ICAO DAKAR UNITING AVIATION

Meeting for the Establishment of the APIRG Information & Infrastructure Sub Group (APIRG IIM/SG)

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ASBU Planning and implementation in the AFI Region

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The Dilemma

ENVIRONMENT CONTEXT IN AFRICA

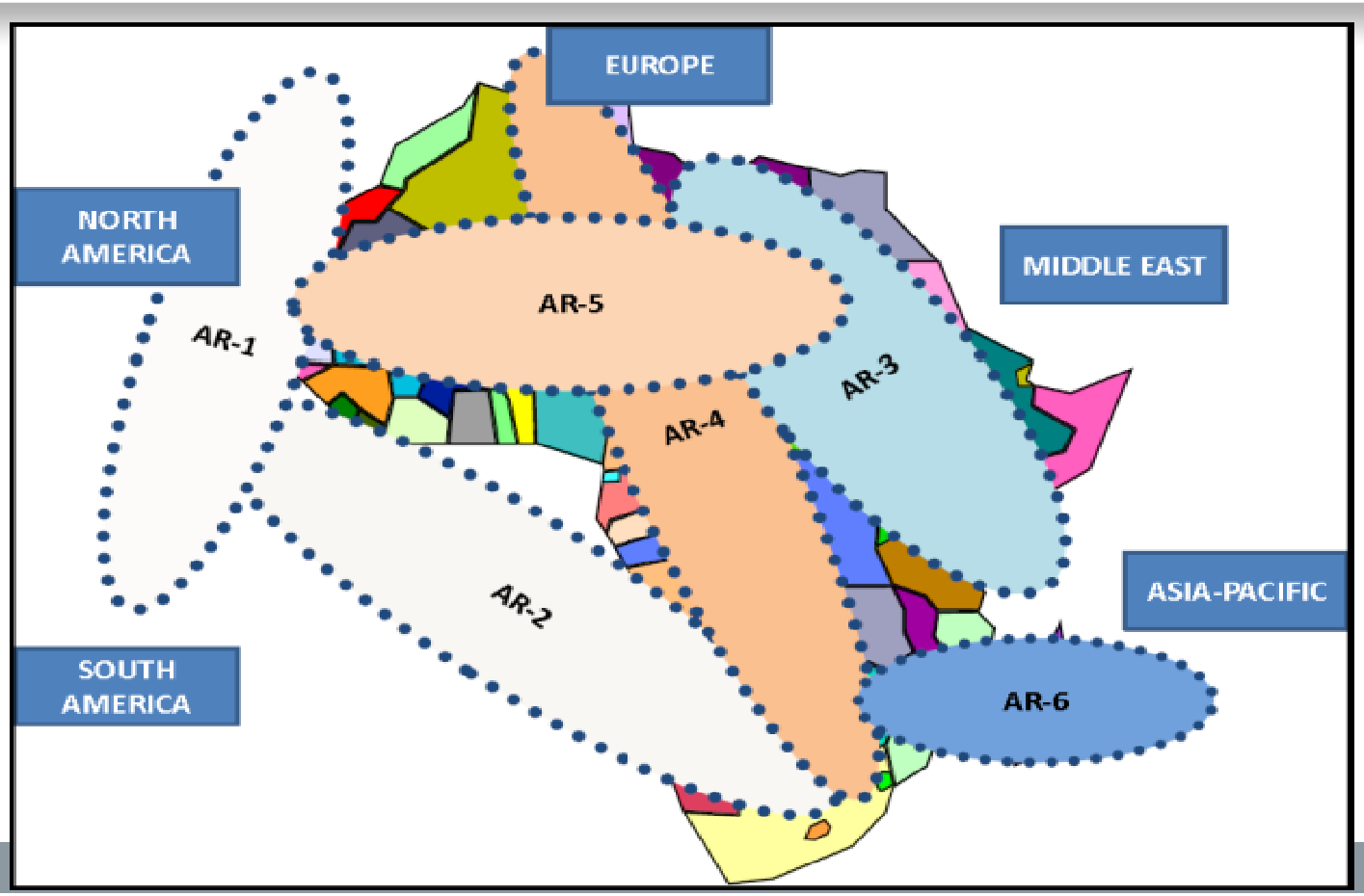
Huge region with remote areas such as:

- **Desert (Sahara and Kalahari)**

- **Deep equatorial forests**

- **Oceanic area (Atlantic and Indian oceans, Mediterranean and Red seas)**

HOMOGENEOUS AREAS AND MAJOR TRAFFIC FLOWS IN THE AFI REGION



ATM Homogeneous Areas in AFI Region

Areas of routing (AR)	Traffic Flows	Areas involved	Type of area covered	Remarks
Africa-Indian Ocean (AFI) Region				
AR1	Europe — South America (EUR/SAM) (oceanic)	Atlantico [1], Canarias, Casablanca, Dakar Oceanic, Recife, Sal Oceanic	Oceanic en route low density in southern part and oceanic high density in northern part	Major traffic flow EUR/SAM
AR2	Atlantic Ocean interface between the AFI, NAT and SAM Regions	Accra, Dakar, Johannesburg, Luanda, Sal	Oceanic en route low density	Homogeneous ATM area AFI/NAT/SAM
AR3	Europe — Eastern Africa routes including the area of the Indian Ocean	Addis Ababa, Antananarivo, Asmara, Cairo, Dar es-Salaam, Entebbe, Khartoum, Mauritius, Mogadishu, Nairobi, Seychelles, Tripoli	Continental en route/ oceanic low density	Major traffic flow AFI/EUR
AR4	Europe to Southern Africa	Algiers, Beira, Brazzaville, Cape Town, Gaborone, Harare, Johannesburg, Kano, Kinshasa, Lilongwe, Luanda, Lusaka, N'Djamena, Niamey, Tripoli, Tunis, Windhoek	Continental en route low density	Major traffic flow AFI/EUR
AR5	Continental Western Africa including coastal areas	Accra, Addis Ababa, Brazzaville, Dakar, Dar-es-Salaam, Entebbe, Kano, Khartoum, Kinshasa, Nairobi, Ndjamena, Niamey, Roberts	Continental/oceanic low density	Homogeneous area AFI (this is a growing traffic, developing into major traffic flow)
AR6	Trans-Indian	Antananarivo, Bombay [1], Johannesburg Male [1], Mauritius, Melbourne [1], Seychelles	Oceanic high density	Homogeneous ATM area AFI/ASIA

Development and trends of Civil Aviation industry in AFRICA

Context & Challenges

- Air Transport : key stakeholder in a huge continent
- Air Transport in Africa: 3-5% of Global Market
- For next two decades
  - Annual Growth estimated trend: 5,9% Vs 4% for Global growth
  - 125 Millions PAXs to 377 Millions PAXs
- Air Transport based on Safety of life

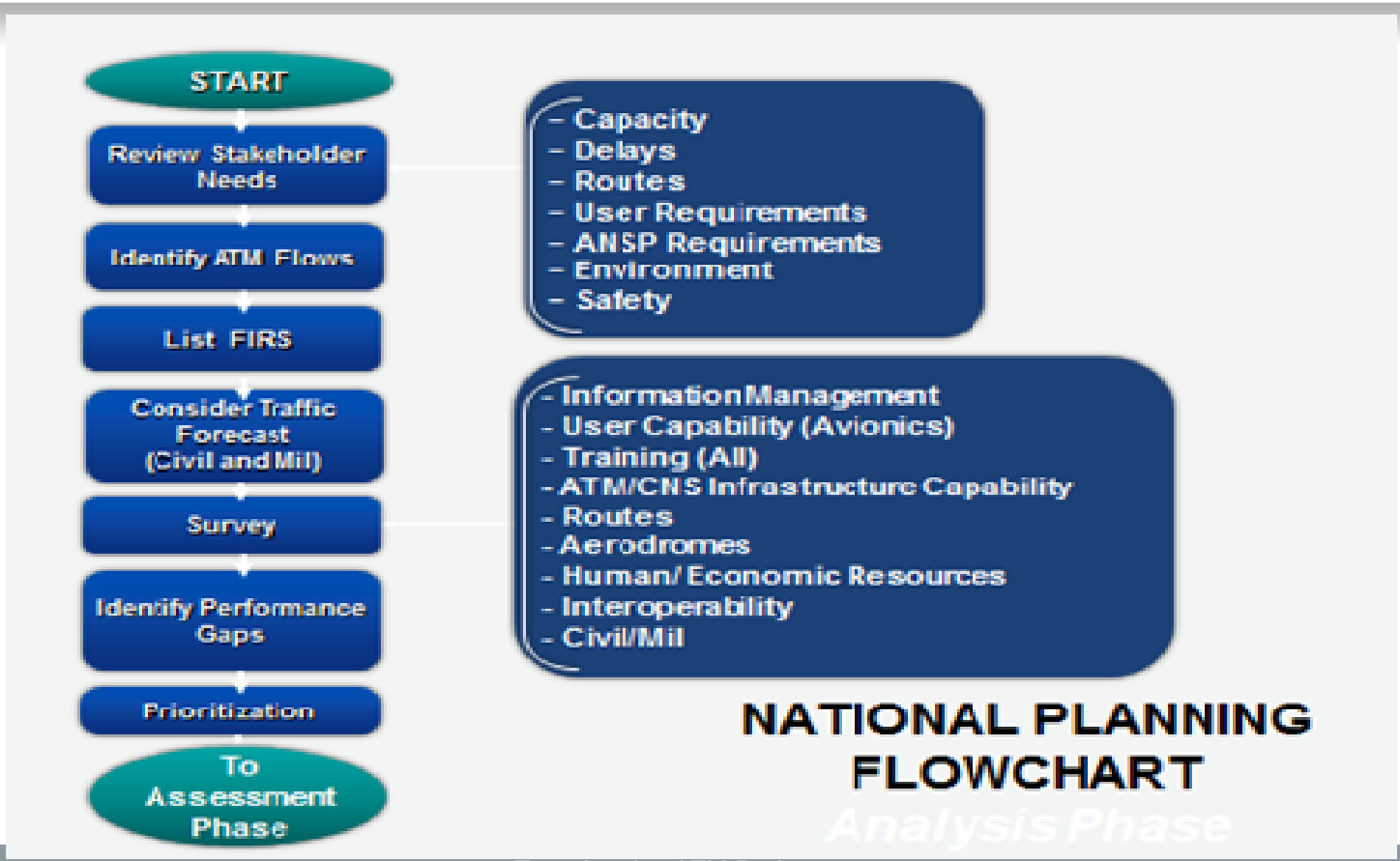
- Building One sky to ensure the provision of a seamless Air Navigation Service
- Safety of Civil Aviation, Continuity, Regularity of air traffic relies on a robust seamless integrated infrastructure, systems, procedures and human capacities …
- Users requirements
- Interoperability requirements
- Environment protection

Cost effectiveness to provide air navigation service relies on a balanced investment ensuring **P**erformance **B**ased **N**avigation.

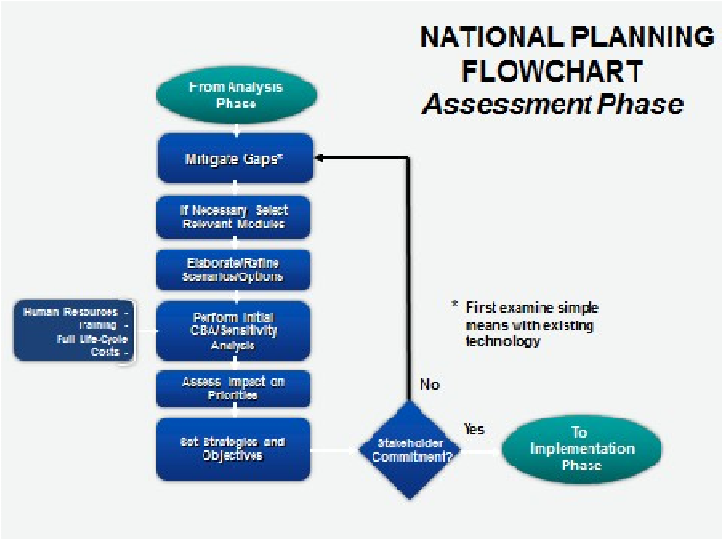
INFRASTRUCTURE REQUIREMENTS

Safety of civil aviation supported by seamless :

