



Eliminating the Roadblocks (Lessons Learned)



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Overview

- Overcoming the Challenges
- Global and Regional Support Initiatives
- Lessons Learned – (Operational Approval)
- Keys to Successful Implementation

Overcoming the Challenges

- “Recognizing the benefits...”
 - Decision makers willing to invest
 - Stakeholder buy-in at the working level
- “The State has established a nat’l working group”
 - Coordination and collaboration between Stakeholders
- “According to the plan...”
 - Comprehensive Plans
 - Cost x Benefit Analysis (implementation based on the collective needs of the State)
- “Request assistance in the following areas...”
 - Understanding internal limitations / willingness to accept assistance

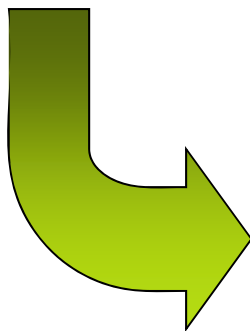
Global Support Initiative - Global PBN TF

➤ Need to transition from planning to implementation

➤ Industry effort lead by ICAO/IATA

➤ Expedite PBN Implementation

➤ Structure



Promotion Team

Support Team

Go - Team

PBN GO TEAM!





Provide high-level guidance and recommendations

- Airspace concept aiming to accommodate projected traffic increase and further improve safety, capacity and efficiency
- Current approach procedures Implementation and design
- PBN operational approval process
- PBN training

Go-Team Process

- PHASE I – Selection of Candidate State
- PHASE II – Data Collection
- PHASE III – Coordination
- PHASE IV – Go-Team Visit
- PHASE V – Follow-up





➤ Go-Team Report

➤ Areas of improvement and recommendations

- Enhancement of PBN Implementation Plan



- PBN Implementation Project – 3 years – including implementation plan for each airport and transition plan of conventional nav aids

Elements

- Timeframe
- Resources
- Stakeholder Management Plan
 - ATC/Pilots/GA/Mil/Env
- Risk/Mitigation Analyses

Main Areas

- Airspace Concept
- Nav Specs
- CNS/ATM Capabilities
- Ops Approval Process
- Training

Go Team Visits

Mexico
Apr 2011

Germany
TBA 2011

UAE
Jan 2011

Thailand
Aug 2010

- Champion State
- Regional Go-Team



Regional Initiative - State Plan Review 2010

Conclusions

- APAC stands at risk of not meeting ICAO implementation targets
 - Prompt action is required to accelerate the pace of implementation
 - A comprehensive Regional Support Strategy is required
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PBN REGIONAL DEVELOPMENT & IMPLEMENTATION (REDI) INITIATIVES {Proposed}

- Working level engagement with States
 - Identify implementation needs
 - Provide support that helps create organic capabilities
 - Further promote PBN to decision makers

- Leverage the resources of Industry Stakeholders
 - ICAO supporting agencies
 - Industry partners
 - Volunteering States



PBN REDI Initiatives - Scope of Assistance

- Complete PBN implementation plans & formation of a nat'l working group
- Establishment of the regulatory framework, guidance materials and approvals process
- Collection of required data and practices to maintain data integrity
- Requirements for safety assessments
- Requirements for Aircrew and ATC training
- Procedure Design and Training
- Airspace route design and harmonization across FIRs
- Organize collaborative Regional activities to address PBN common implementation challenges identified within multiple States



Regional Support Initiatives in 2011

- PBN implementation workshops and support delivered in Indonesia, Mongolia, Nepal and Sri Lanka (FPP/COSCAP)
 - Vietnam, Bangladesh, HKC and ROK (workshops upcoming)
- Philippines (Airbus)
- Cambodia (JICA) – “We will not stay far behind”
- FPP Procedure design and OJT program

just a few examples of regional partners working together to deliver results

➤ PBN –

Lessons Learned

Operational
Approvals





PBN Operational Approval

Lessons Learned

- Airworthiness certification & Ops Approval process considered a weak link in PBN implementation
 - Limited understanding of the requirements
 - Lack of a useful approvals process
- Common regulator responses to PBN approvals
 - Lack of oversight – "Rubber Stamp"
 - Unreasonable oversight – Require more than the minimum req'd
 - Impeding oversight – Refuse approval due to lack of confidence

PBN Operational Approval

Common Air Carrier Concerns

- Harmonization & Access
- Aircraft Equipage Eligibility
- Pilot / Dispatcher Training
- Operator's Documentation
- Nav Database Validation & Maintenance
- Issues regarding RAIM
- Maintenance & Continual Operational Monitoring
- Regulator position on 'Acceptable Means of Compliance'





Why do we need operational approvals?

