MID Region Air Navigation Strategy
MID Air Navigation Report

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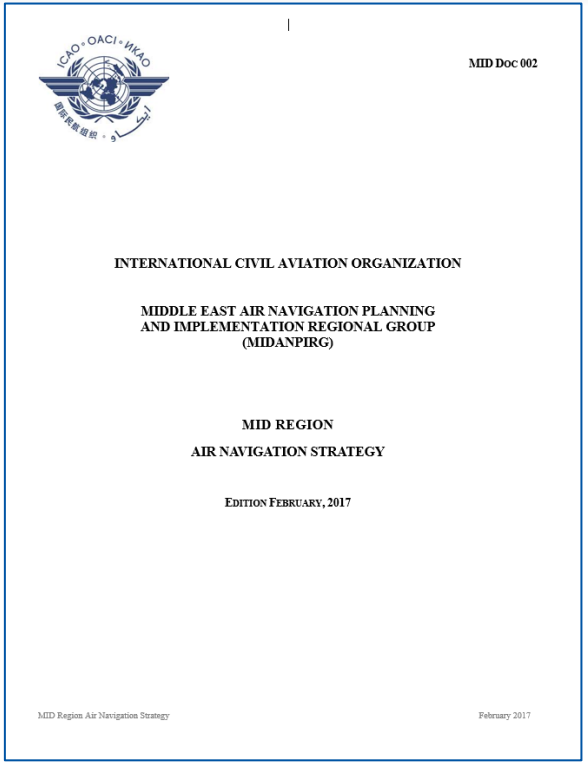
Background

- The MID AN Strategy was endorsed by MSG/4 meeting (Cairo, 24-26 November 2014), based on the outcome of the relevant MIDANPIRG subsidiary bodies and inputs received from stakeholders.
- The Strategy was further reviewed and updated by MIDANPIRG/15 (Bahrain, 8-11 June 2015), and endorsed as ICAO MID Doc 002, which is available on the ICAO secure portal.
- Some additional amendments to the Strategy were approved by MIDANPIRG/16 (Kuwait, 13-16 February 2017).



MID Doc 002

INTERNATIONAL CIVIL AVIATION ORGANIZATION

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

MID REGION

AIR NAVIGATION STRATEGY

EDITION FEBRUARY, 2017

MID Region Air Navigation Strategy February 2017

Strategy Main Objectives

The Strategy for the implementation of the ASBU Modules in the MID Region is in accordance with the GANP:

- **Near-term Objectives (2013 - 2018): ASBU Block 0**
- **Mid-term Objectives (2019 - 2024): ASBU Block 1**
- **Long-term Objectives (2025 - 2030): ASBU Block 2 and (2031 and onward): ASBU Block 3**

MID ASBU Block 0 Modules Prioritization

The MID Region Air Navigation Strategy includes 12 ASBU Block 0 Modules identified as priority for implementation in the MID Region

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

Priority 2: Modules recommended for implementation based on identified operational needs and benefits.

***Note**. States should develop their national performance framework, including action plans for the implementation of relevant priority 1 ASBU Modules and other modules according to the State operational requirements.*

Air Navigation Performance Targets

Performance Improvement Areas (PIA)	Module	Priority	Module Name
PIA 1: Airport Operations	APTA	1	Optimization of Approach Procedures including vertical guidance
	WAKE	2	Increased Runway Throughput through Optimized Wake Turbulence Separation
	RSEQ	2	Improved Traffic Flow through Sequencing (AMAN/DMAN)
	SURF	1	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)
	ACDM	1	Improved Airport Operations through Airport-CDM
PIA 2: Globally Interoperable Systems and Data - Through Globally Interoperable System Wide Information Management	FICE	1	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration
	DATM	1	Service Improvement through Digital Aeronautical Information Management
	AMET	1	Meteorological information supporting enhanced operational efficiency and safety
PIA 3: Optimum Capacity and Flexible Flights – Through Global Collaborative ATM	FRTO	1	Improved Operations through Enhanced En-Route Trajectories
	NOPS	1	Improved Flow Performance through Planning based on a Network-Wide view
	ASUR	2	Initial Capability for Ground Surveillance
	ASEP	2	Air Traffic Situational Awareness (ATSA)
	OPFL	2	Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B
	ACAS	1	ACAS Improvements
	SNET	1	Increased Effectiveness of Ground-based Safety Nets
PIA 4: Efficient Flight Path – Through Trajectory-based Operations	CDO	1	Improved Flexibility and Efficiency in Descent Profiles (CDO)
	TBO	2	Improved Safety and Efficiency through the initial application of Data Link En-Route
	CCO	1	Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)

Air Navigation Performance Targets

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	ACDM	1	Improved Airport Operations through Airport-CDM
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Air Navigation Performance Targets

B0 – APTA: Optimization of Approach Procedures including vertical guidance

Elements	Applicability	Performance Indicators/Supporting Metrics	Targets
States' PBN Implementation Plans	All	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

