ICAO

CAPACITY & EFFICIENCY

AIR NAVIGATION REPORT

ICAO Middle East Region

SECOND EDITION (REFERENCE PERIOD: January – December 2017)

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A Coordinated Approach to Regional Air Navigation Systems Implementation

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The air transport industry plays a major role in world economic activity. It directly and indirectly supports 67.3 million jobs by aviation worldwide, contributes over $2.7 trillion to global Gross Domestic Product (GDP), and carries over 4.1 billion passengers and 53 million tonnes of freight annually.

This is illustrated by the fact that over half of the world's 1.2 billion tourists who travelled across international borders last year were transported by air, and that air transport now carries some 35% of world trade by value. Indeed, more than 90% of cross border Business-to-Consumer (B2C) e-commerce was carried by air transport.

Middle East has been the fastest growing Region for passenger and cargo traffic since 2011. In 2016, MID air carriers recorded 11.8% growth in Revenue Passenger-Kilometers (RPKs). Although this growth has declined to 6.9% in 2017, the Region carried 14% RPK share in the year 2017.

The continuing growth of traffic in the MID Region places increased demand on airspace capacity, which necessitates an optimum utilization of the available airspace and airports.

One of the key elements to maintaining the vitality of civil aviation is to ensure safe, secure, efficient and environmentally sustainable operations at the global, regional and national levels. In this respect, ICAO works constantly to address the expectations of the aviation community in all key performance areas through the following coordinated activities:

- Policy and Standardization initiatives;
- Implementing programmes to address performance issues;
- Monitoring of key performance trends and indicators; and
- Performance Analysis.

The GANP represents a rolling, 15-year strategic methodology which leverages existing technologies and anticipates future developments based on State/ industry agreed operational objectives.

Its structured approach, organized in blocks of upgrades in non-overlapping six-year time increments starting in 2013 and continuing through 2031 and beyond, provides a basis for sound investment strategies and will generate commitment from States, equipment manufacturers, operators and service providers.

The GANP also explores the need for more integrated aviation planning at both regional and national level and addresses required solutions through the consensus-driven Aviation System Block Upgrade (ASBU) systems engineering modernization strategy.

In all of its coordinated activities, ICAO always strives to achieve a balance between the need for increased capacity and efficiency while maintaining aviation safety and the impact on climate change at an acceptable level.

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

MID Air Navigation Report is the main tool for monitoring and reporting on the status of air navigation systems implementation in the MID Region.

This second edition of the Report provides update on the status and progress of the Priority 1 ASBU Block 0 Modules within the ICAO MID Region during the reporting period of January 2017 to December 2017.

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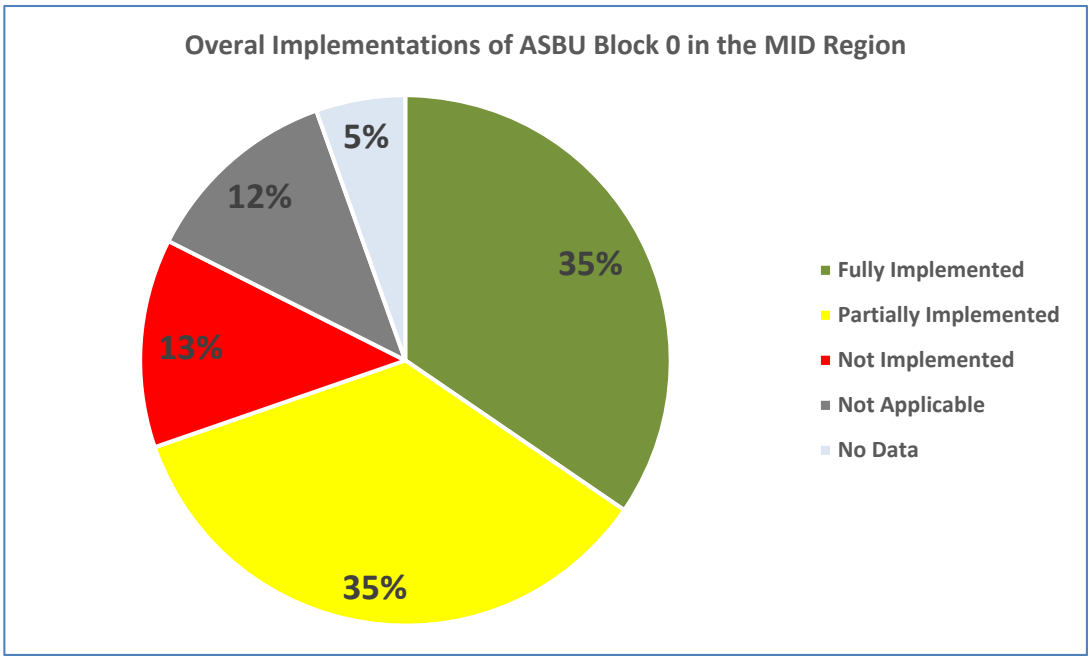
EXECUTIVE SUMMARY

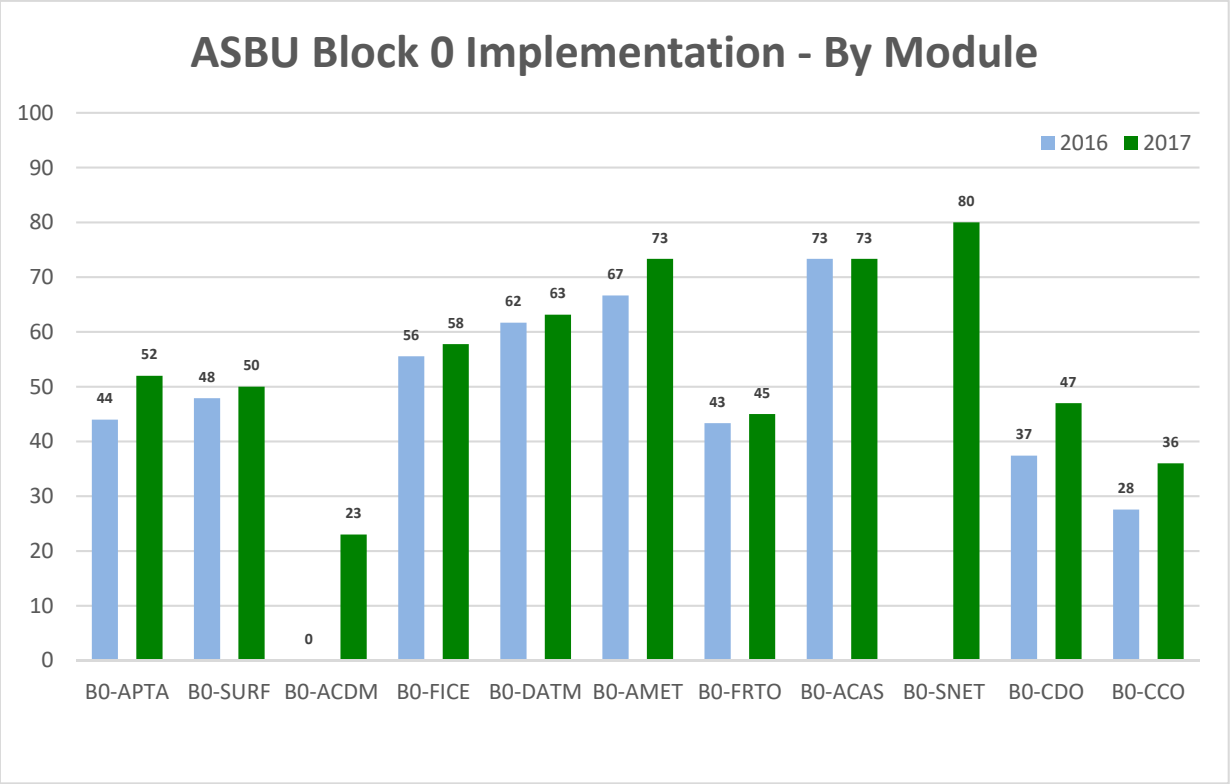
The Second Edition of the ICAO MID Air Navigation Report (2017) provides an overview of the status of implementation of the Priority 1 ASBU Block 0 Modules in the MID Region as well as the progress achieved by MID States from the first edition of the MID Air Navigation Report (2016).

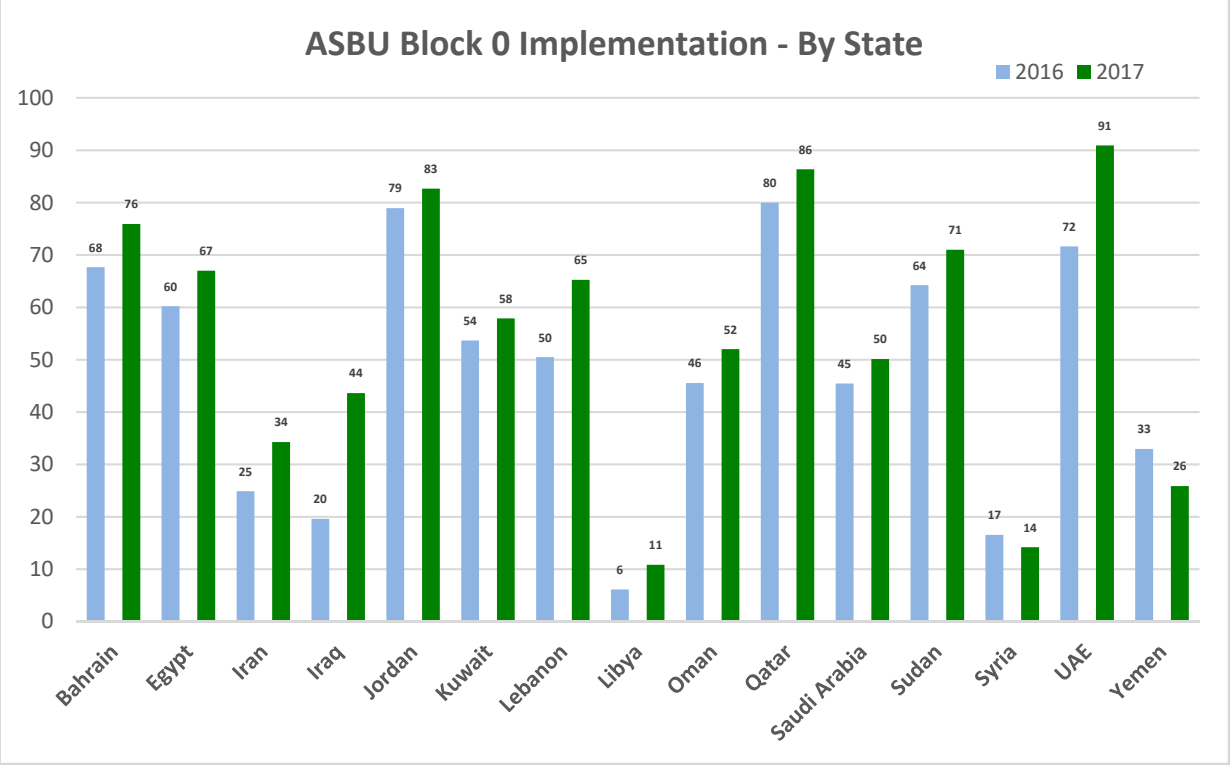
The main part of the document includes Section 2, which provides the status of implementation and the Regional Dashboard for the Priority 1 ASBU Block 0 Modules in the MID Region through different statistical maps and charts.

This Section will be complemented by providing the Outlook 2020 of the Region in Section 3 and environmental protection matters in Section 4. Section 5 provides some best practices/success stories of States in the implementation of ASBU Block 0 Modules.

To summarize the implementation status and progress of ASBU Block 0 Modules, the following ASBU Block 0 Implementation Dashboards present status and progress achieved in the implementation of each Module and by State. Detailed status is provided in Section 2.







Note 1 – utmost care was taken in the calculation of percentages, figures and numbers, however the statistics and graphs in this report should be considered as approximate amounts.
Note 2 – progress of States from 2016 to 2017 may be from the States implementation as well as some changes in the Modules structure (i.e. introduction of new element for B0-AMET, introduction of B0-SNET as a new Priority1 Module and definition of applicable aerodromes for B0-CDO and B0-CCO)

1. INTRODUCTION

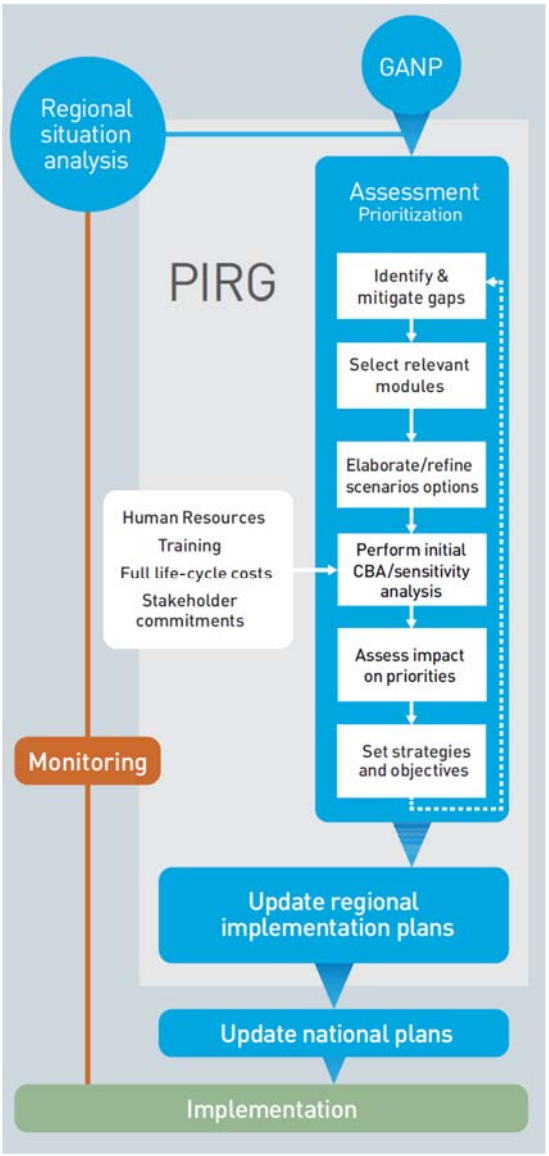
1.1 Objectives

The second edition of the ICAO MID Region Air Navigation Report presents an overview of the planning and implementation progress for the Priority 1 ASBU Block 0 Modules (and its detailed elements) within the ICAO MID Region during the reporting period January 2017 till December 2017.

The implementation status data covers the fifteen (15) ICAO MID States.

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

Accordingly, deployments on a global, regional and sub-regional basis and ultimately at State level should be considered as an integral part of the global and regional planning process through the Planning and Implementation Regional Groups (i.e. MIDANPIRG). The PIRG process will further ensure that all required supporting procedures, regulatory approvals and training capabilities are set in place. These supporting requirements will be reflected in regional online Air Navigation Plan (MID eANPs) developed by MIDANPIRG, ensuring strategic transparency, coordinated progress and certainty of investment. In this way, deployment arrangements including applicability dates can also be agreed and collectively applied by all stakeholders involved in the Region. The MID Region Air Navigation Report which contains all information on the implementation process of the Priority 1 ASBU Modules of the MID Region Air Navigation Strategy (MID Doc 002) is the key document for MIDANPIRG and its Subsidiary Bodies to monitor and analyze the implementation within the MID Region.



Regional Planning

1.2 Background

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

The Fourth meeting of the MIDANPIRG Steering Group (MSG/4) which was held in Cairo, Egypt from 24 to 26

November 2014 endorsed the MID Region Air Navigation Strategy. The Strategy was later updated by MIDANPIRG/15 and 16 and published as MID Doc 002. The Strategy includes 12 priority 1 Block 0 Modules and their associated performance indicators and targets.

MIDANPIRG and its Subsidiary Bodies (in particular ANSIG) monitor the progress and the status of implementation of the ASBU Block 0 Modules in the MID Region.

Doha Declaration, which was endorsed by the third meeting of Directors General of Civil Aviation (DGCA-MID/3) (Doha, Qatar, 27-29 April 2015), has set five Targets for the Air Navigation Capacity and Efficiency, as follows:

1- *Optimization of Approach Procedures including vertical guidance (PBN):* Implement PBN approach procedures with vertical guidance, for all runways ends at international aerodromes, either as the primary approach or as a back-up for the precision approaches by 2017

2- *Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration:* 11 States to implement AIDC/OLDI between their ACCs and at least one adjacent ACC by 2017

3- *Service Improvement through Digital Aeronautical Information Management:* All States to complete implementation of Phase I of the transition from AIS to AIM by 2017

4- *Meteorological information supporting enhanced operational efficiency and safety:* 12 States to complete the implementation of QMS for MET by 2017

5- *ACAS Improvement:* All States require carriage of ACAS (TCAS v 7.1) for aircraft with a max certificated take-off mass greater than 5.7 tons by 2017

The MID Region Air Navigation Report is an integral part of the air navigation planning and implementation process in the MID Region; and the main tool for the monitoring and assessing the implementation of Air navigation Systems and ASBUs in the MID Region.

1.3 Scope

This MID Air Navigation Report addresses the implementation status of the priority 1 ASBU Block 0 Modules for the reference period January 2017 to December 2017.

The Report covers the fifteen (15) ICAO MID States:

Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Oman, Qatar, Saudi Arabia, Sudan, Syria, United Arab Emirates and Yemen.

