



SECOND MEETING
of the
AERODROME SAFETY,
PLANNING & IMPLEMENTATION
GROUP
ASPIG/2
(Virtual Meeting, 24 – 26 November 2020)

Revised MID Air Navigation Strategy

- MSG/7 Virtual meeting (1 - 3 September 2020) reviewed the draft of the revised MID Air Navigation Strategy.
- The strategy identified the ASBU Threads/Elements that might be classified as **priority 1**; along with associated proposed monitoring elements (applicability area, performance indicators/supporting metric, and timeline).
- The meeting agreed also that the MIDANPIRG Sub-Groups should conduct virtual meetings in the Q4-2020 to review the GANP 6th edition and identify ASBU priority 1 Threads/Elements and associated monitoring elements, considering the Secretariat proposal and States' and stakeholders' inputs.
- MID ASBU Webinar (13 – 15 October 2020) was conducted familiarized the participants with the GANP 6th Edition and showcase the different ASBU Threads through online demonstration using the GANP Portal, for harmonization purpose and an increased efficiency of the MIDANPIRG Sub-Groups during the discussion of the subject.
- The Webinar reviewed the initial draft of the MID Region Air Navigation Strategy. and agreed on ASBU Threads and Elements prioritization. Monitoring elements (indicators/metrics, applicability areas, targets and timelines), that should be discussed during the MIDANPIRG Sub-Groups virtual meetings.
- The Webinar agreed on an initial list of Key Performance Indicators to be used for performance monitoring at National and Regional levels. Further discussion/ refinement by the MIDANPIRG Sub-Groups.

Revised MID Air Navigation Strategy

ASBU Operational Threads: SURF and ACDM



Monitoring Table

Appendix A



Prioritization
Table

Appendix B

KPIs: The nineteen KPIs of the GANP

- A set of performance indicators is used that allows for monitoring of current operations.
- ICAO recommends that States utilize a focused set of Key Performance Indicators (KPIs) that provide the means of identifying shortfalls and prioritizing investments.
- This approach will allow all stakeholders to analyze the current and future performance of the Air Navigation system and to take actions, if needed, to fill the gap between the current performance and the expected one.
- It is proposed to work on a set of KPIs, according to needs and capabilities.
- To start with a simple set of indicators (Core KPIs) matching States needs, and to complete them later with more complex ones (Additional KPIs).
- This would be further reviewed/discussed by the ASBU Symposium (19-20 January 2021) before presentation to MIDANPIRG/18 for final decision.



MID KPIs



KPIs

KPI01	Departure punctuality		
KPI02	Taxi-out additional time		
KPI03	ATFM slot adherence		
KPI04	Filed flight plan en-route extension		
KPI05	Actual en-route extension		
KPI06	En-route airspace capacity		
KPI07	En-route ATFM delay		
KPI08	Additional time in terminal airspace		
KPI09	Airport peak capacity		

KPI10	Airport peak throughput		
KPI11	Airport throughput efficiency		
KPI12	Airport/Terminal ATFM delay		
KPI13	Taxi-in additional time		
KPI14	Arrival punctuality		
KPI15	Flight time variability		
KPI16	Additional fuel burn		
KPI17	Level-off during climb		
KPI18	Level capping during cruise		
KPI19	Level-off during descent		

ACTION BY THE MEETING

The meeting is invited to encourage States to:

1. participate actively in the ACAO/ICAO ASBU symposium planned for 19 – 20 January 2021;
2. identify ASBU Threads/elements which provides operational improvements at National level and update the monitoring and the prioritization table respectively available at **Appendices A and B** ;
3. agree on the selected set of KPIs (as at **Appendix C**) to be monitored under ATM SG for 1 month of data sample per year (starting by June 2021); and



Thank you for your Attention

APPENDIX A

MID REGION ASBU Threads & Elements (Block 0 & 1) Monitoring Table (ACDM & SURF)

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

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

Priority 1 Thread: Any thread with at least 1 priority 1 element.