Air Navigation Performance Targets

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

**Reference: Eurocontrol Document – "Definition of A-SMGCS Implementation Levels, Edition 1.2, 2010"*

Air Navigation Performance Targets

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

Air Navigation Performance Targets

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

Air Navigation Performance Targets

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

MIDANPIRG Conc. 15/10, 16/3 & 16/8

***a) the MID Region Air Navigation Strategy**:*

i. is endorsed as the framework identifying the regional air navigation priorities, performance indicators and targets; and

ii. be published as MID Doc 002

b) MID States be urged to:

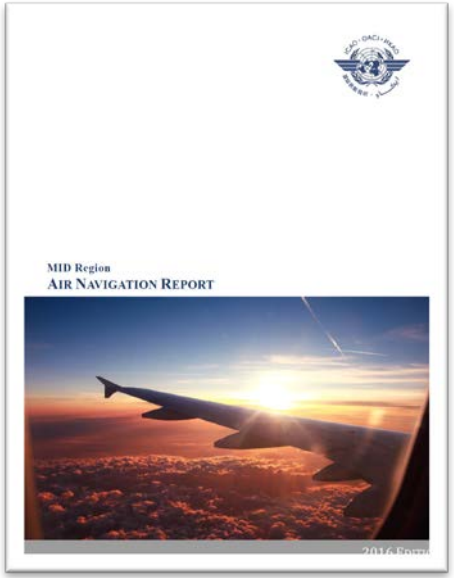
i. develop their National ASBU implementation Plan, ensuring the alignment with and support to the MID Region Air Navigation Strategy; and

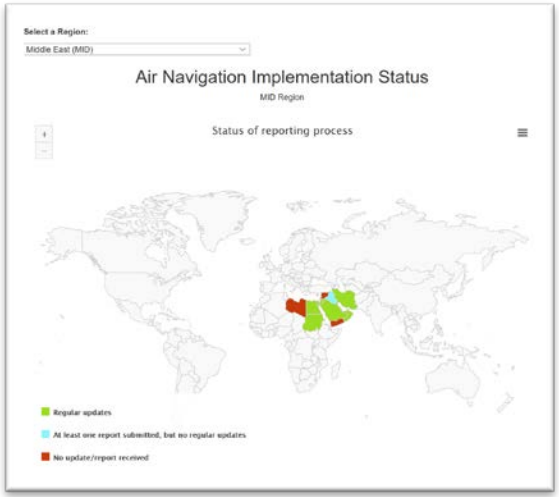
*ii. provide the ICAO MID Office, with relevant data necessary for the development of the MID Region Air Navigation Report-2017, by **1 November 2017**.*

Monitoring mechanism - Tools

REGIONAL AIR NAVIGATION PLAN (eANP) Volume III

- B0-APTA
- B0-CCO
- B0-CDO
- B0-SURF (A-SMGCS)
- B0-ACDM
- B0-FICE
- B0-DATM
- B0-AMET
- B0-FRTO
- B0-SNET
- B0-NOPS (TBD)





Data collection, processing, storage and reporting activities are fundamental to the success of performance-based approaches.

Monitoring Bodies

Module Code	Monitoring		Remarks
	Main	Supporting	
B0-APTA	PBN SG	ATM SG, AIM SG, CNS SG	
B0-SURF	ANSIG	CNS SG	Coordination with RGS WG
B0-ACDM	ANSIG	CNS SG, AIM SG, ATM SG	Coordination with RGS WG
B0-FICE	CNS SG	AIM SG, ATM SG	
B0-DATM	AIM SG		
B0-AMET	MET SG		
B0-FRTO	ATM SG		
B0-NOPS	ATM SG		
B0-ACAS	CNS SG		
B0-SNET	ATM SG		
B0-CDO	PBN SG		
B0-CCO	PBN SG		

Example of Vol III TABLE (B0-APTA)

Collection of Data

EXPLANATION OF THE TABLE

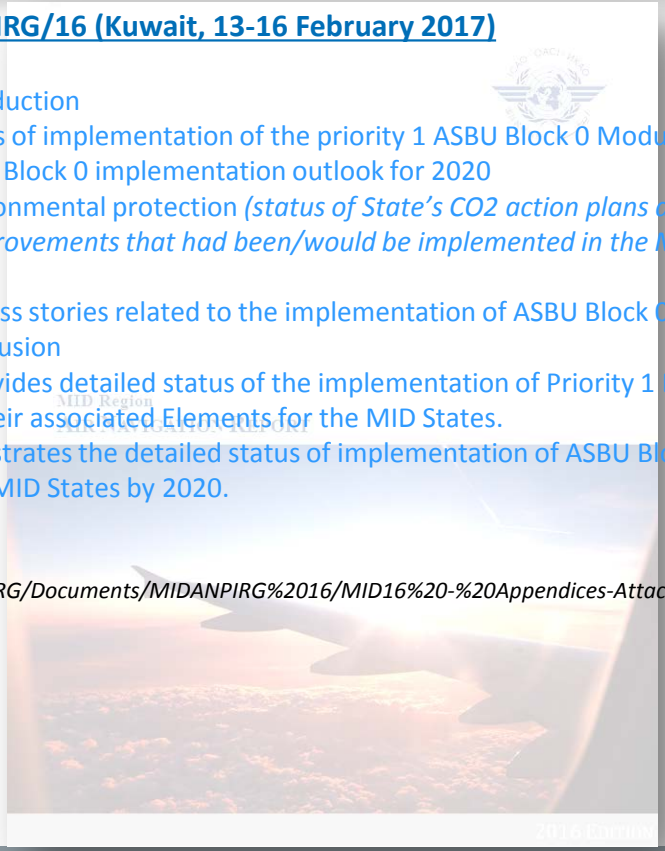
Column	
1	Name of the State / International aerodromes' Location Indicator
2	Runway Designator
3, 4, 5	Conventional Approaches (ILS / VOR or NDB)
6, 7, 8	APTA (Status of PBN Plan and implementation of LNAV, LNAV/VNAV), where: Y – Yes, implemented N – No, not implemented
9, 10	CCO (Status of implementation of RNAV SID, CCO), where: Y – Yes, implemented N – No, not implemented
11, 12	CDO (Status of implementation of RNAV STAR, CDO), where: Y – Yes, implemented N – No, not implemented
13	Remarks