ICAO MID Region

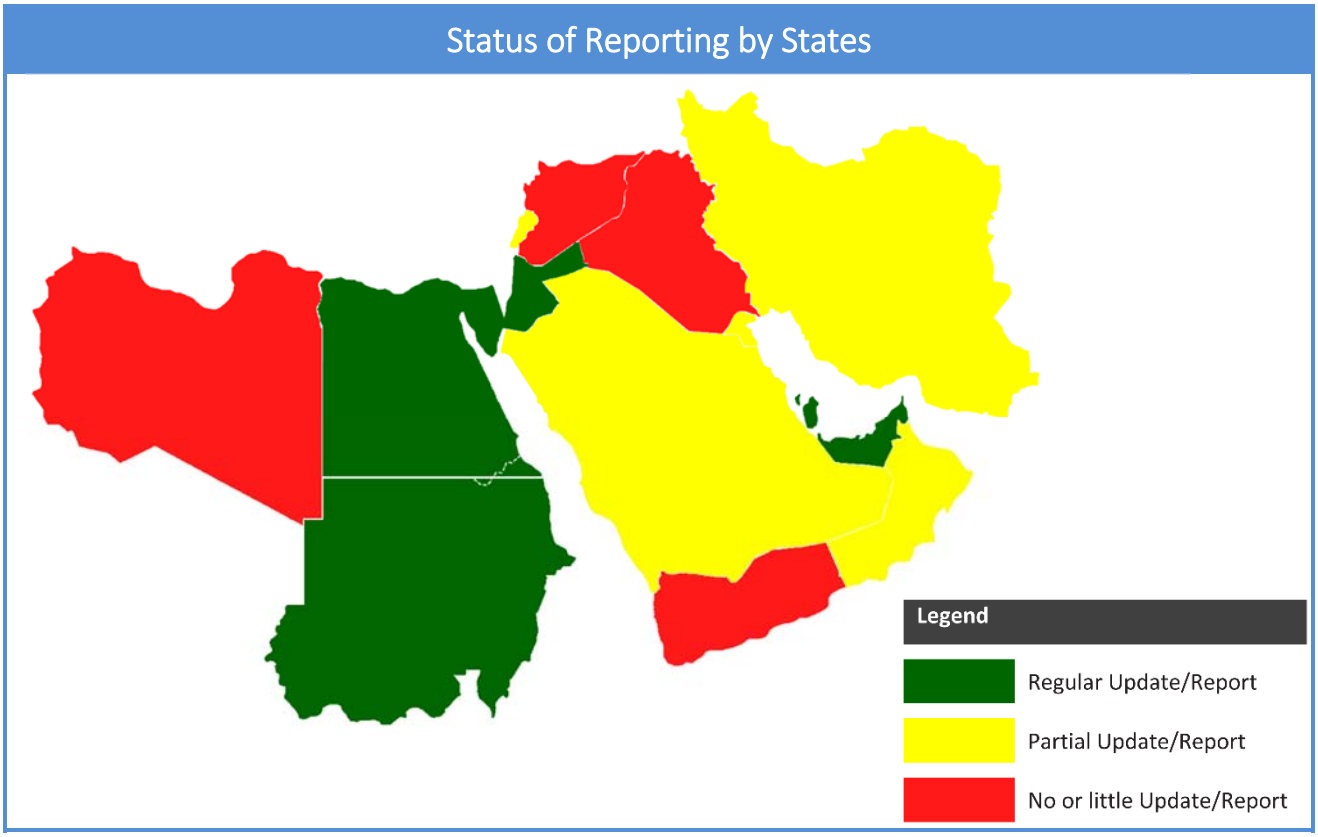
1.4 Collection of data

For the purpose of collecting necessary data for the MID Air Navigation Report-2017, a State Letter Ref.: AN 1/7 – 17/188 was issued on 2 July 2017, to follow-up on the MIDANPIRG Conclusion 16/8, which urged States to provide the relevant data necessary for the development of the MID Region Air Navigation Report-2017. However, some States did not respond to the State Letter. Status of States providing update is shown in the following map.

Data collected from States was complemented by some updates provided mainly through the MIDANPIRG Subsidiary Bodies and the MID eANP Volume III.

Where the required data was not provided, it is indicated in the Report by color coding (Missing Data).

Status of Reporting by States



1.5 Structure of the Report

Executive Summary provides an overall review of the ASBU Block 0 implementation in the MID Region.

Section 1 (Introduction) presents the objective and background of the report as well as the scope covered and method of data collection.

Section 2 lists the priority 1 ASBU Block 0 Modules in the MID Region and presents the status of their implementation and their progress in graphical and numeric form.

Section 3 presents the ASBU Block 0 implementation outlook for 2020 in the MID Region.

Section 4 provides an update on the State's CO2 action plans and presents an estimation of environmental benefits, in terms of CO2 emissions reduction, accrued from the implementation of some ASBU Block 0 Modules in the MID Region.

Section 5 includes some success stories related to the NCLB activities and implementation of ASBU Block 0 Modules, as well as their associated operational improvements and environmental benefits.

Section 6 concludes the Report by providing a brief analysis on the status of implementation and the progress of the different priority 1 ASBU Block 0 Modules.

Appendix A provides detailed status of the implementation of Priority 1 Block 0 Modules and their associated Elements for the MID States.

Appendix B illustrates the detailed status of implementation of ASBU Block 0 Modules in the MID States by 2020.

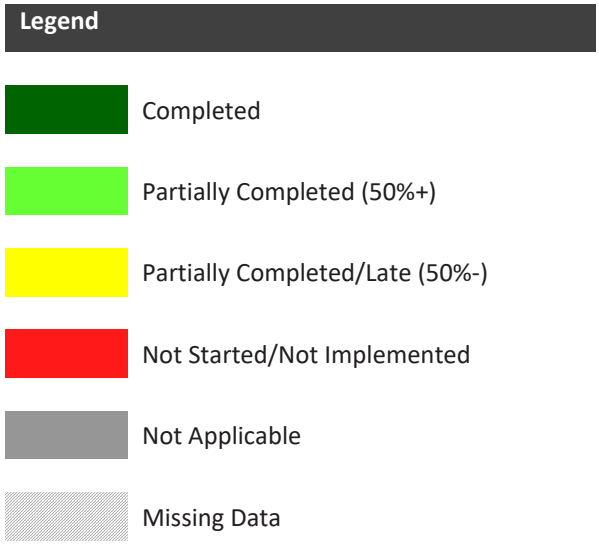
2. STATUS AND PROGRESS OF ASBU IMPLEMENTATION

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

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

This chapter of the report gives an overview of the status of implementation for each of the Priority 1 ASBU Block 0 Modules for the MID States. The status of implementation of each Module versus its target(s) is also provided for each priority 1 ASBU Block 0 Module.

The following color scheme is used for illustrating the status of implementation:



Note – Missing data is excluded in the calculation of the average regional status of implementation.

2.1 MID Region ASBU Block 0 Modules Prioritization

This report covers twelve (out of eighteen) ASBU Block 0 Modules that have been determined by MIDANPIRG/MSG as priority 1 for the MID Region (MID Doc 002 Edition February 2017, refers).

Module Code	Module Title	Priority	Start Date	Monitoring		Remarks
				Main	Supporting	
***Performance Improvement Areas (PIA) 1*: Airport Operations**						
B0-APTA	Optimization of Approach Procedures including vertical guidance	1	2014	PBN SG	ATM SG, AIM SG, CNS SG	
B0-WAKE	Increased Runway Throughput through Optimized Wake Turbulence Separation	2				
B0-RSEQ	Improve Traffic flow through Runway Sequencing (AMAN/DMAN)	2				
B0-SURF	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	1	2014	ANSIG	CNS SG	Coordination with RGS WG
B0-ACDM	Improved Airport Operations through Airport-CDM	1	2014	ANSIG	CNS SG, AIM SG, ATM SG	Coordination with RGS WG
Performance Improvement Areas (PIA) 2 Globally Interoperable Systems and Data Through Globally Interoperable System Wide Information Management						
B0-FICE	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	1	2014	CNS SG	AIM SG, ATM SG	
B0-DATM	Service Improvement through Digital Aeronautical Information Management	1	2014	AIM SG		
B0-AMET	Meteorological information supporting enhanced operational efficiency and safety	1	2014	MET SG		
Performance Improvement Areas (PIA) 3 Optimum Capacity and Flexible Flights – Through Global Collaborative ATM						
B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	2014	ATM SG		
B0-NOPS	Improved Flow Performance through Planning based on a Network-Wide view	1	2014			
B0-ASUR	Initial capability for ground surveillance	2				
B0-ASEP	Air Traffic Situational Awareness (ATSA)	2				
B0-OPFL	Improved access to optimum flight levels through climb/descent procedures using ADS-B	2				
B0-ACAS	ACAS Improvements	1	2014	CNS SG		
B0-SNET	Increased Effectiveness of Ground-Based Safety Nets	1	2017	ATM SG		

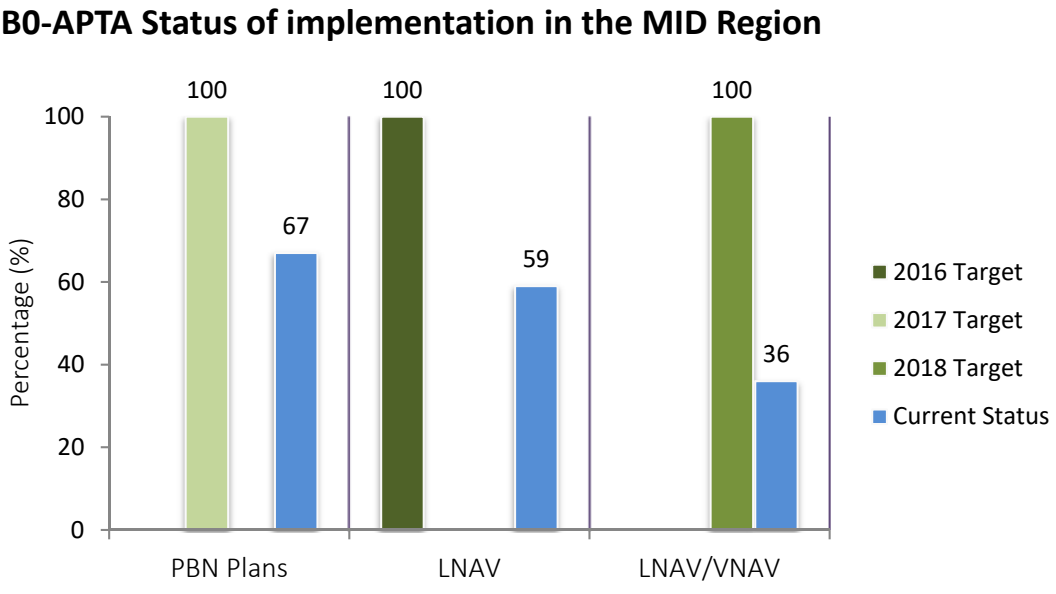
Performance Improvement Areas (PIA) 4 Efficient Flight Path – Through Trajectory-based Operations						
B0-CDO	Improved Flexibility and Efficiency in Descent Profiles (CDO)	1	2014	PBN SG		
B0-TBO	Improved Safety and Efficiency through the initial application of Data Link En-Route	2		ATM SG	CNS SG	
B0-CCO	Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)	1	2014	PBN SG		

2.2 ASBU Implementation Status and Progress in the MID Region

2.2.1 B0-APTA

The use of performance-based navigation (PBN) and ground-based augmentation system (GBAS) landing system (GLS) procedures will enhance the reliability and predictability of approaches to runways, thus increasing safety, accessibility and efficiency. This is possible through the application of Basic global navigation satellite system (GNSS), Baro vertical navigation (VNAV), satellite-based augmentation system (SBAS) and GLS. The flexibility inherent in PBN approach design can be exploited to increase runway capacity.

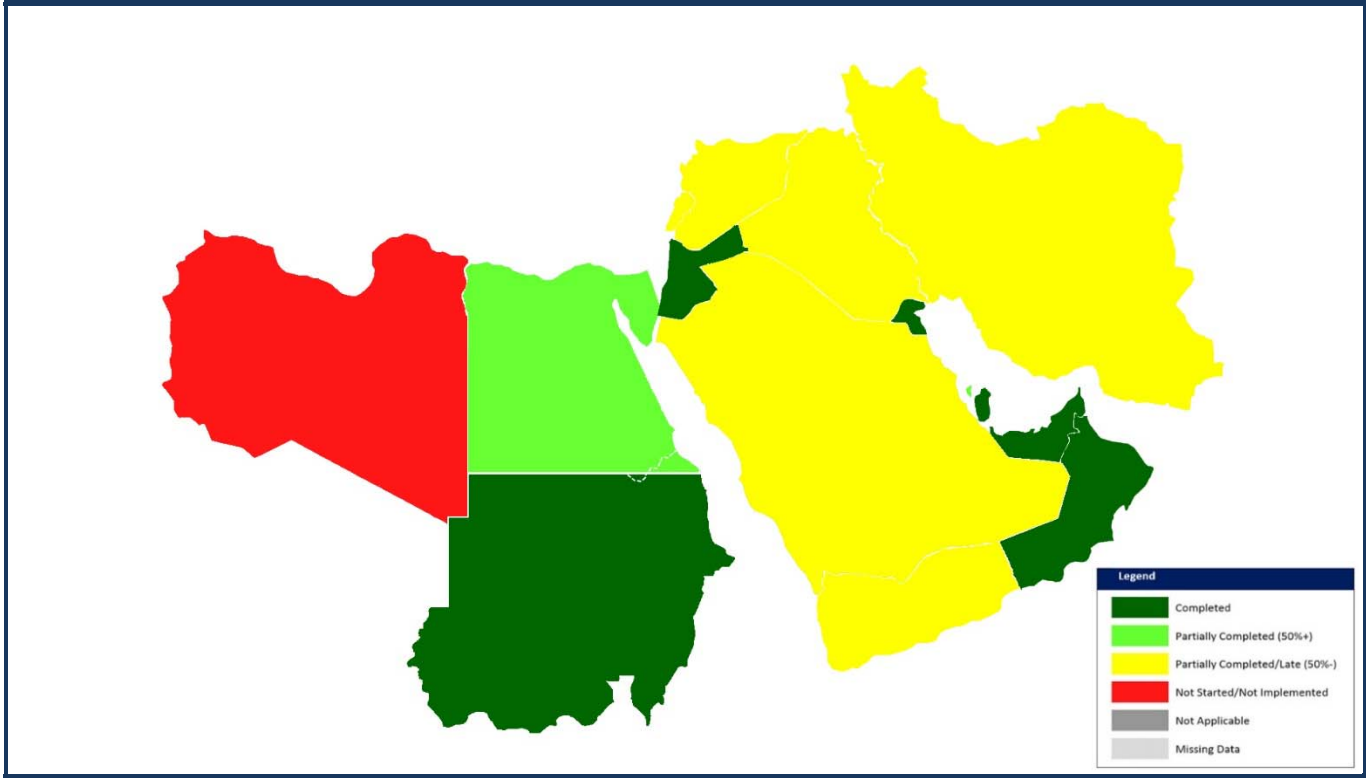
B0 – APTA: Optimization of Approach Procedures including vertical guidance			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
States' PBN Implementation Plans	All States	Indicator: % of States that provided updated PBN implementation Plan Supporting metric: Number of States that provided updated PBN implementation Plan	100% by Dec. 2018
LNAV	All RWYs Ends at International Aerodromes	Indicator: % of runway ends at international aerodromes with RNAV(GNSS) Approach Procedures (LNAV) Supporting metric: Number of runway ends at international aerodromes with RNAV (GNSS) Approach Procedures (LNAV)	All runway ends at Int'l Aerodromes, either as the primary approach or as a back-up for precision approaches by Dec. 2016
LNAV/VNAV	All RWYs ENDs at International Aerodromes	Indicator: % of runways 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)	All runway ends at Int'l Aerodromes, either as the primary approach or as a back-up for precision approaches by Dec. 2017



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-APTA	PBN Plan															
	LNAV															
	LNAV/VNAV															

The progress for B0-APTA is <u>good</u> (with approximately 52% implementation).

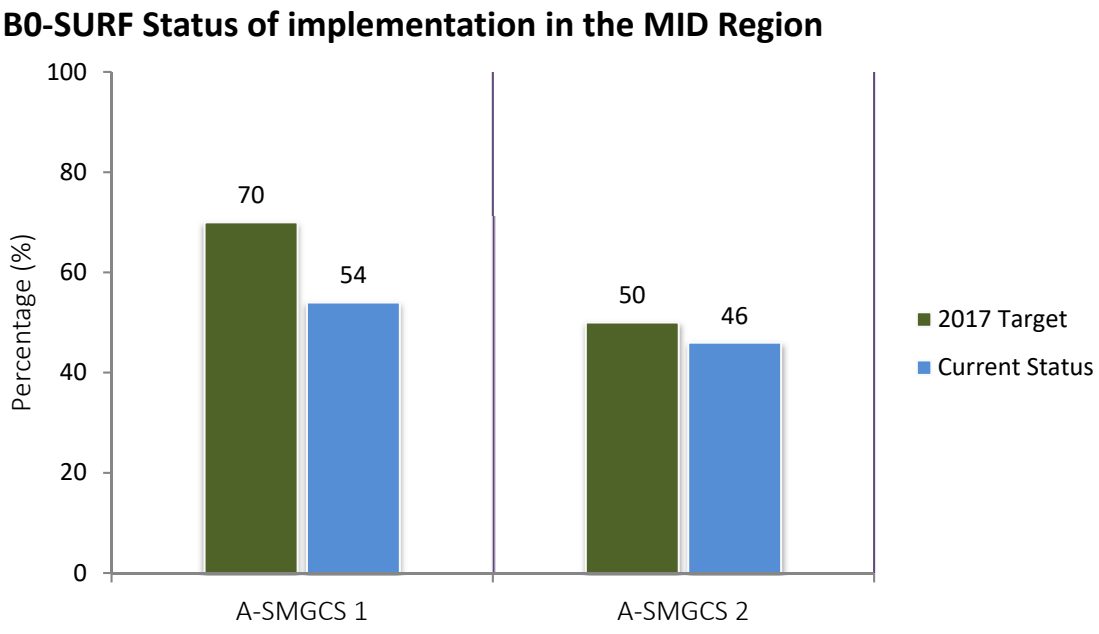
B0-APTA Status of implementation in the MID Region



2.2.2 B0-SURF

Basic A-SMGCS provides surveillance and alerting of movements of both aircraft and vehicles on the aerodrome thus improving runway/aerodrome safety. ADS-B information is used when available (ADS-B APT).