- Last line of defense
 - Must ensure total operation is safe
 - Needs to understand/consider all elements
 - Aircraft capability, functionality
 - Procedure design
 - Operating procedures, dispatch, planning
 - Crew procedures
 - Flight training
 - ATC procedures
 - This is where all the hard work of selection, design, training, equipage, etc. come together
-

Why do we need operational approvals?

Bottom Line: Operational approval >>>>>> aircraft movements
Without it NOTHING HAPPENS!





PBN Operational Approval

The basic requirements

- Suitably equipped aircraft
- Trained crew
- Appropriate operating procedures
- Compliance with regulations / guidance material

➤ **Determine that the proposed operation meets the minimum requirements; AND**
Assess the operator's capability to meet the operational intent of the particular navigation specification

PBN Approval Process should be similar to other operational approvals



PBN Operational Approval CAA/Regulator Requirements

- Establish regulatory framework / national advisory material
- Establish Approval Process for Air Operators
 - Aircraft certification: verifying eligibility/compliance
 - Operator approval: verifying operating procedures, training of flight crew, dispatch and maintenance personnel
- Approve procedures developed by the ANSP
- Issue Ops Specs/LOAs & foreign operator approvals



PBN Operational Approval Operator Requirements

- Evidence of aircraft eligibility;
- Development of the operating procedures;
- Control of those procedures through entries in the Operations Manual;
- Identification of flight crew, dispatcher and maintenance training requirements and;
- Where required, control of the navigation database process



PBN Operational Approval

Keys to Success

➤ Education

- Understanding the enabling technology for each Nav/Spec
- Application of that knowledge to the PBN Manual requirements
- Creating a process for application / assessment / approval of PBN Ops

➤ Planning

- Operational approval considered a critical step to enable operations

➤ Collaboration

- Stakeholder involvement in the process development and establishing requirements

