Meeting for the Establishment of the APIRG Information & Infrastructure Sub Group (APIRG IIM/SG)
Dakar, Senegal 28-30 November 2016

ASBU Planning and implementation in the AFI Region

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The Dilemma
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

ICAO DAKAR  UNITING AVIATION

Transforming ATM Performance
<table>
<thead>
<tr>
<th>Areas of routing (AR)</th>
<th>Traffic Flows</th>
<th>Areas involved</th>
<th>Type of area covered</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa-Indian Ocean (AFI) Region</td>
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</tr>
<tr>
<td>AR1</td>
<td>Europe — South America (EUR/SAM) (oceanic)</td>
<td>Atlantico 1, Canarias, Casablanca, Dakar Oceanic, Recife, Sal Oceanic</td>
<td>Oceanic en route low density in southern part and oceanic high density in northern part</td>
<td>Major traffic flow EUR/SAM</td>
</tr>
<tr>
<td>AR2</td>
<td>Atlantic Ocean interface between the AFI, NAT and SAM Regions</td>
<td>Accra, Dakar, Johannesburg, Luanda, Sal</td>
<td>Oceanic en route low density</td>
<td>Homogeneous ATM area AFI/NAT/SAM</td>
</tr>
<tr>
<td>AR3</td>
<td>Europe — Eastern Africa routes including the area of the Indian Ocean</td>
<td>Addis Ababa, Antananarivo, Asmara, Cairo, Dar es-Salaam, Entebbe, Khartoum, Mauritis, Mogadishu, Nairobi, Seychelles, Tripoli</td>
<td>Continental en route/ oceanic low density</td>
<td>Major traffic flow AFI/EUR</td>
</tr>
<tr>
<td>AR5</td>
<td>Continental Western Africa including coastal areas</td>
<td>Accra, Addis Ababa, Brazzaville, Dakar, Dar-es-Salaam, Entebbe, Kano, Khartoum, Kinshasa, Nairobi, Ndjamen, Niamey, Roberts</td>
<td>Continental/oceanic low density</td>
<td>Homogeneous area AFI (this is a growing traffic, developing into major traffic flow)</td>
</tr>
<tr>
<td>AR6</td>
<td>Trans-Indian</td>
<td>Antananarivo, Bombay 1, Johannesburg Male 1, Mauritius, Melbourne 1, Seychelles</td>
<td>Oceanic high density</td>
<td>Homogeneous ATM area AFI/ASIA</td>
</tr>
</tbody>
</table>
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 **Performance Based Navigation.**
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 Management
Planning Process

Step 1 - Analysis

Transforming ATM Performance

NATIONAL PLANNING FLOWCHART
Analysis Phase
Planning Process
Step 2-Assessment

Transforming ATM Performance
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, B0-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 and Prioritization of Block 0 Modules for the AFI Region

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

That:

In order to comply with the time timeframe for the implementation 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
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);