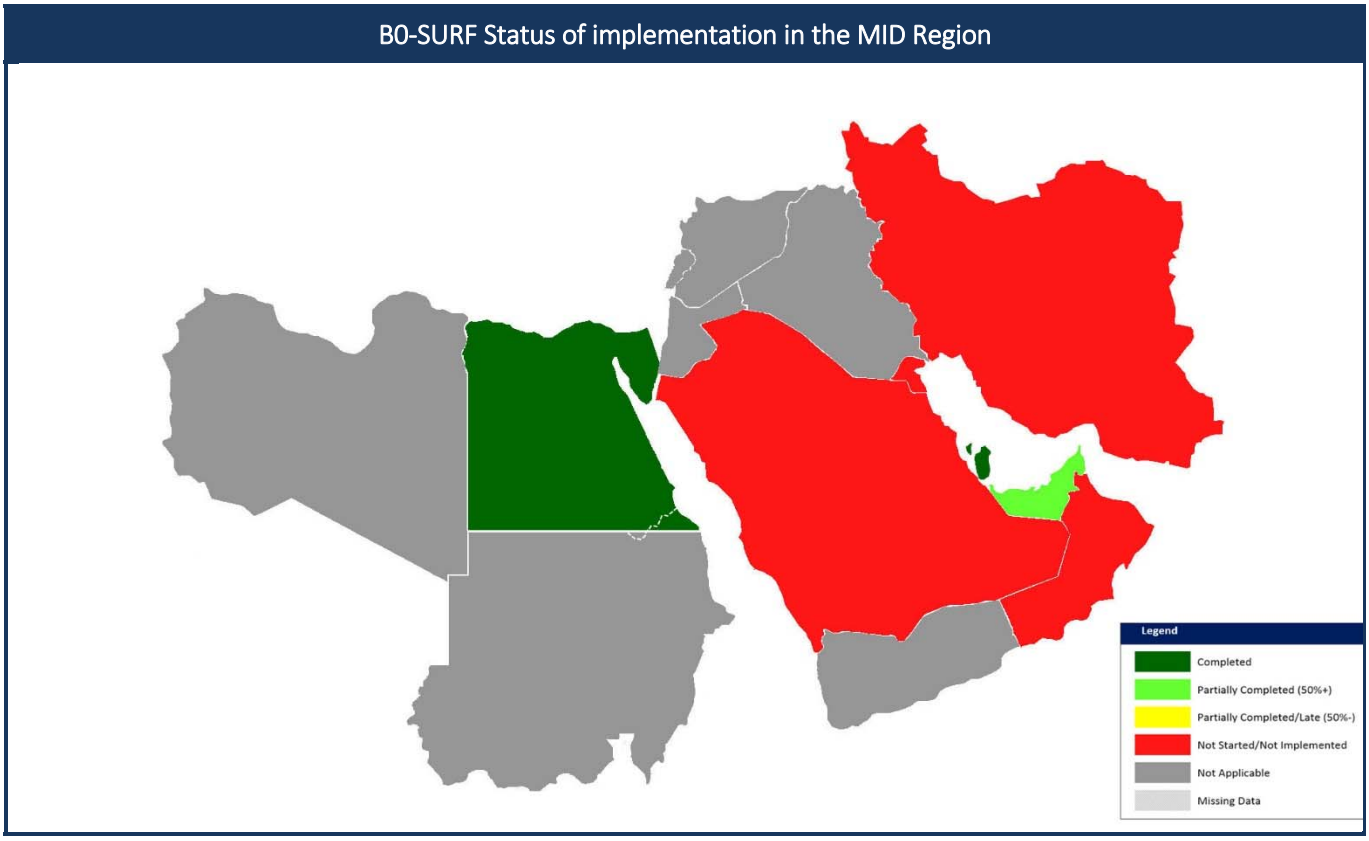
B0-SURF: Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
A-SMGCS Level 1*	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEDF, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of applicable international aerodromes having implemented A-SMGCS Level 1 Supporting Metric: Number of applicable international aerodromes having implemented A-SMGCS Level 1	70% by Dec. 2017
A-SMGCS Level 2*	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of applicable international aerodromes having implemented A-SMGCS Level 2 Supporting Metric: Number of applicable international aerodromes having implemented A-SMGCS Level 2	50% by Dec. 2017



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-SURF	A-SMGCS Level 1															
	A-SMGCS Level 2															

The progress for B0-SURF is good (with approximately 50% implementation). B0-SURF is not applicable for 7 States.

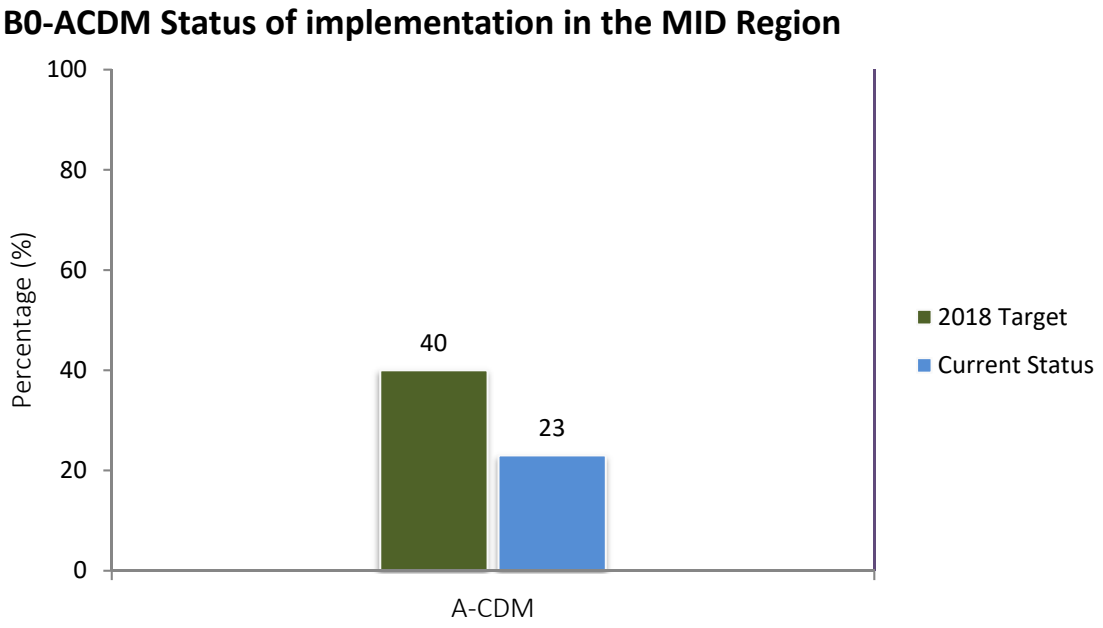
B0-SURF Status of implementation in the MID Region



2.2.3 B0-ACDM

To implement collaborative applications that will allow the sharing of surface operations data among the different stakeholders on the airport. This will improve surface traffic management reducing delays on movement and maneuvering areas and enhance safety, efficiency and situational awareness.

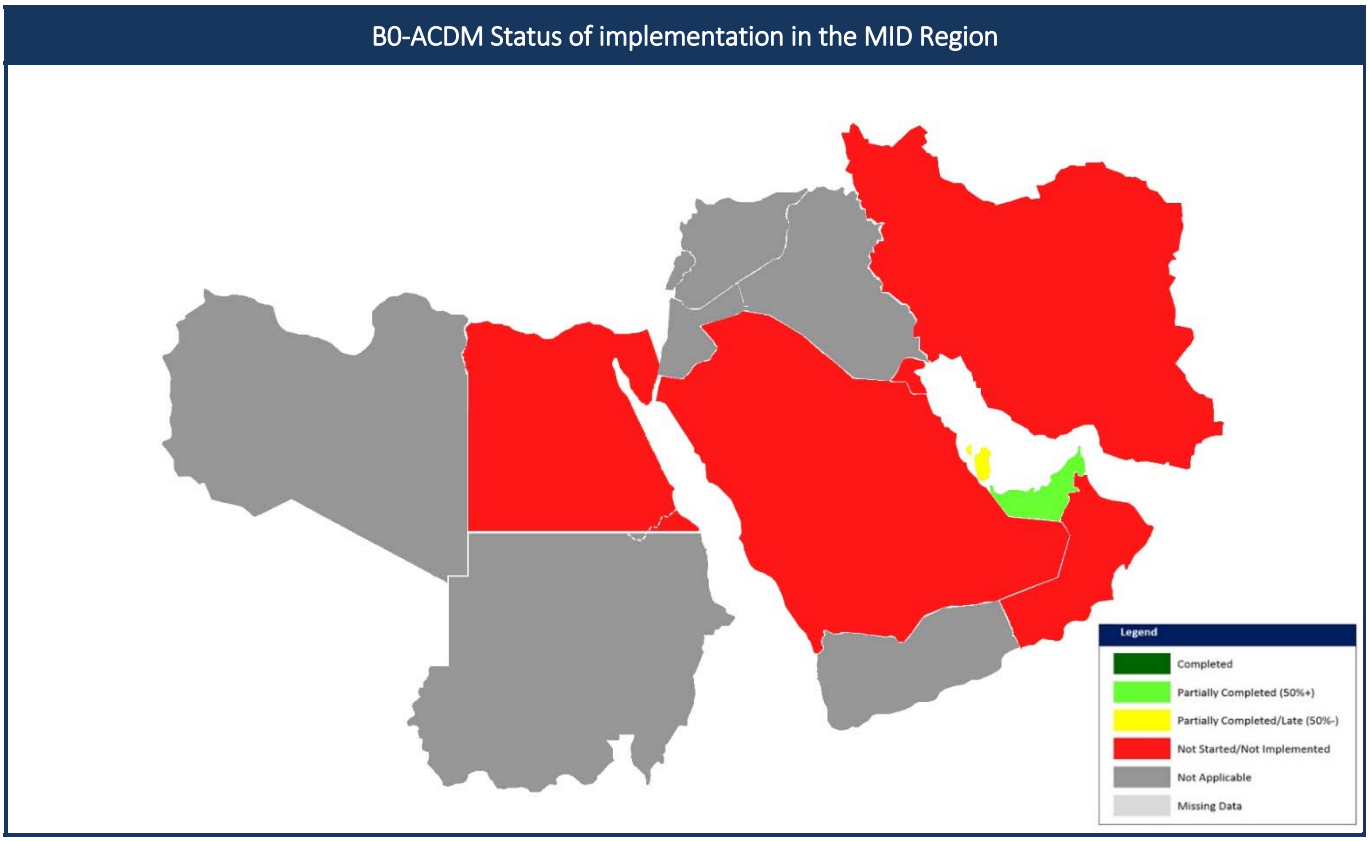
B0 – ACDM: Improved Airport Operations through Airport-CDM			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
A-CDM	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of applicable international aerodromes having implemented improved airport operations through airport-CDM Supporting metric: Number of applicable international aerodromes having implemented improved airport operations through airport-CDM	50% by Dec. 2018



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-ACDM	A-CDM															

The progress for B0-ACDM is very slow (with approximately 23% implementation. Nevertheless, implementation is ongoing in some States.

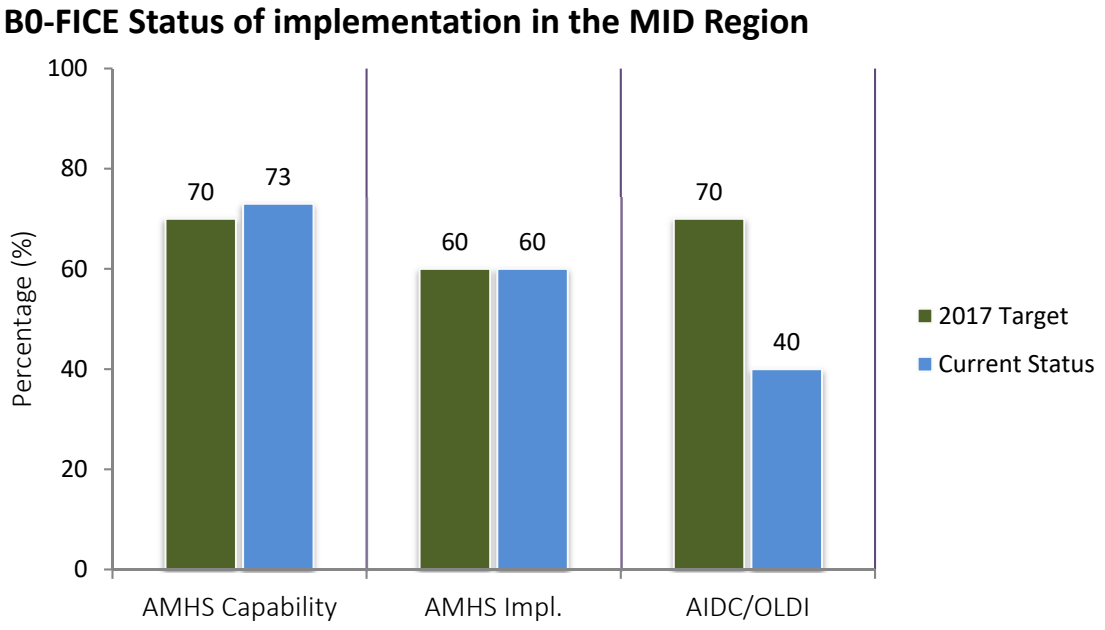
B0-ACDM Status of implementation in the MID Region



2.2.4 B0-FICE

To improve coordination between air traffic service units (ATSUs) by using ATS Interfacility Data Communication (AIDC) defined by the ICAO *Manual of Air Traffic Services Data Link Applications* (Doc 9694). The transfer of communication in a data link environment improves the efficiency of this process particularly for oceanic ATSUs.

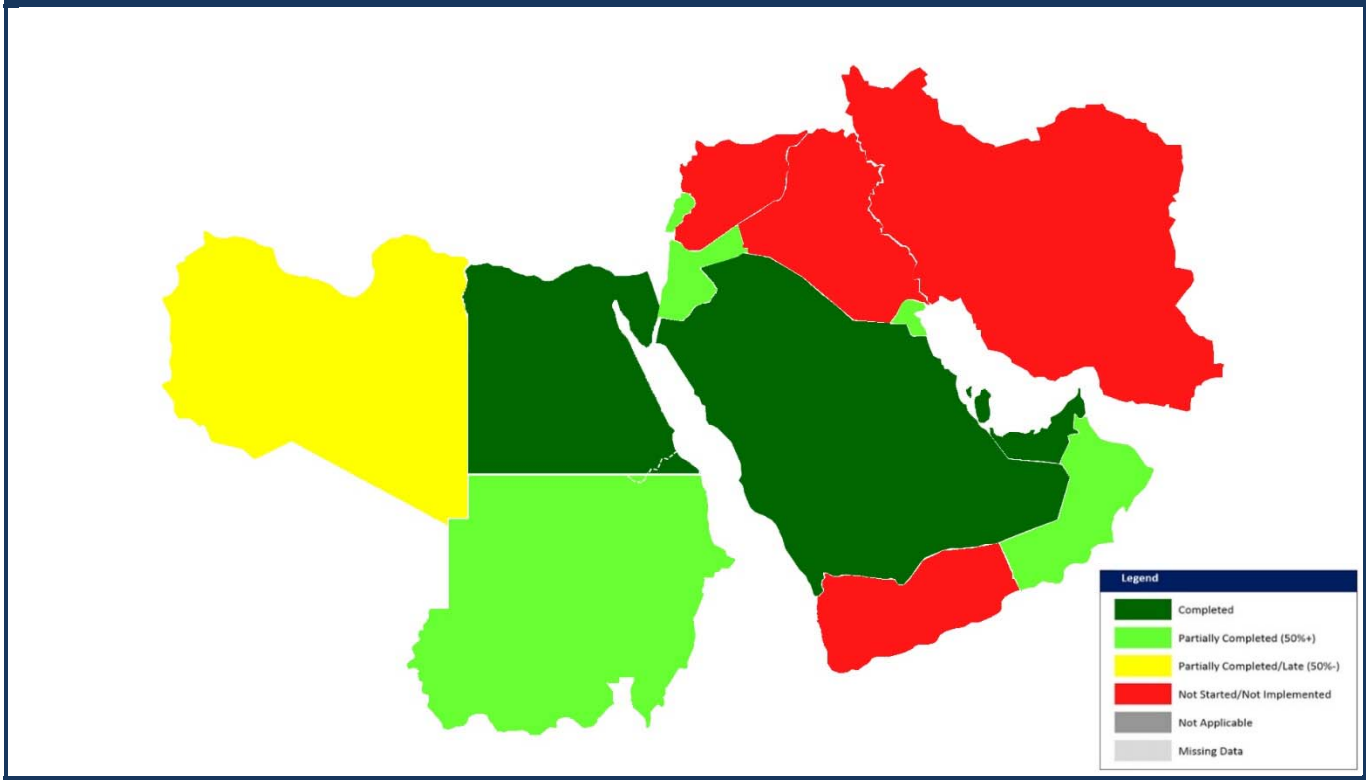
B0 – FICE: Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
AMHS capability	All States	Indicator: % of States with AMHS capability Supporting metric: Number of States with AMHS capability	70% of States with AMHS capability by Dec. 2017
AMHS implementation /interconnection	All States	Indicator: % of States with AMHS implemented (interconnected with other States AMHS) Supporting metric: Number of States with AMHS implemented (interconnections with other States AMHS)	60% of States with AMHS interconnected by Dec. 2017
Implementation of AIDC/OLDI between adjacent ACCs	All ACCs	Indicator: % of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC/OLDI with neighboring ACCs Supporting metric: Number of AIDC/OLDI interconnections implemented between adjacent ACCs	70% by Dec. 2017



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-FICE	AMHS capability															
	AMHS impl. /interconnection															
	Implementation of AIDC/OLDI between adjacent ACCs															

The progress for B0-FICE is good (with approximately 58% implementation).

