



FAA
Air Traffic Organization



ASBU Elements Comparison

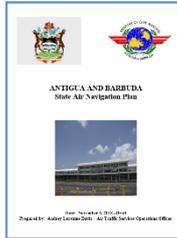
5th Edition/2016 vs 6th Edition/2019

For: TBD

Prepared by: Midori Tanino, FAA/ATO International

Date: Month Day, 2020

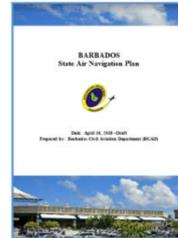
GANP



Antigua & Barbuda



Bahamas



Barbados



Belize



COCESNA

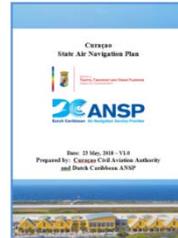
RPBANIP



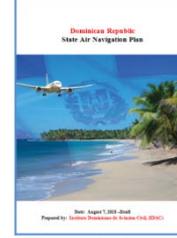
Costa Rica



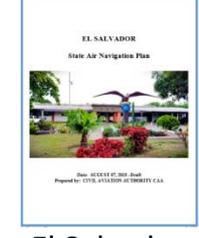
Cuba



Curacao

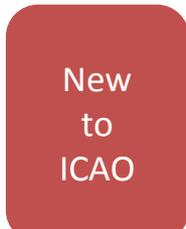


Dominican Republic



El Salvador

ANP



Dominica



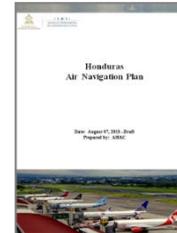
Grenada



Guatemala



Haiti



Honduras

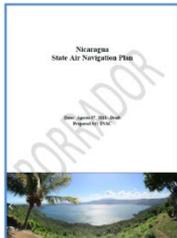


Jamaica

For CAR, there will be 22 ANPs:
20 States
1 Territory
1 Organization



Mexico



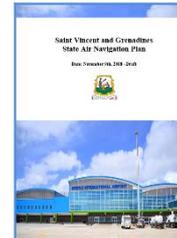
Nicaragua



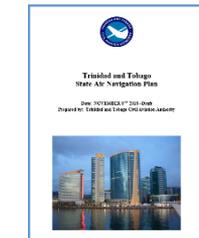
St Kitts & Nevis



Saint Lucia



St. Vincent & Grenadines

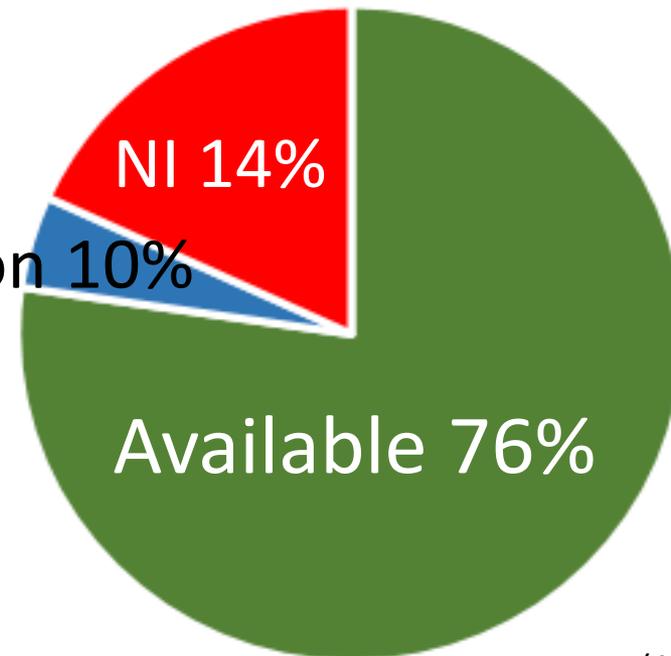


Trinidad & Tobago

CAR ASBU B0 Implementation Status

National ANP and ASBU B0 Information Availability Central America and Caribbean Region

