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PBN UPDATE

African FPP SC/1

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Major input to the PBN Program



Key PBN Related Outcomes

- States urged to comply with A37-11 targets
- States to continue to support ICAO PBN initiatives with resources
- ICAO to develop additional PBN provisions aligned with the Aviation System Block Upgrades (ASBUs), GANP and GASP
- Need for continuous implementation support
 - PBN Training and Education
 - Implementation projects
 - Flight Procedures Programme





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So where are we today?

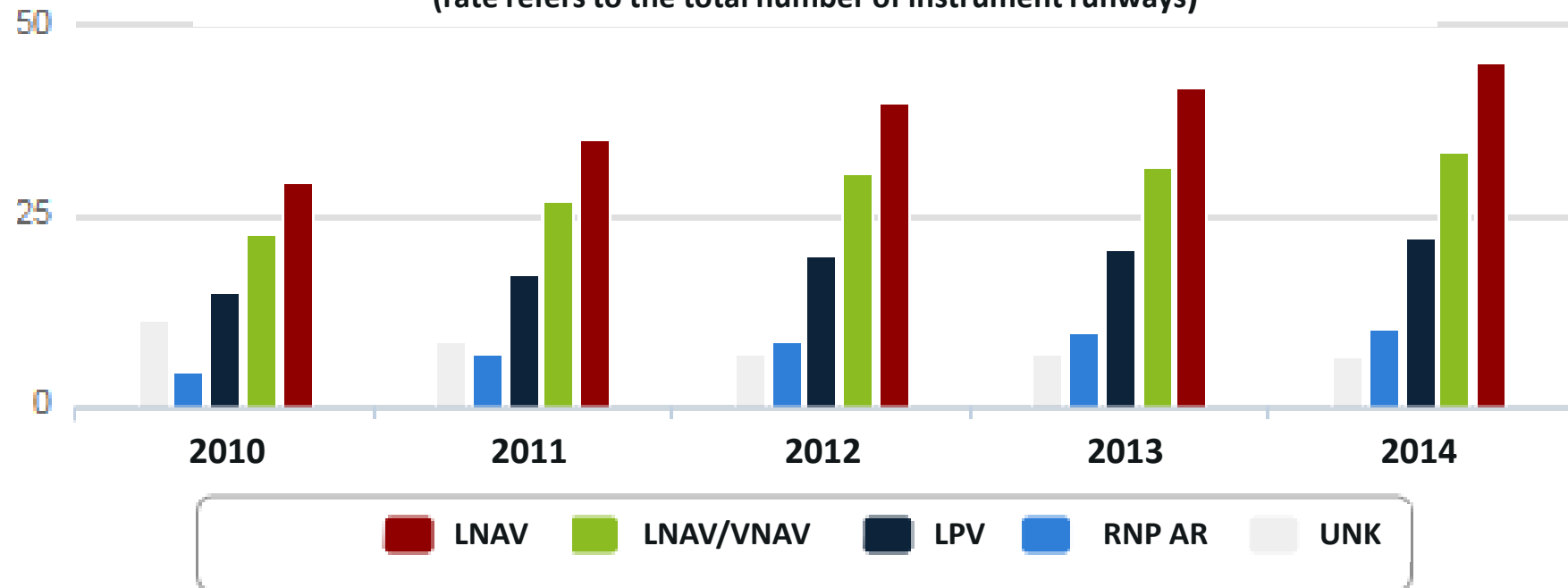




PBN IMPLEMENTATION TRENDS

% of PBN Approaches by type for the world

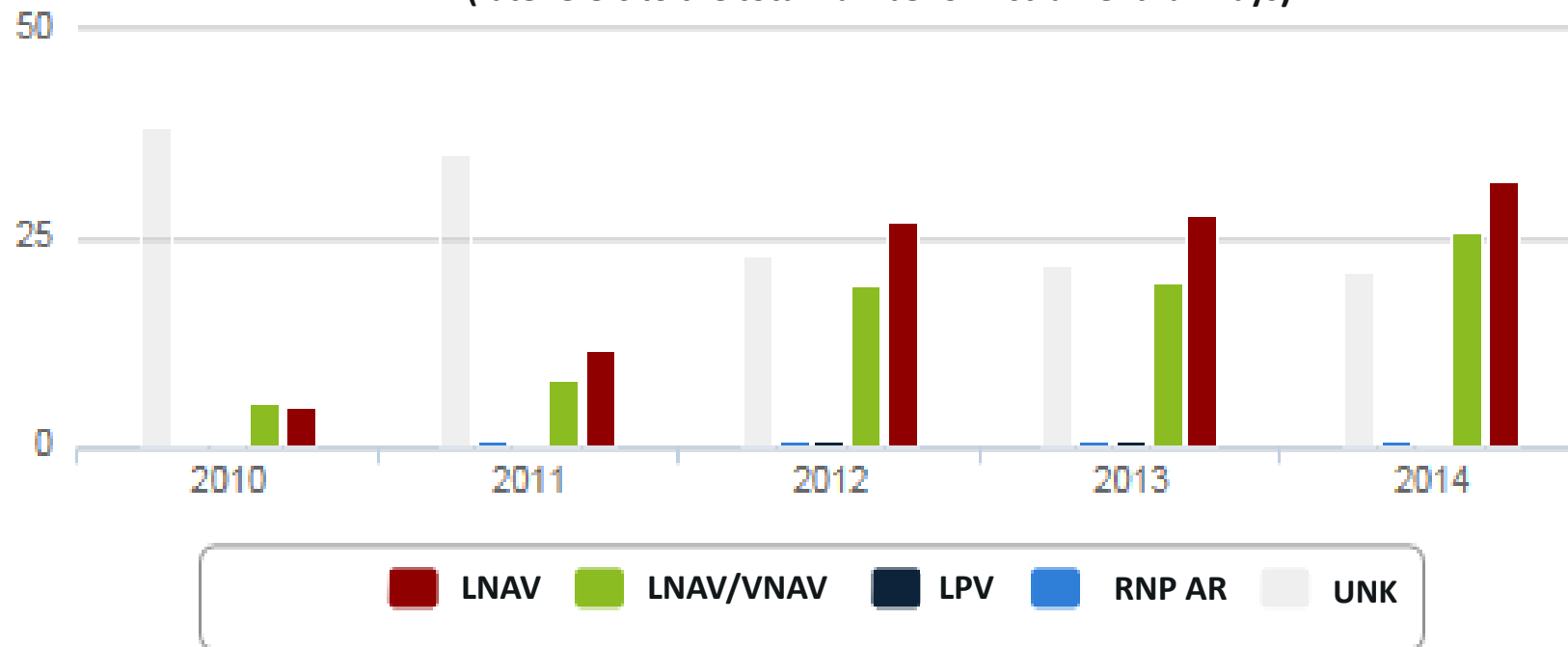
(rate refers to the total number of instrument runways)



- This data is based on the International Aerodromes as listed in the Regional Air Navigation Plans
- World States include the total number of ICAO Member States