B0-FICE Status of implementation in the MID Region

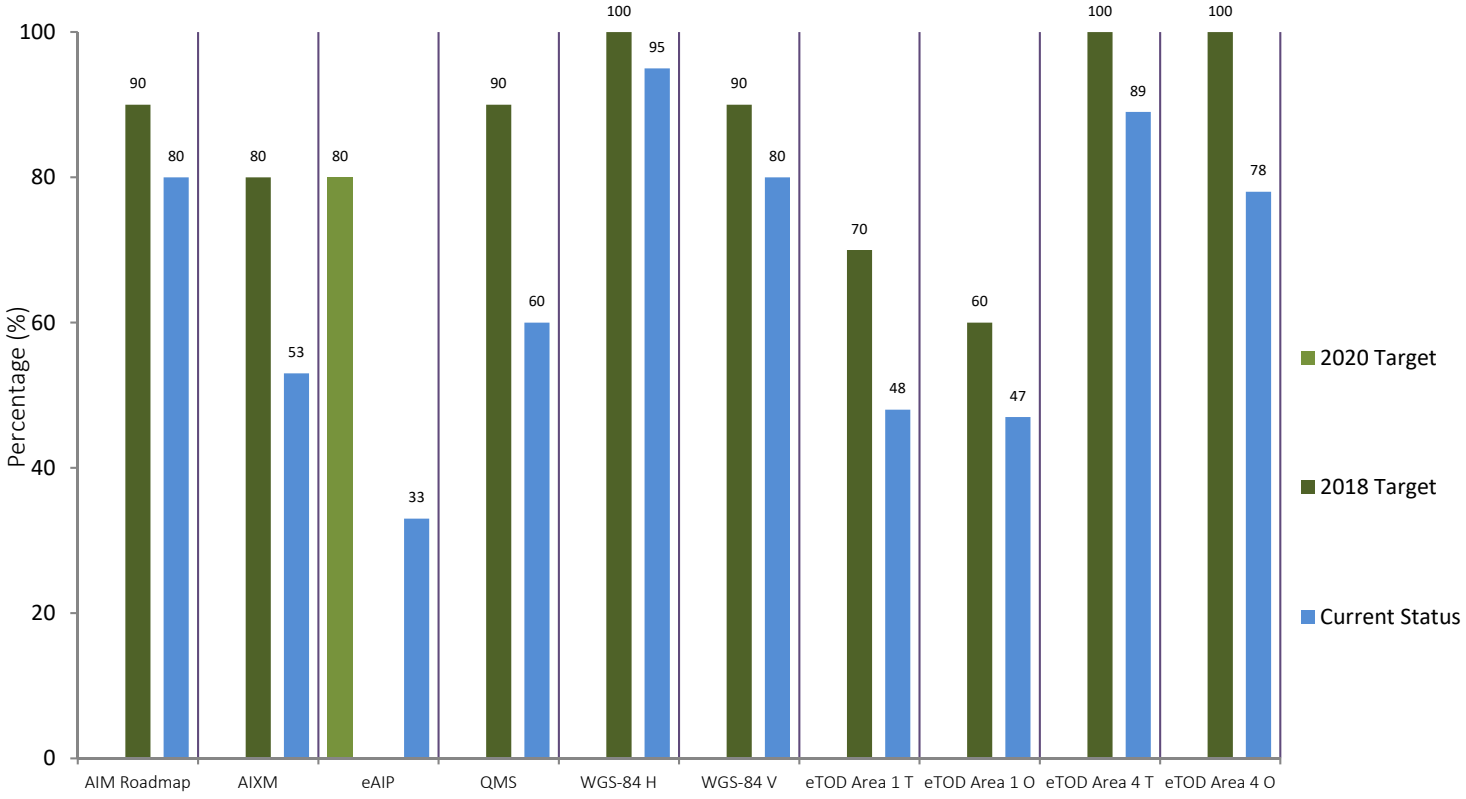


2.2.5 B0-DATM

The initial introduction of digital processing and management of information, through aeronautical information service (AIS)/aeronautical information management (AIM) implementation, use of aeronautical information exchange model (AIXM), migration to electronic aeronautical information publication (AIP) and better quality and availability of data.

B0 – DATM: Service Improvement through Digital Aeronautical Information Management			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
National AIM Implementation Plan/Roadmap	All States	Indicator: % of States that have National AIM Implementation Plan/Roadmap Supporting Metric: Number of States that have National AIM Implementation Plan/Roadmap	90% by Dec. 2018
AIXM	All States	Indicator: % of States that have implemented an AIXM-based AIS database Supporting Metric: Number of States that have implemented an AIXM-based AIS database	80% by Dec. 2018
eAIP	All States	Indicator: % of States that have implemented an IAID driven AIP Production (eAIP) Supporting Metric: Number of States that have implemented an IAID driven AIP Production (eAIP)	80% by Dec. 2020
QMS	All States	Indicator: % of States that have implemented QMS for AIS/AIM Supporting Metric: Number of States that have implemented QMS for AIS/AIM	90% by Dec. 2018
WGS-84	All States	Indicator: % of States that have implemented WGS-84 for horizontal plan (ENR, Terminal, AD) Supporting Metric: Number of States that have implemented WGS-84 for horizontal plan (ENR, Terminal, AD) Indicator: % of States that have implemented WGS-84 Geoid Undulation Supporting Metric: Number of States that have implemented WGS-84 Geoid Undulation	Horizontal: 100% by Dec. 2018 Vertical: 90% by Dec. 2018
eTOD	All States	Indicator: % of States that have implemented required Terrain datasets Supporting Metric: Number of States that have implemented required Terrain datasets Indicator: % of States that have implemented required Obstacle datasets Supporting Metric: Number of States that have implemented required Obstacle datasets	Area 1 : Terrain: 70% by Dec. 2018 Obstacles: 60% by Dec. 2018 Area 4: Terrain: 100% by Dec. 2018 Obstacles: 100% by Dec. 2018
Digital NOTAM*	All States	Indicator: % of States that have included the implementation of Digital NOTAM into their National Plan for the transition from AIS to AIM Supporting Metric: Number of States that have included the implementation of Digital NOTAM into their National Plan for the transition from AIS to AIM	90% by Dec. 2020

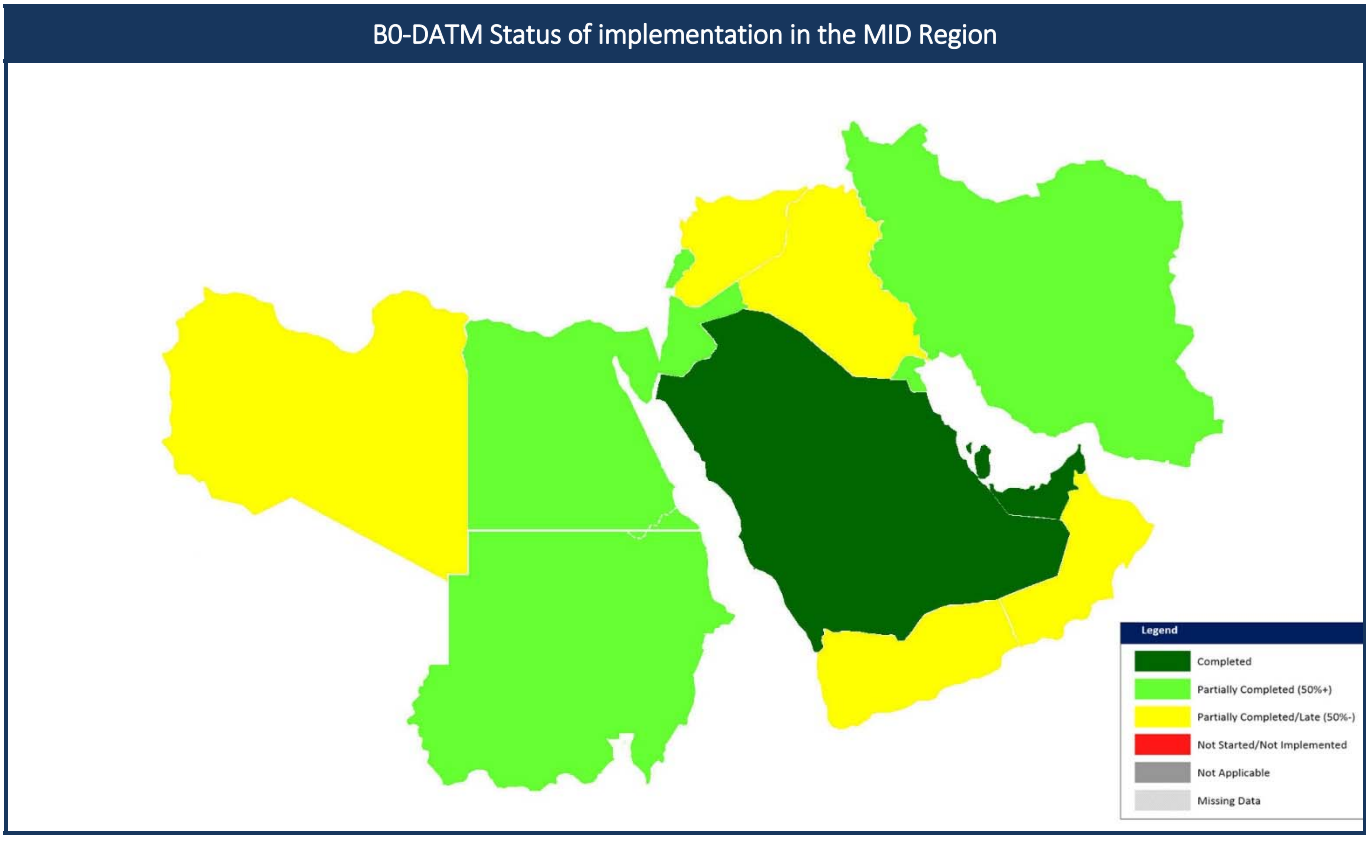
B0-DATM Status of implementation in the MID Region



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-DATM	National AIM Roadmap															
	AIXM															
	eAIP															
	QMS															
	WGS-84 – H															
	WGS-84 – V															
	Area 1 Terrain															
	Area 1 Obstacles															
	Area 4 Terrain															
	Area 4 Obstacles															

The progress for B0-DATM is good (with approximately 63% implementation). TOD Area 4 is not applicable in 6 States.

B0-DATM Status of implementation in the MID Region



2.2.6 B0-AMET

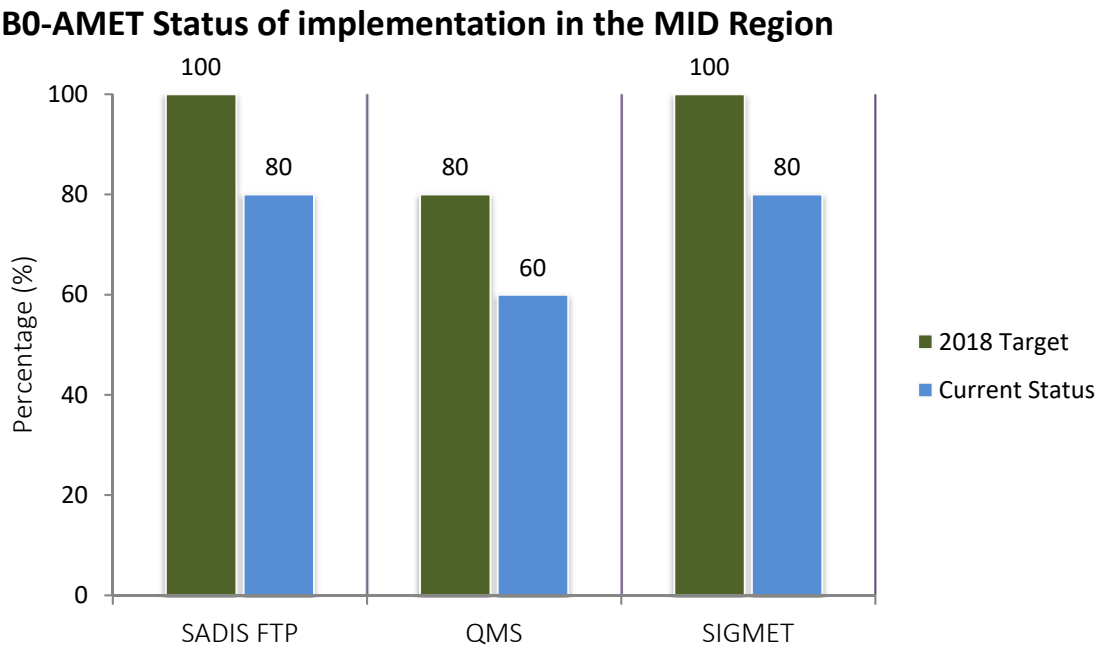
Global, regional and local meteorological information:

a) forecasts provided by world area forecast centres (WAFC), volcanic ash advisory centres (VAAC) and tropical cyclone advisory centres (TCAC);

b) aerodrome warnings to give concise information of meteorological conditions that could adversely affect all aircraft at an aerodrome including wind shear; and

c) SIGMETs to provide information on occurrence or expected occurrence of specific en-route weather phenomena which may affect the safety of aircraft operations and other operational meteorological (OPMET) information, including METAR/SPECI and TAF, to provide routine and special observations and forecasts of meteorological conditions occurring or expected to occur at the aerodrome.

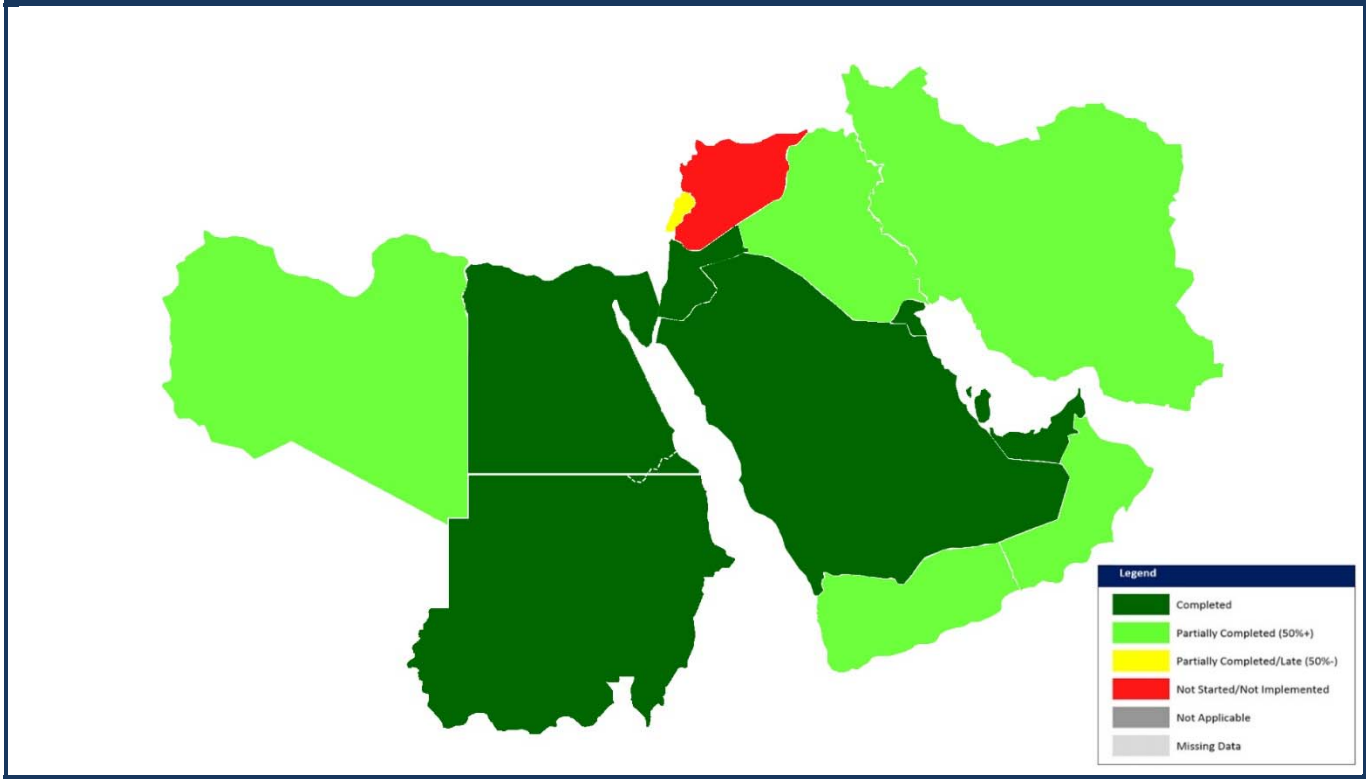
B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
SADIS FTP	All States	Indicator: % of States that have implemented SADIS FTP service Supporting Metric: Number of States that have implemented SADIS FTP service	100% by Dec. 2018
QMS	All States	Indicator: % of States having implemented QMS for MET Supporting metric: number of States having implemented QMS for MET	80% by Dec. 2018
SIGMET	All MWOs in MID Region	Indicator: % of FIRs in which SIGMET is implemented Supporting metric: number of FIRs SIGMET is implemented	100% by Dec. 2018



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-AMET	SADIS FTP															
	QMS															
	SIGMET															

The progress for B0-AMET is good (with approximately 73% implementation).

B0-AMET Status of implementation in the MID Region

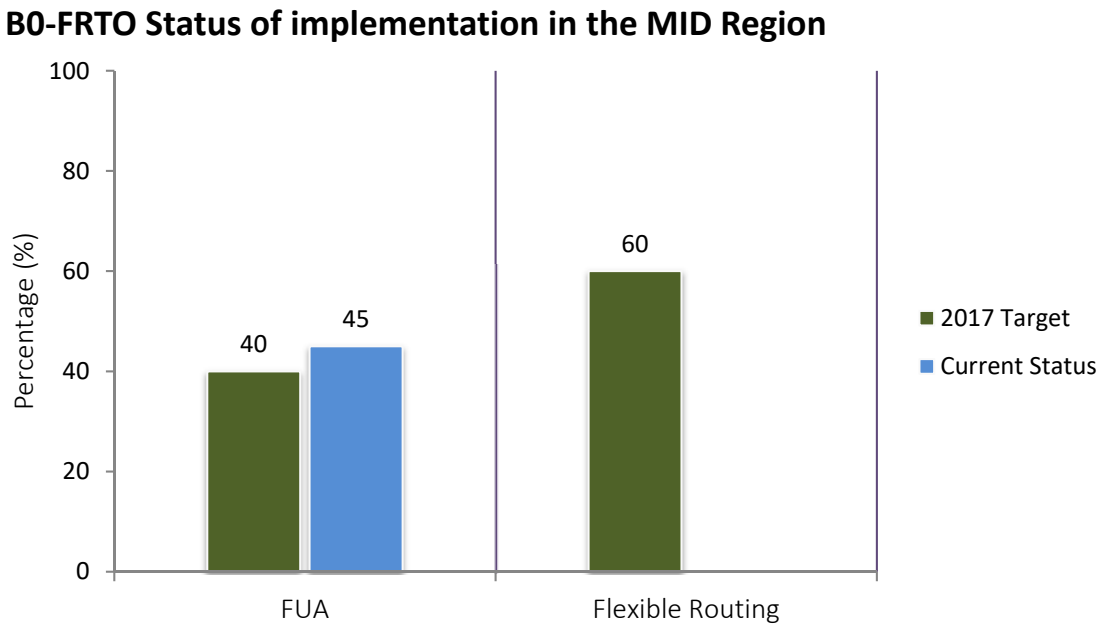


2.2.7 B0-FRTO

To allow the use of airspace which would otherwise be segregated (i.e. special use airspace) along with flexible routing adjusted for specific traffic patterns. This will allow greater routing possibilities, reducing potential congestion on trunk routes and busy crossing points, resulting in reduced flight length and fuel burn.