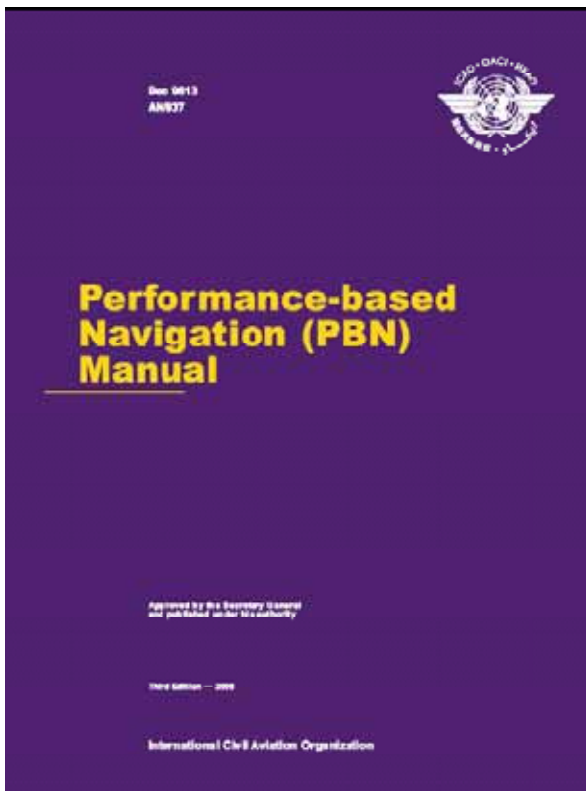
PBN

Keys to Success

- Education
- Planning
- Collaboration



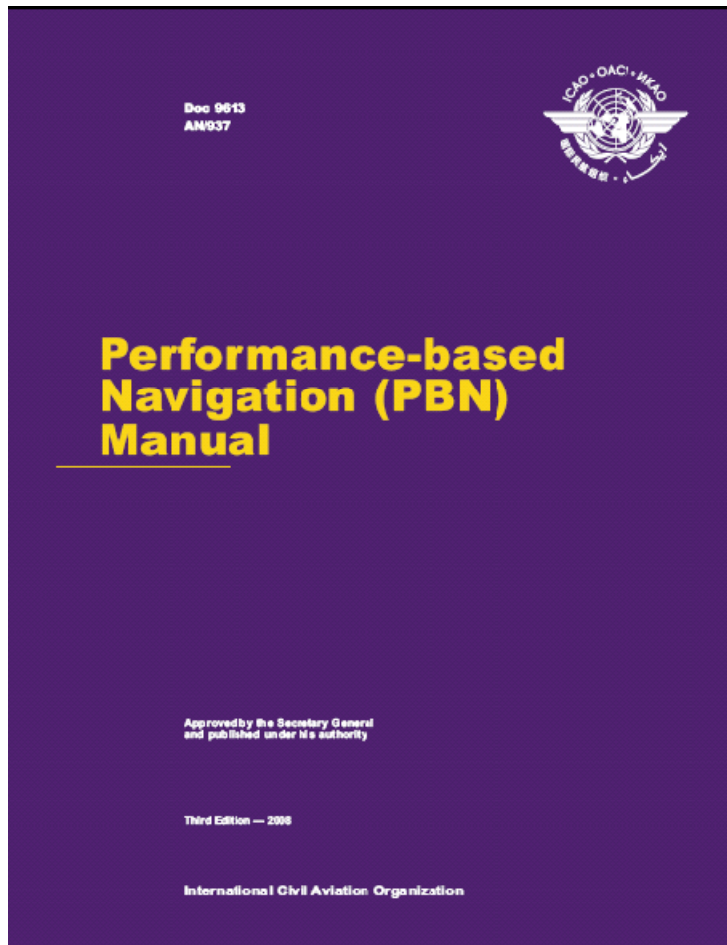
PBN education starts here...



ICAO DOC 9613

- Volume I
 - Part A - The PBN Concept
 - Part B – Implementation Guidance
- Volume II
 - Implementing RNAV and RNP

Implementation Guidance

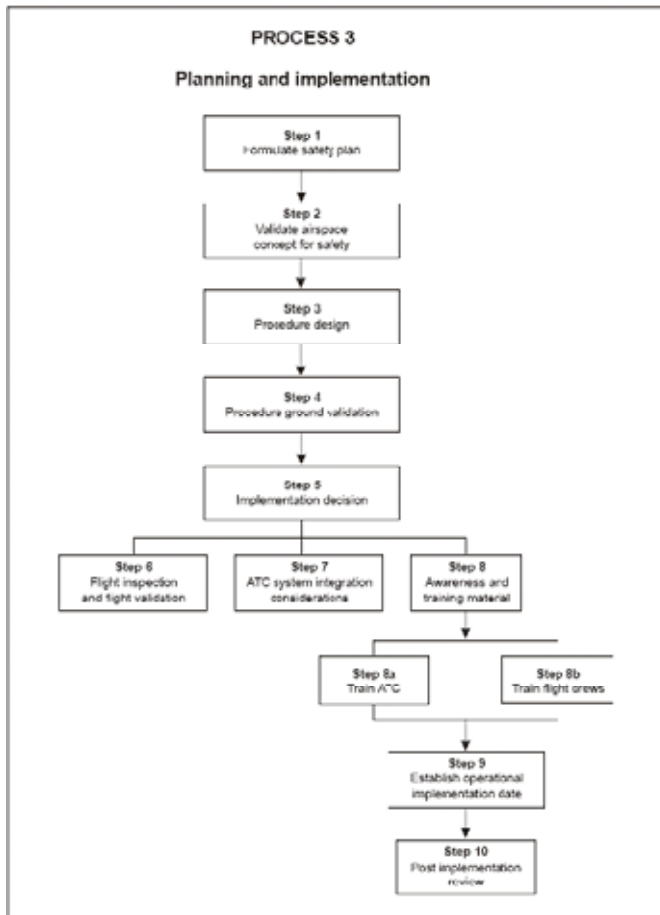


- Process 1 - Determine Requirements
- Process 2 – Identify navigation specifications for implementation
- Process 3- Planning and Implementation