PBN IMPLEMENTATION TRENDS

% of PBN Approaches by type for Africa
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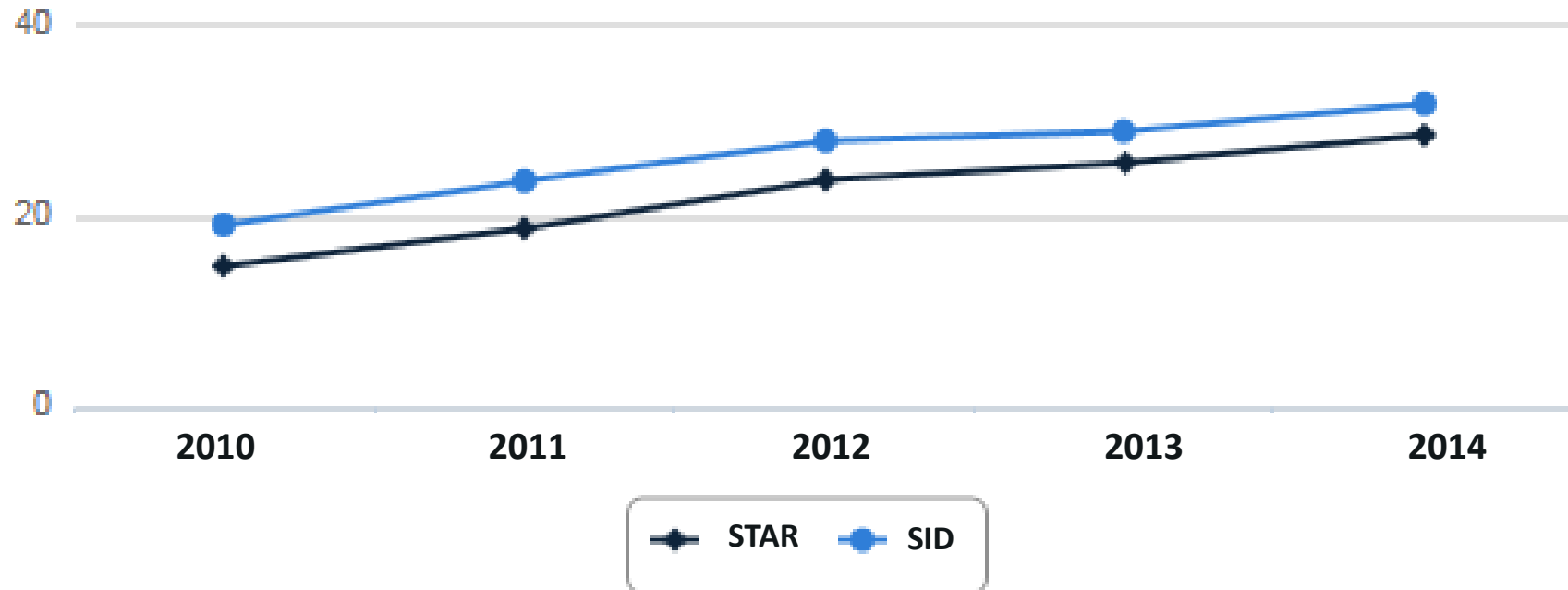


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PBN IMPLEMENTATION TRENDS

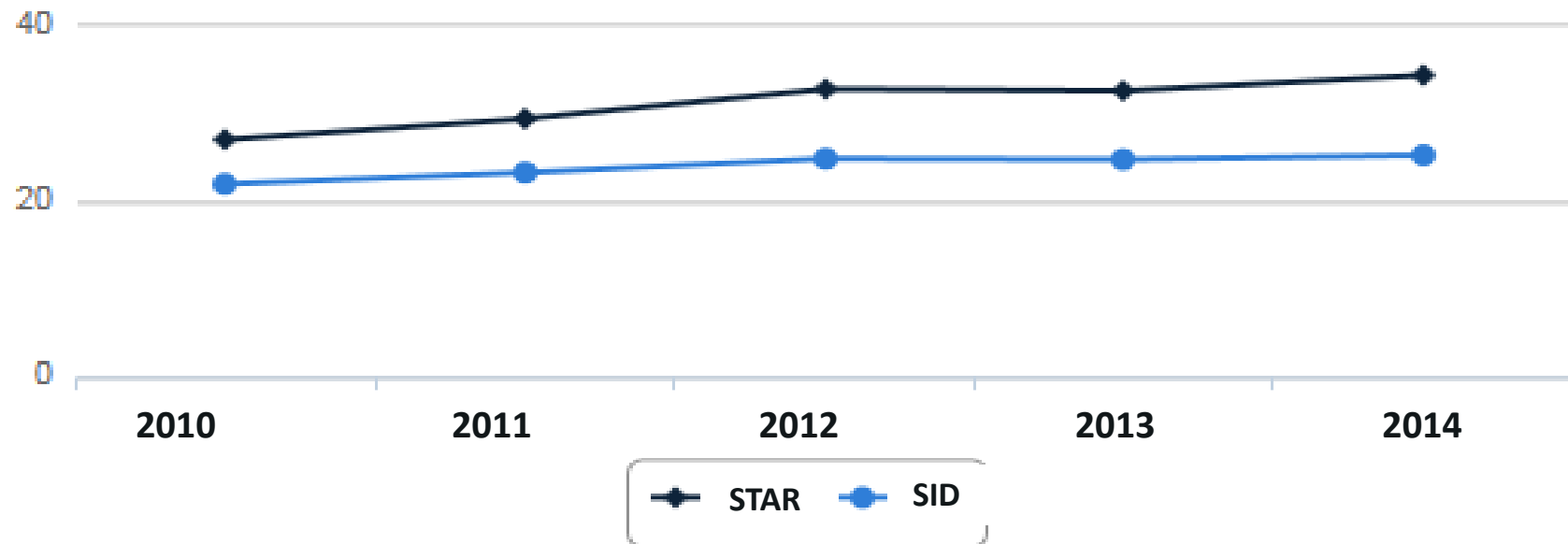
% of PBN SID/STAR for the world
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PBN IMPLEMENTATION TRENDS