No ANP with
ASBU 2013 version 10%



20 CAR states including Dominica
1 Territory and 1 Organization

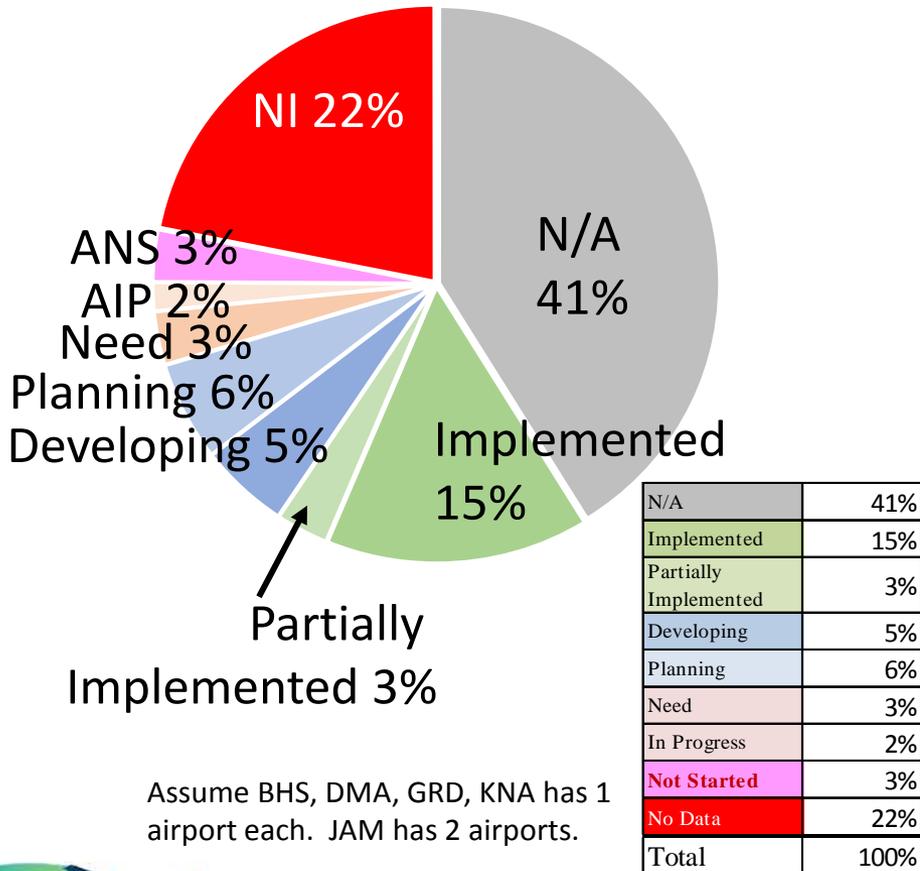
(As of Nov 2019)



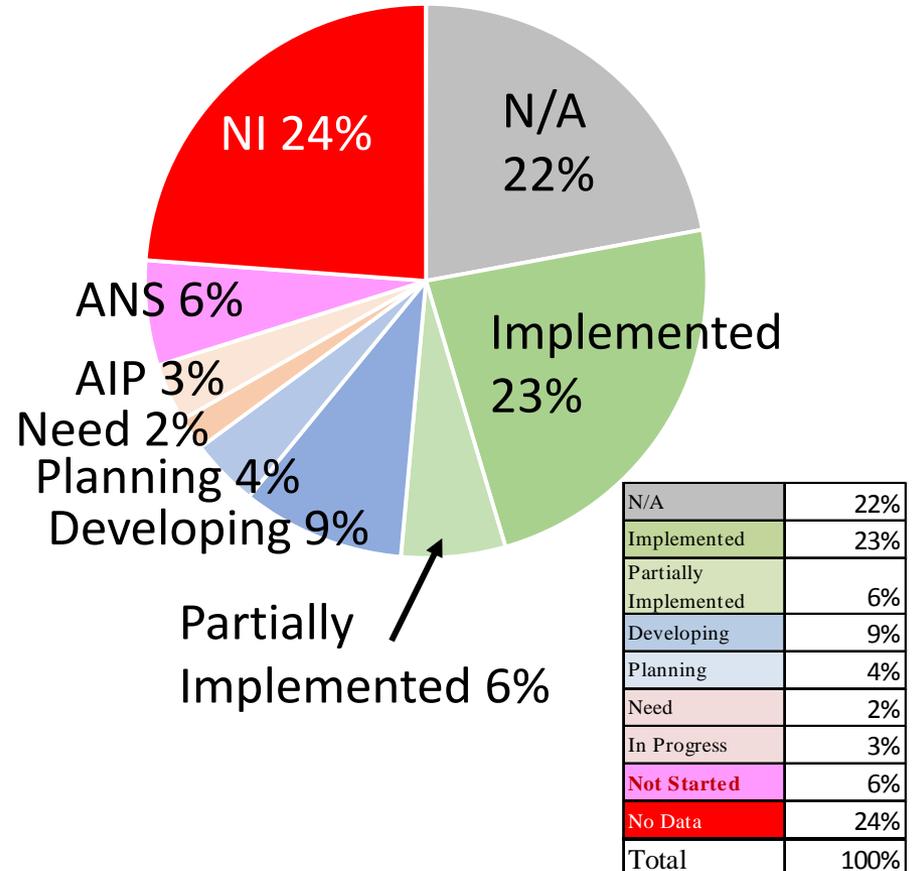
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ASBU B0 Implementation Status Central America and Caribbean Region

