element*: Elements that have the highest contribution to the improvement of air navigation safety and/or efficiency in the MID Region. These Elements should be implemented where applicable and will be used for the purpose of regional air navigation monitoring and reporting.*

Priority 2 ASBU Element*: Elements recommended for implementation based on identified operational needs and benefits by States.*

Priority 1 Thread: *Any Thread with at least one priority 1 element*

Table 1. MID REGION ASBU THREADS & ELEMENTS (BLOCK 0 & 1) PRIORITIZATION AND MONITORING

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
Information Threads							
DAIM							
DAIM	**B1/1**	Provision of quality-assured aeronautical data and information	**1**	2021	AIM SG		
	B1/2	Provision of digital Aeronautical Information Publication (AIP) data sets	2				
	B1/3	Provision of digital terrain data sets	**1**	2021	AIM SG		
	B1/4	Provision of digital obstacle data sets	**1**	2021	AIM SG		
	B1/5	Provision of digital aerodrome mapping data sets	2				
	B1/6	Provision of digital instrument flight procedure data sets	2				
	B1/7	NOTAM improvements	2				
AMET							
AMET	**B0/1**	Meteorological observations products	**1**	2014	MET SG		
	B0/2	Meteorological forecast and warning products	**1**	2014	MET SG		
	B0/3	Climatological and historical meteorological products	**1**	2014	MET SG		

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	B0/4	Dissemination of meteorological products	**1**	2014	MET SG	CNS SG	
	B1/1	Meteorological observations information	2				
	B1/2	Meteorological forecast and warning information	2				
	B1/3	Climatological and historical meteorological information	2				
	B1/4	Dissemination of meteorological information	2				
FICE							
FICE	**B0/1**	Automated basic inter facility data exchange (AIDC)	**1**	2014	CNS SG ATM SG		
Operational Threads							
APTA							
APTA	**B0/1**	PBN Approaches (with basic capabilities)	**1**	2014	PBN SG	ATM SG AIM SG CNS SG	
	B0/2	PBN SID and STAR procedures (with basic capabilities)	**1**	2014	PBN SG	ATM SG AIM SG	
	B0/3	SBAS/GBAS CAT I precision approach procedures	2				
	B0/4	CDO (Basic)	**1**	2014	PBN SG	ATM SG	
	B0/5	CCO (Basic)	**1**	2014	PBN SG	ATM SG	
	B0/6	PBN Helicopter Point in Space (PinS) Operations	2				
	B0/7	Performance based aerodrome operating minima – Advanced aircraft	**1**	2021	PBN SG	AIM SG	
	B0/8	Performance based aerodrome operating minima – Basic aircraft	2				
	B1/1	PBN Approaches (with advanced capabilities)	2				
	B1/2	PBN SID and STAR procedures (with advanced capabilities)	2				

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	B1/4	CDO (Advanced)	2				
	B1/5	CCO (Advanced)	2				
FRTO							
	B0/1	Direct routing (DCT)	2				
	B0/2	Airspace planning and Flexible Use of Airspace (FUA)	**1**	2014	ATM SG		
	B0/3	Pre-validated and coordinated ATS routes to support flight and flow	2				
	B0/4	Basic conflict detection and conformance monitoring	**1**	2014	ATM SG	CNS SG	
	B1/1	Free Route Airspace (FRA)	2				
FRTO	**B1/2**	Required Navigation Performance (RNP) routes	2				
	B1/3	Advanced Flexible Use of Airspace (FUA) and management of real time airspace data	2				
	B1/4	Dynamic sectorization	2				
	B1/5	Enhanced Conflict Detection Tools and Conformance Monitoring	2				
	B1/6	Multi-Sector Planning	2				
	B1/7	Trajectory Options Set (TOS)	2				
NOPS							
	B0/1	Initial integration of collaborative airspace management with air traffic flow management	**1**	2015	ATM SG		
	B0/2	Collaborative Network Flight Updates	2				
NOPS	**B0/3**	Network Operation Planning basic features	2				
	B0/4	Initial Airport/ATFM slots and A-CDM Network Interface	2				
	B0/5	Dynamic ATFM slot allocation	2				
	B1/1	Short Term ATFM measures	2				

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	B1/2	Enhanced Network Operations Planning	2				
	B1/3	Enhanced integration of Airport operations planning with network operations planning	2				
	B1/4	Dynamic Traffic Complexity Management	2				
	B1/5	Full integration of airspace management with air traffic flow management	2				
	B1/6	Initial Dynamic Airspace configurations	2				
	B1/7	Enhanced ATFM slot swapping	2				
	B1/8	Extended Arrival Management supported by the ATM Network function	2				
	B1/9	Target Times for ATFM purposes	2				
	B1/10	Collaborative Trajectory Options Program (CTOP)	2				
ACAS							
ACAS	**B1/1**	ACAS Improvements	**1**	2014	ATM SG CNS SG		
SNET							
SNET	**B0/1**	Short Term Conflict Alert (STCA)	**1**	2017	ATM SG	CNS SG	
	B0/2	Minimum Safe Altitude Warning (MSAW)	**1**	2017	ATM SG	CNS SG	
	B0/3	Area Proximity Warning (APW)	**1**	2020	ATM SG	CNS SG	
	B0/4	Approach Path Monitoring (APM)	2				
	B1/1	Enhanced STCA with aircraft parameters	2				
	B1/2	Enhanced STCA in complex TMA	2				
GADS							
GADS	**B1/1**	Aircraft Tracking	2				
	B1/2	Operational Control Directory	**1**	2021	ATM SG		
RSEQ							
RSEQ	**B0/1**	Arrival Management	**1**	2021	ATM SG	CNS SG ASPIG	

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
	B0/2	Departure Management	2				
	B0/3	Point merge	2				
	B1/1	Extended arrival metering	2				
SURF							
SURF	**B0/1**	Basic ATCO tools to manage traffic during ground operations	**1**	2014	ASPIG	ATM SG CNS SG	
	B0/2	Comprehensive situational awareness of surface operations	**1**	2014	ASPIG	ATM SG CNS SG	
	B0/3	Initial ATCO alerting service for surface operations	**1**	2021	ASPIG	ATM SG CNS SG	
	B1/1	Advanced features using visual aids to support traffic management during ground operations	2		ASPIG	ATM SG CNS SG	
	B1/2	Comprehensive pilot situational awareness on the airport surface	2		ASPIG	ATM SG CNS SG	
	B1/3	Enhanced ATCO alerting service for surface operations	2		ASPIG	ATM SG CNS SG	
	B1/4	Routing service to support ATCO surface operations management	2		ASPIG	ATM SG CNS SG	
	B1/5	Enhanced vision systems for taxi operations	2		ASPIG	ATM SG CNS SG	
ACDM							
ACDM	**B0/1**	Airport CDM Information Sharing (ACIS)	**1**	2014	ASPIG	CNS SG, AIM SG, ATM SG	
	B0/2	Integration with ATM Network function	**1**	2014	ASPIG	CNS SG, AIM SG, ATM SG	
Technology Threads							
ASUR							
ASUR	**B0/1**	ADS-B	**1**	2021	CNS SG	ATM SG ASPIG	
	B0/2	MLAT	**1**	2021	CNS SG	ATM SG ASPIG	
	B0/3	SSR-DAPS	**1**	2021	CNS SG	ATM SG ASPIG	
	B1/1	SB ADS-B	2				
NAVS							

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
NAVS	**B0/1**	Ground Based Augmentation Systems (GBAS)	2				
	B0/2	Satellite Based Augmentation Systems (SBAS)	2				
	B0/3	Aircraft Based Augmentation Systems (ABAS)	**1**	2021	CNS SG	PBN SG ATM SG AIM SG	
	B0/4	Navigation Minimal Operating Networks (Nav. MON)	**1**	2021	CNS SG	PBN SG	
	B1/1	Extended GBAS	2				
COMI							
COMI	**B0/1**	Aircraft Communication Addressing and Reporting System (ACARS)	2				
	B0/2	Aeronautical Telecommunication Network/Open System Interconnection (ATN/OSI)	2				
	B0/3	VHF Data Link (VDL) Mode 0/A	2				
	B0/4	VHF Data Link (VDL) Mode 2 Basic	2				
	B0/5	Satellite communications (SATCOM) Class C Data	2				
	B0/6	High Frequency Data Link (HFDL)	2				
	B0/7	AMHS	**1**	2014	CNS SG		
	B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)	**1**	2021	CNS SG		
	B1/2	VHF Data Link (VDL) Mode 2 Multi-Frequency	2				
	B1/3	SATCOM Class B Voice and Data	2				
	B1/4	Aeronautical Mobile Airport Communication System (AeroMACS) Ground-Ground	2				
COMS							
COMS	**B0/1**	CPDLC (FANS 1/A & ATN B1) for	2				

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
		domestic and procedural airspace					
	B0/2	ADS-C (FANS 1/A) for procedural airspace	2				
	B1/1	PBCS approved CPDLC (FANS 1/A+) for domestic and procedural airspace	2				
	B1/2	PBCS approved ADS-C (FANS 1/A+) for procedural airspace	2				
	B1/3	SATVOICE (incl. routine communications) for procedural airspace	2				

5. Implementation and Monitoring of the priority 1 ASBU Elements

5.1 The monitoring of air navigation performance and its enhancement is achieved, inter-alia, through identification of relevant air navigation Metrics and Indicators as well as the adoption and attainment of air navigation system Targets. The monitoring of the priority 1 ASBU Threads/Elements is carried out through the MID eANP Volume III.

5.2 MIDANPIRG through its activities under the various subsidary bodies will continue to update and monitor the implementation of the ASBU Threads and elements to achieve the air navigation targets.

5.3 The priority 1 Threads/Elements along with the associated elements, applicability, performance Indicators, supporting Metrics, and performance Targets are shown in the **Table 2** below.

***Note**: Further details on the ASBU elements objectives, description, implementation requirements and performance impact assessment can be found on the ICAO GANP Portal https://www4.icao.int/ganpportal/ASBU*

6. Governance

6.1 Progress report on the status of implementation of the different priority 1 Threads/Elements should be developed by MIDANPIRG Subsidary bodies and presented to the MIDANPIRG on regular basis. A consolidated MID Air Navigation Report showing the status of implementation of the different priority 1 ASBU Elements by Thread will be developed on annual basis and presented to MIDANPIRG for endorsement.

6.2 The MIDANPIRG will be the governing body responsible for the review and update of the MID Region Air Navigation Strategy.

6.3 The MID Region Air Navigation Strategy will guide the work of MIDANPIRG and its subsidary bodies and all its member States and partners.

6.4 Progress on the implementation of the MID Region Air Navigation Strategy and the achievement of the agreed air navigation targets will be reported to the ICAO Air Navigation Commission (ANC), through the review of the MIDANPIRG Reports, MID Air Navigation Reports, etc.; and to the stakeholders in the Region within the framework of MIDANPIRG.

Table 2. MONITORING THE IMPLEMENTATION OF THE PRIORITY 1 ASBU THREADS/ELEMENTS (Block 0 & 1) IN THE MID REGION

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline (2022)	Target	Timeline	KPA/ KPI
Information Threads							
DAIM							
DAIM B1/1	Provision of quality-assured aeronautical data and information	All States	Indicator*: Regional average implementation status of DAIM B1/1 (provision of quality-assured aeronautical data and information). Supporting Metrics: 1. Number of States that have implemented an AIXM-based AIS database (AIXM V5.1+) 2. Number of States that have established formal arrangements with at least 50% of their AIS data originators.	55%	80%	Dec 2021	N/A
DAIM B1/3	Provision of digital terrain data sets	All States	Indicator*: Regional average implementation status of DAIM B1/3(Provision of Terrain digital datasets). Supporting Metric: Number of States that provide required Terrain digital datasets	35%	60%	Dec 2021	N/A
DAIM B1/4	Provision of digital obstacle data sets	All States	Indicator*: Regional average implementation status of DAIM B1/4(Provision of obstacle digital datasets). Supporting Metric: Number of States that provide required obstacle digital datasets	35%	60 %	Dec 2021	N/A
AMET							
AMET B0/1	Meteorological observations products	All states	Indicator*: Regional average implementation status of B0/1 (Meteorological observations products). Supporting Metrics: Number of States that provide the following Meteorological observations products, as required: 1. Automatic Weather Observation System (AWOS) information (including real-time exchange of wind and RVR data)	65%	80%	Dec 2021	N/A

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline (2022)	Target	Timeline	KPA/ KPI
			2. Local reports (MET REPORT/SPECIAL) 3. Aerodrome reports (METAR/SPECI) 4. Lightning Information 5. Ground-based weather radar information 6. Meteorological satellite imagery 7. Aircraft meteorological report (ie. ADS-B, AIREP, etc.) 8. Vertical wind and temperature profiles 9. Wind shear alerts				
AMET B0/2	Meteorological forecast and warning products	All states	Indicator*: Regional average implementation status of B0/2 (Meteorological forecasts and warning products) Supporting Metrics: Number of States that provides the following Meteorological forecast and warning products, as required: 1. World Area Forecast System (WAFS) gridded products 2. Significant Weather (SIGWX) 3. Aerodrome Forecast (TAF) 4. Trend Forecast (TREND) 5. Take-off Forecast 6. SIGMET 7. Aerodrome Warning 8. Wind Shear Warning	60%	90%	Dec 2021	N/A
AMET B0/3	Climatological and historical meteorological products	All states	Indicator: % of States that provide Climatological and historical meteorological products, as required. Supporting Metric: Number of States that provide Climatological and historical meteorological products, as required	60%	85%	Dec 2021	N/A
AMET B0/4	Dissemination of meteorological products	All states	Indicator: % of States disseminating Meteorological products using a variety of formats and means (TAC, Gridded, Graphical, BUFR code, IWXXM) Supporting Metric: Number of States disseminating	60%	85%	Dec 2021	N/A

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline (2022)	Target	Timeline	KPA/ KPI
			Meteorological products using a variety of formats and means (TAC, Gridded, Graphical, BUFR code, IWXXM)				
FICE							
FICE B0/1	Automated basic inter facility data exchange (AIDC)	According to the MID Region AIDC/OLDI Priority 1 Applicability Area	Indicator*: % of priority 1 AIDC/OLDI Interconnection have been implemented Supporting metric: Number of AIDC/OLDI interconnections implemented between adjacent ACCs	26%	70%	Dec 2020	N/A
Operational Threads							
APTA							
APTA B0/1	PBN Approaches (with basic capabilities)	All RWYs ENDs at International Aerodromes	Indicator: % of Runway ends at international aerodromes provided with Baro-VNAV approach procedures (LNAV/VNAV) Supporting metric: Number of Runways ends at international aerodromes provided with Baro-VNAV approach procedures (LNAV/VNAV)	55%	100%	Dec 2017	Capacity/ KPI 10
APTA B0/2	PBN SID and STAR procedures (with basic capabilities)	All RWYs ENDs at International Aerodromes	Indicator: % of Runway ends at international aerodromes provided with PBN SID and STAR (basic capabilities). Supporting Metric: Number of Runway ends at international aerodromes provided with PBN SID and STAR (basic capabilities).	55%	70%	Dec 2022	Efficiency Capacity/ KPI 10 KPI 11 KPI 17 KPI 19/
APTA B0/4	CDO (Basic)	OBBI, OIIE, OIKB, OIFM, OJAI, OLBA, OOMS, OTHH, OTBD, OEJN, OEMA, OEDF, OERK, HSSS, HSPN, OMAA, OMAL, OMAD, OMDW, OMDB, OMSJ, OMRK and OMFJ	Indicator*: % of International Aerodromes with CDO implemented as required. Supporting Metric: Number of International Aerodromes with CDO implemented as required. *As per the applicability area	65%	100%	Dec 2021	Efficiency/ KPI 19

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline (2022)	Target	Timeline	KPA/ KPI
APTA B0/5	CCO (Basic)	OBBI, OIIE, OIKB, OIFM, OJAI, OLBA, OOMS, OTHH, OTBD, OEJN, OEMA, OEDF, OERK, HSSS, HSPN, OMAA, OMAL, OMAD, OMDW, OMDB, OMSJ, OMRK and OMFJ	Indicator*: % of International Aerodromes with CCO implemented as required. Supporting Metric: Number of International Aerodromes with CCO implemented as required. *As per the applicability area	65%	100%	Dec 2021	Efficiency/ KPI 17
APTA B0/7	Performance based aerodrome operating minima – Advanced aircraft	All States	Indicator: % of States authorizing Performance-based Aerodrome Operating Minima for Air operators operating Advanced aircraft. Supporting Metric: Number of States authorizing Performance-based Aerodrome Operating Minima for Air operators operating Advanced aircraft.	85%	100%	Dec 2021	Capacity/ KPI 10
FRTO							
FRTO B0/2	Airspace planning and Flexible Use of Airspace (FUA)	Bahrain, Egypt, Jordan, Qatar, Saudi Arabia (2 ACCs), Sudan, UAE	Indicator*: % of ACCs using and implementing appropriate means (procedures and tools (automation)) to support Airspace planning and FUA and improve data exchange between Civil and Military to improve efficiency of Airspace. Supporting metric: Number of ACCs using and implementing appropriate means (procedures and tools (automation)) to support Airspace planning and FUA and improve data exchange between Civil and Military to improve efficiency of Airspace. * As per the applicability area	63%	70%	Dec 2022	Efficiency Access and equity/ KPI 04 KPI 05 KPI 17 KPI 18/ KPI 19
FRTO B0/4	Basic conflict detection and conformance monitoring	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon,	Indicator*: % States that implemented MTCD and MONA, for ACCs, as required.	63%	100%	Dec 2021	Capacity/ KPI 06 Safety/

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline (2022)	Target	Timeline	KPA/ KPI
		Oman, Qatar, Saudi Arabia (2 ACCs), Sudan, UAE	Supporting metric: The number of States that implemented MTCD and MONA for ACCs, as required. * As per the applicability area				KPI 20 KPI 23
NOPS							
NOPS B0/1	Initial integration of collaborative airspace management with air traffic flow management	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE	Indicator*: % of States implementing ASM/ATFM techniques, procedures and tools for the initial establishment of an integrated collaborative airspace management and air traffic flow and capacity management process Supporting metric: number of States implementing ASM/ATFM techniques, procedures and tools for the initial establishment of an integrated collaborative airspace management and air traffic flow and capacity management process. * As per the applicability area	42%	70%	Dec 2022	Efficiency Capacity/ KPI 04 KPI 05 KPI 17 KPI 18 KPI 19/
ACAS							
ACAS B1/1	ACAS Improvements Operational	All States	Indicator: % of States requiring carriage of ACAS (TCAS v 7.1) for aircraft with a max certificated take-off mass greater than 5.7 tons Supporting metric: Number of States requiring carriage of ACAS (TCAS v 7.1) for aircraft with a max certificated take-off mass greater than 5.7 tons	87%	100%	Dec 2024	Safety/ KPI 20 KPI 23
SNET							
SNET B0/1	Short Term Conflict Alert (STCA)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Libya, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE	Indicator*: % of States that have implemented Short-term conflict alert (STCA) Supporting metric: number of States that have implemented Short-term conflict alert (STCA) * As per the applicability area	100%	100%	Dec 2018	Safety/ KPI 20 KPI 23
SNET B0/2	Minimum Safe Altitude Warning (MSAW)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Libya, Lebanon,	Indicator*: % of States that have implemented Minimum safe altitude warning (MSAW) Supporting metric: number of States that have implemented	100%	100%	Dec 2018	Safety/ KPI 20

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline (2022)	Target	Timeline	KPA/ KPI
		Oman, Qatar, Saudi Arabia, Sudan, UAE	Minimum safe altitude warning (MSAW) * As per the applicability area				
SNET B0/3	Area Proximity Warning (APW)	Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Libya, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE	Indicator*: % of States that have implemented Area Proximity Warning (APW) for ACCs, as required Supporting metric: number of States that have Implemented Area Proximity Warning (APW) for ACCs, as required * As per the applicability area	67%	100%	Dec 2021	Safety/ KPI 20
GADS							
GADS B1/2	Operational Control Directory	All States	Indicator: % of States that provided GADSS Point of Contact (PoC) information Supporting Metric: Number of States that provided GADSS Point of Contact (PoC) information	73%	100%	Dec 2021	N/A
RSEQ							
RSEQ B0/1	Arrival Management	OBBI, HECA, HEBA, HELX, HESN, HESH, OTBD, OTHH, OEJN, OEDF, OEMA, OERK OMDB, OMAA	Indicator*: % of Aerodromes that have implemented arrival manager (AMAN), where required/applicable Supporting Metric: Number of Aerodrome that have implemented arrival manager (AMAN), where required/ applicable * As per the applicability area	36%	80%	Dec 2024	Capacity Efficiency/ KPI 08 KPI 10 KPI 11 KPI 14/
SURF							
SURF-B0/1	Basic ATCO tools to manage traffic during ground operations	All International Aerodromes	Indicator: % of Aerodromes having implemented Basic ATCO tools to manage traffic during ground operations Supporting metric: Number of Aerodromes having implemented Basic ATCO tools to manage traffic during ground operations	90%	100%	Dec 2021	Efficiency/ KPI 02 KPI 13 Safety/ KPI 20 KPI 21
SURF-B0/2	Comprehensive situational awareness of surface operations	OBBI, HECA, OIII, OOMS, OTBD, OTHH, OEDF, OEJN,	Indicator*: % of Airports having implemented the surveillance service of A-SMGCS Supporting metric: Number of Airports having	61%	80%	Dec 2021	Safety/ KPI 20 KPI 21

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline (2022)	Target	Timeline	KPA/ KPI
		OERK, OEMA, OMDB, OMAA.	implemented the surveillance service of A-SMGCS * As per the applicability area				
SURF-B0/3	Initial ATCO alerting service for surface operations	OBBI, HECA, OIII, OOMS, OTBD, OTHH, OEDF, OEJN, OERK, OEMA, OMDB, OMAA.	Indicator*: % of Airports having implemented the A-SMGCS alerting service. Supporting metric: Number of Airports having implemented the A-SMGCS alerting service * As per the applicability area	74%	80%	Dec 2021	Safety/ KPI 20
ACDM							
ACDM B0/1	Airport CDM Information Sharing (ACIS)	HECA, OBBI, OIII, OKBK, OOMS, OTHH, OEJN, OERK, OMDB, OMAA	Indicator*: % of Airports having implemented ACIS Supporting metric: number of Airports having implemented ACIS * As per the applicability area	75%	90%	Dec 2024	N/A
ACDM B0/2	Integration with ATM Network function	HECA, OBBI, OIII, OKBK, OOMS, OTHH, OEJN, OERK, OMDB, OMAA.	Indicator*: % of Airports having integrated ACDM with the ATM Network function. Supporting metric: Number of Airports having integrated ACDM with the ATM Network function * As per the applicability area	25%	50%	Dec 2024	N/A
Technology Threads							
ASUR							
ASUR B0/1	Automatic Dependent Surveillance – Broadcast (ADS-B)	(Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Saudi Arabia, Qatar, Sudan, UAE)	Indicator*: % of States that have implemented ADS-B to improve surveillance coverage/capabilities Supporting Metric: Number of States that have implemented ADS-B to improve surveillance coverage/capabilities * As per the applicability area	60%	80%	Dec 2022	N/A
ASUR B0/2	Multilateration cooperative surveillance systems (MLAT)	Bahrain, Egypt, Jordan, Kuwait, Oman, Saudi	Indicator*: % of States that have implemented Multi-lateration (M-LAT)	63%	80%	Dec 2022	N/A

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline (2022)	Target	Timeline	KPA/ KPI
		Arabia, Qatar, UAE	Supporting Metric: Number of States that have implemented Multi-lateration (M-LAT) * As per the applicability area				
ASUR B0/3	Cooperative Surveillance Radar Downlink of Aircraft Parameters (SSR-DAPS)	Bahrain, Egypt, Iran, Iraq, Kuwait, Lebanon, Jordan, Oman, Qatar, Saudi Arabia, Sudan and UAE	Indicator*: % of States that have implemented Downlink of Aircraft Parameters (SSR-DAPS) Supporting Metric: Number of States that have implemented Downlink of Aircraft Parameters (SSR-DAPS) * As per the applicability area	83%	90%	Dec 2023	N/A
NAVS							
NAVS B0/3	Aircraft Based Augmentation Systems (ABAS)	All States	Indicator: % of States requiring Aircraft Based Augmentation System (ABAS) equipage for aircraft with a max certificated take-off mass greater than 5,700 Kg to enable PBN Operations Supporting metric: Number of States requiring Aircraft Based Augmentation System (ABAS) equipage for aircraft with a max certificated take-off mass greater than 5,700 Kg to enable PBN Operations	40%	70%	Dec 2021	N/A
NAVS B0/4	Navigation Minimal Operating Networks (Nav. MON)	All States	Indicator: % of States that have developed a plan of rationalized conventional NAVAIDS network to ensure the necessary levels of resilience for navigation Supporting metric: Number of States that have developed a plan of rationalized conventional NAVAIDS network to ensure the necessary levels of resilience for navigation	47%	70%	Dec 2022	N/A
COMI							
COMI B0/7	ATS Message Handling System (AMHS)	All States	Indicator: % of States that have established AMHS interconnections with adjacent COM Centres Supporting metric: Number of States that have established AMHS interconnections with adjacent COM Centres	73%	90%	Dec 2020	N/A

Element		Applicability	Performance Indicators/ Supporting Metrics	Baseline (2022)	Target	Timeline	KPA/ KPI
COMI B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)	All States	Indicator: % of States that have established National IP Network for voice and data communication Supporting metric: Number of States that have established National IP Network for voice and data communication	60%	80%	Dec 2021	N/A

MID AIR NAVIGATION PLAN

VOLUME III

REVISED VERSION

(March 2023)

MID AIR NAVIGATION PLAN

VOLUME III

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MID 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 of 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 application of a performance-based approach for a cost-effective and benefit-driven modernization of the air navigation system in line with the Global Air Navigation Plan (GANP).

1.2 Collaborative decision-making is key for a cost-effective modernization of the air navigation system and ensures that all concerned aviation stakeholders are involved and given the opportunity to influence decisions in order to reach defined performance objectives. Volume III guides the aviation community in the application of performance management process and identification of relevant and timely operational improvements to a given region's air navigation system including some within the Aviation System Block Upgrade (ASBU) framework.

1.3 The information contained in Volume III is, therefore, related to:

- Planning: objectives, priorities, targets and needs planned at regional or sub-regional levels;
- Monitoring and reporting: performance and implementation monitoring of the agreed targets. 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.

1.4 MIDANPIRG is responsible for managing and updating Volume III on a regular basis.

1.5 Whereas ICAO addresses the planning strategy at the global and regional levels, planning at the national level is the responsibility of States. A national planning framework should be developed by each State based on its needs and in collaboration with regional and global partners. This will ensure to the greatest extent possible that solutions are internationally harmonized and integrated.

1.6 National air navigation plans, as well as other national plans dealing with other aspects of aviation such as safety, security and facilitation, should all be linked together in a broader national aviation plan to ensure an integrated strategic approach at the State level. This broader plan can be considered as a civil aviation "master plan" addressing all aspects of air transport at the State level. The objective is to provide a clear and comprehensive planning and implementation strategy for the future development of the entire civil aviation sector in terms of policies, legislation, objectives, facilities, equipment, organization and capacity-building.

1.7 The master plan should also emphasize the importance of air transport for the economic development of the State. As such, the master plan should be linked to the State's overarching national development plan, where applicable, in order to mobilize public and private resources and partnerships for the implementation of the plan and to strengthen the civil aviation sector.

1.8 A clearly defined relationship between national air navigation plans aligned with the global and regional plans (GANP and RANP), civil aviation master plans and States' national development plans will enable the prioritization and optimum allocation of resources for all planned projects within States and across all sectors of activity.

1. PLANNING METHOD

1.1 Planning for the modernization of the air navigation system must begin with a thorough understanding of user system requirements and take into account traffic density and complexity, and the level of sophistication required for the provision of necessary services, among other elements.

1.2 The Thirteenth Air Navigation Conference recommended that ICAO encourage the planning and implementation regional groups (PIRGs) to embrace a performance-based approach (PBA) 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. Recommendation 4.3/1 — Improving the performance of the air navigation system, refers.

1.3 A PBA is results-oriented, helping decision makers set priorities and determine appropriate trade-offs that support optimum resource allocation while maintaining an acceptable level of safety performance and promoting transparency and accountability among stakeholders.

1.4 A PBA 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 organizing the performance management process.

1.5 Although there are several ways to apply a PBA, ICAO advocates for a globally harmonized performance management process based on six well-defined steps. The goal of this cyclic six-step method is to identify optimum solutions based on operational requirements and performance needs so that the expectations of the aviation community can be met by enhancing the performance of the air navigation system and optimizing allocation and use of the available resources.

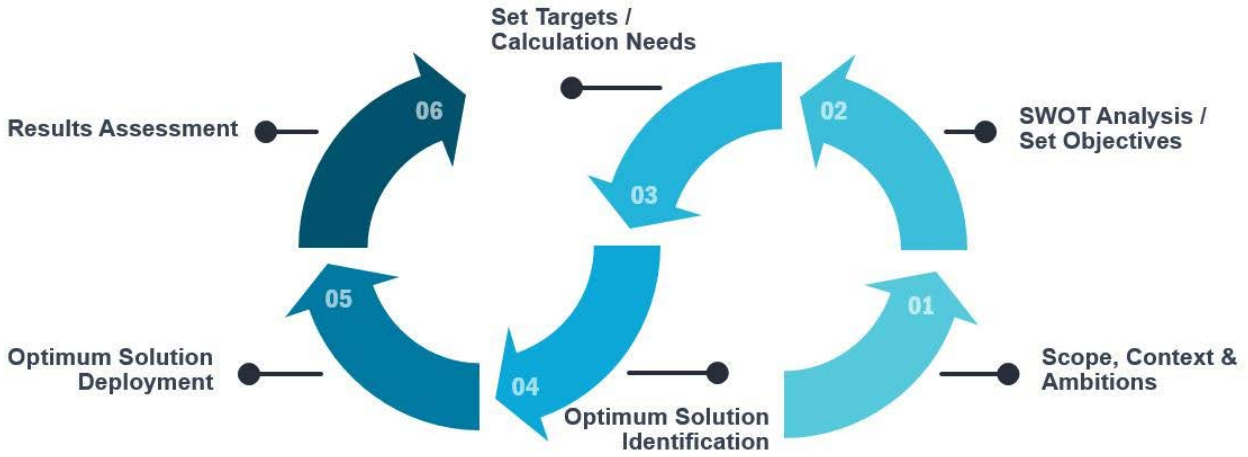

Figure 1 Six-step performance management process

1.6 Steps 1 and 2 serve to know the air navigation system, its strengths, weakness, opportunities and threats as well as how it is performing in order to set objectives. The catalogue of performance objectives that is part of the GANP global performance framework facilitates the definition of objectives.

1.7 Based on these objectives, targets can be set in step 3. An analysis of this data leads to the identification of potential solutions, in step 4, to achieve the targets by addressing the weaknesses and threats of the system. Once a set of potential solutions have been identified, a cost-benefits analysis, environmental impact assessment, safety assessment and human factor assessment should be performed to identify the optimum solution. In the GANP performance framework, a list of KPIs, linked to the relevant objectives in the performance objectives catalogue, is provided to set targets though the quantification of objectives **(See list below)**.

KPI 01	Departure punctuality	**KPI 13**	Taxi-in additional time
KPI 02	Taxi-out additional time	**KPI 14**	Arrival punctuality
KPI 03	ATFM Slot adherence	**KPI 15**	Flight time variability
KPI 04	Filed flight plan en-route extension	**KPI 16**	Additional fuel burn
KPI 05	Actual en-route extension	**KPI 17**	Level-off during climb
KPI 06	En-route airspace capacity	**KPI 18**	Level capping during cruise
KPI 07	En-route ATFM delay	**KPI 19**	Level-off during descent
KPI 08	Additional time in terminal airspace	**KPI 20**	Number of Aircraft Accidents
KPI 09	Airport peak capacity	**KPI 21**	Number of RWY Incursions
KPI 10	Airport peak throughput	**KPI 22**	Number of RWY Excursions
KPI 11	Airport throughput efficiency	**KPI 23**	Number of Airprox/TCAS Alert/Loss of separation/Near mid Air Collisions/Mid Air Collisions
KPI 12	Airport/Terminal ATFM delay		

1.8 Step 5 manages a coordinated deployment of the agreed solution by all stakeholders based on the previous steps. Regional plans might need to be developed for the deployment of solutions by drawing on supporting technology requirements.

1.9 Finally, step 6 consists of monitoring and reporting the performance of the system after the full deployment of the solution.

1.10 This is an iterative planning process, which may require repeating several steps until a final plan with specific targets is in place. This planning method requires full involvement of regulators (CAAs), service providers, airspace users and other stakeholders, thus ensuring commitment by all for implementation.

2. Review and evaluation of air navigation planning and reporting and monitoring results

2.1 The progress and effectiveness against the priorities set out in the National and Regional Air Navigation Plan should be annually reported to ICAO using a consistent reporting format.

2.2 Performance monitoring requires a measurement strategy. Data collection, processing, storage and reporting activities supporting the identified regional/national/local 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.

2.4 Reporting and monitoring results will be used to develop the MID Annual Air Navigation Reports. They will be analyzed by MIDANPIRG to steer the air navigation improvements, recommend corrective actions and review the agreed objectives, priorities and targets, if needed. The results will also be used by ICAO 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.

2.5 The Report will also provide the ICAO Council with detailed annual results on the quality of service provided worldwide as well as the performance areas, which require more attention. This will serve as input for the triennial policy adjustments to the GANP and its priorities.

PART II – PERFORMANCE MANAGEMENT PLANNING (PMP) AND ANS IMPLEMENTATION

1. STEP 1: DEFINE SCOPE, CONTEXT AND SET AMBITIONS/EXPECTATIONS

1.1 The purpose of Step 1 is to reach a common agreement on the scope and (assumed) context of the "system" on which the performance management process will be applied, as well as a common view on the general nature of the expected performance improvements. An important part of the PBA is the development of cause-effect relationships between these technical performance characteristics and the selected higher level KPAs from the eleven key performance areas (KPAs) as identified in the Global Air Traffic Management Operational Concept (Doc 9854).

1.2 Scope definition is important to avoid misunderstandings, in particular about the performance (improvement) which can be expected within the given scope. By defining the scope of the performance management activity, the limits of responsibility and accountability are also defined. Geographically, the scope could be an Aerodrome, FIR, TMA, CTA, etc., but the scope definition could include additional details such as type of traffic (international, overflight, IFR, VFR), etc.

1.3 Within a given scope, the purpose of identifying general ambitions and expectations is to develop a strategic view on the (performance) results that are expected.

1.4 States are requested to define the scope and context of the required performance improvements to the national air navigation system as well as the nature of the expected performance improvements.

1.5 The expectations of the global aviation community are defined in 11 Key Performance Areas (KPAs). The GANP considers all these areas through the performance ambitions. Although all these areas are equally important, as they are interrelated and cannot be considered in isolation, some areas are more visible to society than others.

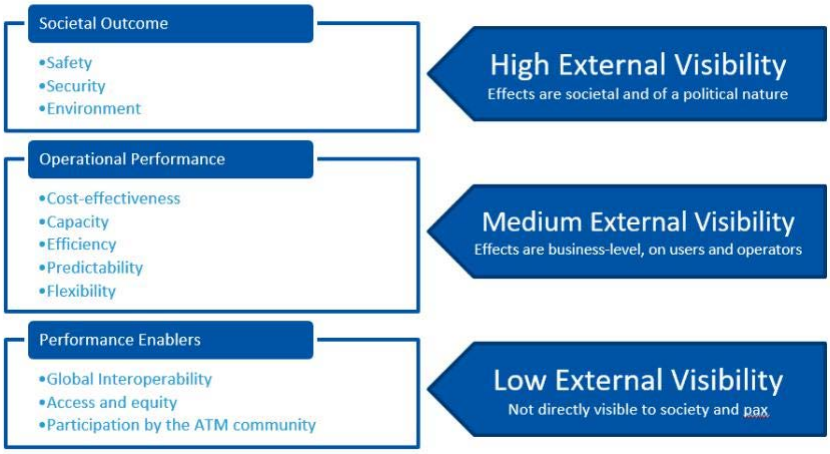

Figure 2 The 11 KPAs of the GANP

1.6 A Summary of the GANP Performance Ambitions is provided hereafter:

SUMMARY OF THE GANP PERFORMANCE AMBITIONS "A high performing system by 2040 and beyond"	
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_2 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

Achieving the above ambitions and realizing the GANP vision will require a series of transformational changes.

2. STEP 2: KNOW YOUR SYSTEM – IDENTIFY OPPORTUNITIES, ISSUES AND SET OBJECTIVES

2.1 The purpose of Step 2 is to develop a detailed understanding of the performance behaviour of the system (this includes producing a list of opportunities and issues), and to decide which specific performance aspects are essential for meeting the general expectations. The essential performance aspects are those which need to be actively managed (and perhaps improved) by setting performance objectives.

2.2 Based on the scope, context and general ambitions/expectations which were agreed to 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. This part of the process is generally known as the SWOT (strengths, weaknesses, opportunities and threats) analysis.

2.3 A SWOT analysis, requires the identification of:

- *Strengths*: internal attributes of a system or an organization that can help in the realization of ambitions or in meeting expectations.
- *Weaknesses*: internal attributes of a system or an organization that are a detriment to realizing ambitions or meeting expectations.
- *Opportunities*: are external conditions that help in the realization of ambitions or in meeting expectations.

- *Threats*: external conditions that are a detriment or harmful to realizing ambitions or meeting expectations.

2.4 Once the strengths, weakness, opportunities and threats are identified, action can be taken to target and exploit or remove these factors. The SWOT analysis should be conducted at local/national level.

Regional objectives

2.5 Based on regional performance and operational needs, differences, constraints and opportunities, MIDANPIRG is responsible for defining regional planning and implementation priorities, aligned with the GANP.

2.6 Considering the global objectives defined in the GANP and those identified by States, within the key performance areas prioritized in step 1, MIDANPIRG may set common objectives to be pursued by the States within the Region and to be monitored at regional level.

3. STEP 3: QUANTIFY OBJECTIVES AND SET TARGETS

3.1 The principle of "reliance on facts and data for decision-making" implies that objectives should be specific, measurable, achievable, relevant and time-bound (SMART). The purpose of Step 3 in the process is to ensure that these aspects are properly addressed.

3.2 During this step, the current/past performance (Perfromance Baseline), expected future performance, as well as actual progress in achieving performance objectives is quantitatively expressed by means of Key Performance Indicators (KPIs).

3.3 KPIs are not often directly measured. They are calculated from supporting metrics according to clearly defined formulas. Performance measurement is therefore done through the collection of data for the supporting metrics.

3.4 Data collection should take place at the most detailed level of granularity that can be afforded because the availability of detailed data greatly increases the effectiveness of the performance-based approach.

3.5 Performance targets are closely associated with performance indicators (KPIs) as they represent the values of performance indicators that need to be reached or exceeded to consider a performance objective as being fully achieved.

3.6 To understand how challenging it is to reach a target, one should know the baseline performance. The difference between the baseline and the target is called the performance gap. The determination of the baseline performance (calculation of baseline indicator values) is done based on the previous iteration of the process (historical data).

List of regional indicators

3.7 The GANP includes a series of KPIs linked to the catalogue of performance objectives within the 11KPAs. At the Regional level, MIDANPIRG defines regional performance objectives, using the key performance indicators (KPIs) of the GANP, to achieve regional performance ambitions. The list of KPIs to be used for the regional level is as follows:

Table 3. MID Air Navigation KPIs

KPI (KPAs)	Title / Definition	Measurement Units	Variants
KPI01 (predictability)	**Departure punctuality** Percentage of flights departing from the gate on-time (compared to schedule).	% of flights	Variant to be selected from those available in the GANP
KPI02 (Efficiency Environmental Impact)	**Taxi-out additional time** Actual taxi-out time compared to an unimpeded/reference taxi-out time.	Excess taxi-out time in Minutes/flight	Variant to be selected from those available in the GANP
KPI06 (Capacity)	**En-route airspace capacity** The maximum volume of traffic an airspace volume will safely accept under normal conditions in a given time period.	Movements/hr	Variant to be selected from those available in the GANP
KPI09 (Capacity)	**Airport peak capacity** The highest number of operations an airport can accept in a one-hour time frame (also called declared capacity). Can be computed for arrivals, departures or arrivals + departures.	Number of arrivals / hour	Variant to be selected from those available in the GANP
KPI13 (Efficiency Environmental Impact)	**Taxi-in additional time** Actual taxi-in time compared to an unimpeded/reference taxi-in time	Excess taxi-in time in Minutes/flight	Variant to be selected from those available in the GANP
KPI14 (predictability)	**Arrival punctuality** Percentage of flights arriving at the gate on-time (compared to schedule)	% of flights	Variant to be selected from those available in the GANP
KPI20 (Safety)	**Number of Aircraft Accidents** Accident' is defined in ICAO Annex 13, Chapter 1-Definitions; ADREP: Accident Data Report	Number of accidents / year	Variant 1 (GASP): Aircraft MTOW > 2 250 kg 1.1 National accident occurrence level
KPI21 (Safety)	**Number of RWY Incursions** Number of occurrences at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft. (CICTT Taxonomy definition)	Number of runway incursions / year	None
KPI22 (Safety)	**Number of RWY Excursions** Number of veer offs or overruns of the runway surface.	Number of runway excursions / year	None
KPI23 (Safety)	**Number of Airprox/TCAS Alert/Loss of separation/Near mid Air Collisions/Mid Air Collisions** Number of airproxes, TCAS alerts, loss of separation as well as near collisions or collisions between aircraft in flight.	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)/ year	Variants to be selected from those available in the GANP

3.8 The measurement of these KPIs, as well as the progress in achieving performance objectives will be monitored at the regional level. Yet, States, as part of their national air navigation plan, should use additional KPIs to measure the progress in achieving all their performance objectives.

4. STEP 4: SELECT SOLUTIONS

4.1 The purpose of this step is to combine the knowledge of baseline performance, opportunities and issues with the performance objectives and targets, in order to make decisions in terms of priorities, trade-offs, selection of solutions and resource allocation. The aim is to optimize the decisions to maximize the achievement of the desired/required (performance) results.

4.2 This is the part of the process where decision-makers need to know their options for mitigating pre-identified issues and therefore to exploit available opportunities. The list then needs to be analyzed in a performance oriented way, to assess/quantify the impact of drivers, constraints, impediments, etc., on the objectives under consideration. The solution might be ASBU or non-ASBU solution. Depending on the nature of the project, the output of this process is either a single preferred solution or a roadmap of selected solutions. In any case, decision-makers need to gain a good understanding of the strategic fit, the benefits, cost and feasibility of each option for operational improvement.

4.3 States should consider the operational improvements (ASBU elements) within the ASBU framework as potential solutions to improve the selected objectives/KPIs in the operational environment under analysis. In order to help States with this task, ICAO has developed the Air Navigation System Performance Analysis (AN-SPA) tool, available for free at:
https://www4.icao.int/ganpportal/ANSPA/Reports

4.4 Considering the identified needs at regional level, the ICAO SARPs linked to the ASBU framework, the required performance improvements, the States' needs and capabilities and users' requirements, MIDANPIRG sets in the MID Region Air Navigation Strategy (MID Doc 002) available at: *https://www.icao.int/MID/MIDANPIRG/Pages/MID-Docs.aspx*, the list of priority 1 ASBU Threads/Elements with their associated areas of applicability and targets, for implementation by States and monitoring at the regional level.

4.5 In addition to the priority 1 ASBU Elements, States should report to ICAO all the optimum solutions that they have identified for the achievement of the agreed performance objectives, in order to be included in the annual Web-based MID Air Navigation Report available at: *https://www.icao.int/MID/MIDANPIRG/Pages/MID-AN.aspx.*

5. STEP 5: IMPLEMENT SOLUTIONS

5.1 Step 5 is the execution phase of the performance management process. This is where the changes and improvements that were decided upon during the previous steps are organized into detailed plans, implemented, and begin delivering benefits.

5.2 Once the optimum solution/s has/have been identified, it is the moment to start the execution phase of the performance management process. The changes and improvements that have been identified as the optimum solution for the problem during the previous steps are organized into plans, implemented and begin delivering services to achieve the expected performance. During this execution phase, it is important to keep track of the project deployments (time, budget, etc.).

6. STEP 6: ASSESS ACHIEVEMENTS

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

6.2 Once the project is implemented, it is time to assess the benefits from the implementation. This means measuring the performance of the operational environment under analysis once the solution/s has/have been deployed.

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

6.4 This step also includes monitoring progress of the 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 (perhaps changed) requirements.

6.5 With regard to the review of actually achieved performance, the output of this step 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.

6.6 This is then called performance monitoring and review, which in addition to this step, includes step 1, 2 and 3.

6.7 For the purpose of organizing performance monitoring and review, the task can be broken down into five separate activities:

- Data collection
- Data publication
- Data analysis
- Formulation of conclusions; and
- Formulation of recommendations.

6.8 As part of the process to assess the achievements, States should calculate/estimate the benefits accrued from the implementation of the solutions implemented in step 5.

6.9 States should also report to ICAO on annual basis the status of implementation of the selected solutions and progress achieved. The updates will be reflected in the annual Web-based MID Air Navigation Report available at: *https://www.icao.int/MID/MIDANPIRG/Pages/MID-AN.aspx*, which will reflect also the priority 1 ASBU Threads/Elements implementation status against the objectives and targets as set forth in the MID Air Navigation Strategy (MID Doc 002), available at:

https://portal.icao.int/RO_MID/Pages/MIDDocs.aspx.

6.10 The following Tables available in the **Appendix** are used for the collection of detailed information related to the implementation of associated priority 1 ASBU Threads/Elements, which are used also for the determination of the performance indicators included in the MID Region Air Navigation Strategy (MID Doc 002): DAIM 3-1, DAIM 3-2, DAIM 3-3, DAIM 3-4, AMET 3-1, AMET 3-2, AMET 3-3, AMET 3-4, APTA 3-1, ACAS 3-1 and ASUR 3-1. Other Tables might be developed for other Threads/Elements.

6.11 The monitoring of these Tables is assigned to the relevant MIDANPIRG Sub Groups.

7. MID Region Air Navigation Systems Performance Based Framework

7.1 The following Template could support States in the development of their National Air Navigation Plans (NANPs). It is used also to collect information from States on the implementation of the performance based approach (6 step approach) for the measurement of their air navigation system performance; and for the reporting and monitoring at regional level.

MID Region Air Navigation Systems Performance Based Framework/Template

Column

(1) ICAO defined 11 Key Performance Areas. *Include the list of KPAs and its definition.*
(2) Performance Objectives. These objectives have been selected from the catalogue of performance objectives.
(3) Scope of each KPA
(4) KPIs based on the ICAO list of KPIs
(5) The Baseline of each KPI
(6) The target of the KPI
(7) Selected ASBU elements /operational improvements for each operational environment.
(8) Target Implementation date

Note: The following is just a Sample

Scope/ Applicability	KPA & Focus Area	Performance Objective	KPI/ Variant	KPI Baseline	KPI Target	Operational Improvements (ASBU Elements/Enablers & Non ASBU)	Target Date
1	2	3	4	5	6	7	8
Aerodrome	Predictability (Punctuality)	Maximize departure punctuality	**KPI 01** (Departure punctuality) **Variant X**	TBD for each Airport	TBD for each Airport	TBD by each State/Airport	TBD for each Airport
Aerodrome	Efficiency (Flight time/ distance)	Minimize Taxi-out time	**KPI 02** (Taxi-out additional time) **Variant X**	TBD for each Airport	TBD for each Airport	TBD by each State/Airport	TBD for each Airport
Aerodrome	Capacity (Capacity, throughput & utilization)	Increase airport peak arrival capacity	**KPI 09** (Airport peak capacity) **Variant X**	TBD for each Airport	TBD for each Airport	TBD by each State/Airport	TBD for each Airport
Aerodrome	Efficiency (Flight time/ distance)	Minimize Taxi-in time	**KPI 13** (Taxi-in additional time) **Variant X**	TBD for each Airport	TBD for each Airport	TBD by each State/Airport	TBD for each Airport
Aerodrome	Predictability (Punctuality)	Maximize Arrival punctuality	**KPI 14** (Arrival punctuality) **Variant X**	TBD for each Airport	TBD for each Airport	TBD by each State/Airport	TBD for each Airport
Aerodrome	Safety	Minimize Number of RWY Incursions	**KPI 21** (Nr. of RWY Incursions)	TBD for each State/Airport	TBD for each State/Airport	TBD by each State/Airport	TBD by each State/Airport

Scope/ Applicability	KPA & Focus Area	Performance Objective	KPI/ Variant	KPI Baseline	KPI Target	Operational Improvements (ASBU Elements/Enablers & Non ASBU)	Target Date
1	2	3	4	5	6	7	8
		Incidents & Accidents					
Aerodrome	Safety	Minimize Number of RWY Excursions Incidents & Accidents	**KPI 22** (Nr. of RWY Excursions)	TBD for each State/Airport	TBD for each State/Airport	TBD by each State/Airport	TBD by each State/Airport
ATC (ACC Sectors)	Capacity (Capacity, throughput & utilization)	Enhance capacity of ACC Sectors	**KPI 06** (En-route Airspace capacity) **Variant X**	TBD for each ACC Sector	TBD for each ACC Sector	TBD for each ACC	TBD for each ACC
State/FIR	Safety	Minimize Number of Aircraft Accidents	**KPI 20** (Number of Aircraft Accidents) **Variant X**	TBD for each State/FIR	TBD for each State/FIR	TBD for each State/FIR	TBD for each State/FIR
FIR	Safety	Minimize Number of Airprox/TCAS Alert/Loss of separation/Near mid Air Collisions/Mid Air Collisions	**KPI 23** (Number of Airprox/TCAS Alert/Loss of separation/Near mid Air Collisions/Mid Air Collisions) **Variants X, Y, Z**	TBD for each FIR	TBD for each FIR	TBD for each FIR	TBD for each FIR

MID Region Air Navigation Systems Performance Based Framework Template (Sample)

Scope/ Applicability	KPA & Focus Area	Performance Objective	KPI/Variant	KPI Baseline	KPI Target	Operational Improvements/ (ASBU Elements/Enablers & Non ASBU)	Target Date
3	1	2	4	5	6	7	8
Aerodrome	Predictability (Punctuality)	Maximize departure punctuality	**KPI 01** (Departure punctuality) **Variant X**	TBD for each Airport	TBD for each Airport	TBD by each State/Airport	TBD for each Airport
Aerodrome	Efficiency (Flight time/ distance)	Minimize Taxi-out time	**KPI 02** (Taxi-out additional time) **Variant X**	TBD for each Airport	TBD for each Airport	TBD by each State/Airport	TBD for each Airport
Cairo Airport-Egypt (HECA)	Efficiency (Flight time & distance)	Avoid taxi-out additional time resulting from adverse conditions	**KPI 02** **Variant 1** – basic (computed without departure gate and runway data) **Reference Taxi Time:** 15 min	5 Minutes 4 Seconds	4 Minutes	• SURF-B1/4 • AMET-B0/1 • SURF-B1/5 • Applying new procedures	end of 2025 end of 2024 end of 2025 end of 2025
Erbil Airport-Iraq (ORER)	Efficiency (Flight time/ distance)	Minimize Taxi-out time	**KPI 02** **Variant 1** – basic (computed without departure gate and runway data) **Reference Taxi Time:** 10 min	4min.	2min.	RSEQ B0/2 SURF B1/1 SURF B1/4 Layout improvement	Dec 2024 Dec 2024 Dec 2026 Dec 2026
Aerodrome	Capacity (Capacity, throughput & utilization)	Increase airport peak arrival capacity	**KPI 09** (Airport peak capacity) **Variant X**	TBD for each Airport	TBD for each Airport	TBD by each State/Airport	TBD for each Airport

Scope/ Applicability	KPA & Focus Area	Performance Objective	KPI/Variant	KPI Baseline	KPI Target	Operational Improvements/ (ASBU Elements/Enablers & Non ASBU)	Target Date
3	1	2	4	5	6	7	8
Aerodrome	Efficiency (Flight time/ distance)	Minimize Taxi-in time	**KPI 13** (Taxi-in additional time) **Variant X**	TBD for each Airport	TBD for each Airport	TBD by each State/Airport	TBD for each Airport
Aerodrome	Predictability (Punctuality)	Maximize Arrival punctuality	**KPI 14** (Arrival punctuality) **Variant X**	TBD for each Airport	TBD for each Airport	TBD by each State/Airport	TBD for each Airport
Khartoum Airport Sudan (HSSK)	Predictability (Punctuality)	Increase the number (%) of scheduled flights adhering to the scheduled on-block time	**KPI14 Variant 2A** – % of arrivals within ± 15 minutes of scheduled time of arrival	50%	80%	• RSEQ-B0/1 • New rapid exit taxiway	end of 2025 end of 2026
Aerodrome	Safety	Minimize Number of RWY Incursions Incidents & Accidents	**KPI 21** (Nr. of RWY Incursions)	TBD for each State/Airport	TBD for each State/Airport	TBD by each State/Airport	TBD by each State/Airport
Aerodrome	Safety	Minimize Number of RWY Excursions Incidents & Accidents	**KPI 22** (Nr. of RWY Excursions)	TBD for each State/Airport	TBD for each State/Airport	TBD by each State/Airport	TBD by each State/Airport

Scope/ Applicability	KPA & Focus Area	Performance Objective	KPI/Variant	KPI Baseline	KPI Target	Operational Improvements/ (ASBU Elements/Enablers & Non ASBU)	Target Date
3	1	2	4	5	6	7	8
ATC (ACC Sectors)	Capacity (Capacity, throughput & utilization)	Enhance capacity of ACC Sectors	**KPI 06** (En-route airspace capacity) **Variant X**	TBD for each ACC Sector	TBD for each ACC Sector	TBD for each ACC	TBD for each ACC
Jordan Amman ACC North Sector	Capacity	Enhance capacity of Amman ACC North Sector	**KPI 06** **Variant 1** – airspace throughput (entry flow rate)	30 Mvts per hour	50 Mvts per hour	COMI B0/4 NAV B0/3 CSEP B1/3	Dec 2024 Dec 2024 Dec 2026
State/FIR	Safety	Minimize Number of Aircraft Accidents	**KPI 20** (Number of Aircraft Accidents) **Variant X**	TBD for each State/FIR	TBD for each State/FIR	TBD for each State/FIR	TBD for each State/FIR
FIR	Safety	Minimize Number of Airprox/TCAS Alert/Loss of separation/Near mid Air Collisions/Mid Air Collisions	**KPI 23** (Number of Airprox/TCAS Alert/Loss of separation/Near mid Air Collisions/M[illegible]ions) **Variants**	TBD for each FIR	TBD for each FIR	TBD for each FIR	TBD for each FIR
Iraq – Baghdad FIR (ORBB)	Safety	To reduce number of TCAS alerts & loss of separation	**KPI 23** **Variant 2**: TCAS alerts **Variant 3**: loss of separation	50 TCAS alerts/year 30 Loss of separation/year	30 TCAS alerts/year 20 Loss of separation/year	• Applying new procedures • Develop advanced training program	end of 2025 end of 2025

Note: - The collection and processing of data related to Columns 1 to 7 is reflected in the MID Annual Air Navigation Reports: ***[****https://www.icao.int/MID/MIDANPIRG/Pages/MID-AN.aspx****.]***

- The monitoring of the priority 1 ASBU elements implementation is governed by the MID Region Air Navigation Strategy (MID Doc 002): ***[****https://www.icao.int/MID/MIDANPIRG/Pages/MID-Docs.aspx****]*** and the status of `implementation of the priority 1 ASBU elements is provided through the MID Annual Air Navigation Reports ***[****https://www.icao.int/MID/MIDANPIRG/Pages/MID-AN.aspx.****]***

APPENDICES

DAIM Digital Aeronautical Information Management

In order to assist States in the planning for the transition from AIS to AIM in an expeditious manner, the following Tables, should be used:

1- **Table DAIM 3-1** sets out the requirements for the Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID). It reflects the transition from the current product centric AIS to data centric AIM. For the future digital environment, it is important that the authoritative databases are clearly designated and such designation must be published for the users. This is achieved with the concept of the Integrated Aeronautical Information Database (IAID), a single access point for one or more authoritative databases (AIP, Terrain, Obstacles, AMDB, data-driven charting, etc.) for which the State is responsible. This Table will be used for the monitoring of the GANP and MID Region Air Navigation Strategy element DAIM-B1/1.