B0 – FRTO: Improved Operations through Enhanced En-Route Trajectories			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
Flexible use of airspace (FUA)	All States	Indicator: % of States that have implemented FUA Supporting metric*: number of States that have implemented FUA	40% by Dec. 2017
Flexible routing	All States	Indicator: % of required Routes that are not implemented due military restrictions (segregated areas) Supporting metric 1: total number of ATS Routes in the Mid Region Supporting metric 2*: number of required Routes that are not implemented due military restrictions (segregated areas)	60% by Dec. 2017

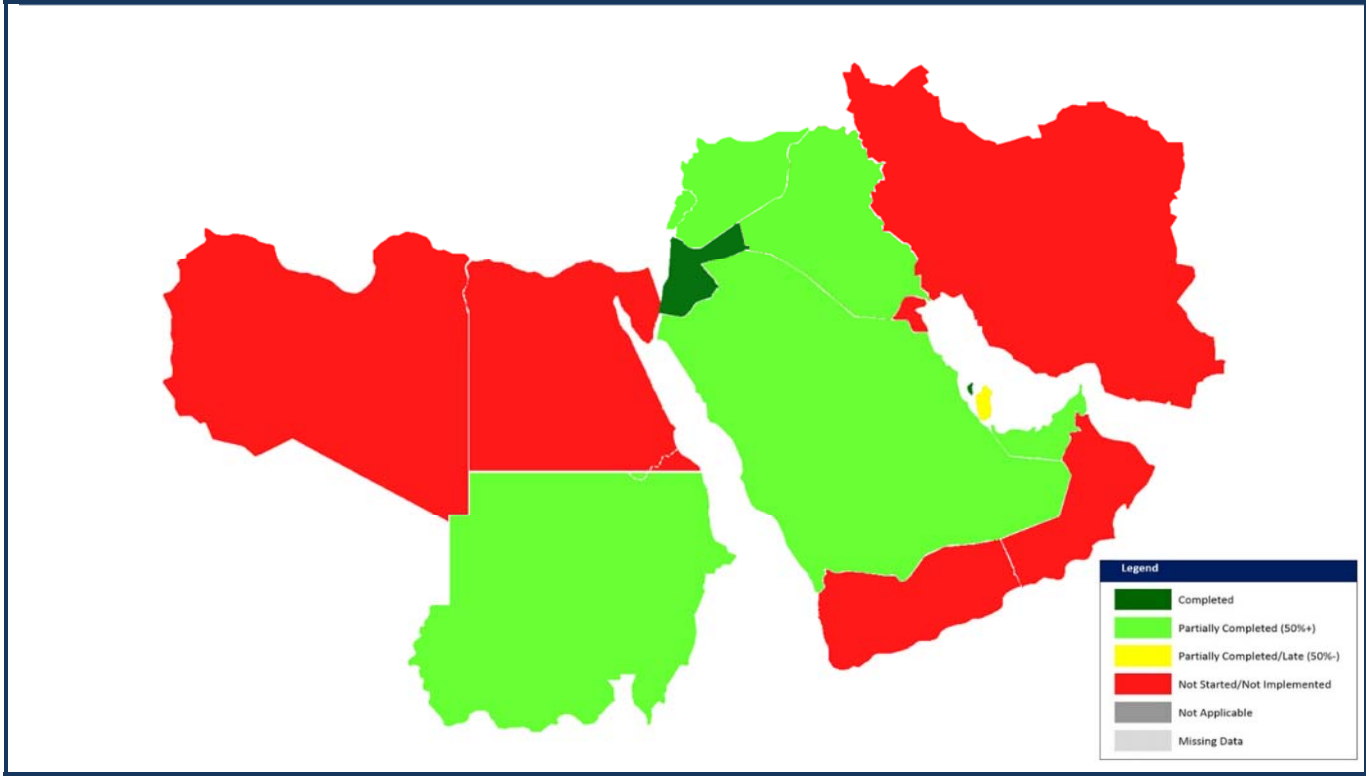
* *Implementation should be based on the published aeronautical information*



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-FRTO	Flexible use of airspace (FUA)															
	Flexible routing															

The progress for B0-FRTO (FUA) is acceptable (with approximately 45% implementation). The element "Flexible Routing" could not be monitored because of the lack of data.

B0-FRTO (FUA) Status of implementation in the MID Region



2.2.8 B0-NOPS

Air Traffic Flow Management (ATFM) is used to manage the flow of traffic in a way that minimizes delay and maximizes the use of the entire airspace. ATFM can regulate traffic flows involving departure slots, smooth flows and manage rates of entry into airspace along traffic axes, manage arrival time at waypoints or Flight Information Region (FIR)/sector boundaries and re-route traffic to avoid saturated areas. ATFM may also be used to address system disruptions including crisis caused by human or natural phenomena.

Experience clearly shows the benefits related to managing flows consistently and collaboratively over an area of a sufficient geographical size to take into account sufficiently well the network effects. The concept for ATFM and demand and capacity balancing (DCB) should be further exploited wherever possible. System improvements are also about better procedures in these domains, and creating instruments to allow collaboration among the different actors**.**

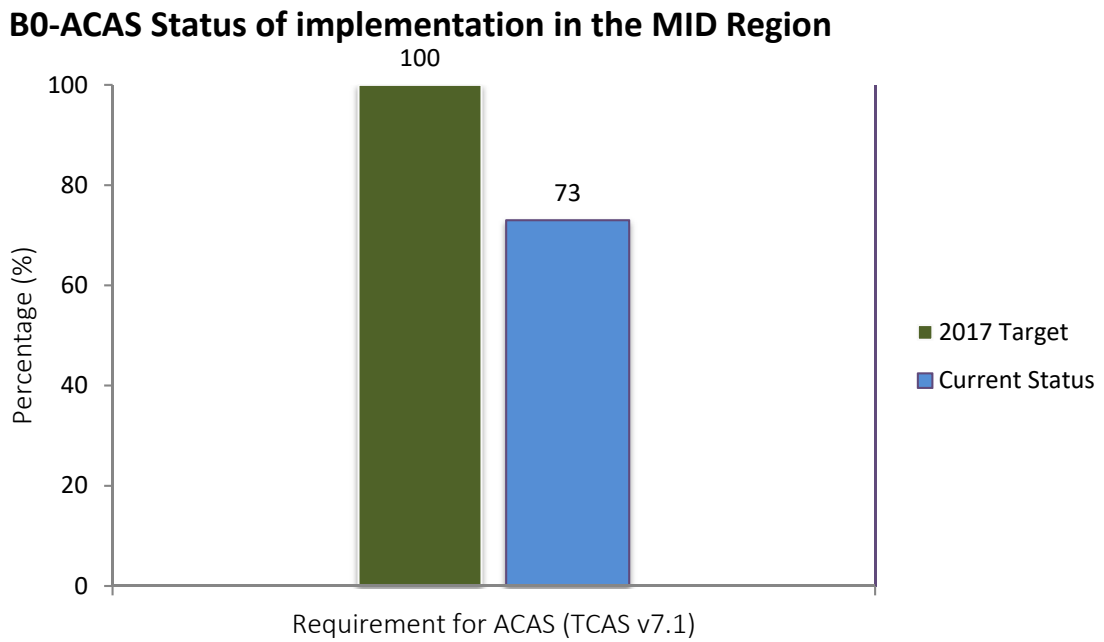
B0 – NOPS: Improved Flow Performance through Planning based on a Network-Wide view			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
ATFM Measures implemented in collaborative manner	All States	Indicator: % of States that have established a mechanism for the implementation of ATFM Measures based on collaborative decision Supporting metric: number of States that have established a mechanism for the implementation of ATFM Measures based on collaborative decision	100% by Dec. 2017

Note – B0-NOPS could not be monitored because the elements and associated performance indicators and targets have not yet been agreed upon and are under development.

2.2.9 B0-ACAS

To provide short-term improvements to existing airborne collision avoidance systems (ACAS) to reduce nuisance alerts while maintaining existing levels of safety. This will reduce trajectory deviations and increase safety in cases where there is a breakdown of separation.

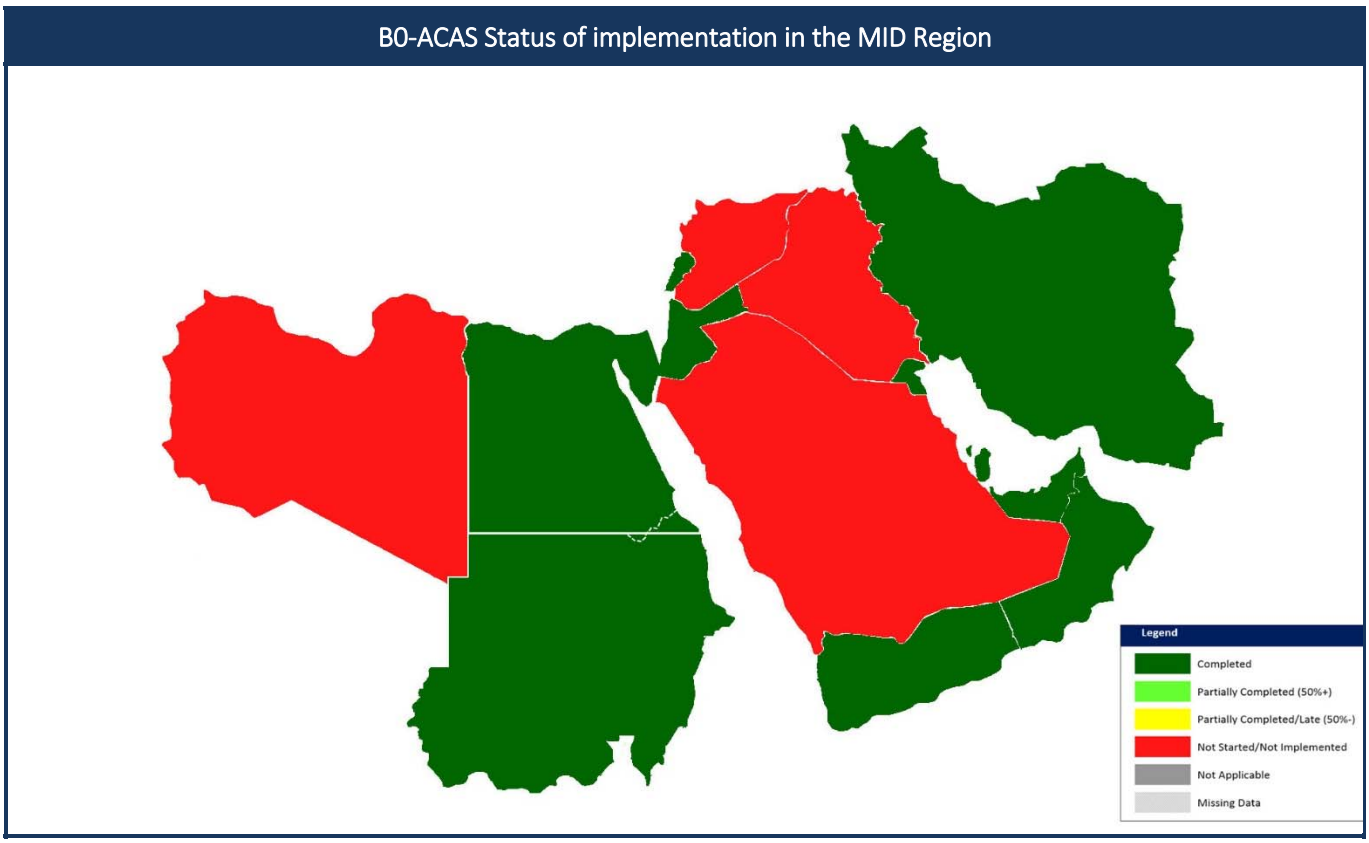
B0 – ACAS: ACAS Improvements			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
Avionics (TCAS V7.1)	All States	Indicator: % of States requiring carriage of ACAS (TCAS v 7.1) for aircraft with a max certificated take-off mass greater than 5.7 tons Supporting metric: 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	100% by Dec. 2017



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-ACAS	ACAS (TCAS V7.1)															

The progress for B0-ACAS is good (with approximately 73% implementation).

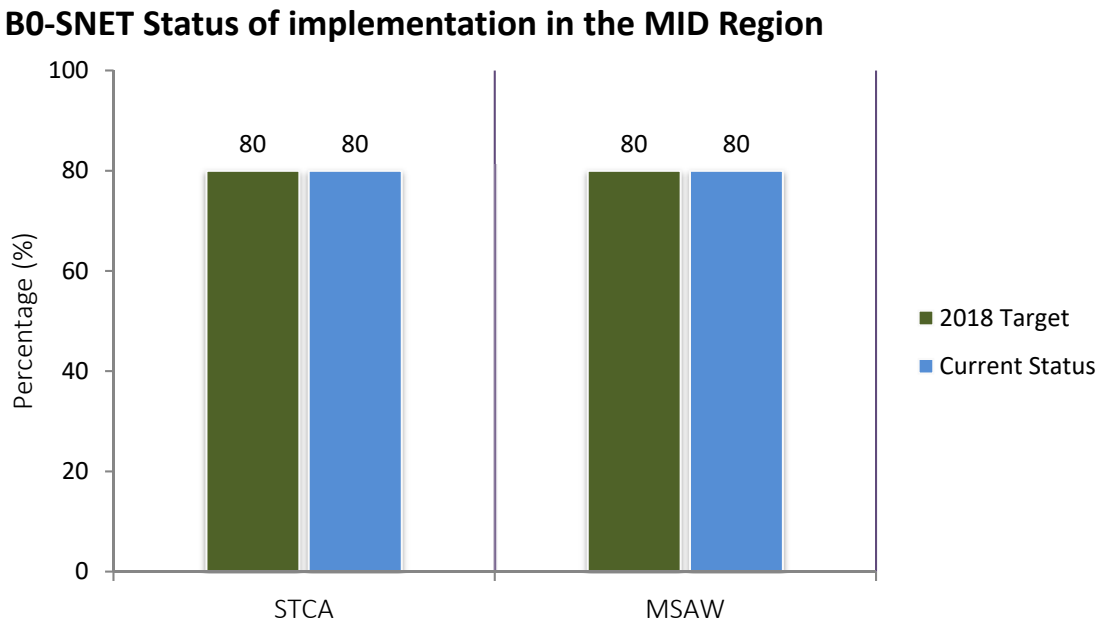
B0-ACAS Status of implementation in the MID Region



2.2.10 B0-SNET

To enable monitoring of flights while airborne to provide timely alerts to air traffic controllers of potential risks to flight safety. Alerts from short-term conflict alert (STCA), area proximity warnings (APW) and minimum safe altitude warnings (MSAW) are proposed. Ground-based safety nets make an essential contribution to safety and remain required as long as the operational concept remains human centered.

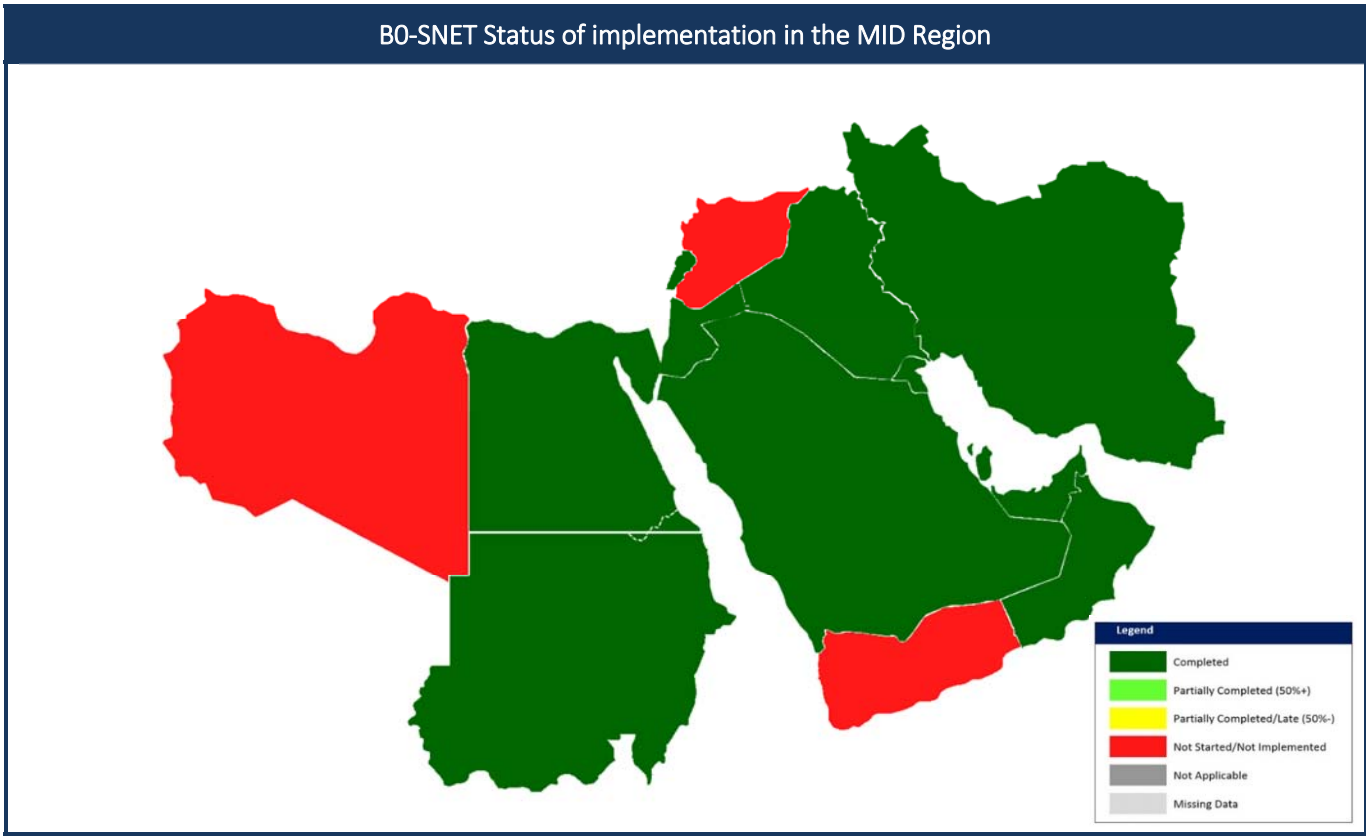
B0 – SNET: Increased Effectiveness of Ground-based Safety Nets			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
Short-term conflict alert (STCA)	All States	Indicator: % of States that have implemented Short-term conflict alert (STCA) Supporting metric*: number of States that have implemented Short-term conflict alert (STCA)	80 % by 2018
Minimum safe altitude warning (MSAW)	All States	Indicator: % of States that have implemented Minimum safe altitude warning (MSAW) Supporting metric*: number of States that have implemented Minimum safe altitude warning (MSAW)	80 % by 2018



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-SNET	Short-term conflict alert (STCA)	■	■	■	■	■	■	■		■	■	■	■		■	
	Minimum safe altitude warning (MSAW)	■	■	■	■	■	■	■		■	■	■	■		■	

The progress for B0-SNET is very good (with approximately 80% implementation).