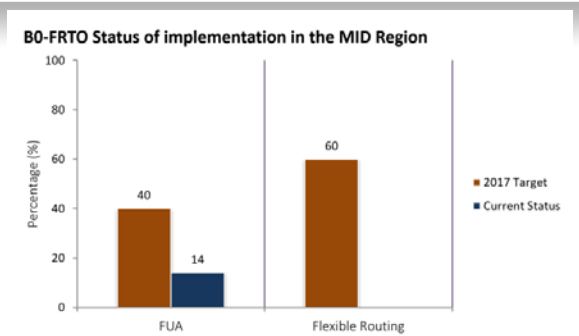
State/Aerodrome Location Indicator	RWY	Conventional Approaches			APTA			CCO		CDO		Remarks
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR	CDO	
		ILS	CAT		Update date							
1	2	3	4	5	6	7	8	9	10	11	12	13
EGYPT												
HEBA	14											
	32	ILS	I			Y		Y				
HESN	17			VORDME		Y		Y		Y		
	35	ILS	I	VORDME		Y		Y		Y		
HECA	05L	ILS	I	VORDME		Y						
	05C	ILS	II	VORDME		Y						
	05R	ILS	I									
	23L	ILS	I	VORDME								
	23C	ILS	II	VORDME		Y						
	23R	ILS	I	VORDME		Y						
HEGN	16			VORDME		Y		Y		Y		
	34	ILS	I	VORDME		Y		Y		Y		
HELX	2	ILS	I	VORDME		Y		Y		Y		
	20	ILS	I	VORDME		Y		Y		Y		
HEMA	15			VORDME								
	33			VORDME								
HESH	04L	ILS	I	VORDME		Y		Y		Y		
	04R			VORDME		Y		Y		Y		
	22L			VORDME		Y		Y		Y		
	22R			VORDME		Y		Y		Y		
Total	20	12		17	Y	15	2	11	0	10	0	
%		60		85	Jan. 2015	75	10	55	0	50	0	

MID AN Report - 2016

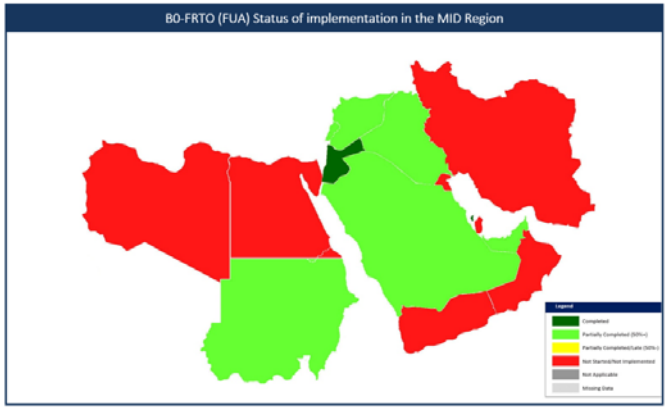
- **Endorsed by MIDANPIRG/16 (Kuwait, 13-16 February 2017)**
- **Contents:**
  - **Section 1:** Introduction
  - **Section 2:** Status of implementation of the priority 1 ASBU Block 0 Modules.
  - **Section 3:** ASBU Block 0 implementation outlook for 2020
  - **Section 4:** Environmental protection *(status of State's CO2 action plans and the operational improvements that had been/would be implemented in the MID Region)*.
  - **Section 5:** Success stories related to the implementation of ASBU Block 0 Modules.
  - **Section 6:** Conclusion
  - ***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.

Available on:
http://www.icao.int/MID/MIDANPIRG/Documents/MIDANPIRG%2016/MID16%20-%20Appendices-Attachment.pdf





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															



Conclusions on MID AN Report 2016

- Some States are still facing difficulties to develop a National ASBU Implementation Plan based on the GANP and regional strategy
- ICAO could support (National ASBU Implementation Workshop)
- Planning for ASBU Block 1 would start soon
- The progress for the implementation of some priority 1 Block 0 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.