THREAD	Element code	Title	Priority	Applicability	Performance Indicators/Supporting Metrics	Targets	Timelines
SURF	B0/1	Basic ATCO tools to manage traffic during ground operations	1	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEDF, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of Airports having implemented Basic ATCO tools to manage traffic during ground operations Supporting metric*: Number of Airports having implemented Basic ATCO tools to manage traffic during ground operations	70%	Dec. 2017
	B0/2	Comprehensive situational awareness of surface operations	1	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEDF, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of Airports having implemented the surveillance service of A-SMGCS Supporting metric*: Number of Airports having implemented the surveillance service of A-SMGCS	50%	Dec. 2017
	B0/3	Initial ATCO alerting service for surface operations	1	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEDF, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of Airports having implemented the A-SMGCS alerting service. Supporting metric*: Number of Airports having implemented the A-SMGCS alerting	50%	Dec. 2017

THREAD	Element code	Title	Priority	Applicability	Performance Indicators/Supporting Metrics	Targets	Timelines
					service		
ACDM	B0/1	Airport CDM Information Sharing (ACIS)	1	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA	Indicator: % of Airports having implemented ACIS Supporting metric*: number of Airports having implemented ACIS	50%	Dec. 2018
	B0/2	Integration with ATM Network function	1	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA	Indicator: % of Airports having integrated ACDM with the ATM Network function. Supporting metric*: Number of Airports having integrated ACDM with the ATM Network function	50%	Dec. 2018
	B1/1	Airport Operations Plan (AOP))	1	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA	Indicator: % of Airports having implemented an Airport Operations Plan (AOP) Supporting metric*: having implemented an Airport Operations Plan (AOP)	50%	Dec. 2018

APPENDIX B

MID REGION ASBU Threads & Elements (Block 0 & 1) Prioritization Table
As of the latest update provided by the ATM SG/6 Virtual Meeting

Thread	Element code	Title	Priority	Start Date	Monitoring		Remarks
					Main	Supporting	
<i>Technology Threads</i>							
ASUR	B0/1	ADS-B	1	2020	CNS SG	ATM SG ASPIG	
	B0/2	MLAT	1	2020	CNS SG	ATM SG ASPIG	
	B0/3	SSR-DAPS	1	2020	CNS SG	ATM SG ASPIG	
	B1/1	SB ADS-B	2				
NAVS	B0/1	Ground Based Augmentation Systems (GBAS)	2				
	B0/2	Satellite Based Augmentation Systems (SBAS)	2				
	B0/3	Aircraft Based Augmentation Systems (ABAS)	1	2020	CNS SG	PBN SG ATM SG AIM SG	
	B0/4	Navigation Minimal Operating Networks (Nav. MON)	1	2020	CNS SG	PBN SG	
	B1/1	Extended GBAS	2				
COMI	B0/1	Aircraft Communication Addressing and Reporting System (ACARS)	2				
	B0/2	Aeronautical Telecommunication Network/Open System Interconnection (ATN/OSI)	2				

	B0/3	VHF Data Link (VDL) Mode 0/A	2				
	B0/4	VHF Data Link (VDL) Mode 2 Basic	2				
	B0/5	Satellite communications (SATCOM) Class C Data	2				
	B0/6	High Frequency Data Link (HFDL)	2				
	B0/7	AMHS	1	2014	CNS SG		
	B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)	1	2020	CNS SG		
	B1/2	VHF Data Link (VDL) Mode 2 Multi-Frequency	2				
	B1/3	SATCOM Class B Voice and Data	2				
	B1/4	Aeronautical Mobile Airport Communication System (AeroMACS) Ground-Ground	2				
Information Threads							
DAIM	B1/1	Provision of quality-assured aeronautical data and information	1	2020	AIM SG		It was B0, monitored earlier
	B1/2	Provision of digital Aeronautical Information Publication (AIP) data sets	2				
	B1/3	Provision of digital terrain data sets	1	2020	AIM SG		It was B0, monitored earlier
	B1/4	Provision of digital obstacle data sets	1	2020	AIM SG		It was B0, monitored earlier
	B1/5	Provision of digital aerodrome mapping data sets	2				