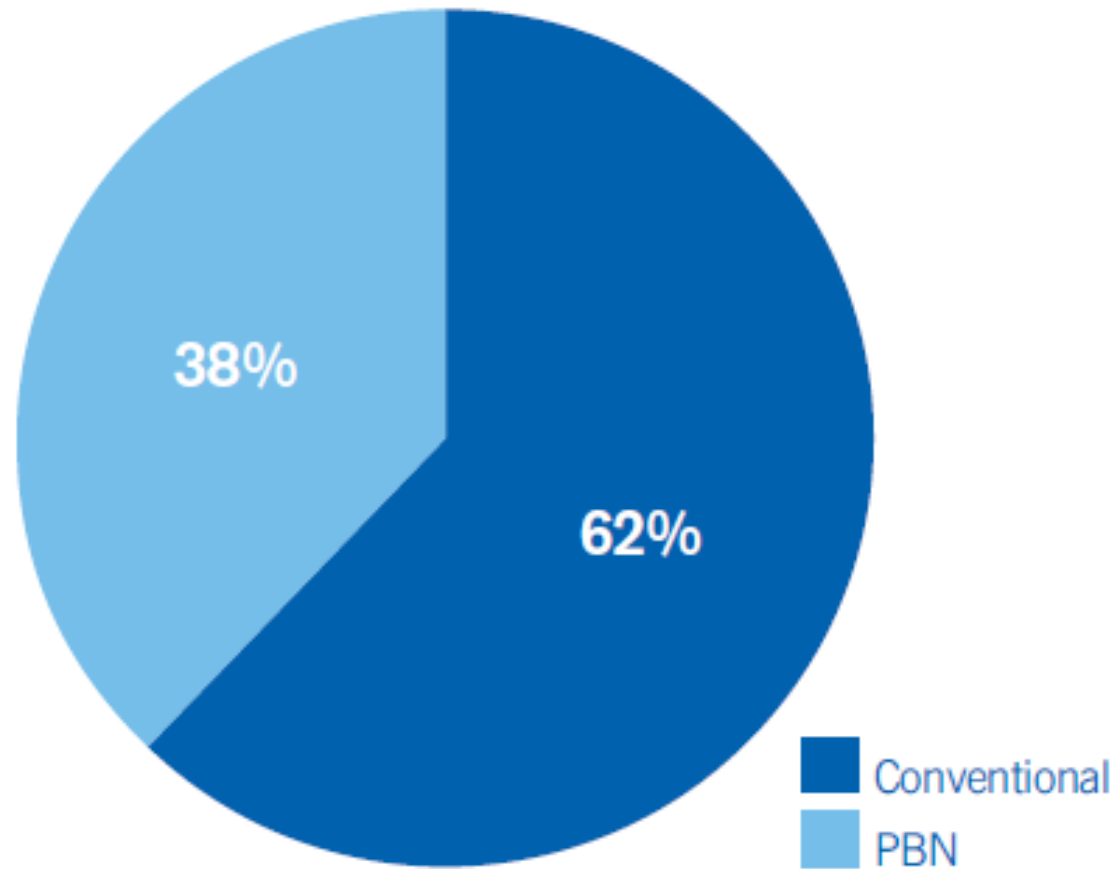
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PBN Versus Conventional Routes