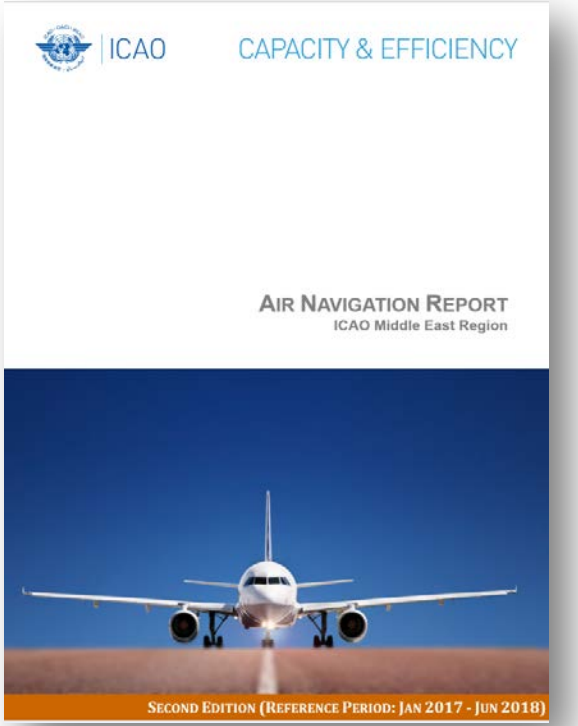
MID AN Report 2017-2018

- *MIDANPIRG CONCLUSION 16/8: MID REGION AIR NAVIGATION REPORT-2017*

  That, MID States be urged to:

  a) develop/update their National ASBU Implementation Plan, ensuring the alignment with and support to the MID Region Air Navigation Strategy (MID Doc 002); and

  b) provide the ICAO MID Office, with relevant data necessary for the development of the MID Region Air Navigation Report-2017, by 1 November 2017.

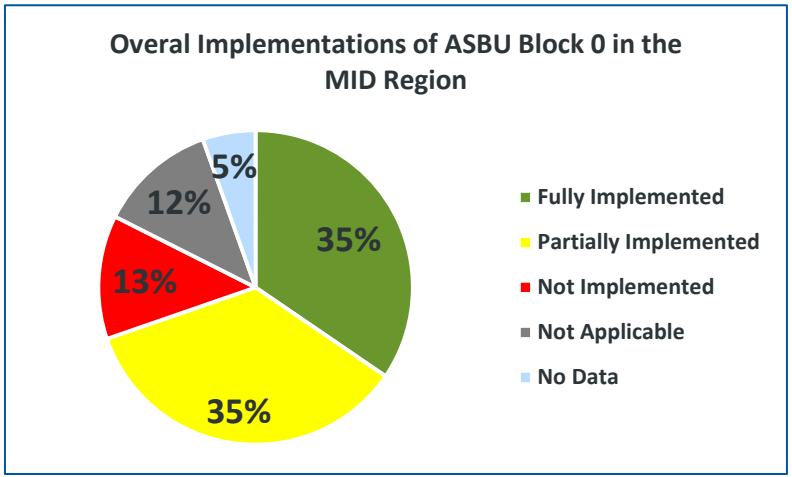


MID AN Report - 2017

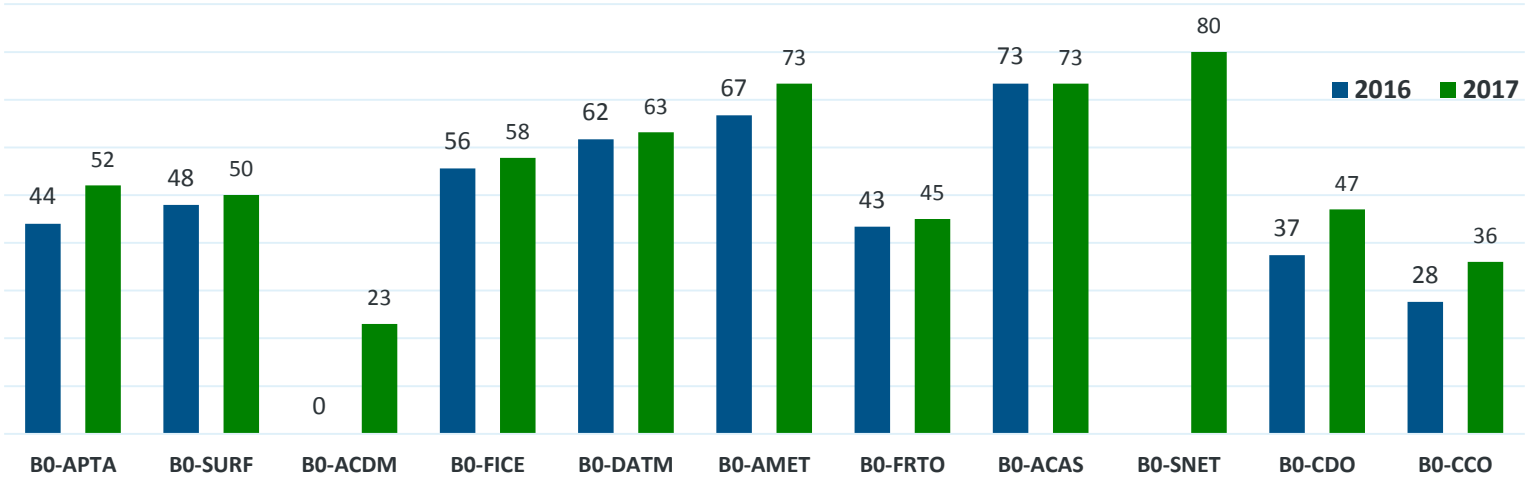
- **Section 1:** Introduction
- **Section 2:** Status and progress of ASBU implementation
- **Section 3:** ASBU Block 0 implementation outlook for 2020
- **Section 4:** Environmental protection *(status of State's CO2 action plans and the operational improvements that had been/would be implemented in the MID Region)*.
- **Section 5:** Success stories related to the implementation of ASBU Block 0 Modules.
- **Section 6:** Conclusion

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

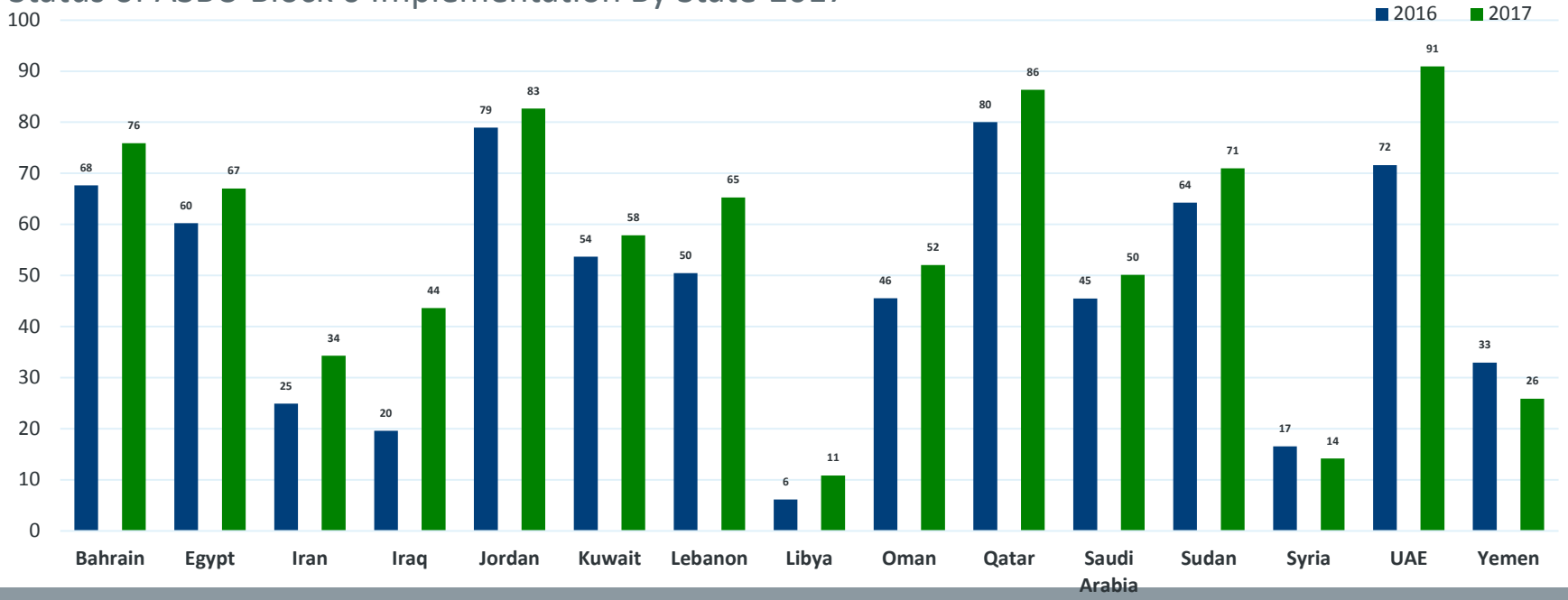
Appendix B illustrates the detailed status of implementation of ASBU Block 0 Modules in the MID States by 2020.



Status of ASBU Block 0 Implementation By Module-2017



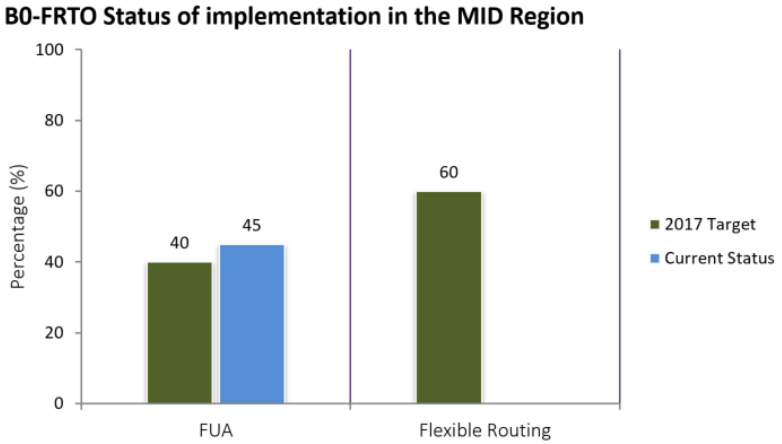
Status of ASBU Block 0 Implementation By State-2017

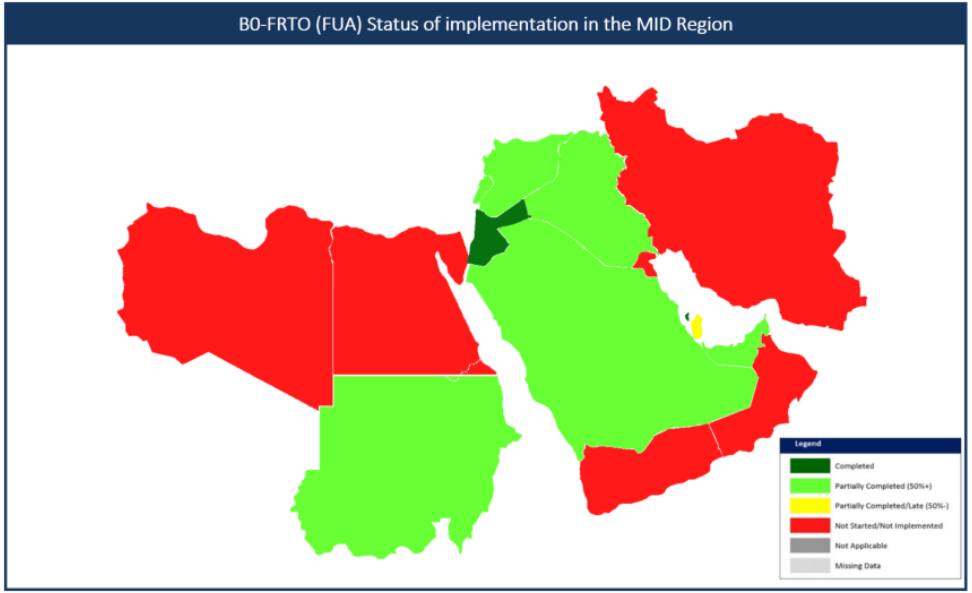


B0-FRTO

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 good (with approximately 45% implementation). The element "Flexible Routing" could not be monitored because of the lack of data.





B0-NOPS

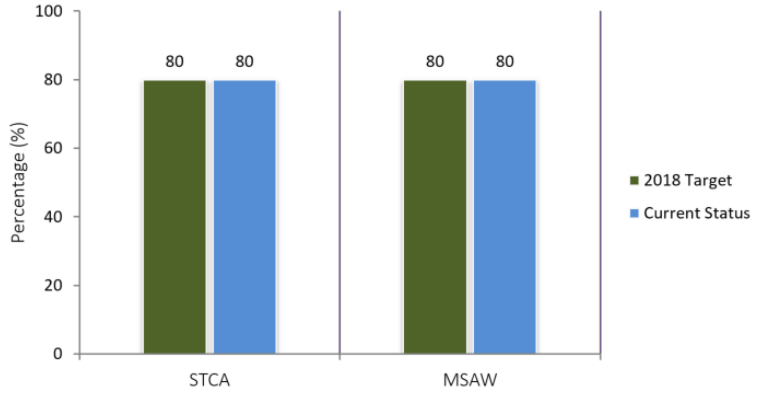
B0 – NOPS: Improved Flow Performance through Planning based on a Network-Wide view			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
ATFM Measures implemented in collaborative manner	All States	Indicator: % of States that have established a mechanism for the implementation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

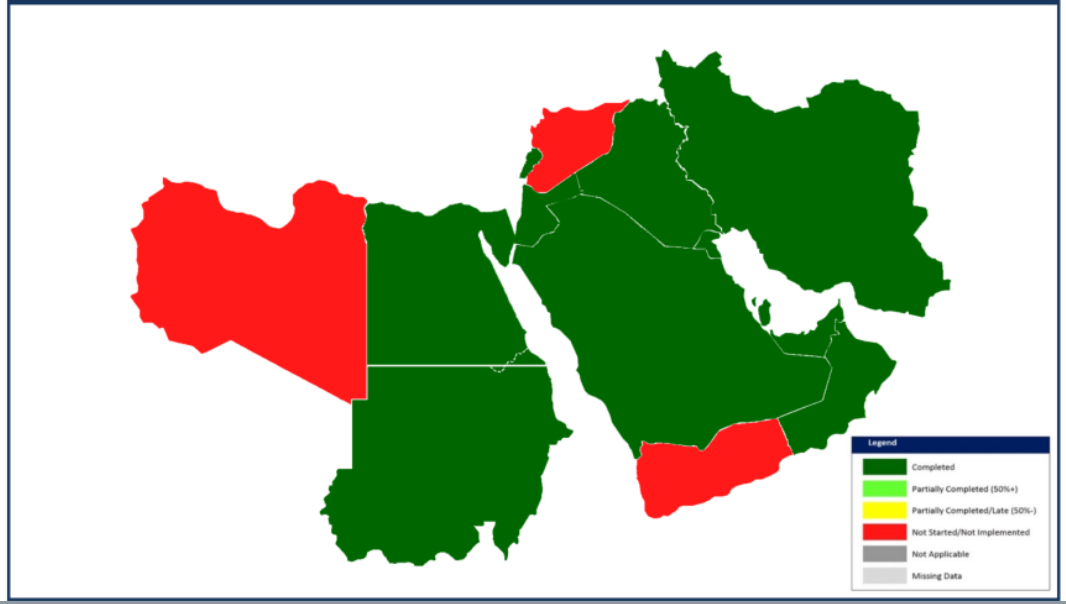
B0-SNET

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)	■	■	■	■	■	■	■	▨	■	■	■	■	▨	■	▨

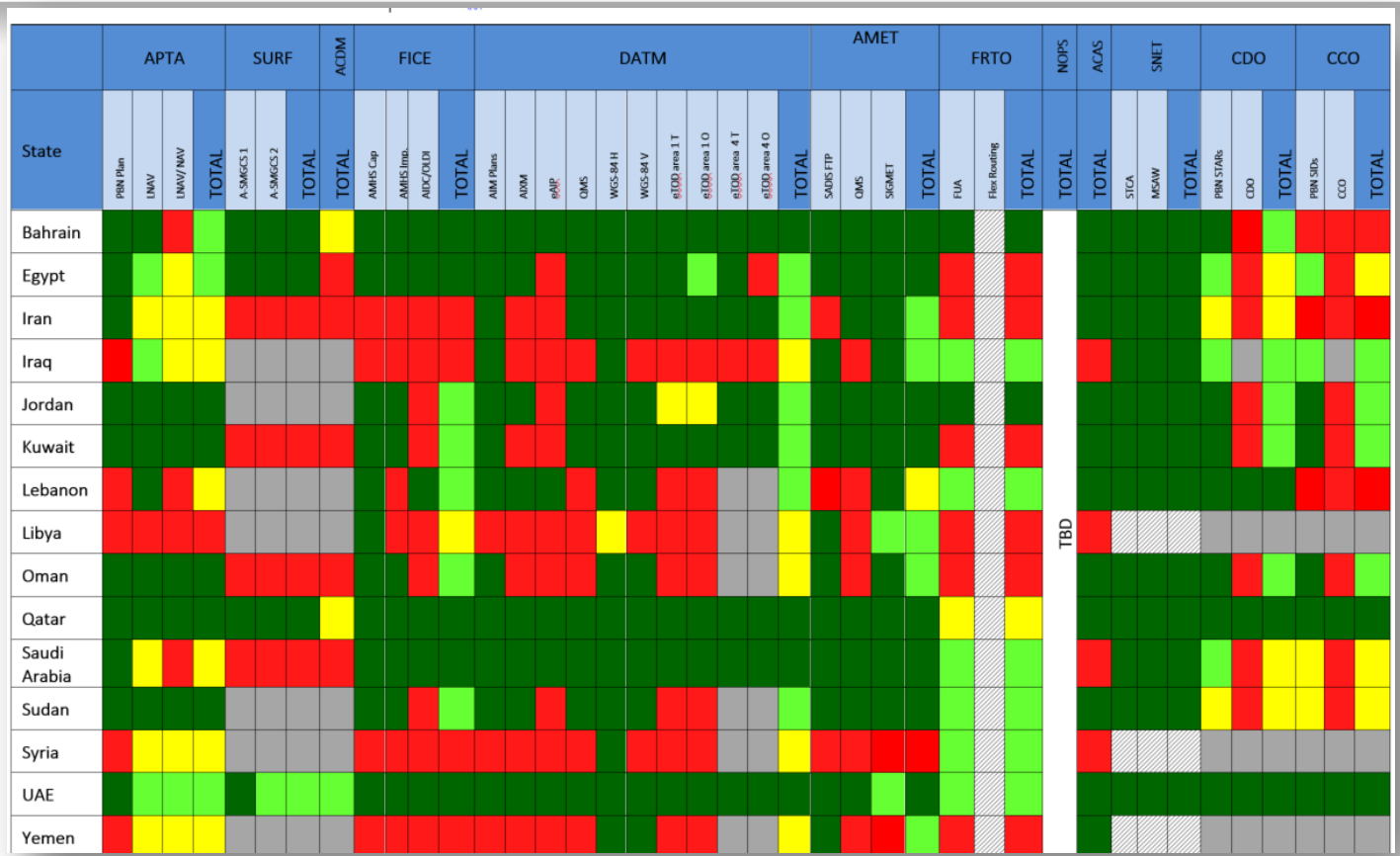
B0-SNET Status of implementation in the MID Region



B0-SNET Status of implementation in the MID Region

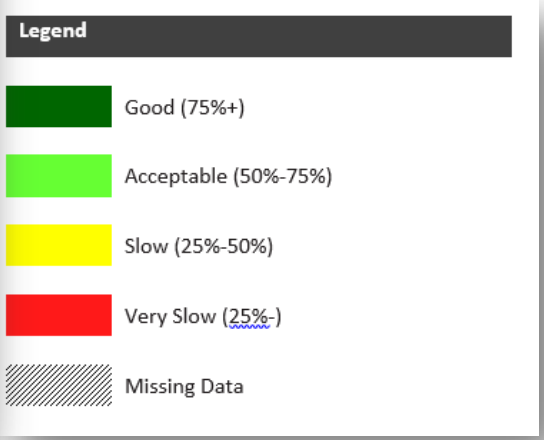


Detailed Status of Block 0 Modules

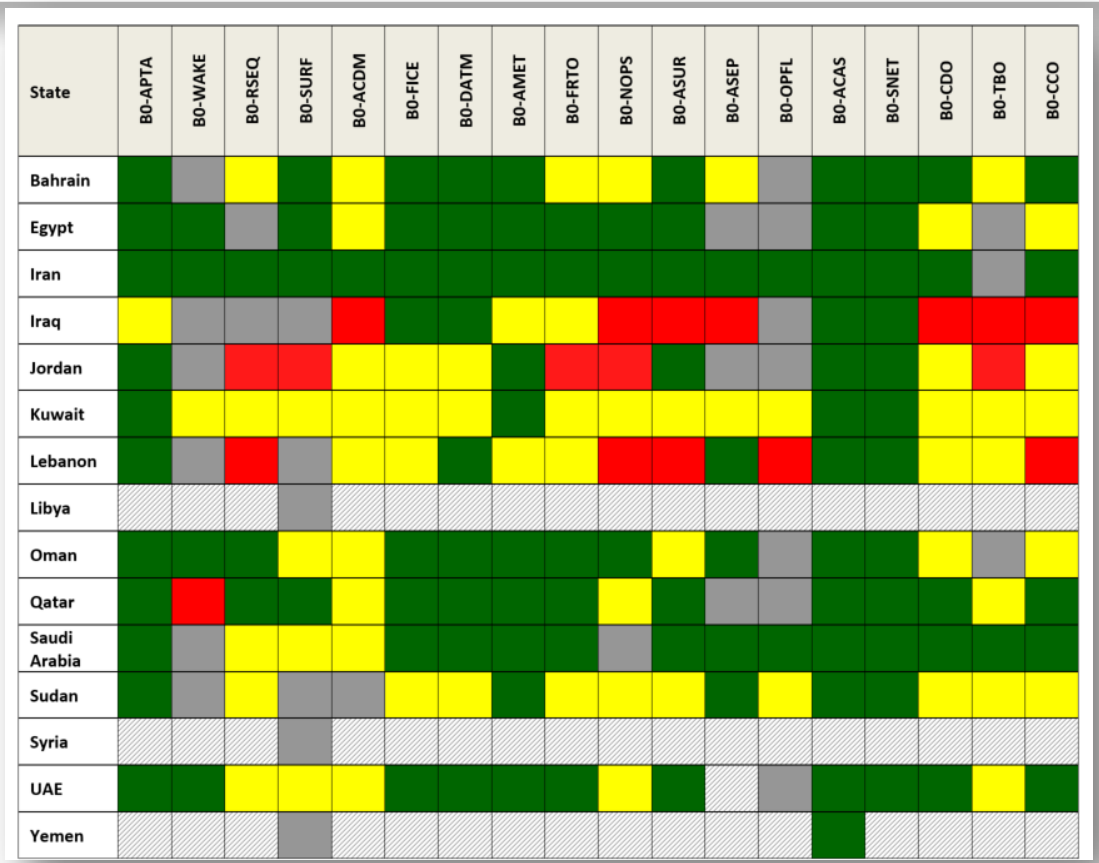


Outlook for 2020

Module	Status of implementation December 2016 (approximate rate)	Status of implementation June 2018 (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%



Outlook for 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																		
Egypt																		
Iran																		
Iraq																		
Jordan																		
Kuwait																		
Lebanon																		
Libya																		
Oman																		
Qatar																		
Saudi Arabia																		
Sudan																		
Syria																		
UAE																		
Yemen																		

Action by the meeting

- Propose update to the MID Air Navigation Strategy parts related to ATM; and

- review and update the MID Region Air Navigation Report-2017.

ICAO

North American Central American and Caribbean (NACC) Office Mexico City
South American (SAM) Office Lima
ICAO Headquarters Montréal
Western and Central African (WACAF) Office Dakar
European and North Atlantic (EUR/NAT) Office Paris
Middle East (MID) Office Cairo
Eastern and Southern African (ESAF) Office Nairobi
Asia and Pacific (APAC) Sub-office Beijing
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THANK YOU