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	B1/6	Provision of digital instrument flight procedure data sets	2				
	B1/7	NOTAM improvements	2				
FICE	B0/1	Automated basic inter facility data exchange (AIDC)	1	2014	CNS SG ATM SG		
AMET	B0/1	Meteorological observations products	1	2014	MET SG		
	B0/2	Meteorological forecast and warning products	1	2014	MET SG		
	B0/3	Climatological and historical meteorological products	1	2014	MET SG		
	B0/4	Dissemination of meteorological products	1	2014	MET SG	CNS SG	
	B1/1	Meteorological observations information	2				
	B1/2	Meteorological forecast and warning information	2				
	B1/3	Climatological and historical meteorological information	2				
	B1/4	Dissemination of meteorological information	2				
Operational Threads							
APTA	B0/1	PBN Approaches (with basic capabilities)	1	2014	PBN SG	ATM SG AIM SG CNS SG	

	B0/2	PBN SID and STAR procedures (with basic capabilities)	1	2014	PBN SG	ATM SG AIM SG	
	B0/3	SBAS/GBAS CAT I precision approach procedures	2				
	B0/4	CDO (Basic)	1	2014	PBN SG	ATM SG	
	B0/5	CCO (Basic)	1	2014	PBN SG	ATM SG	
	B0/6	PBN Helicopter Point in Space (PinS) Operations	2				
	B0/7	Performance based aerodrome operating minima – Advanced aircraft	1	2020	ATM SG PBN SG	AIM SG	
	B0/8	Performance based aerodrome operating minima – Basic aircraft	2				
	B1/1	PBN Approaches (with advanced capabilities)	2				
	B1/2	PBN SID and STAR procedures (with advanced capabilities)	2				
	B1/3	Performance based aerodrome operating minima – Advanced aircraft with SVGS	2				
	B1/4	CDO (Advanced)	2				

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	B1/5	CCO (Advanced)	2				
B0-FRTO	B0/1	Direct routing (DCT)	2				
	B0/2	Airspace planning and Flexible Use of Airspace (FUA)	1	2014	ATM SG	AIM SG	
		Level 1 Strategic	1	2014	ATM SG	AIM SG	
		Airspace planning and Flexible Use of Airspace (FUA) Level 2	1	2014	ATM SG	AIM SG	
	B0/3	Pre-validated and coordinated ATS routes to support flight and flow	2				
	B0/4	Basic conflict detection and conformance monitoring	1	2014	ATM SG	CNS SG	
	B1/1	Free Route Airspace (FRA)	2				
	B1/2	Required Navigation Performance (RNP) routes	2				
	B1/3	Advanced Flexible Use of Airspace (FUA) and management of real time airspace data	2				
	B1/4	Dynamic sectorization	2				
	B1/5	Enhanced Conflict Detection Tools and Conformance Monitoring	2				
	B1/6	Multi-Sector Planning	2				

	B1/7	Trajectory Options Set (TOS)	2				
NOPS	B0/1	Initial integration of collaborative airspace management with air traffic flow management	1	2015	ATM SG		
	B0/2	Collaborative Network Flight Updates	2				
	B0/3	Network Operation Planning basic features	2				
	B0/4	Initial Airport/ATFM slots and A-CDM Network Interface	2				
	B0/5	Dynamic ATFM slot allocation	2				
	B1/1	Short Term ATFM measures	2				
	B1/2	Enhanced Network Operations Planning	2				
	B1/3	Enhanced integration of Airport operations planning with network operations planning	2				
	B1/4	Dynamic Traffic Complexity Management	2				
	B1/5	Full integration of airspace management with air traffic flow management	2				

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	B1/6	Initial Dynamic Airspace configurations	2				
	B1/7	Enhanced ATFM slot swapping	2				
	B1/8	Extended Arrival Management supported by the ATM Network function	2				
	B1/9	Target Times for ATFM purposes	2				
	B1/10	Collaborative Trajectory Options Program (CTOP)	2				
ACAS	B1/1	ACAS Improvements	1	2014	ATM SG CNS SG		It was B0, monitored earlier
SNET	B0/1	Short Term Conflict Alert (STCA)	1	2017	ATM SG	CNS SG	
	B0/2	Minimum Safe Altitude Warning (MSAW)	1	2017	ATM SG	CNS SG	
	B0/3	Area Proximity Warning (APW)	1	2020	ATM SG	CNS SG	
	B0/4	Approach Path Monitoring (APM)	2				
	B1/1	Enhanced STCA with aircraft parameters	2				
	B1/2	Enhanced STCA in complex TMA	2				