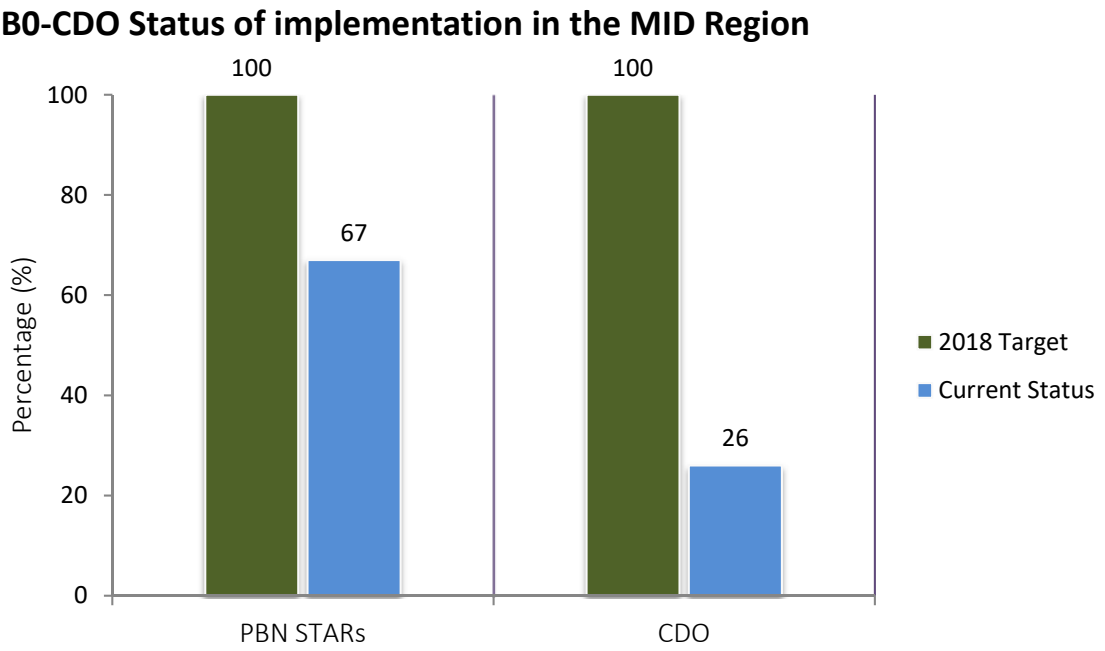
B0-SNET Status of implementation in the MID Region



2.2.11 B0-CDO

To use performance-based airspace and arrival procedures allowing aircraft to fly their optimum profile using continuous descent operations (CDOs). This will optimize throughput, allow fuel efficient descent profiles and increase capacity in terminal areas.

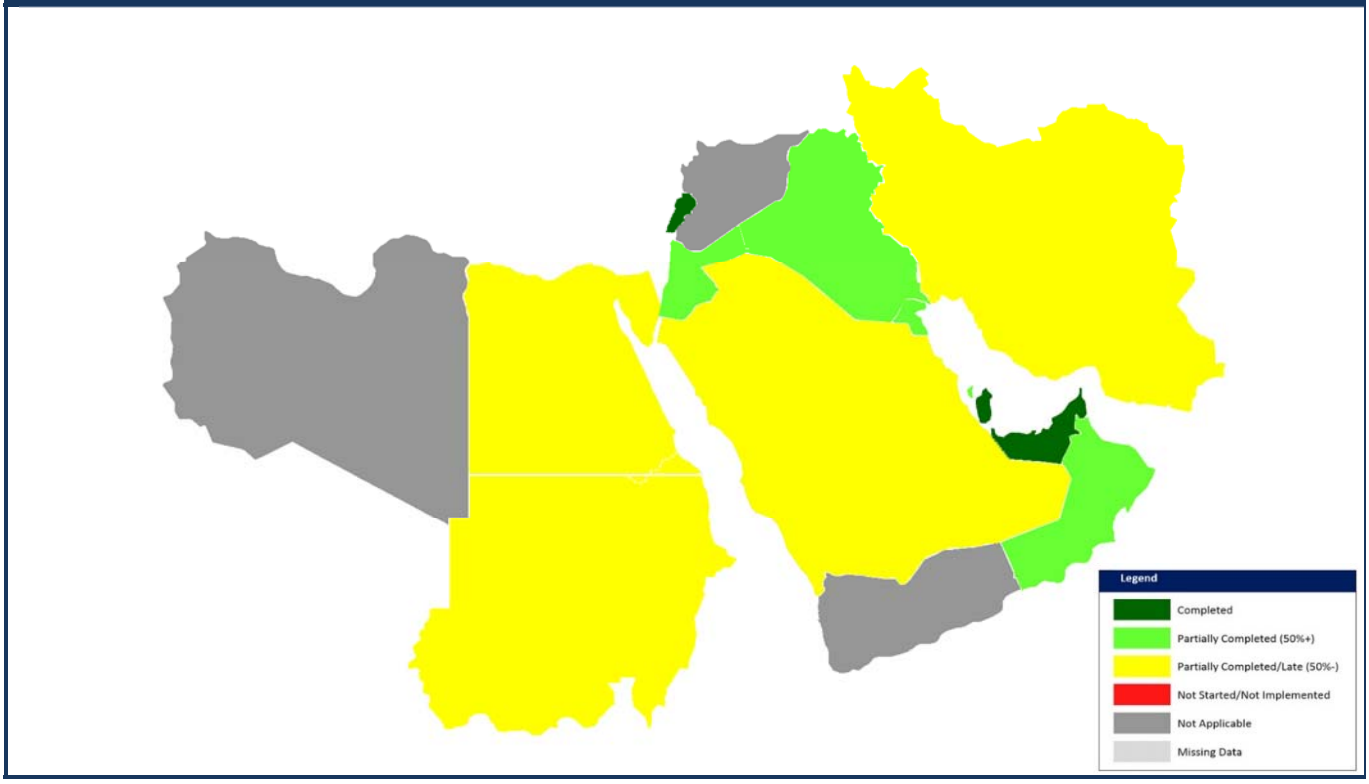
B0 – CDO: Improved Flexibility and Efficiency in Descent Profiles (CDO)			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
PBN STARs	OBBI, HESN, HESH, HEMA, HEGN, HELX, OIIE, OISS, OIKB, OIMM, OIFM, ORER, ORNI, OJAM, OJAI, OJAQ, OKBK, OLBA, OOMS, OOSA, OTHH, OEJN, OEMA, OEDF, OERK, HSNN, HSOB, HSSS, HSPN, OMAA, OMAD, OMDB, OMDW, OMSJ	Indicator: % of International Aerodromes/TMA with PBN STAR implemented as required. Supporting Metric: Number of International Aerodromes/TMAs with PBN STAR implemented as required.	100% by Dec. 2018 for the identified Aerodromes/TMAs
International aerodromes/TMAs with CDO	OBBI, HESH, HEMA, HEGN, OIIE, OIKB, OIFM, OJAI, OJAQ, OKBK, OLBA, OOMS, OTHH, OEJN, OEMA, OEDF, OERK, HSSS, HSPN, OMAA, OMDB, OMDW, OMSJ	Indicator: % of International Aerodromes/TMA with CDO implemented as required. Supporting Metric: Number of International Aerodromes/TMAs with CDO implemented as required.	100% by Dec. 2018 for the identified Aerodromes/TMAs



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-CDO	PBN STARs															
	International aerodromes/TMAs with CDO															

The progress for B0-CDO is acceptable (with approximately 47% implementation).

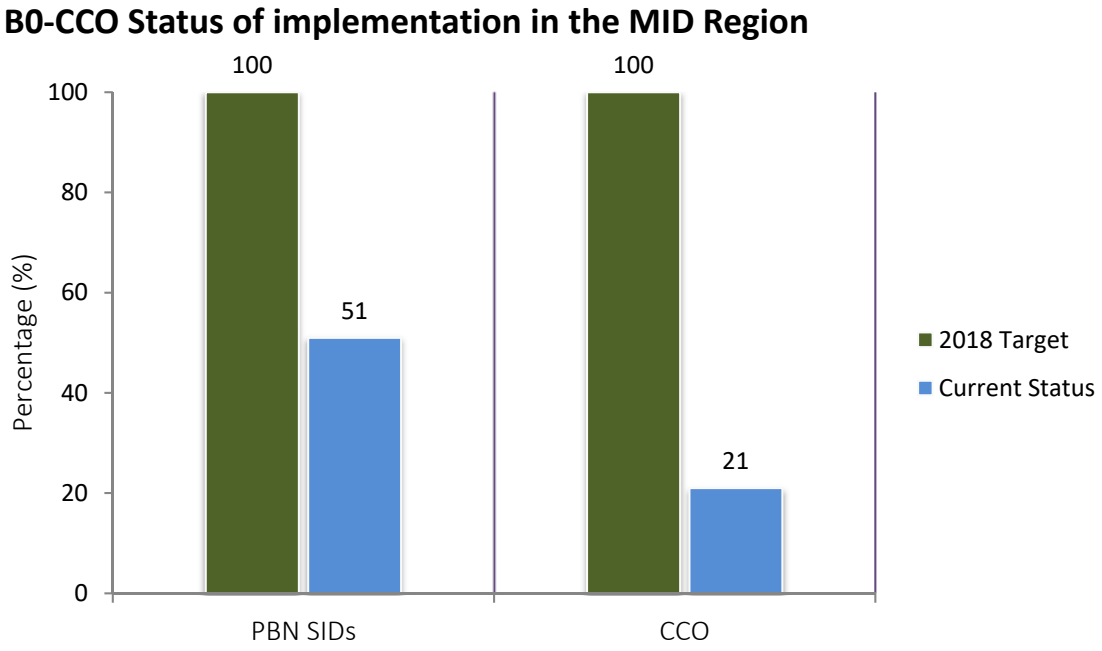
B0-CDO Status of implementation in the MID Region



2.2.12 B0-CCO

To implement continuous climb operations in conjunction with performance-based navigation (PBN) to provide opportunities to optimize throughput, improve flexibility, enable fuel-efficient climb profiles and increase capacity at congested terminal areas.

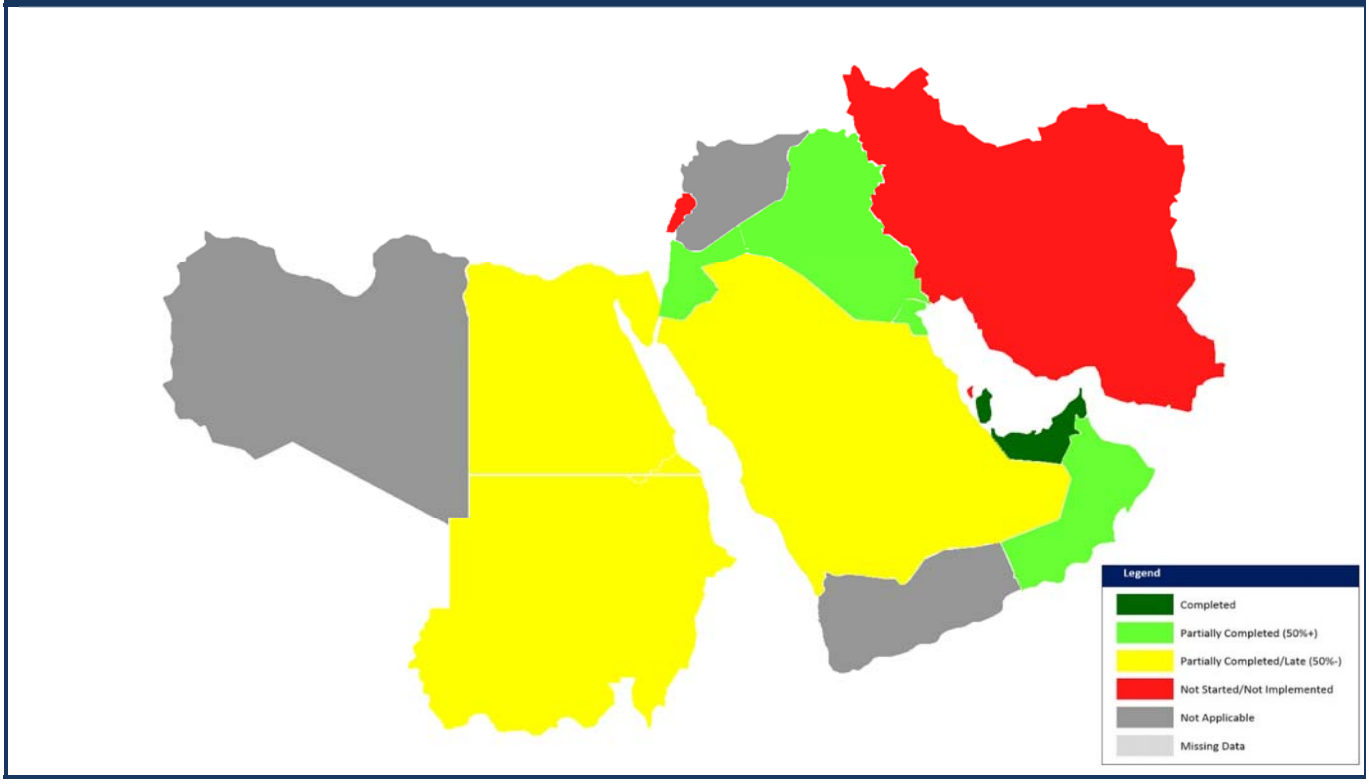
B0 – CCO: Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
PBN SIDs	OBBI, HESN, HESH, HEMA, HEGN, HELX, OIIE, OISS, OIKB, OIMM, OIFM, ORER, ORNI, OJAM, OJAI, OJAQ, OKBK, OLBA, OOMS, OOSA, OTHH, OEJN, OEMA, OEDF, OERK, HSNN, HSOB, HSSS, HSPN, OMAA, OMAD, OMDB, OMDW, OMSJ	Indicator: % of International Aerodromes/TMA with PBN SID implemented as required. Supporting Metric: Number of International Aerodromes/ TMAs with PBN SID implemented as required.	100% by Dec. 2018 for the identified Aerodromes/TMAs
International aerodromes/TMAs with CCO	OBBI, HESN, HESH, HEMA, HEGN, HELX, OIIE, OIKB, OIFM, ORER, ORNI, OJAM, OJAI, OJAQ, OKBK, OLBA, OOMS, OOSA, OTHH, OEJN, OEMA, OEDF, OERK, HSNN, HSOB, HSSS, HSPN, OMAA, OMDB, OMDW, OMSJ	Indicator: % of International Aerodromes/TMA with CCO implemented as required. Supporting Metric: Number of International Aerodromes/TMAs with CCO implemented as required.	100% by Dec. 2018 for the identified Aerodromes/TMAs



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-CCO	PBN SIDs															
	Intl ADs/TMAs with CCO															

The progress for B0-CCO is acceptable (with approximately 36% implementation).

B0-CCO Status of implementation in the MID Region



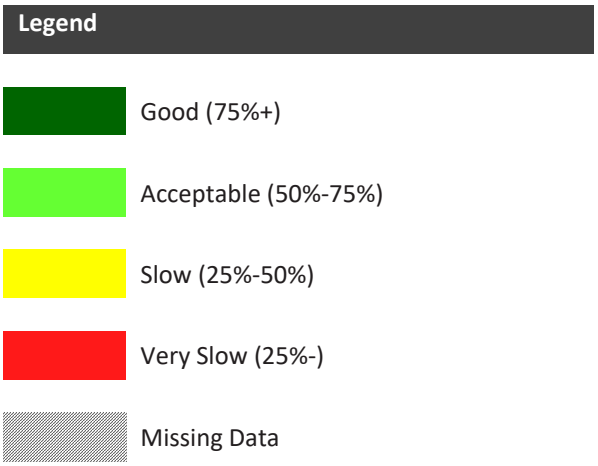
3. ASBU BLOCK 0 IMPLEMENTATION OUTLOOK FOR 2020

3.1 Status of Implementation-2020

This section consolidates the outlook of the Block 0 Modules implementation in the MID States, by 2020. The table below presents the status of implementation of the 18 ASBU Block 0 Modules foreseen to be achieved by the end of 2020, in accordance with the planning dates reported by States in the ICAO MID Region. This would provide a good basis/prerequisite for the planning of ASBU Block 1 implementation (2019-2025).

Detailed status of implementation of the 18 ASBU Block 0 Modules foreseen to be achieved by the end of 2020, for each State is provided at **Appendix B**.