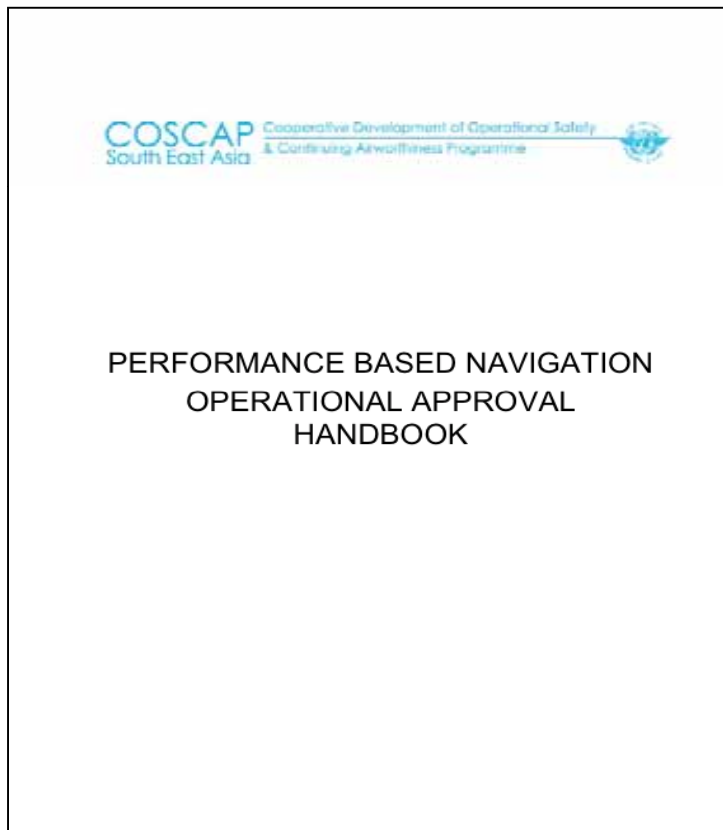
Process 3

Planning and Implementation

1. Formulate Safety Plan
2. Validate airspace concept for safety
3. Procedure design
4. Procedure ground validation
5. Implementation decision
6. Flight inspection and validation
7. ATC system integration
8. Training (Flight crews and ATC)
9. Establish operational implementation date
10. Post implementation review



COSCAP PBN Ops Approval Handbook



- Part 1 - PBN Technology
- Part 2 - PBN Operational Approvals
- Part 3 - Job Aids

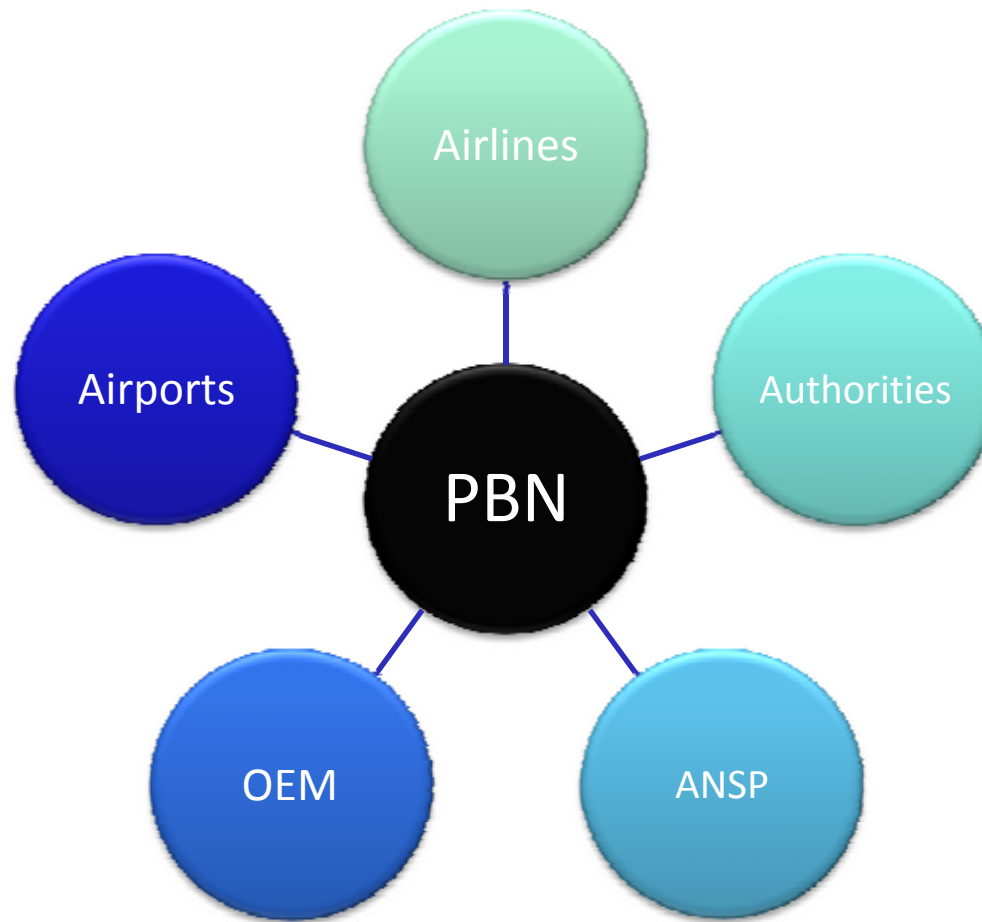
“States are welcome to adapt this document as required to form the basis on which inspectors will provide operational approvals to operators in their State.”