SURF	B0/1	Basic ATCO tools to manage traffic during ground operations	1	2014	ASPIG	ATM SG CNS SG	
	B0/2	Comprehensive situational awareness of surface operations	1	2014	ASPIG	ATM SG CNS SG	
	B0/3	Initial ATCO alerting service for surface operations	1	2020	ASPIG	ATM SG CNS SG	
	B1/1	Advanced features using visual aids to support traffic management during ground operations	2		ASPIG	ATM SG CNS SG	
	B1/2	Comprehensive pilot situational awareness on the airport surface	2		ASPIG	ATM SG CNS SG	
	B1/3	Enhanced ATCO alerting service for surface operations	2		ASPIG	ATM SG CNS SG	
	B1/4	Routing service to support ATCO surface operations management	2		ASPIG	ATM SG CNS SG	
	B1/5	Enhanced vision systems for taxi operations	2		ASPIG	ATM SG CNS SG	
ACDM	B0/1	Airport CDM Information Sharing (ACIS)	1	2014	ASPIG	CNS SG, AIM SG, ATM SG	
	B0/2	Integration with ATM Network function	1	2014	ASPIG	CNS SG, AIM SG, ATM SG	

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	B1/1	Airport Operations Plan (AOP)	1	2020	ASPIG	CNS SG, AIM SG, ATM SG	
	B1/2	Airport Operations Centre (APOC)	2		ASPIG	CNS SG, AIM SG, ATM SG	
GADS	B1/1	Aircraft Tracking	2				
	B1/2	Contact directory service	1	2020	CNS ATM		
RSEQ	B0/1	Arrival Management	1	2020	ASPIG ATM	<u>ASPIG</u> CNS SG	
	B0/2	Departure Management	2				
	B0/3	Point merge	2				
	B1/1	Extended arrival metering	2				

APPENDIX C

INITIAL LIST OF MID REGION Air Navigation KPIs
As of the latest version provide by the ATM SG/6 Virtual Meeting

KPI	Title	Definition	Measurement Units	Variants	Parameters	Objects Characterized	Data Requirement	Formula / Algorithm	Timeframe	Data Feed Providers
01	Departure punctuality	Percentage of flights departing from the gate on-time (compared to schedule).	% of scheduled flights	<p>Variant 1A – % of departures within ± 5 minutes of STD</p> <p>Variant 1B – % of departures delayed ≤ 5 minutes versus schedule</p> <p>Variant 2A – % of departures within ± 15 minutes of scheduled time of departure</p> <p>Variant 2B – % of departures delayed ≤ 15 minutes versus schedule</p>	<p>On-time threshold (maximum positive or negative deviation from scheduled departure time) which defines whether a flight is counted as on-time or not.</p> <p>Recommended values: 5 minutes & 15 minutes.</p>	The KPI is typically computed for traffic flows, individual airports, or clusters of airports (selection/grouping based on size and/or geography).	<p>For each departing scheduled flight:</p> <ul style="list-style-type: none"> - Scheduled time of departure (STD) or Scheduled off-block time (SOBT) - Actual off-block time (AOBT) 	<p>At the level of individual flights:</p> <ol style="list-style-type: none"> 1. Exclude non-scheduled departures 2. Categorize each scheduled departure as on-time or not <p>At aggregated level:</p> <ol style="list-style-type: none"> 3. Compute the KPI: number of on-time departures divided by total number of scheduled departures 	<u>1 month</u>	Schedule database(s), airports, airlines and/or ANSPs

KPI	Title	Definition	Measurement Units	Variants	Parameters	Objects Characterized	Data Requirement	Formula / Algorithm	Timeframe	Data Feed Providers
02	Taxi-out additional time	Actual taxi-out time compared to an unimpeded/reference taxi-out time.	Minutes/flight	<p>Variant 1 – basic (computed without departure gate and runway data)</p> <p>Variant 2 – advanced (computed with departure gate and runway data)</p>	<p>Unimpeded/reference taxi-out time:</p> <p>Recommended approach for the basic variant of the KPI: a single value at airport level, e.g. the 20th percentile of actual taxi times recorded at an airport, sorted from the shortest to the longest.</p> <p>Recommended approach for the advanced variant of the KPI: a separate value for each gate/runway combination, e.g. the average actual taxi-out time recorded during periods of non-congestion (needs to be periodically reassessed).</p>	The KPI is typically computed for individual airports, or clusters of airports (selection/grouping based on size and/or geography).	<p>For each departing flight:</p> <ul style="list-style-type: none"> - Actual off-block time (AOBT) - Actual take-off time (ATOT) <p>In addition, for the advanced KPI variant:</p> <ul style="list-style-type: none"> - Departure gate ID - Take-off runway ID 	<p>At the level of individual flights:</p> <ol style="list-style-type: none"> 1. Select departing flights, exclude helicopters 2. Compute actual taxi-out duration: ATOT minus AOBT 3. Compute additional taxi-out time: actual taxi-out duration minus unimpeded taxi-out time <p>At aggregated level:</p> <ol style="list-style-type: none"> 4. Compute the KPI: sum of additional taxi-out times divided by number of IFR departures 	<u>1 month</u>	Airports (airport operations, A-CDM), airlines (OOOI data), ADS-B data providers and/or ANSPs

KPI	Title	Definition	Measurement Units	Variants	Parameters	Objects Characterized	Data Requirement	Formula / Algorithm	Timeframe	Data Feed Providers
13	Taxi-in additional time	Actual taxi-in time compared to an unimpeded/reference taxi-in time	Minutes/flight	<p>Variant 1 – basic (computed without landing runway and arrival gate data)</p> <p>Variant 2 – advanced (computed with landing runway and arrival gate data)</p>	<p>Unimpeded/reference taxi-in time:</p> <p>Recommended approach for the basic variant of the KPI: a single value at airport level, e.g. the 20th percentile of actual taxi times recorded at an airport, sorted from the shortest to the longest</p> <p>Recommended approach for the advanced variant of the KPI: a separate value for each runway/gate combination, e.g. the average actual taxi-in time recorded during periods of non-congestion (needs to be periodically reassessed)</p>	The KPI is typically computed for individual airports, or clusters of airports (selection/grouping based on size and/or geography).	<p>For each arriving flight:</p> <p>Actual landing time (ALDT)</p> <p>Actual in-block time (AIBT)</p> <p>In addition, for the advanced KPI variant:</p> <p>Landing runway ID</p> <p>Arrival gate ID</p>	<p>At the level of individual flights:</p> <ol style="list-style-type: none"> 1. Select arriving flights, exclude helicopters 2. Compute actual taxi-in duration: AIBT minus ALDT 3. Compute additional taxi-in time: actual taxi-in duration minus unimpeded taxi-in time <p>At aggregated level:</p> <ol style="list-style-type: none"> 4. Compute the KPI: sum of additional taxi-in times divided by number of IFR arrivals 	<u>1 month</u>	Airports (airport operations), airlines (OOOI data), ADS-B data providers and/or ANSPs

KPI	Title	Definition	Measurement Units	Variants	Parameters	Objects Characterized	Data Requirement	Formula / Algorithm	Timeframe	Data Feed Providers
14	Arrival punctuality	Percentage of flights arriving at the gate on-time (compared to schedule)	% of scheduled flights	<p>Variant 1A – % of arrivals within ± 5 minutes of scheduled time of arrival</p> <p>Variant 1B – % of arrivals delayed ≤ 5 minutes versus schedule</p> <p>Variant 2A – % of arrivals within ± 15 minutes of scheduled time of arrival</p> <p>Variant 2B – % of arrivals delayed ≤ 15 minutes versus schedule</p>	<p>On-time threshold (maximum positive or negative deviation from scheduled arrival time) which defines whether a flight is counted as on-time or not.</p> <p>Recommended values: 5 minutes and 15 minutes.</p>	<p>The KPI is typically computed for traffic flows, individual airports, or clusters of airports (selection/grouping based on size and/or geography).</p>	<p>For each arriving scheduled flight:</p> <ul style="list-style-type: none"> - Scheduled time of arrival (STA) or Scheduled in-block time (SIBT) - Actual in-block time (AIBT) 	<p>At the level of individual flights:</p> <ol style="list-style-type: none"> 1. Exclude non-scheduled arrivals 2. Categorize each scheduled arrival as on-time or not <p>At aggregated level:</p> <ol style="list-style-type: none"> 3. Compute the KPI: number of on-time arrivals divided by total number of scheduled arrivals 	1 month	Schedule database(s), airports, airlines and/or ANSPs