The following color scheme is used for the projection of the outlook status:



Module	Status of implementation December 2016 (approximate rate)	Status of implementation December 2017 (approximate rate)	Projected Status of implementation by 2020* (approximate rate)
B0-APTA	44%	52%	**96%**
B0-WAKE	(Priority 2)	(Priority 2)	**71%**
B0-RSEQ	(Priority 2)	(Priority 2)	**55%**
B0-SURF	48%	50%	**67%**
B0-ACDM	0%	23%	**50%**
B0-FICE	56%	58%	**83%**
B0-DATM	62%	63%	**87%**
B0-AMET	67%	73%	**92%**
B0-FRTO	43%	45%	**71%**
B0-NOPS	(Priority 2)	(Priority 2)	**46%**
B0-ASUR	(Priority 2)	(Priority 2)	**70%**
B0-ASEP	(Priority 2)	(Priority 2)	**69%**
B0-OPFL	(Priority 2)	(Priority 2)	**60%**
B0-ACAS	73%	73%	**100%**
B0-SNET	(Priority 2)	80%	**100%**
B0-CDO	34%	47%	**67%**
B0-TBO	(Priority 2)	(Priority 2)	**44%**
B0-CCO	28%	36%	**63%**

Note – projected status for 2020 is calculated based on information received from 12 States (out of 15).

4. ENVIRONMENTAL PROTECTION

4.1 Introduction

Environmental Protection, to minimize the adverse environmental effects of civil aviation activities, is one of the five strategic objectives of ICAO. With a view to minimizing the adverse effects of international civil aviation on the environment, ICAO formulates policies, develops and updates Standards and Recommended Practices (SARPs) on aircraft noise and aircraft engine emissions, and conducts outreach activities. Information related to the ICAO activities on environmental protection is available on the ICAO website at: https://www.icao.int/environmental-protection/Pages/default.aspx

This section provides an update on the States' Action Plans on CO2 Emissions Reduction; and presents an estimation of environmental benefits, in terms of fuel saving / CO2 emissions reduction, accrued from the implementation of some ASBU Block 0 Modules in the MID Region.

4.2 States' Action Plans on CO2 Emissions Reduction

The ICAO Assembly 38 (24 September to 4 October 2013) endorsed the Resolution 38-18 Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate Change which encouraged States to voluntarily prepare and submit Action Plans on CO2 emission reduction to ICAO. An ambitious work programme was further laid down for capacity building and assistance to States in the development and implementation of their Action Plans to reduce emissions, which States were initially invited to submit by the 37th Session of the ICAO Assembly in October 2010.

ICAO Assembly 39 (Montreal, Canada, 27 September – 6 October 2016) encouraged States, through Assembly Resolution 39-2 Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change, to submit voluntary Action Plans outlining respective policies and actions, and annual reporting on international aviation CO2 emissions to ICAO.

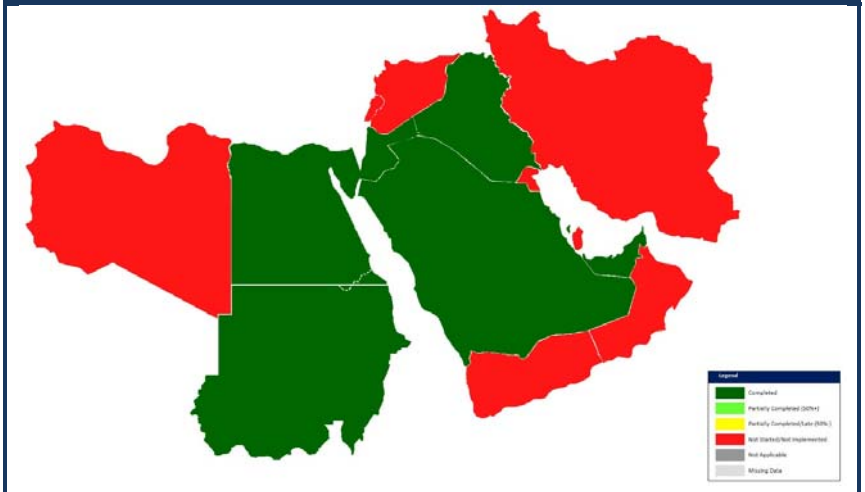
The MIDANPIRG/16 meeting (Kuwait, 13 - 16 February 2017) invited States to develop/update their Action Plans for CO2 emissions reduction and submit them to ICAO through the APER website or the ICAO MID Regional Office.

An Action Plan is a means for States to communicate to ICAO information on activities to address CO2 emissions from international aviation. The level of information contained in an action plan should be sufficient to demonstrate the effectiveness of actions and to enable ICAO to measure progress towards meeting the global goals set by Assembly Resolution A38-18. Action plans give States the ability to: establish partnerships; promote cooperation and capacity building; facilitate technology transfer; and provide assistance.

The Status of the provision of Action Plans on CO2 emission in the MID Region is as follows:

State	Action Plans
Bahrain	June 2015
Egypt	July 2016
Iran	-
Iraq	June 2012
Jordan	September 2013
Kuwait	-
Lebanon	-
Libya	-
Oman	-
Qatar	-
Saudi Arabia	April 2018
Sudan	January 2015
Syria	-
UAE	June 2012 (update May 2018)
Yemen	-

Status of States' Action Plans



4.3 Estimation of the Environmental Benefits accrued from implementation of ASBU Block 0 Modules

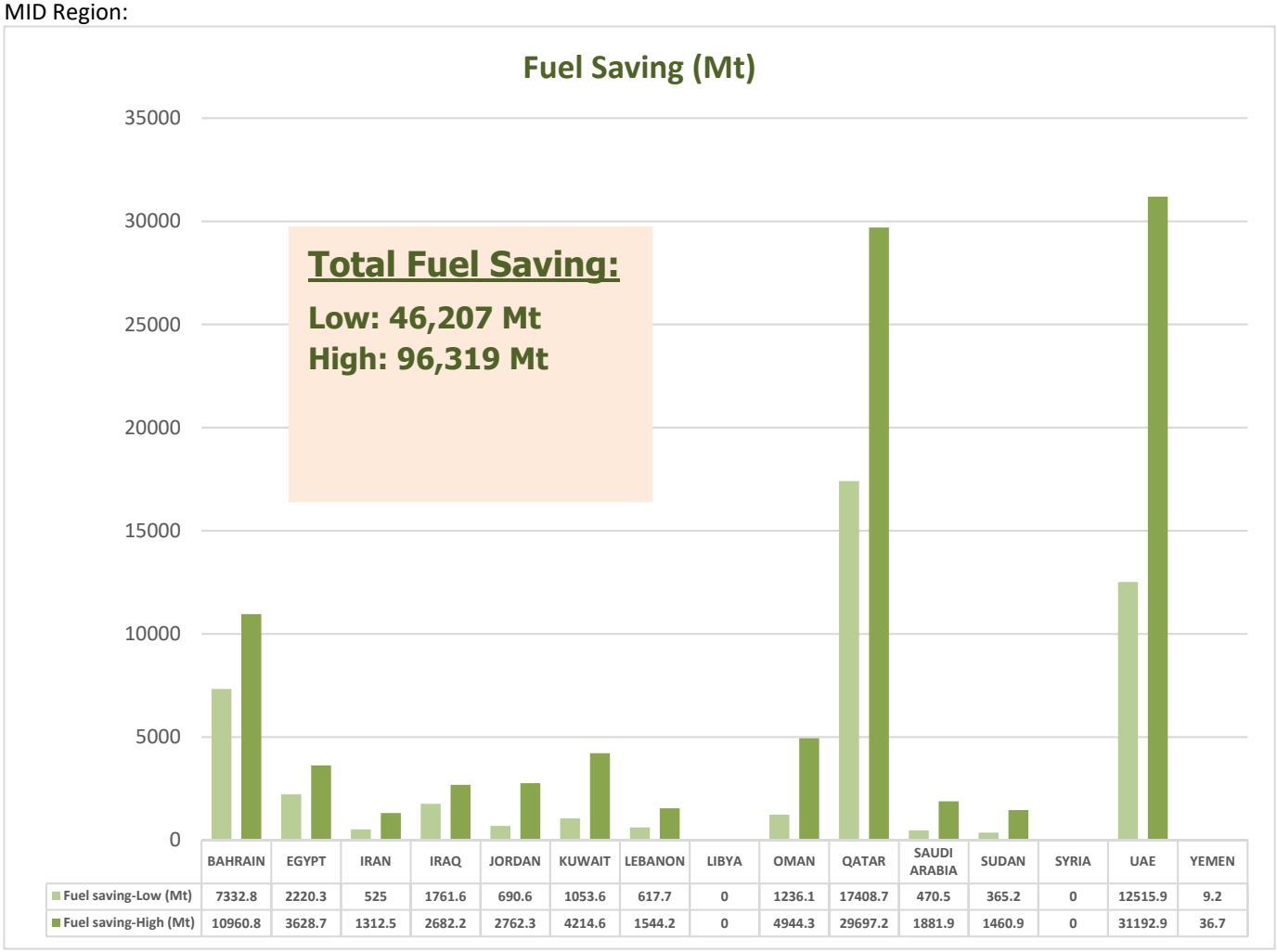
CAEP/10 conducted an assessment of the potential environmental benefits (fuel savings / CO2) for the period between the start of implementation of ASBU Block 0 modules in 2013 and the planned implementation of such modules in 2018 (end of Block 0). In order to accomplish this task, CAEP developed sets of Rules-of-Thumb for each studied module with the overall intent to provide a conservative estimate of ASBU Block 0 fuel saving benefits. Rules-of-Thumb were developed using existing, publically available data, literature, and assumptions, together with the professional judgment of the analysts. A total of twenty three (23) rules of thumb have been developed for thirteen (13) ASBU Block 0 Modules.

The results of the ASBU Block 0 analysis conducted by CAEP highlight a potential reduction in fuel consumption by 2018 due to the implementation of ASBU Block 0 modules when compared to the 2013 baseline. The results show that the following Block 0 Modules (operational improvements) would have the biggest contribution to fuel saving in the MID Region:

- **CCO 1 (CCO)**
- **CDO 1 (CDO)**
- ACDM
- **CDO 2 (PBN STARs)**
- ASUR (ADS-B Surveillance)
- **CCO 2 (PBN SIDs)**
- **APTA 1 (Radius to Fix)**

As the status of implementation of B0-ACDM and B0-ASUR is still low in the MID Region, a Methodology for the Estimation of environmental benefits accrued from the implementation of priority 1 Block 0 Modules in the MID Region has been developed for B0-APTA, CCO and CDO, based on the Rules of Thumb and the available traffic data.

The estimation has shown a **total of 46,696 to 96,808 Mt** of fuel saving in the MID Region, as a result of the implementation of the selected Block 0 Modules (APTA, CDO and CCO), as shown below:



	BAHRAIN	EGYPT	IRAN	IRAQ	JORDAN	KUWAIT	LEBANON	LIBYA	OMAN	QATAR	SAUDI ARABIA	SUDAN	SYRIA	UAE	YEMEN
Fuel saving-Low (Mt)	7332.8	2220.3	525	1761.6	690.6	1053.6	617.7	0	1236.1	17408.7	470.5	365.2	0	12515.9	9.2
Fuel saving-High (Mt)	10960.8	3628.7	1312.5	2682.2	2762.3	4214.6	1544.2	0	4944.3	29697.2	1881.9	1460.9	0	31192.9	36.7

5. SUCCESS STORIES/BEST PRACTICES

5.1 NCLB ACTIVITIES IN THE MID REGION

I. Introduction

The ICAO Council identified that there is a large discrepancy among States in the implementation of ICAO Standards and Recommended Practices (SARPs). As a result, the ICAO "No Country Left Behind" (NCLB) Campaign was established by the Council to help ensure that SARPs implementation is better harmonized globally. To avoid this gap, ICAO should focus its activities on States lacking fundamental oversight capabilities for effective implementation of ICAO SARPs, particularly in the priority areas of safety, air navigation and efficiency, and security. Therefore, particular attention should be given to the assistance of those States with a higher safety and security risk.

In accordance with Assembly Resolution A39-23 "No Country Left Behind" (NCLB) Initiative, States should effectively implement ICAO's Standards and Recommended Practices (SARPs) and policies so that all States have safe, secure, efficient, economically viable and environmentally sound air transport systems, which support sustainable development and socio-economic prosperity.

At the Regional Level; the MID Region NCLB Strategy supports the implementation of the Global Aviation Safety Plan (GASP) and its Roadmap as the basis to develop action plans that define the specific activities, which should take place in order to improve safety at the regional and national levels.

The MID Region NCLB Strategy is complemented by the MID Region NCLB Implementation Plan as a companion document. This Plan is a living document used for recording the NCLB activities in the MID Region (general and State-by-State), including the monitoring of the States' NCLB Plan of Actions and States/Stakeholders' contributions to support the NCLB initiative.

The Fourth meeting of the Directors General of Civil Aviation – Middle East Region (DGCA-MID/4), which was held in Muscat, Oman from 17 to 19 October 2017, through DGCA-MID/4 Conclusion 4/1, endorsed the NCLB Declaration (Muscat Declaration) in support of the ICAO NCLB Initiative; and invited States and Stakeholders to support the implementation of the MID Region NCLB Strategy.

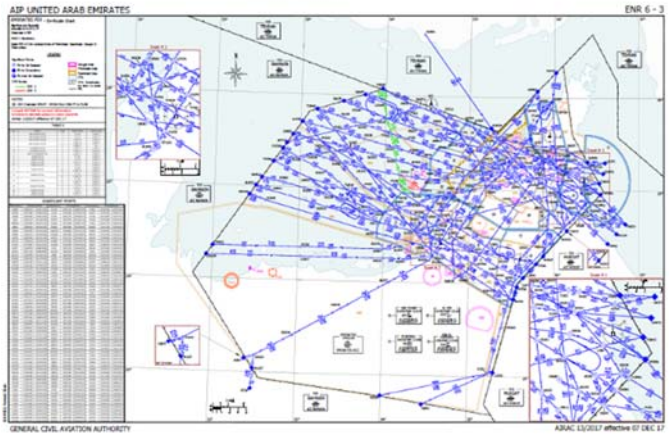
It is to be highlighted that Kingdom of Saudi Arabia has kindly provided 400 K US$ to support ICAO MID NCLB activities; and UAE provided 50 K US$ to support the establishment of the MID Flight Procedure Programme (MID FPP). Other States and stakeholders, such as Egypt, Iran and EASA provided in-kind support to some MID States related to aviation safety and security, under the MID Region NCLB framework.

II. MID NCLB Activities related to Air Navigation

- 10 NCLB assistance missions in 2016 and 7 in 2017 (Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Sudan)
- 6 NCLB Seminars/Workshops in 2016 and 6 in 2017
- 1 ATM Inspectors Course (GSI-ANS/ATM)

5.2 UNITED ARAB EMIRATES: AIRSPACE RESTRUCTURING PROJECT – INTEGRATION & IMPLEMENTATION PHASE

On December 7th 2017, the General Civil Aviation Authority (GCAA) completed the implementation of the UAE Airspace Restructuring Project – Integration & Implementation (UAE ARP3). This airspace change saw the Emirates Flight Information Region (FIR) transformed into an airspace structure completely based on Performance Based Navigation (PBN) with a Navigation Specification of RNAV-1 (GNSS).



UAE ARP (Integration & Implementation) was the culmination of years of extensive analysis, development, collaboration and cooperation across the UAE Aviation Community including the GCAA Sheikh Zayed Air Navigation Centre (SZC), Dubai Air Navigation Services, Abu Dhabi Airports Company, Ras Al Khaimah Department of Civil Aviation, Sharjah Department of Civil Aviation, Fujairah Department of Civil Aviation as well as more than twenty further aviation stakeholders.

The UAE ARP (Integration & Implementation) was designed to meet multiple objectives, all of which were achieved in line with global best practices. Primarily the airspace change was designed to increase UAE Airspace capacity to meet the forecasted air traffic demand for 2020, as well as increased access to all UAE airports, improve efficiency for both aviation system customers and Air Navigation Service Providers (ANSP) and reduce the environmental impact of the increasing traffic through more effective Air Traffic Management operations.

UAE ARP3 Facts:

- Capability to safely meet capacity requirements for the forecasted 2040 air traffic demand through the UAE ARP3 Integrated Airspace Master Plan (IAMP).
- Annual fuel savings exceeding $15 million to the airlines customers within the first year after implementation.
- Annual environmental efficiency exceeding 100,000 Mt of CO^2, supporting a 'Greener' aviation.

- Project Implementation Duration – 18 months
- Number of project Deliverables - 50
- Number of Workshops / Meetings – over 200
- Actual Man hours for design development – over 120,000 hours
- Number of UAE Air Navigation Service Providers involved – 6
- Number of Emirates of the United Arab Emirates involved - 5
- Number of Aviation Stakeholder organizations collaboratively involved - 26
- Number of Project Representatives – over 150
- Number of Air Traffic Controllers trained for UAE ARP3 - 250

The project directly involved five of the seven Emirates within the UAE and required over 120,000 man-hours to develop the airspace design network. Multiple Fast Time and Real Time simulations in Italy, UK and in the UAE formed critical activities for the design validation and verification of the revised airspace network.

The UAE ARP (Integration & Implementation) also required over 250 Air Traffic Controllers to take simulation and theoretical training on the redesign for over two hundred Instrument Flight Procedures and thirty new airways.

In 2012, prior to the launch of the UAE ARP the GCAA, in collaboration with the local Departments of Civil Aviation and ANSPs, undertook a 'UAE Airspace Study' which, among other recommendations, identified a requirement to 'develop a comprehensive airspace design that will accommodate transition to a full PBN airspace environment to support the increasing demand' and this laid the foundations of the UAE ARP.

Accordingly, UAE ARP adopted an industry wide collaborative approach, encompassing a three phased project which kicked off in 2013. In July 2016, the ARP activated Phase 3 (Integration & Implementation) and with the support of globally recognised consultants ensured the successful transformation of the chosen conceptual designs were integrated into an implementable solution. The first iteration of the design network delivered on 7th December 2017 enabled the airspace within the Emirates FIR sufficient capacity, capability and efficiency to support the forecasted traffic growth to 2020.

Communication of such a large scale change is a vital change management activity to ensure a smooth and successful transition. UAE ARP (Integration & Implementation) undertook months of cross industry stakeholder workshops and events culminating in an awareness campaign at the Dubai Airshow between November 17-21st.

A Communication and Engagement document was also generated to ensure clear and consistent messages were relayed by all stakeholders, whilst also leaflets and briefing material generated across the six ANSPs, National carriers and IATA. AICs and NOTAMs were used to promulgate further Global awareness prior to the December 7th transition.