PBN begins with Proper Planning

- BPE 1- Policy & Implementation Planning
- BPE 2- Assessment of the CNS Infrastructure
- BPE 3- Assessment of PBN Fleet Readiness
- BPE 4- Selection of appropriate PBN navigation specification
- BPE 5- Strategy for en-route implementation
- BPE 6- Strategy for terminal area implementation
- BPE 7- Strategy for Instrument Approach implementation
- BPE 8- Transition strategy (includes decommissioning plan)
- BPE 9- Safety assessment
- BPE 10- Description of tangible benefits (recommended)
- BPE XX - Regulatory Framework and Process for Operational Approval**

PBN Implementation Succeeds with Collaboration



**Recommend
Formation of a
National
Working
Group**



Thank you!

to represent, lead and serve the airline industry

Roadblocks

- Lack of expertise
 - Airspace development
 - Operational approval process
 - Pilots and ATC Controllers training
 - Coordination between Stakeholders
 - National
 - Regional
 - Clear Cost x Benefit Analysis
- And some Misconceptions...

Misconceptions on PBN

- PBN, it **looks** complicated but it is not:
 - It does **not** add new navigation philosophy, but just is a pragmatic tool to implement navigation procedures for aircraft capability that exists for more than 30 years!
 - It does **not** require States to completely overhaul navigation infrastructure, but can be implemented step-by-step
 - It does **not** require States to implement the most advanced navspec, only needs to accommodate the operational needs



PBN REDI Initiative - Indonesia

Sponsored by Boeing, IATA
Facilitated by FPP & COSCAP

Deliverables

- Understanding of the steps required to develop and sustain PBN capabilities
 - RNP APCH Procedures – Jakarta / Surabaya / Denpasar
 - 1st validation of the PBN REDI Initiative
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PBN REDI Initiative - Indonesia

Action Plan

- PBN project introduction and initial assessment (COSCAP / FPP) - 7-11 Feb 2011
- Procedure Design OJT and development (FPP) - Mar-Apr 2011
- Direct consultation and execution support (COSCAP) - TBD 2011
- RNP APCH – JKT, SUB, DPS - TBD 2011



Commitment from States

2010 37th ICAO General Assembly

- Resolution A37-11 supersedes A36-23
- A37-11 urges all States to complete a national PBN implementation plan as soon as possible to achieve:
 - PBN for en route and terminal areas
 - According to established timelines and intermediate milestones;
 - PBN approach procedures with vertical guidance (APV) for all instrument runway ends (as primary or back-up for precision approach) by 2016 - 30% by 2010, 70% by 2014

Commitment from Stakeholders

We Resolve:

- To support the timetable set out by ICAO for the global implementation of PBN,
- To collectively work to facilitate the implementation of PBN, and
- To assist States, regions and other stakeholders in their development and execution of a complete PBN implementation plan.



Industry Declaration in support of Performance-based Navigation (PBN)

We, as representatives of the air transportation community,

Affirming our joint responsibility to seek continual improvements to the safety, access, capacity, efficiency and environmental sustainability of the air transportation system,

Recognizing that Performance-based Navigation (PBN) provides a catalyst for these improvements to air traffic operations, while enabling a seamless and cost effective solution throughout the entire flight,

Recognizing the work of ICAO in formulating and publishing globally harmonized Area Navigation (RNAV) and Required Navigation Performance (RNP) provisions, now known as Performance-based Navigation (PBN),

Recalling that Resolution A36-23 of the 36th ICAO General Assembly whereby States are urged to implement PBN procedures in accordance with the established timetable,

We resolve:

To support the timetable set out by ICAO for the global implementation of PBN,

To collectively work to facilitate the implementation of PBN, and

To assist States, regions and other stakeholders in their development and execution of a complete PBN implementation plan.

We call upon:

All leaders of the civil aviation community, to fully support implementation of PBN into the air navigation system according to the ICAO provisions and established timetable.




Roberto Kobeh González, Council President




Giovanni Bisignani, Director General and CEO




Alexander ter Kuile, Secretary General




Marc Baumgartner, President & CEO




Capt. Carlos Limon, President




Donald D. Spruston, Director General




François Gayet, Chairman




Angela Gittens, Director General




Matthew S. Zuccaro, President




William R. Voss, President & CEO



...But still not worldwide implemented!