Airport-centric Elements

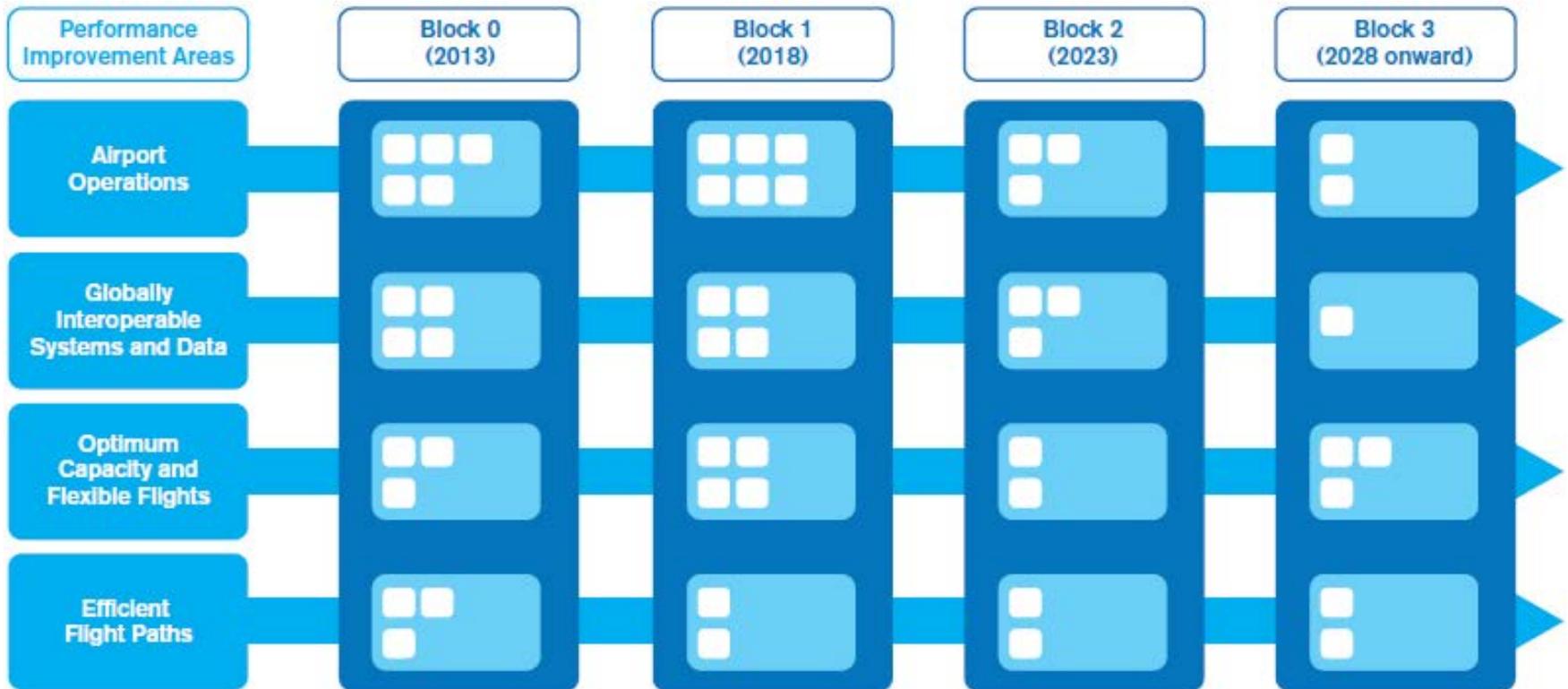


State-centric Elements



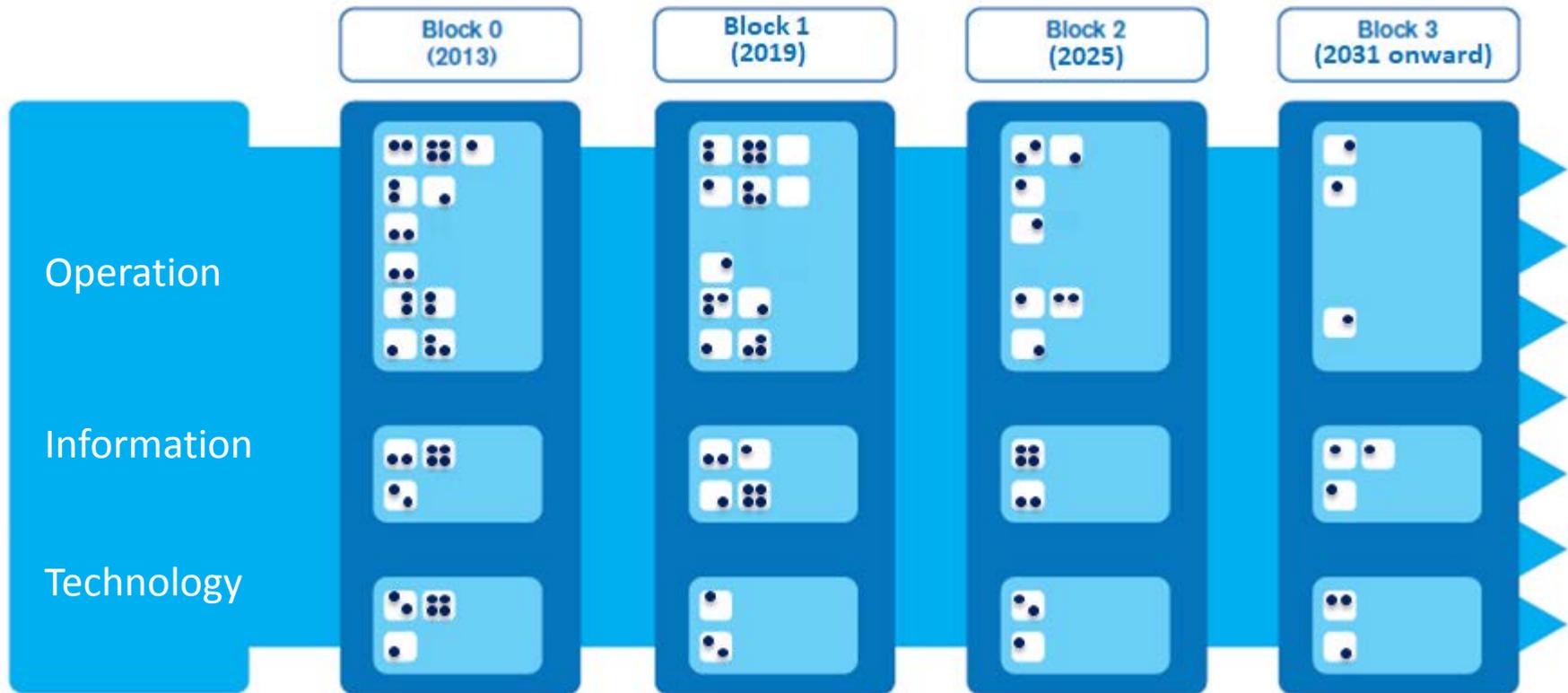
5th ASBU Structure:

- (1) Performance Improvement Areas (PIA),
- (2) Blocks, (3) Threads, (4) Modules



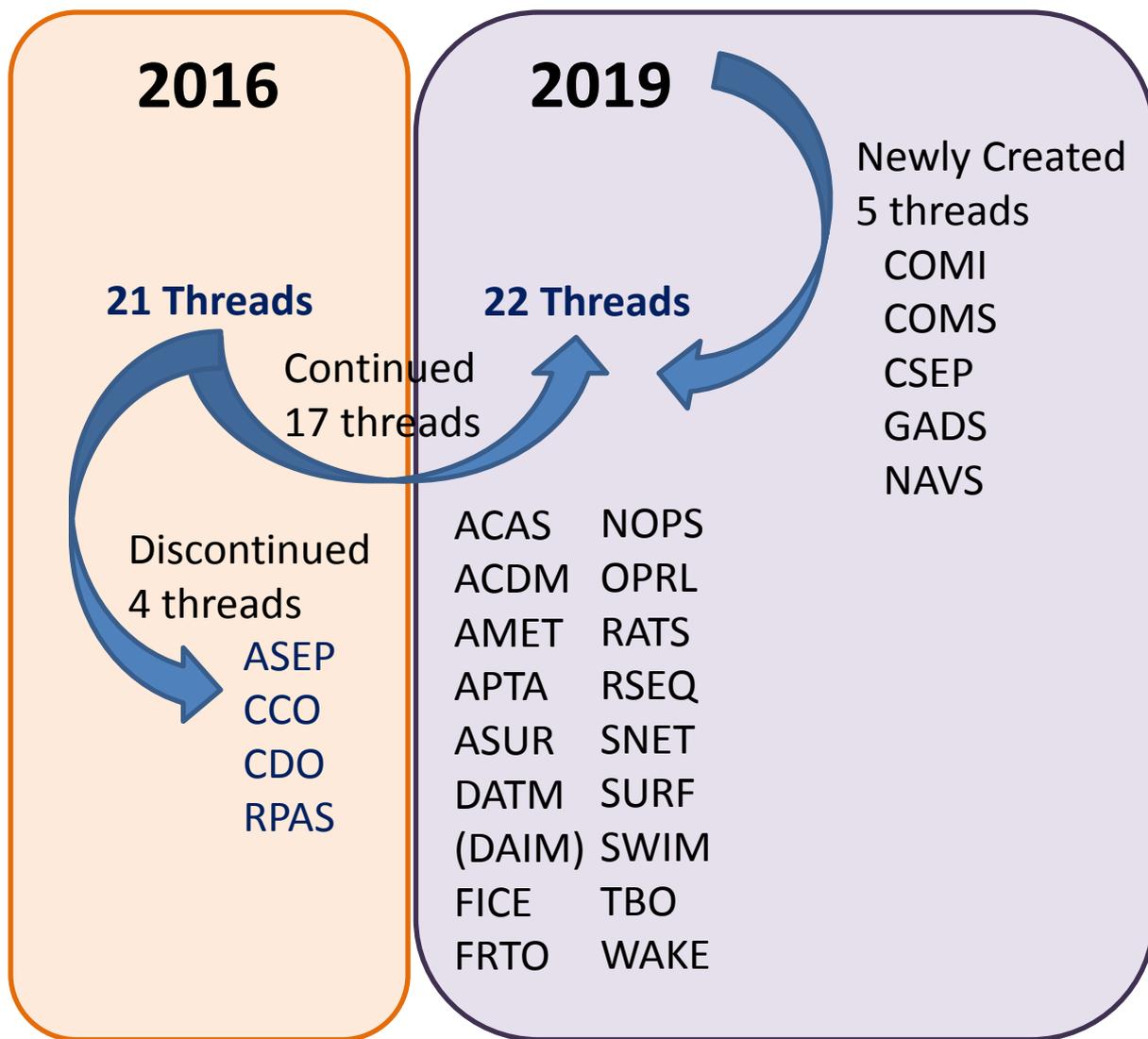
6th ASBU Structure:

(1) Blocks,, (2) Threads, (3) Modules, and (4) Elements



PIA and Thread Changes

- The 6th Ed (2019)**
- No concept of PIA
- However 3 groups
- (1) Operation
 - 14 threads
 - (2) Information
 - 4 threads
 - (3) Technology
 - 4 threads



Element Changes

Operation Group

Operation	5 th B0	5 th B1	6 th B0	6 th B1
1-ACAS	3	0	0	1
2-ACDM	5	6	2	2
3-APTA	4	5	8	5
4-CSEP	-	-	0	4
5-FRTO	4	6	4	7
6-GADS	-	-	0	2
7-NOPS	2	6	5	10
8-OPFL	1	0	1	1
9-RATS	0	5	0	1
10-RSEQ	4	4	3	1
11-SNET	4	1	4	2
12-SURF	5	2	3	5
13-TBO	4	7	1	1
14-WAKE	5	4	0	0
sub	41	46	31	42



Element Changes

Information and Technology Group

Info	5 th B0	5 th B1	6 th B0	6 th B1
1-AMET	8	6	4	4
2-DAIM	6	4	0	7
3-FICE	4	5	1	0
4-SWIM	0	1	0	0
sub	18	16	5	11
CNS T&S	5 th B0	5 th B1	6 th B0	6 th B1
1-ASUR	2	0	3	1
2-COMI	-	-	7	4
3-COMS	-	-	2	3
4-NAVS	-	-	4	1
sub	2	0	16	9



Obsolete(renamed) Elements

2016	5 th B0	5 th B1
ASEP	2	4
CCO	3	0
CDO	3	1
RPAS	0	7
sub	8	12

Total Element Count

	5 th B0	5 th B1	6 th B0	6 th B1
Total	69	74	52	62



Element Changes - ACDM

5th Edition Elements	mapping	6th Edition Elements
1. Interconnection between aircraft operator & ANSP systems to share surface operations information	Old 1 - 4 are mapped onto new 1	1. Airport CDM Information Sharing (ACIS) - Share surface operations data among the local stakeholders.
2. Interconnection between aircraft operator & airport operator systems to share surface operations information	New - some implication by old 1 - 4	2. Integration with ATFM Network function - Feed arrival information from the network into A-CDM and coordinate specific departure milestones.
3. Interconnection between airport operator & ANSP systems to share surface operations information	Old 1 - 4 are mapped onto new 1	
4. Interconnection between airport operator, aircraft operator & ANSP systems to share surface operations information	Old 1 - 4 are mapped onto new 1	
5. Collaborative departure queue management	Deleted	Deleted



Element Changes - APTA

5th Edition Elements	mapping	6th Edition Elements
1. PBN approach procedures with vertical guidance to LNAV/VNAV minima	Old 1 & 2 combined into New 1	1. PBN Approaches (with basic capabilities)
2. PBN approach procedures with vertical guidance to LPV minima		
	Combined CCO 3 & CDO 3 into New 2	2. PBN SID and STAR procedures (with basic capabilities)
3. PBN approach procedures without vertical guidance to LNAV minima	Old 3 -> related to 8	
4. GBAS Landing System (GLS) procedures to CAT I minima	Old 4 -> related to 3 and 7 and NAVS-B0/1	3. SBAS/GBAS CAT I precision approach procedures
	Old CDO 1&2 combined into New 4	4. CDO (Basic)
	Old CCO 1&2 combined into New 4	5. CCO (Basic)
	New	6. PBN Helicopter Point in Space (PinS) Operations
	Related to old 4	7. Performance based aerodrome operating minima – Advanced aircraft
	Related to old 3	8. Performance based aerodrome operating minima – Basic aircraft

Element Changes – RSEQ, SURF

5th Edition Elements	mapping	6th Edition Elements
1. AMAN via controlled time of arrival to a reference fix	Old 1 & 2 combined into New 1	1. Arrival Management
Deleted		
2. Departure management	Old 3 & 4 combined into New 1	2. Departure Management
3. Departure flow management		
4. Point merge	old 4 -> new 3	3. Point Merge
1. A-SMGCS with at least one cooperative surface surveillance system	Old 1 & 2 maybe combined into New 1	1. Basic ATCO tools to manage traffic during ground operations
2. Including ADS-B APT as an element of A-SMGCS		
3. A-SMGCS alerting with flight identification information	No change (almost)	3. Initial ATCO alerting service for surface operations
4. EVS for taxi operations	Deleted	Deleted
5. Airport vehicles equipped with transponders	Deleted	Deleted
	New	2. Comprehensive situational awareness of surface operations



Element Changes - WAKE

5th Edition Elements	mapping	6th Edition Elements
1. New PANS-ATM wake turbulence categories and separation minima	Deleted	No longer WAKE B0 and B1 exist
2. Dependent diagonal paired approach procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart	Deleted	No longer WAKE B0 and B1 exist
3. Wake independent departure and arrival procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart	Deleted	No longer WAKE B0 and B1 exist
4. Wake turbulence mitigation for departures procedures for parallel runways with centrelines spaced less than 760 meters (2,500 feet) apart	Deleted	No longer WAKE B0 and B1 exist
5. 6 wake turbulence categories and separation minima	No change	(Added by NAM) 6 wake turbulence categories and separation minima



Element Changes - AMET

5th Edition Elements	mapping	6th Edition Elements
1. WAFS	All are combined into AMET-B0/2 and some appear also in AMET-B0/1	1. Meteorological observations products
2. IAVW		
3. TCAC forecasts		
4. Aerodrome warnings		2. Meteorological forecast and warning products
5. Wind shear warnings and alerts		
6. SIGMET		
7. Other OPMET information (METAR, SPECI and/or TAF)		
8. QMS for MET	No change	(Added by NACC) QMS for MET
	New	3. Climatological and historical meteorological products



Element Changes – DAIM_(DATM), FICE

5th Edition Elements	mapping	6th Edition Elements
1. Aeronautical Information Exchange Model (AIXM)	old 1 & 2-> new DAIM-B1/2	DAIM-B1/2 Provision of digital Aeronautical Information Publication (AIP) data set
2. eAIP		
3. Digital NOTAM	old 3 -> new DAIM-B1/7	DAIM-B1/7 NOTAM improvement
4. eTOD	old 4-> new DAIM-B1/3 and DAIM-	DAIM-B1/3 Provision of terrain data sets
		DAIM-B1/4 Provision of obstacle data sets
5. WGS-84	old 5-> In new DAIM-B1/1	DAIM-B1/1 Provision of quality-assured aeronautical data and information (one example)
6. QMS for AIM	No change	(Added by NAT) QMS for MET
1. AIDC to provide initial flight data to adjacent ATSU _s	Old 1 - 4 are mapped onto new 1	1. Automated basic inter facility data exchange (AIDC)
2. AIDC to update previously coordinated flight data		
3. AIDC for control transfer		
4. AIDC to transfer CPDLC logon information to the Next Data Authority		



Element Changes, ACAS, CSEP(ASEP), ASUR

5th Edition Elements	mapping	6th Edition Elements
1. ACAS II (TCAS version 7.1)	old 1, 2 & 3 -> new ACAS-B1/1	Moved to ACAS-B1/1 ACAS Improvements
2. Auto Pilot/Flight Director (AP/FD) TCAS		
3. TCAS Alert Prevention (TCAP)		
1. ATSA-AIRB	old 1 -> new CSEP-B1/1	Moved to CSEP-B1/1 AIRB
2. ATSA-VSA	old 1 -> new CSEP-B1/2	Moved to CSEP-B1/2 VSA
1. ADS-B	No change	1. Automatic Dependent Surveillance-Broadcast (ADS-B)
2. Multilateration (MLAT)	No change	2. Multilateration (MLAT)
	New	3. Cooperative Surveillance Radar Downlink of Aircraft Parameters (SSR-DAPS)



Element Changes – FRTP, NOPS

5th Edition Elements	mapping	6th Edition Elements
1. CDM incorporated into airspace planning	Deleted	Deleted
	New	1. Direct Routing (DCT)
2. Flexible Use of Airspace (FUA)	old 2 -> new 2	2. Airspace planning and Flexible Use of Airspace (FUA)
3. Flexible route system	Deleted	Deleted
4: CPDLC used to request and receive re-route clearances	Deleted	Deleted
	New	3. Pre-validated and coordinated ATS routes to support flight and flow
	New	4. Basic conflict detection and conformance monitoring
1. Sharing prediction of traffic load for next day	Deleted	Implicitly integrated into the new NOPS elements
2. Proposing alternative routings to avoid or minimize ATFM delays	Deleted	Implicitly integrated into the new NOPS elements
	New	1. Initial integration of collaborative airspace management with ATFM
	New	2. Collaborative Network Flight Updates
	New	3. Network Operation Planning basic features
	New	4. Initial Airport/ATFM slot and A-CDM Network Interface
	New	5. Dynamic ATFM slot allocation

Element Changes – OPFL, SNET

5th Edition Elements	mapping	6th Edition Elements
1. ITP using ADS-B	No change	1. In rail Procedure (ITP)
1. Short Term Conflict Alert implementation (STCA)	No change	1. Short Term Conflict Alert (STCA)
2. Area Proximity Warning (APW)	old 2 -> new 3	2. Minimum Safe Altitude Warning (MSAW)
3. Minimum Safe Altitude Warning (MSAW)	old 3 -> new 2	3. Area Proximity Warning (APW)
4. Medium Term Conflict Alert (MTCA)	Deleted	Deleted
	New	4. Approach Proximity Warning (APW)



Element Changes – CCO, CDO, TBO

5th Edition Elements	mapping	6th Edition Elements
1. Procedure changes to facilitate CCO	old 1&2 -> APTA-B0/5	Moved to APTA
2. Route changes to facilitate CCO		
3. PBN SID _s		Moved to APTA
1. Procedure changes to facilitate CDO	old 1&2 -> APTA-B0/4	Moved to APTA
2. Route changes to facilitate CDO		
3. PBN STAR _s		Moved to APTA
1. ADS-C over oceanic and remote areas	old 1 -> COMS-B0/2	Moved to COMS-B0/2. ADS-C (FANS 1/A) for procedural airspace
2. CPDLC over continental area		Moved to COMS-B0/2 CPDLC (FANS 1/A & ATN B1) for domestic and procedural airspace
3. CPDLC over oceanic and remote area		
	New	1. Introduction of time-based management within a flow centric approach



Element Changes – COMI, COMS, NAVS

5th Edition Elements	mapping	6th Edition Elements
	New	1. Aircraft Communication Addressing and Reporting System (ACARS)
	New	2. Aeronautical Telecommunication Network/Open System Interconnection (ATN/OSI)
	New	3. VHF Data Link (VDL) Mode 0/A
	New	4. VHF Data Link (VDL) Mode 2 Basic
	New	5. Satellite communications (SATCOM) Class C Data
	New	6. High Frequency Data Link (HFDDL)
	New	7. ATS Message Handling System (AMHS)
	New - see old TBO-E1	Refer to the 5th edition TBO-E1. ADS-C over oceanic and remote areas
	New - see old TBO-E2 and -E3	Refer to the 5th edition TBO-E2. CPDLC over continental area and TBO-E3. CPDLC over oceanic and remote area
	New-related to old APTA-B0/4	1. Ground Based Augmentation Systems (GBAS)
	New	2. Satellite Based Augmentation Systems (SBAS) Note: related to APTA-B0
	New	3. Aircraft Based Augmentation Systems (ABAS)
	New	4. Navigation Minimal Operating Networks (Nav. MON)

Three major changes/additions of the 6th edition of GANP

- Change: ASBU framework structure, Threads, and Elements
- Addition: Multilayer structure of GANP
- Addition: Basic Building Blocks (BBB)



BBB Framework



Aerodrome Operation Services

9 services



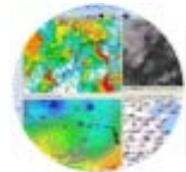
Aeronautical Information Services

5 services



Air Traffic Management Services

20 services



Meteorological Services

13 services



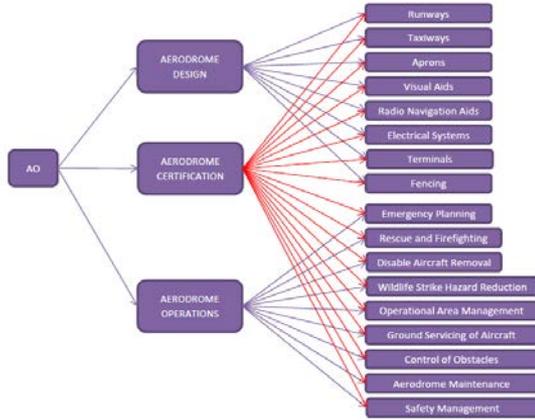
Search and Rescue Services

9 services

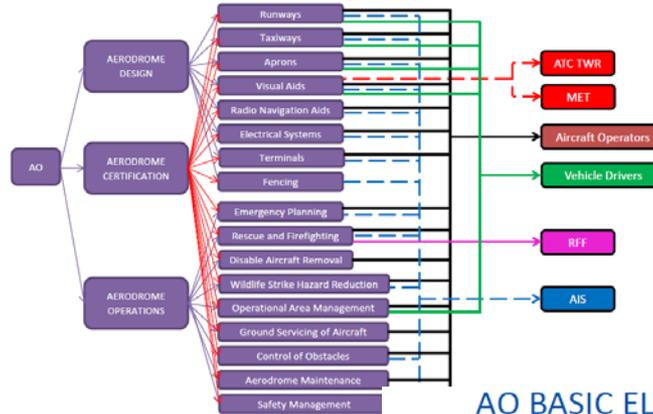


Aerodrome Operation

AO BASIC MODULES AND ELEMENTS

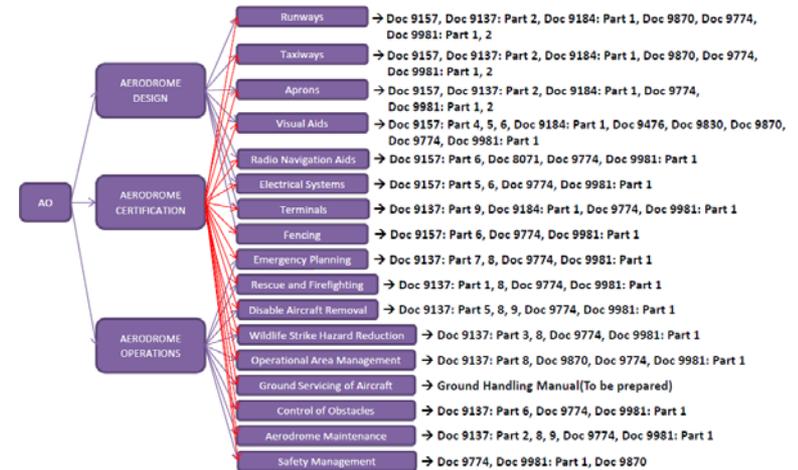


AO SUPPORT & END USERS

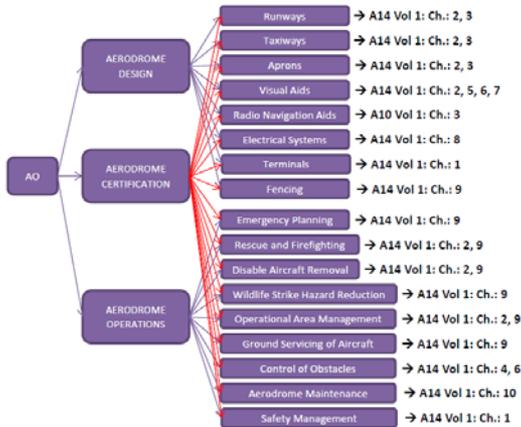


AO BASIC ELEMENTS/REFERENCES ICAO

Guidance & Procedures



AO BASIC ELEMENTS/REFERENCES ICAO SARPs



Aerodrome Operation

1: Runways	Aerodrome Operation and Certification (AOC)
2: Taxiways	
Aerodrome Design and Certification (ADC)	9: Emergency Planning
	10: Rescue and Firefighting
3: Aprons	11: Disable Aircraft Removal
4: Visual Aids	12: Wildlife Strike Hazard Reduction
5: Radio Navigation Aids	13: Operational Area Management
6: Electrical Systems	14: Ground Servicing of Aircraft
7: Terminals	15: Control of Obstacles
8: Fencing	16: Aerodrome Maintenance
	17: Safety Management



Annexes

- Annex 3: Meteorological Service for International Air Navigation (218 pages)
- Annex 4: Aeronautical Charts (162 pages)
- Annex 10: Aeronautical Telecommunications Volume I — Radio Navigation Aids (658 pages)
- Annex 11: Air Traffic Services (136 pages)
- Annex 12: Search and Rescue (27 pages)
- Annex 14: Aerodromes Volume I — Aerodrome Design and Operations (354 pages)
- Annex 15: Aeronautical Information Services (58 pages)
- PANS-ATM (Doc 4444): Air Traffic Management (420 pages)



What we know about BBB thus far (as of **date**)

<https://www4.icao.int/ganpportal/BBB>

April 2019 version of BBB Briefing is provided.

For each service areas;

- 4 Hierarchy Diagrams
 - Basic Modules and Elements
 - Support and End Users
 - References ICAO SARPs
 - References ICAO Guidelines and Procedures
- Lists of References



What we know about BBB thus far (as of **date**)

- The BBB framework will be updated every two years
- The BBBs will be included in a web-based application in a format similar to the ASBU framework
- The BBB verification process will be established





Thank you!
¡Gracias!

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