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Aligning equipage requirements with Aviation System Block Upgrades

Presentation Outline

- a) Background
- b) AFI ASBUs Categorization, Prioritization
- c) ASBUs Notes and PIAs
- d) AFI ASBUs Priority 1 – Equipage requirements
- e) AFI ASBUs Implementation Journey
- f) Conclusions
- g) Wayforward

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Background (2012 – 2016)

- a) Introduction of the ASBUs concept
 - AN Conf / 12 – Nov 2012; ICAO 38 Assembly Sept – Oct 2013
- b) Concepts
 - Performance Based Approach; Deployable Modules, Clear and measurable performance improvements and benefits; Threads across period, Technology Roadmaps; enablers, capabilities, etc
- c) APIRG 19 Conclusions (05)
- d) APIRG 20 Conclusions (04, 05, 14, 24, 38)
- e) AFI Plan Steering Committee meetings (visibility to leaders)
- f) 3rd Aviation Safety Symposium (Broad support)
- g) Reference Documents
 - GANP ver 4; Manual on Global performance of Air Navigation Systems; APIRG reports (19, 20); AFI Plan Steering Committee meeting minutes (12, 13, 14, 15); ICAO Guidance - National ASBU Implementation Plan – Guidance on elements, equipage and measurement.

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AFI ASBUs Categorization, prioritisation

- **E – Essential - Priority 1**
 - Bring substantial contribution towards global interoperability, safety and regularity. 9 (FICE, DAIM, ACAS, FRTO, APTA, CDO, CCO, AMET, ACDM)
- **D – Desirable – Priority 2**
 - For adoption almost everywhere because of their strong business case. 4 (NOPS, ASUR, SNET, TBO)
- **S – Specific – Priority 2**
 - For particular operational environments in specific countries. 3 (OPFL, ASEP, WAKE)
- **O – Optional – Priority 2**
 - For particular operational requirements in specific countries and provision of additional benefits that may not be common. 2 (SURF, RSEQ)



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ASBUs Notes and Performance Improvement Areas

E – Essential (Immediate)

- a) FICE - Increased Interoperability, Efficiency and Capacity through Ground - Ground Integration ([PIA 1 – Airport Operations](#))
- b) DATM – Service improvement through Digital Aeronautical Information Management ([PIA 2 – SWIM](#))
- c) ACAS – ACAS improvement ([PIA 3 – Capacity, Flexibility thru globally collaborative ATM](#))
- d) FRT0 – Improved Operations through enhanced enhanced Enroute trajectories ([PIA 3](#))
- e) APTA – Optimisation of approach procedures including vertical guidance ([PIA 1](#))
- f) CDO – Continuous Descent Operations ([PIA 4 – Efficient flight path thru trajectory based operations](#))
- g) CCO – Continuous Climb Operations ([PIA 4](#))
- h) AMET – Meteorological information supporting enhanced operational efficiency and safety ([PIA 2](#))
- i) ACDM – Improved Airport Operations through Airport-CDM ([PIA 1](#))

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ASBUs Notes and performance Improvement Areas contd..

D – Desirable

- a) NOPS -Improved Flow Performance through Planning based on a Network-Wide view (PIA 3)
- b) ASUR - Initial Capability for Ground Surveillance (PIA 3)
- c) SNET - Increased Effectiveness of Ground-based Safety Nets (PIA 3)
- d) TBO - Improved Safety and Efficiency through the initial application of Data Link En-Route (PIA 4)

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ASBUs Notes and Performance Improvement Areas -contd..

S – Specific

- a) OPFL - Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B (PIA 3)
- b) ASEP - Air Traffic Situational Awareness (ATSA) (PIA3)
- c) WAKE - Increased Runway Throughput through Optimized Wake Turbulence Separation (PIA 1)

O - Optional

- a) SURF - Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2) (PIA 1)
- b) RSEQ - Improved Traffic Flow through Sequencing (AMAN/DMAN) (PIA 1)

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AFI ASBUs Priority 1 – Equipage Requirements (a-c)

a) FICE

- Elements – AIDC, [AMHS/IPS]
- Ground – AIDC messages in FDPS, AFTN (AMHS/IPS)
- Aircraft – Nil

b) DAIM

- Elements – AIXM, eAIP, Digital NOTAM [eTOD, QMS for AIM]
- Ground – AIXM, eAIP, Digital NOTAM, [eTOD, QMS for AIM]
- Aircraft – Nil

c) ACAS

- Elements – ACAS II (TCAS Version 7.1)
- Ground – Nil
- Aircraft – TCAS Version 7.1

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AFI ASBUs Priority 1 – Equipage Requirements (d-f)

d) FRTO

- Elements – Airspace planning, flexible use of airspace, flexible routing
- Ground – CDM through Internet portal
- Aircraft – FANS 1/A and ACARS

e) APTA

- Elements – APV with (Baro VNAV or SBAS or GBAS)
- Ground – SBAS (ref. stations, master stations, GEO Satellites); GBAS
- Aircraft – Basic IFR GNSS avionics integrated with Baro VNAV functionality, SBAS /GBAS avionic

f) CDO

- Elements – CDO, PBN STARS
- Ground – Nil [PBN STARS]
- Aircraft – Nil

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AFI ASBUs Priority 1 – Equipage Requirements (g-i)

g) CCO

- Elements – CCO, PBN SIDs
- Ground – Nil [PBN SIDS]
- Aircraft – Nil

h) AMET

- Elements – WAFS – IAVW – TCN, Aerodrome warning, Wind-shear warning and alerts, SIGMET information
- Ground – Connection to AFS satellite, Public Internet distribution, connection to AFTN, Local arrangements for reception of warnings, alerts
- Aircraft – Nil

i) ACDM

- Elements – Airport CDM, (Aerodrome certification, aerodrome emergency planning, etc)
- Ground – Interconnection of ground systems of different partners for airport CDM, RFF
- Aircraft – Nil

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AFI ASBUs Implementation Journey

- APIRG 19 (Senegal, October 2013)
 - Adoption of the Regional Air Navigation Implementation Action Plan aligned with ICAO ASBUs methodology
- APIRG 20 (Cote d'Ivoire, December 2015)
 - Adoption of ASBUs Block 0 prioritisation scheme (Essential, Desirable, Specific, Optional) and linkage to regional performance objectives, targets and KPIs
 - Adoption of a new APIRG structure (project oriented)
- 3rd AFI Aviation Safety Symposium (Equatorial Guinea, June 2016)
 - Wider adoption (incl AFCAC) of ASBU Block 0 prioritization and its inclusion in regional performance objectives to be promoted at all relevant fora (technical support, funding, etc)

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Conclusions

- Implementation of ASBUs is still a long way to go in the AFI region
- The mechanisms adopted by APIRG, AFI Plan Steering Committee, AFCAC are able, if supported, to push the ASBUs implementation agenda

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Way forward

- Sensitisation of all aviation stakeholders on the measures adopted by APIRG, AFI Plan should be carried out as a matter of urgency
- The new APIRG structure should be enabled / supported to take root

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END

Thank you!