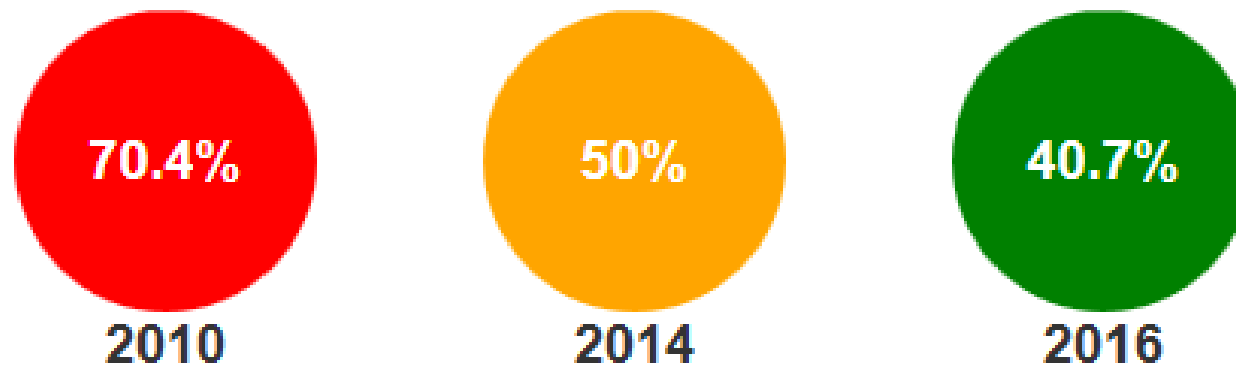
A37-11 PBN Global Targets

- **States complete a PBN Implementation Plan to achieve:**
 - Approach procedures with vertical guidance (APV (Baro-VNAV) including LNAV-only minima for all instrument runway ends by 2016:
 - 30% by 2010, 70% by 2014
 - Straight-in LNAV only procedures as an exception to the above where there is:
 - no local altimeter setting; and
 - no aircraft equipped for APV with max certified mass of 5700kg or more





% of States in Africa meeting the Resolution Targets for Applicable Years





What has ICAO done to help States with implementation? . . .





PBN Programme Office

- **Officially established 1st October 2014**
- **Global coordination of PBN Programme**
 - Develop the Standards and other requirement and guidance on PBN
 - Coordinate with the ICAO Regions to ensure consistent and expeditious implementation

Coordination with RO's

- PBN Focal points
- PBN TF's – awareness and coordination among States
- Implementation Projects
- Go-Teams



Flight Procedures Programme (FPP)

- **Beijing, China**
 - Upgraded to Regional Sub-Office
- **Dakar, Senegal**
 - FPP Office established 2014 (covers all African States)
- **MID Region?**





ICAO/IATA PBN GO Teams

- **Expert Teams Visits to address specific implementation issues**
 - Phase I (PBN Requirements Assessment) completed
 - Phase II (Airspace Design and Operations Approvals) will be completed in early July (Last visit to China)
- **Future GO Team Visits will be specific to Region and State requirements for PBN Implementation**
 - On request basis
- **Focus/Services provided will be:**
 - PBN Assessments / Gap Analysis
 - PBN Plan Development
 - Training
 - Implementation Assistance

Completed Global Visits Phase (I and II)

Thailand (2)	UAE (2)
Mexico	Kenya
Germany	India
Ecuador	Russia
South Africa	USA (CAR/SAM)

PBN Documentation Framework



- PANS Ops Volume II
- PBN Manual (Doc 9613) 4th Edition
- RNP AR Procedure Design Manual (Doc 9905)
- PBN Ops Approval Manual (Doc 9997)*
- Manual on PBN Use in Airspace Design (Doc 9992)*
- CDO Manual (Doc 9931)
- CCO Manual (Doc 9993)*
- GNSS Manual (Doc 9849)
- Procedure QA Manual (Vol 1 to Vol 6) (Doc 9906)

* New

PBN Products

to assist with implementation

- **PBN related Publications and Annexes**
 - Bundled specifically for Stakeholders
 - Hard and soft copies
- **eLibrary Solutions**
- **PBN ikit**
- **CBT Training (iLearn)**

Available through ICAO e-store: www.store1.icao.int



PBN Products and Services

- PBN Start
- PBN Training
- PBN Publication and Bundles
- PBN Workshops
- PBN Implementation Assistance
- PBN Financial Aid



Provided through ICAO HQ, Regional Offices, FPPs, ICAO Authorized Training Centers, On-line ICAO Store