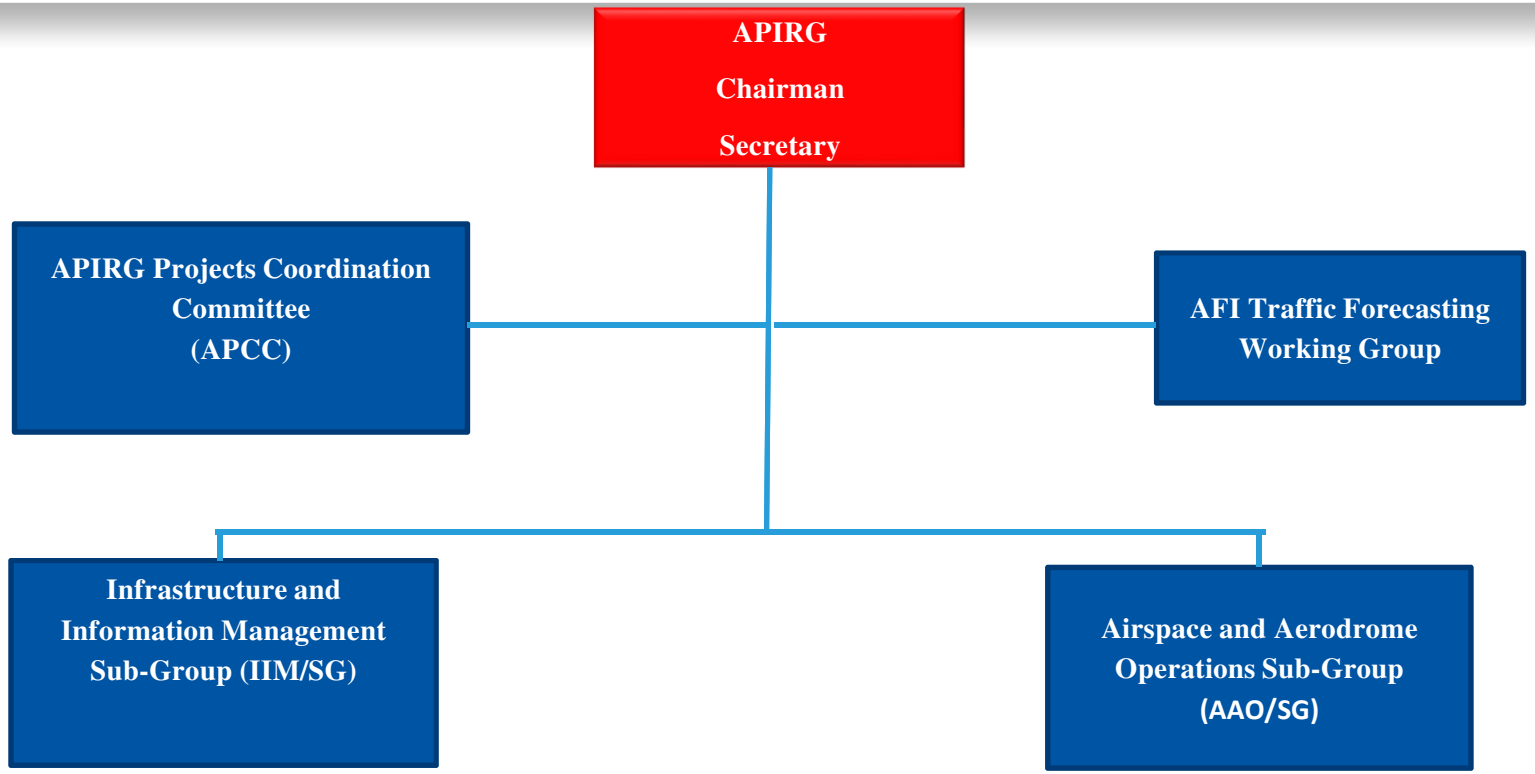
- Ground/Ground Communication (Voice and data)
- Air/Ground Communication (voice and data)
- Navigation (Global Navigation Satellite System-GPS; Glonass , Galileo) & Augmented GNSS
- Surveillance data exchange (Radar, flight data)
- Interoperable ATM systems
- Efficient airspace organization and AT Managemant


START
Review Stakeholder Needs
Identify ATM Flows
List FIRS
Consider Traffic Forecast (Civil and Mil)
Survey
Identify Performance Gaps
Prioritization
To Assessment Phase
- Capacity
- Delays
- Routes
- User Requirements
- ANSP Requirements
- Environment
- Safety
- Information Management
- User Capability (Avionics)
- Training (All)
- ATM/CNS Infrastructure Capability
- Routes
- Aerodromes
- Human/ Economic Resources
- Interoperability
- Civil/Mil
NATIONAL PLANNING FLOWCHART
Analysis Phase

Planning Process
Step 2-Assessment



AFI Planning Framework



Categorization of 15 Block 0 Modules (1/2)

- **Essential (E):** These are the ASBU modules that provide substantial contribution towards global interoperability, **safety** or **regularity**.

The (**05**) modules **B0-APTA, B0-FICE, B0-DAIM, BO-FRTO** and **B0-ACAS** are selected as **Essential Modules** for AFI Region

- **Desirable (D):** These are the ASBU modules that, because of their strong business and/or safety case, are **recommended** for implementation almost everywhere.

The (**08**) modules **B0-ACDM, B0-AMET, B0-NOPS, B0-ASUR, B0-SNET, B0-CDO, B0-TBO and B0-CCO M** are identified as **Desirable Modules** for the AFI Region

Categorization of Block 0 Modules (2/2)

- **Specific (S):** These are the ASBU modules that are **recommended** for implementation to address a **particular operational environment or mitigate identified risks**.

By the time being no modules seems to be candidate for the AFI Region

- **Optional (O):** These are the ASBU modules that **address particular operational requirements** and provide **additional benefits that may not be common** everywhere.

The (02) modules **B0-RSEQ** and **B0- SURF are identified** be optional modules for the AFI Region

Prioritization of Block 0 Modules

Criteria for priority allocation

- **Priority 1** = Immediate Implementation
- **Priority 2** = Recommended Implementation

Categorization of 15 Block 0 Modules
Categorization and prioritization of Block 0 Modules for the AFI Region

PIA	Module Description	Module	Category	Priority
PIA 1	Improve Traffic flow through Runway Sequencing (AMAN/DMAN)	B0-RSEQ	O	2
	Optimization of Approach Procedures including vertical guidance	B0-APTA	E	1
	Increased Runway Throughput through optimized Wake Turbulence Separation	B0-WAKE	S	2
	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	B0-SURF	O	2
	Improved Airport Operations through Airport-CDM	B0-ACDM	D	1
PIA 2	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	B0-FICE	E	1
	Service Improvement through Digital Aeronautical Information Management	B0-DAIM	E	1
	Meteorological information supporting enhanced operational efficiency and safety	B0-AMET	D	1
PIA 3	Improved Operations through Enhanced En-Route Trajectories	B0-FRTO	E	1
	Improved Flow Performance through Planning based on a Network-Wide view	B0-NOPS	D	2
	Initial capability for ground surveillance	B0-ASUR	D	2
	Air Traffic Situational Awareness(ATSA)	B0- ASEP	S	2
	Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B	B0- OPFL	S	2
	ACAS Improvements	B0-ACAS	E	1
	Increased Effectiveness of Ground-Based Safety Nets	B0-SNET	D	2
PIA 4	Improved Flexibility and Efficiency in Descent Profiles (CDO)	B0-CDO	D	1
	Improved Safety and Efficiency through the initial application of Data Link En-Route	B0-TBO	D	2
	Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)	B0-CCO	D	1

Next Steps

- Adoption of AFI ANS Performance Targets (APIRG/20)
- Identification of Regional AN projects (APIRG/20)
- Adoption of AFI ANS Performance Targets by AU (Pending)
- Development of AFI States national ASBU Plans (Pending)
- Implementation of ASBU States National ASBU Plans (TBD based on ASBU Time frame)
- Monitoring and Reporting through the AFI Regional dashboard (TBD aligned with ASBU Time frame)

Next Steps

Draft Conclusion XXXX: Development of National ASBU Plans

That;

In order to comply with the time timeframe fortthe implme,ntation of ASBU set forth in the Global Air Navigation Plan (GANP Doc. 9750 5th Edition):

a) **States conduct the appropriate action aimed at developing their national ASBU Plan no later than DD/MM/YY;**

b) **The Secretariat of APIRG assist through seminar workshops and mission, States and stakeholders in the development of National ASBU Plan and report to APIRG/21**

Next Steps

Draft Conclusion XXXX: Implementation of National ASBU Plan and reporting on States performances objectives

That:

States ensure a harmonized implementation of their national ASBU Plans taking into consideration the provision and the time frame of the updated Global Air Navigation Plan (GANP Doc 9750 5th Edition);

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THANK YOU