Implementing a new network for the entire Emirates FIR airspace change without generating disruption to the aviation customers was a major and critical challenge which required significant stakeholder collaboration. To do this, UAE ARP (Integration & Implementation) created a Transition Plan Development Team (TPDT) encompassing ANSPs, airlines, IATA, military, NCMS and other appropriate aviation stakeholders. The ultimate focus of the team was to develop a harmonised Transition Plan for all agencies involved to ensure a complete synchronised and seamless transition. One of the first hurdles for the team to overcome was as a result of the traffic patterns of the Emirates FIR and the unsuitable timing associated with the AIRAC effectiveness. Through the TPDT a bespoke collaborative solution was found to delay the 'Operational Effective' time of implementation to 03:30 UTC (07:30 UAE) and therefore not utilising the 0000UTC effective time associated with AIRAC 13/17. The rationale ensured that the major arrival flows into the UAE airfields which would be operating predominantly to old FMS network data would have landed prior to the operational airspace change. The new airspace would then become operationally effective prior to the major UAE departure flow materializing and would encompass a majority of aircraft operating to the new AIRAC 13/17 FMS network.

To ensure that a synchronised airspace transition was enabled across the six ANSPs, a Transition Team was created with representation of six Transition Coordinators (one per ANSP, with also a deputy allocation) coordinating through a Transition Manager based at SZC. These Transition Coordinators and Transition Manager operated to an Operational Transition Event Schedule, containing major 'Check-Points' confirming that each unit's activities were operating in sync, whilst also in parallel. To enable rapid decision making capability, the UAE ARP (Integration & Implementation) also formed a Transition & Contingency Cell at SZC. This cell contained PSG representation from the ANSPs, military and also representation from the UAE Airline community. The Transition & Contingency Cell was activated several hours prior to the Operational Transition of the new airspace and their role was to ensure that if any major decisions were required at either an ANSP or project level, a resolution could be sought and acted upon quickly to enable minimal disruption to the Transition Event.

As part of the Transition Plan, UAE ARP (Integration & Implementation) adopted varying Transition timelines to provide regulatory assurance that each ANSP had implemented the airspace change successfully. In preparation for the airspace implementation, the project carried out a Transition Readiness Review which was held on November 23rd. The purpose of this review was to ensure that all ANSPs had satisfied specific 'Entry Criteria' prior to the Transition Event (December 7th). In the five day build up to the Transition Event, NCMS provided a daily weather forecast for December 7th across the UAE which was disseminated to the PSG and Transition Coordinators via the Transition Manager. From December 5th, this information was also supplemented with a fog forecast for the UAE airfields.

During the Transition Event four appropriately scheduled teleconferences were also held to provide a status check on the progress of the transition to the airline community and allow an opportunity for the airlines to provide pertinent information back to the Transition Manager. A final teleconference was held at 13:30 UTC (17:30 UAE) which confirmed that each ANSP had satisfied the Transition Event 'Exit Criteria'. This information was then relayed to the PSG for their approval to exit the Transition Event. At this stage, the UAE ARP transition was transferred from the Transition Event to a 10 day Transition Period. Any observations or feedback from each of the six ANSPs or from the airline community would then be fed into a 10/30/60/90 day review, with the project then supporting a six month Post Implementation Maintenance & Support period.

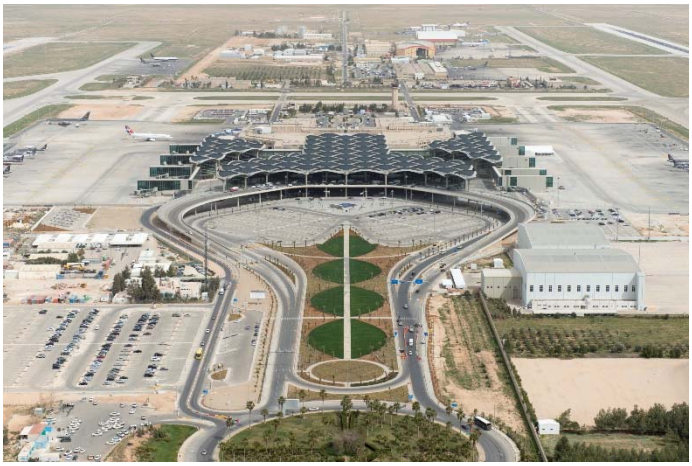
The output of the extensive planning and preparation by the TPDT in the generation of a Transition Delivery Document (TDD) and associated Transition Plans for the Transition Event ensured that on December 7th 2017, a seamless transition took place with no disruption or delay to the aviation community and no issues reported from any of the six ANSPs involved.

Through the development of an Integrated Airspace Master Plan (IAMP), the project will also create a Roadmap to future-proof the UAE's airspace network for the forecasted traffic growth until 2040. Design elements will need to incorporate such major airport expansion projects for both Dubai World Central Al Maktoum International Airport, Abu Dhabi International Airport as well as meeting the anticipated capacity increases for Dubai's Expo 2020. Moreover, it will ensure that aviation will continue to provide a vital contribution to the UAE Gross Domestic Product.

5.3 JORDAN: AIRPORT CARBON ACCREDITATION PROGRAM IN AMMAN/QUEEN ALIA INTERNATIONAL AIRPORT

Amman/Queen Alia International Airport (QAIA) completed the requirements of the final level (level 3+ Neutrality) of the Airport Carbon Accreditation (ACA) program, which is a carbon management program developed by Airport Council International (ACI). QAIA is the first airport in the Middle East to achieve this accomplishment.

QAIA has demonstrated commitment to the aviation environmental protection, by implementing a comprehensive Environment Management Plan (EMP), which was developed to assess the probability of a multitude of risks, related to airport operations and activities, on the surrounding environment. This plan is reviewed annually to comply with the latest changes in national and international standards and requirements. QAIA's EMP is developed to minimize and control sources of environmental pollution such as carbon emissions, in addition to the monitoring of several environmental elements, through an integrated waste management program, in addition to air quality, water and biodiversity management, as well as noise control.



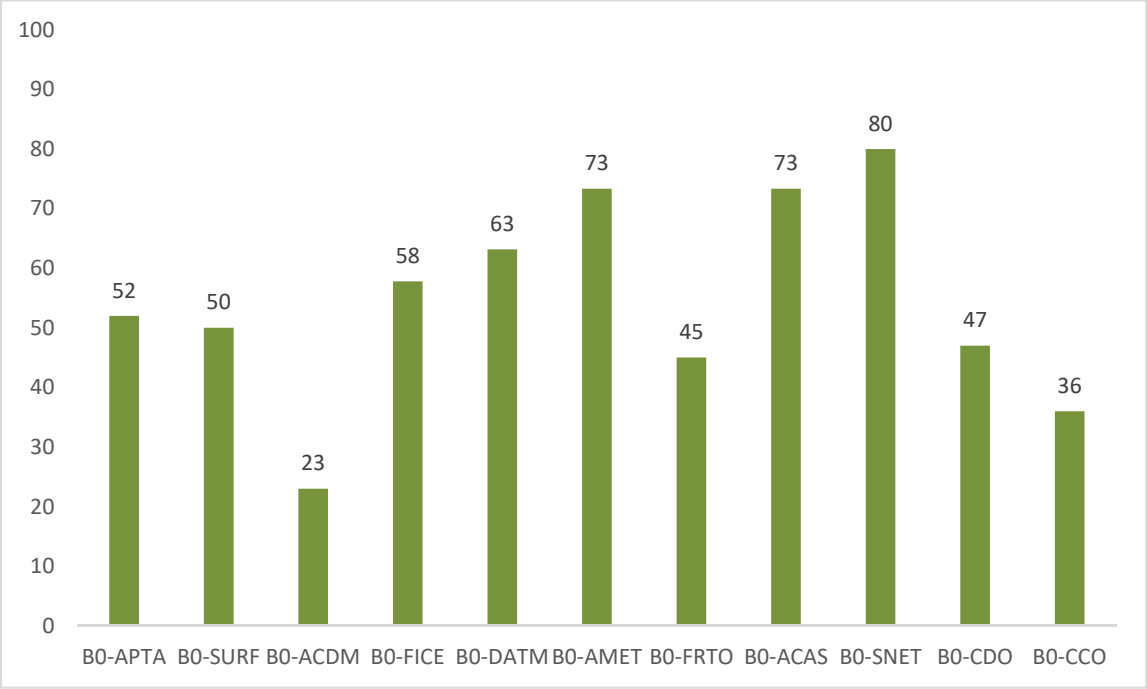
QAIA completed the first level of ACA Programme (Mapping) in March 2013, helping to determine the sources of harmful emissions on Airport grounds. This was followed in March 2015, by reaching level 2 (Reduction), as a result of the continuous efforts to reduce Carbon emissions, making QAIA the first airport to achieve this level in the region.

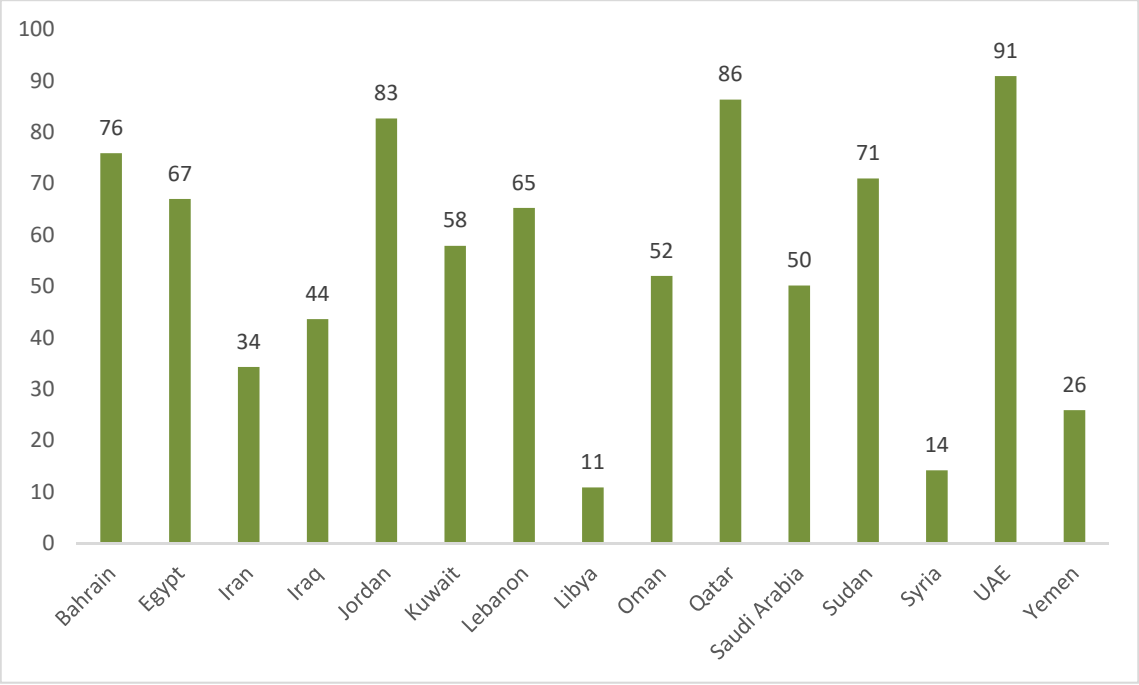
6. CONCLUSION

The progress for the implementation of some priority 1 Block0 Modules in the MID Region has been acceptable/good; such as B0-ACAS, B0-AMET and B0-DATM. Nevertheless, some States are still facing challenges to implement the majority of the Block 0 Modules.

The status of implementation of the ASBU Block 0 Modules also shows that Bahrain, Egypt, Jordan, Kuwait, Qatar, Saudi Arabia and UAE made a good progress in the implementation of the priority 1 ASBU Block 0 Modules.

Looking into the States' plans for 2020 (outlook), the focus/priority of States is to complete the implementation of B0-APTA, B0-FICE, B0-DATM, B0-AMET, B0-CCO and B0-CDO.





Status of implementation of Doha Declaration Targets:

Doha Declaration was endorsed by the third meeting of Directors General of Civil Aviation (DGCA-MID/3) in Doha, Qatar from 27 to 29 April 2015. Doha Declaration set five Targets for the Air Navigation Capacity and Efficiency, as follows:

1- Optimization of Approach Procedures including vertical guidance (PBN): Implement PBN approach procedures with vertical guidance, for all runways ends at international aerodromes, either as the primary approach or as a back-up for the precision approaches by 2017

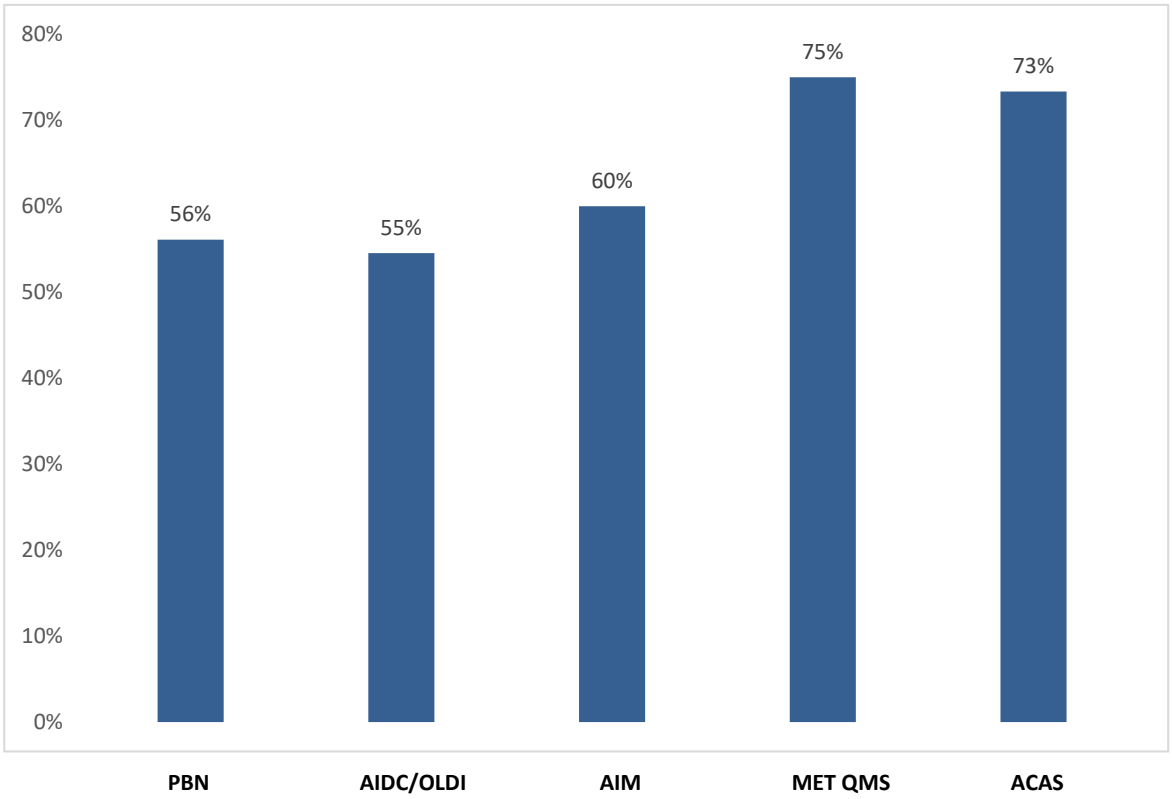
2- Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration: 11 States to implement AIDC/OLDI between their ACCs and at least one adjacent ACC by 2017

3- Service Improvement through Digital Aeronautical Information Management: All States to complete implementation of Phase I of the transition from AIS to AIM by 2017

4- Meteorological information supporting enhanced operational efficiency and safety: 12 States to complete the implementation of QMS for MET by 2017

5- ACAS Improvement: All States require carriage of ACAS (TCAS v 7.1) for aircraft with a max certificated take-off mass greater than 5.7 tons by 2017

Status of implementation by States related to the Targets of the Doha Declaration is as follows:



APPENDIX A: STATUS OF ASBU BLOCK 0 MODULES

APPENDIX B: ASBU BLOCK 0 STATUS OF IMPLEMENTATION OUTLOOK 2020

State	B0-APTA	B0-WAKE	B0-RSEQ	B0-SURF	B0-ACDM	B0-FICE	B0-DATM	B0-AMET	B0-FRTO	B0-NOPS	B0-ASUR	B0-ASEP	B0-OPFL	B0-ACAS	B0-SNET	B0-CDO	B0-TBO	B0-CCO
Bahrain	FI	N/A	PI	FI	PI	FI	FI	FI	PI	PI	FI	PI	N/A	FI	FI	FI	PI	FI
Egypt	FI	FI	N/A	FI	PI	FI	FI	FI	FI	FI	FI	N/A	N/A	FI	FI	PI	N/A	PI
Iran	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	N/A	FI
Iraq	PI	N/A	N/A	N/A	NI	FI	FI	PI	PI	NI	NI	NI	N/A	FI	FI	NI	NI	NI
Jordan	FI	N/A	NI	NI	PI	PI	PI	FI	NI	NI	FI	N/A	N/A	FI	FI	PI	NI	PI
Kuwait	FI	PI	PI	PI	PI	PI	PI	FI	PI	PI	PI	PI	PI	FI	FI	PI	PI	PI
Lebanon	FI	N/A	NI	N/A	PI	PI	FI	PI	PI	NI	NI	FI	NI	FI	FI	PI	PI	NI
Libya				N/A														
Oman	FI	FI	FI	PI	PI	FI	FI	FI	FI	FI	PI	FI	N/A	FI	FI	PI	N/A	PI
Qatar	FI	NI	FI	FI	PI	FI	FI	FI	FI	PI	FI	N/A	N/A	FI	FI	FI	PI	FI
Saudi Arabia	FI	N/A	PI	PI	PI	FI	FI	FI	FI	N/A	FI	FI	FI	FI	FI	FI	FI	FI
Sudan	FI	N/A	PI	N/A	N/A	PI	PI	FI	PI	PI	PI	FI	PI	FI	FI	PI	PI	PI
Syria				N/A														
UAE	FI	FI	PI	PI	PI	FI	FI	FI	FI	PI	FI		N/A	FI	FI	FI	PI	FI
Yemen				N/A										FI				

Legend

- FI: Fully Implemented
- PI: Partially Implemented
- NI: Not Implemented
- N/A: Not Applicable
- Missing Data

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