2- **Table DAIM 3-2** sets out the requirements for aeronautical data quality. It will be used for the monitoring of the GANP and MID Region Air Navigation Strategy element DAIM-B1/1.

3- **Table DAIM 3-3** sets out the requirements for the implementation of the World Geodetic System – 1984 (WGS-84). The requirement to use a common geodetic system remains essential to facilitate the exchange of data between different systems. The expression of all coordinates in the AIP and charts using WGS-84 is an important first step for the transition to AIM. This Table will be used for the monitoring of the GANP and MID Region Air Navigation Strategy element DAIM-B1/1.

4- **Table DAIM 3-4-1** sets out the requirements for the provision of Terrain and Obstacle data sets for Area 1 and Area 4. It will be used for the monitoring of the GANP and MID Region Air Navigation Strategy elements DAIM-B1/3 and DAIM-B1/4.

5- **Table DAIM 3-4-2** sets out the requirements for the provision of Terrain and Obstacle data sets for Area 2. It will be used for the monitoring of the GANP and MID Region Air Navigation Strategy elements DAIM-B1/3 and DAIM-B1/4.

6- **Table DAIM 3-4-3** sets out the requirements for the provision of Terrain and Obstacle data sets for Area 3 and implementation of Airport Mapping Databases (AMDB). It will be used for the monitoring of the GANP and MID Region Air Navigation Strategy elements DAIM-B1/3, DAIM-B1/4 and B1/5.

Table DAIM 3-1

Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory for which the provision of AIS/AIM products and services based on the IAID is required.

2 Requirement for the implementation and designation of the authoritative IAID, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
Note 1 — The IAID of a State is a single access point for one or more databases (AIP, Terrain, Obstacles, AMDB, etc.). The minimum set of databases which should be integrated is defined in Annex 15.
Note 2 — The information related to the designation of the authoritative IAID should be published in the AIP (GEN 3.1)

3 Requirement for an IAID driven AIP production, shown by:
FI – Fully Implemented (eAIP: Text, Tables and Charts)
PI – Partially Implemented
NI – Not Implemented
Note 3 — AIP production includes, production of AIP, AIP Amendments and AIP Supplements
Note 4 — Charts' GIS-based database should be interoperable with AIP database

4 Requirement for an IAID driven NOTAM production, shown by:
FC – Fully Compliant
NC – Not Compliant

5 Requirement for an IAID driven SNOWTAM processing, shown by:
FI – Fully Implemented
NI – Not Implemented

6 Requirement for an IAID driven PIB production, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant

7 Requirement for Procedure design systems to be interoperable with the IAID, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
Note 5 — full implementation includes the use of the IAID for the design of the procedures and for the storage of the encoded procedures in the IAID

8 Requirement for ATS systems to be interoperable with the IAID, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

9 Action Plan — short description of the State's Action Plan with regard to the provision of AIM products and services based on the IAID, especially for items with a "PC", "PI", "NC" or "NI" status, including planned date(s) of full compliance, as appropriate.

10 Remarks — additional information, including detail of "PC", "NC", "PI" and "NI", as appropriate.

TABLE DAIM-3-1

Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)

State	IAID	AIP	NOTAM	SNOWTAM	PIB	Procedure Design	ATS	Action Plan	Remarks
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*

Table DAIM-3-2
Aeronautical Data Quality

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory.

2 Compliance with the requirement for implementation of QMS for Aeronautical Information Services including safety and security objectives, shown by:
- FC – Fully compliant
- NC – Not compliant

3 Compliance with the requirement for the establishment of formal arrangements with approved data originators concerning aeronautical data quality, shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

4 Implementation of digital data exchange with originators, shown by:
- FI – Implemented
- PI – Partially Implemented
- NI – Not implemented

Note 1 — Information providing detail of "PI" and "NI" should be given in the Remarks column (percentage of implementation).

5 Compliance with the requirement for metadata, shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

6 Compliance with the requirements related to aeronautical data quality monitoring (accuracy, resolution, timeliness, completeness), shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

7 Compliance with the requirements related to aeronautical data integrity monitoring, shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

8 Compliance with the requirements related to the AIRAC adherence, shown by:
- FC – Fully compliant
- NC – Not compliant

9 Action Plan — short description of the State's Action Plan with regard to aeronautical data quality requirements implementation, especially for items with a "PC", "PI", "NC" or "NI" status, including planned date(s) of full compliance, as appropriate.

10 Remarks — additional information, including detail of "PC", "NC", "PI" and "NI", as appropriate.

TABLE DAIM-3-2
Aeronautical Data Quality

State	QMS	Establishment of formal agreements	Digital data exchange with originators	Metadata	Data quality monitoring	Data integrity monitoring	AIRAC adherence	Action Plan	Remarks
1	2	3	4	5	6	7	8	9	10

Table DAIM-3-3

World Geodetic System-1984 (WGS-84)

EXPLANATION OF THE TABLE

Column:

1 Name of the State or territory for which implementation of WGS-84 is required.

2 Compliance with the requirements for implementation of WGS-84 for FIR and En-route points, shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

3 Compliance with the requirements for implementation of WGS-84 for Terminal Areas (arrival, departure and instrument approach procedures), shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

4 Compliance with the requirements for implementation of WGS-84 for Aerodrome, shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

5 Compliance with the requirements for implementation of Geoid Undulation, shown by:
- FC – Fully compliant
- PC – Partially compliant
- NC – Not compliant

6 Action Plan — short description of the State's Action Plan with regard to WGS-84 implementation, especially for items with a "PC", "PI", "NC" or "NI" status, including planned date(s) of full compliance, as appropriate.

7 Remarks — additional information, including detail of "PC" and "NC", as appropriate.

TABLE DAIM-3-3
World Geodetic System-1984 (WGS-84)

State	FIR/ENR	Terminal	AD	GUND	Action Plan	Remarks
1	2	3	4	5	6	7

Table DAIM-3-4-1
Provision of Terrain and Obstacle data sets for Areas 1 and 4

EXPLANATION OF THE TABLE

Column

1 Name of the State or territory for which Terrain and Obstacle data sets for Areas 1 and 4 are required.

2 Compliance with requirement for the provision of Terrain data sets for Area 1, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant

3 Compliance with requirement for the provision of Terrain data sets for Area 4, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant
N/A – Not Applicable

4 Compliance with requirement for the provision of Obstacle data sets for Area 1, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant

5 Compliance with requirement for the provision of Obstacle data sets for Area 4, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant
N/A – Not Applicable

6 Action plan — short description of the State's Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Areas 1 and 4, especially for items with a "PC" or "NC" status, including planned date(s) of full compliance, as appropriate.

7 Remarks— additional information, including detail of "PC" and "NC", as appropriate.

TABLE DAIM-3-4-1

Provision of Terrain and Obstacle data sets for Areas 1 and 4

State	Terrain data sets		Obstacle data sets		Action Plan	Remarks
	Area 1	Area 4	Area 1	Area 4		
1	2	3	4	5	6	7

Table DAIM-3-4-2

Provision of Terrain and Obstacle data sets for Area 2, the take-off flight path area (TOFP) and the obstacle limitation surfaces (OLS)

EXPLANATION OF THE TABLE

Column

1 Name of the State or territory for which Terrain and Obstacle data sets for Area 2 are required.

2 Compliance with requirement for the provision of Terrain data sets for Area 2a, shown by:
- FC – Fully Compliant
- PC – Partially Compliant
- NC – Not Compliant

3 Compliance with requirement for the provision of Terrain data sets for Area 2b, shown by:
- FI – Fully Implemented
- PI – Partially Implemented
- NI – Not implemented
- N/A – Not Applicable

4 Compliance with requirement for the provision of Terrain data sets for Area 2c, shown by:
- FI – Fully Implemented
- PI – Partially Implemented
- NI – Not Implemented
- N/A – Not Applicable

5 Compliance with requirement for the provision of Terrain data sets for Area 2d, shown by:
- FI – Fully Implemented
- PI – Partially Implemented
- NI – Not Implemented
- N/A – Not Applicable

6 Compliance with requirement for the provision of Terrain data sets for the take-off flight path area (TOFP), shown by:
- FI – Fully Implemented
- PI – Partially Implemented
- NI – Not Implemented
- N/A – Not Applicable

7 Compliance with requirement for the provision of Terrain data sets for the obstacle limitation surfaces (OLS) shown by:
- FI – Fully Implemented
- PI – Partially Implemented
- NI – Not Implemented
- N/A – Not Applicable

8 Compliance with requirement for the provision of Obstacle data sets for Area 2a, shown by:

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

9 Compliance with requirement for the provision of Obstacle data sets for Area 2b, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not implemented
N/A – Not Applicable

10 Compliance with requirement for the provision of Obstacle data sets for Area 2c, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

11 Compliance with requirement for the provision of Obstacle data sets for Area 2d, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

12 Compliance with requirement for the provision of Obstacle data sets for the take-off flight path area (TOFP), shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

13 Compliance with requirement for the provision of Obstacle data sets for the obstacle limitation surfaces (OLS), shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

14 Action plan — short description of the State's Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Area 2, especially for items with a "PC", "PI", "NC" or "NI" status.

15 Remarks— additional information, including detail of "PC", "PI" and "NC", "NI", as appropriate.

TABLE DAIM-3-4-2

Provision of Terrain and Obstacle data sets for Area 2, the take-off flight path area (TOFP) and the obstacle limitation surfaces (OLS)

State	Terrain data sets						Obstacle data sets						Action Plan	Remarks
	Area 2a	Area 2b	Area 2c	Area 2d	TOFP	OLS	Area 2a	Area 2b	Area 2c	Area 2d	TOFP	OLS		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table DAIM-3-4-3
Provision of Terrain and Obstacle data sets for Area 3 and Airport Mapping Databases (AMDB)

EXPLANATION OF THE TABLE

Column

1 Name of the State or territory for which Terrain and Obstacle data sets for Area 3 and AMDB are required.

2 Compliance with requirement for the provision of Terrain data sets for Area 3, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

3 Compliance with requirement for the provision of Obstacle data sets for Area 3, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

4 Implementation of AMDB, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

5 Action plan — short description of the State's Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Area 3 and AMDB implementation, especially for items with a "PC", "PI", "NC" or "NI" status.

6 Remarks— additional information, including detail of "PI" and "NI", as appropriate.

TABLE DAIM-3-4-3

Provision of Terrain and Obstacle data sets for Area 3 and Airport Mapping Databases (AMDB)

State	Terrain data sets (Area 3)	Obstacle data sets (Area 3)	AMDB	Action Plan	Remarks
1	2	3	4	5	6

Table AMET 3-1

Meteorological observations products

EXPLANATION OF THE TABLE

Column

1 Name of the State

2 Status of implementation of Automatic Weather Observation System (AWOS) information, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

3 Status of implementation of Local reports (MET REPORT/SPECIAL), where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

4 Status of implementation of Aerodrome reports (METAR/SPECI), where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

5 Status of implementation of Lightning Information, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

6 Status of implementation of Ground-based weather radar information, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

7 Status of implementation of Meteorological satellite imagery, where:
FI – Fully Implemented

PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

8 Status of implementation of Aircraft meteorological report (ie. ADS-B, AIREP, etc.), where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

9 Status of implementation of Vertical wind and temperature profiles, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

10 Status of implementation of Wind shear alerts, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

11 Remarks

State	Implementation									Remarks
	AWOS	MET REPORT/SPECIAL	METAR/SPECI	Lightning Information	Ground-based weather radar information	Meteorological satellite imagery	Aircraft meteorological report	Vertical wind and temperature profiles	Wind shear alerts	
1	2	3	4	5	6	7	8	9	10	11

Table AMET 3-2

Meteorological forecast and warning products

EXPLANATION OF THE TABLE

Column

1 Name of the State

2 Status of implementation of World Area Forecast System (WAFS) gridded products, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

3 Status of implementation of Significant Weather (SIGWX), where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

4 Status of implementation of Aerodrome Forecast (TAF), where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

5 Status of implementation of Trend Forecast (TREND), where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

6 Status of implementation of Take-off Forecast, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

7 Status of implementation of SIGMET, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

8 Status of implementation of Aerodrome Warning, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

9 Status of implementation of Wind Shear Warning, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

10 Remarks

State	Implementation								Remarks
	WAFS	SIGWX	TAF	TREND	Take-off Forecast	SIGMET	Aerodrome Warning	Wind Shear Warning	
1	2	3	4	5	6	7	8	9	10

Table AMET 3-3

Climatological and historical meteorological Products

EXPLANATION OF THE TABLE

Column

1 Name of the State
2 Status of availability of Aerodrome climatological tables, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
3 Status of availability of Aerodrome climatological summaries, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
4 Remarks

State	Implementation		Remarks
	Aerodrome climatological tables;	Aerodrome climatological summaries	
1	2	3	4

Table AMET 3-4

Dissemination of meteorological products

Column

1 Name of the State

2 Dissemination of meteorological products using TAC, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

3 Dissemination of meteorological products using Gridded, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

4 Dissemination of meteorological products using Graphical, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

5 Dissemination of meteorological products using BUFR code, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

6 Dissemination of meteorological products using IWXXM (in XML/GML), where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

7 Dissemination means includes AFTN, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

8 Dissemination means includes AMHS, where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

9 Dissemination means includes ssecure internet services (WIFS/SADIS), where:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented

10 Remarks

State	Dissemination of meteorological products								Remarks
	Formats					Means			
1	**(**TAC) **2**	**(**Gridded) **3**	**(**Graphical) **4**	**(**BUFR) **5**	**(**IWXXM) **6**	**(**AFTN) **7**	**(**AMHS) **8**	**(**WIFS/SADIS) **9**	**10**
BAHRAIN	FI	FI	FI	FI	NI	FI	NI	FI	
EGYPT	FI	NI	NI	NI	NI	FI	NI	FI	
IRAN	FI	NI	FI	NI	NI	FI	NI	NI	

TABLE -APTA 3-1

EXPLANATION OF THE TABLE

Column	
1	Name of the State / International Aerodromes' Location Indicator
2	Runway Designator
3, 4, 5	Conventional Approaches, Precision (ILS) or Non-precision (VOR/NDB)
6	The date of the last review of the National PBN plan
7, 8	Elements of APTA B0/1 PBN Approaches with basic capabilities (Status of PBN Plan and implementation of LNAV, LNAV/VNAV), where: Y – Yes, implemented N – No, not implemented
9	PBN Runway: where any type of PBN approach is implemented
10, 12	Elements of APTA B0/2 PBN SID and STAR procedures (with basic capabilities) Y – Yes, implemented N – No, not implemented
11	Elements of APTA B0/5 CCO basic (Status of implementation of CCO) per runway end and per aerodrome, where: Y – Yes, implemented N – No, not implemented
13	Elements of APTA B0/4 CDO basic (Status of implementation of CDO) per runway end and per aerodrome, where: Y – Yes, implemented N – No, not implemented
14	Elements of APTA B0/7 Performance based aerodrome operating minima – Advanced aircraft (Compliance with the requirements for **PB AOM**) per State, where: FC – Fully compliant NC – Not compliant
15	Remarks: Add free text as required.

Int'l AD (Ref. MID ANP)	RWY	Conventional Approaches			APTA			PBN RWY	Departure		Arrival		PB AOM	Remarks
		Precision		Non-precision	PBN PLAN	LNAV	LNAV / VNAV		RNAV SID	CCO	RNAV STAR	CDO		
		ILS	CAT	VOR or NDB	Update date									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)

ACAS Airborne Collision Avoidance System (ACAS)

Table ACAS 3-1

EXPLANATION OF THE TABLE

Column

1 Name of the State

2 Status of implementation:
Y – Fully Implemented
N – Not Implemented

3 National Regulation(s) Reference(s)

4 Remarks

State	Status	Regulation Reference	Effective Date	Remarks
1	2	3	4	5

Table ASUR 3-1

Surveillance Implementation Monitoring Table

EXPLANATION OF THE TABLE

Column	
1	Name of the State / ATS Units where Radar service provided
2	Surveillance Gap Y – Yes, non-radar covered area (GAP) exist N – No, GAP areas not existed
3	Multi- Surveillance Data processing capability Y – Yes, implemented N – No, not implemented
4	Surveillance Sensor used Y – Yes, implemented N – No, not implemented
5	Dual Surveillance sources Y – Yes, available N – No, not available
6	Issuance of ADS-B Carriage Mandate N – No, not issued Date – effective date of ADS-B carriage mandate Reference - link to mandate regulation

State/ ATS Units Served	Surveillance Gaps	Multi-Surveillance Data Processing Capability	Surveillance Sensor Used						Dual Surveillance Sources	ADS-B carriage mandate	
			PSR	SSR Mode A/C	SSR Mode S	MLAT	ADS-B	Data Sharing		Date	Reference
1	2	3	4						5	6	
State											

ICAO MID

ATTACHMENT A

Workshop on the Global Air Navigation Plan and National Air Navigation Plan (GANP & NANP)

(Cairo, Egypt, 5 – 8 March 2023)

List of Participants

State/ Org	Contact	Title
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	Mr. Abdel Aziz Mahmoud Abouelmal	Head of Central Admin of ANS
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	Mr. Ahmed Arafa Abdel Aziz	Airports Standards GM
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	Mr. Mohamed Fawzy Mohamed	ATCO
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	Mrs. Pamela Erice	Acting Head of AIM
Saudi Arabia	Mr. Sami Mansour Alwafi	Director of Meteorology Services
	Mr. Majed Khalid Mahjoub	Data Traffic Officer
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Sudan	Mr. Abubaker Elsidig Mohamed	Director of DANS
	Mr. Nagi Mohamed Abdalla	Manager of Airspace
	Mr. Mohamed Eltayeb Ahmed	Director Air Navigation Regulatory Directorate
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ICAO HQ	Mr. Saulo J. da Silva	Chief, Global Interoperable Systems ANB

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