PBN Endorsement – IFP Organizations

- Endorsement of Instrument procedure design organizations
- Consistent with other endorsements (training)
- To assist States with PBN Implementation
- Organizations approved by ICAO :
 - Airways New Zealand
 - ASAP s.r.o. (Slovakia)
 - CAAC Central-Southern Airport Design & Research Institute (China)
 - China Academy of Civil Aviation Science and Technology (CAST)
 - GE Aviation (USA)
 - Hughes Aerospace (USA)
 - Ingegneria Dei Sistemi S.p.A (Italy)





Future PBN SARPs and guidance



PBNSG Main Tasks

- To further mature the PBN Concept
 - Update the PBN Manual
 - Develop guidance material to close the gap
 - Free routes
 - Mixed mode operations
 - RNP AR departures
 - Ops approvals

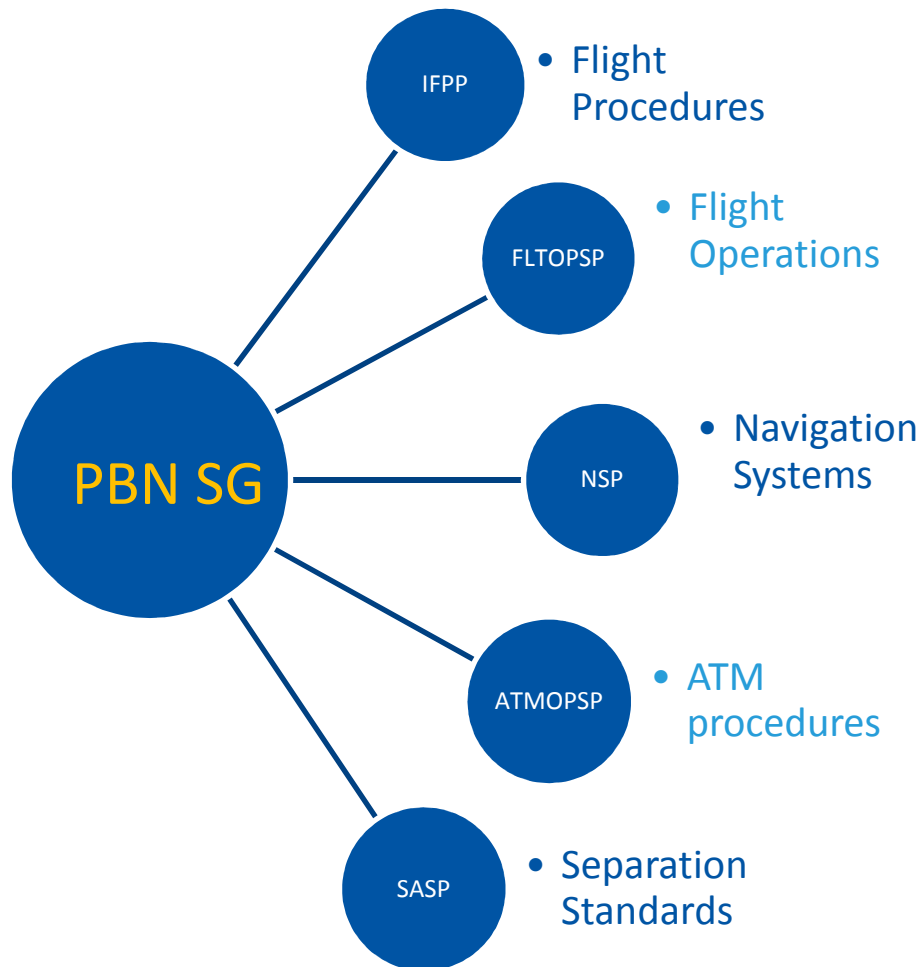


- Coordinate with other ICAO Panels to ensure consistency within the PBN framework





PBN SG coordination



GBAS CAT II/III, charting/database
Harmonization, Regulatory oversight,
Visual PBN procedures, PBN to XLS

Making PBN the norm in operations
Reciprocity/harmonization issues

GBAS CAT II/III, Galileo/Beidou
terrestrial navaid strategy

CDO/CCO Phraseology

RNP1, RNP2, ARNP RNP APCH, RNP AR
APCH separation standards
Parallel sep standards for GBAS/RNP
Reduced divergence departures



HLSC – PBN is the way to go as the new standard of navigation

Making the last push to finish business:

Lack of adequate Regulatory Oversight
Lack of implementation guidance is a
Safety issue and impediment for PBN
progress







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Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

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(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU