



INTERNATIONAL CIVIL AVIATION ORGANIZATION

A United Nations Specialized Agency

PBN Airspace Design Workshop

Document Overview

**Asia and Pacific Regional Sub-Office
Beijing, China**

ICAO Manual Overview



❖ ICAO PBN Manual (Doc 9613)

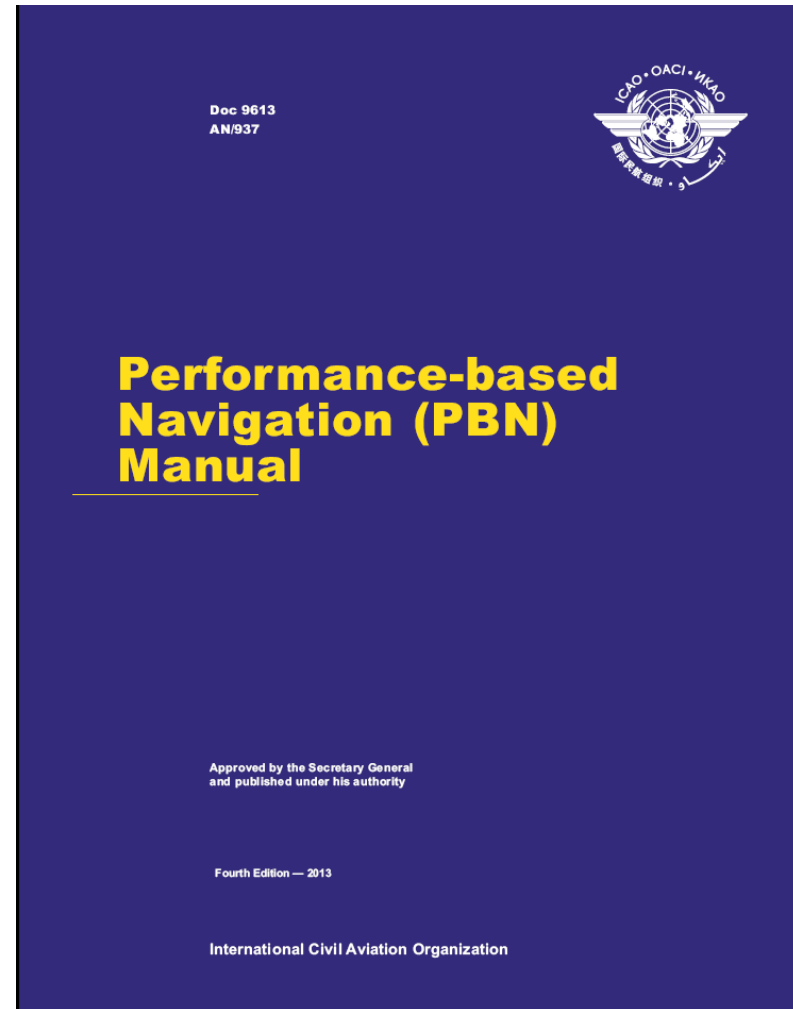
➤ Volume I

Part A – PBN Concept

- Ch. 1. Description of PBN
- Ch. 2. Airspace Concept
- Ch. 3. Stakeholder uses of PBN

Part B – Implementation Guidance

- Ch. 1. Introduction to implementation process
- Ch. 2. **Process 1**: Identifying an ICAO Navigation Specifications for Implementation
- Ch. 3. **Process 2** : Validation and Implementation Planning



ICAO Manual Overview

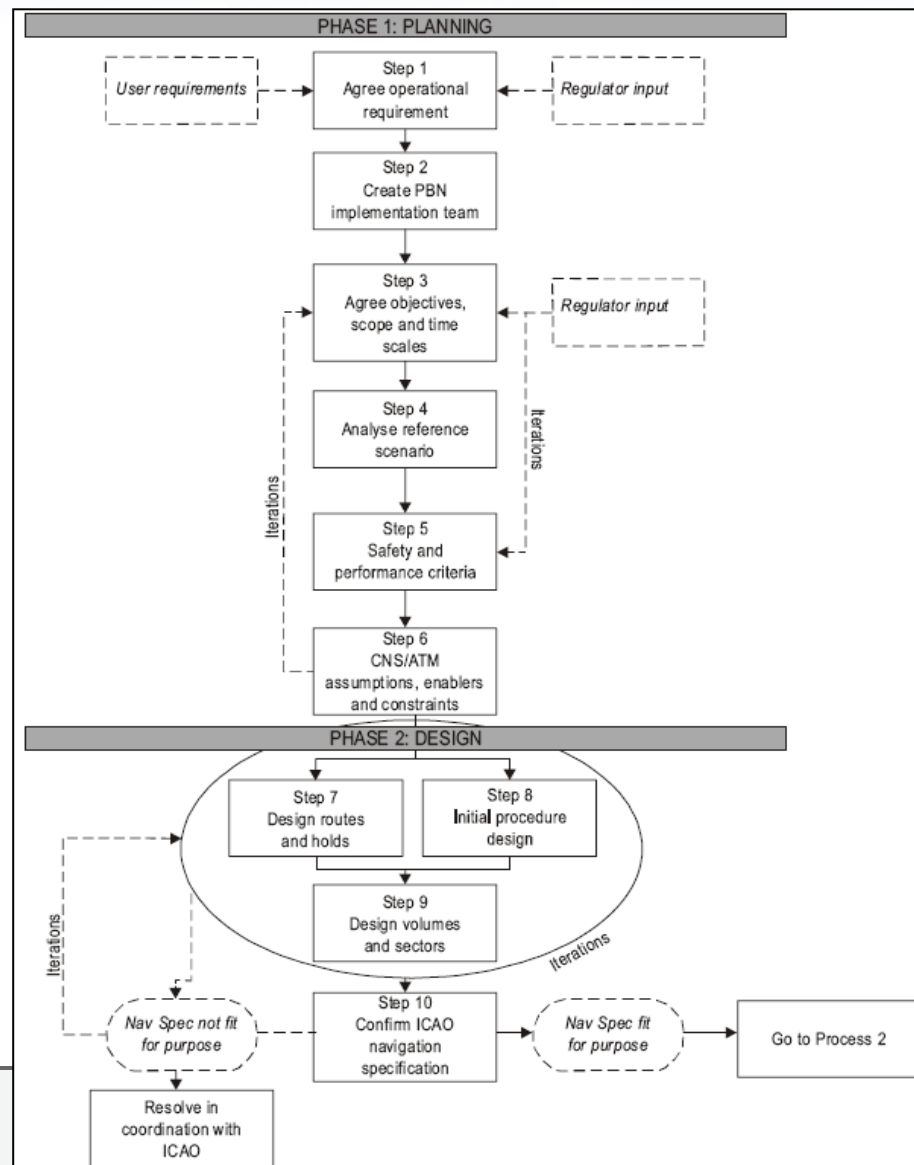
❖ ICAO PBN Manual (Doc 9613)

➤ Volume I

Part B – Implementation Guidance

Process 1:

Identifying an ICAO Navigation Specifications for Implementation



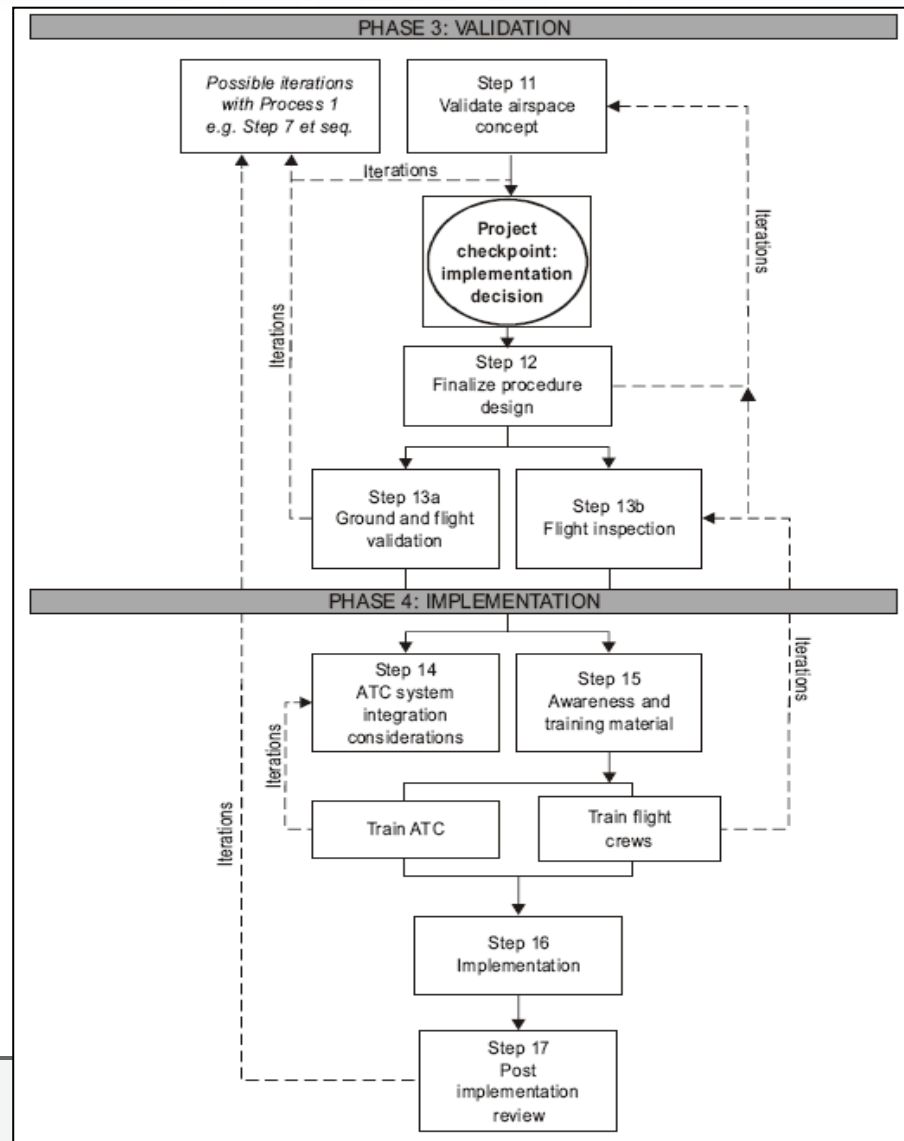
ICAO Manual Overview

❖ ICAO PBN Manual (Doc 9613)

➤ Volume I

Part B – Implementation Guidance

Process 2 : Validation and Implementation Planning



ICAO Manual Overview

❖ ICAO PBN Manual (Doc 9613)

➤ Airspace Design Activities



ICAO Manual Overview



❖ ICAO PBN Manual (Doc 9613)

➤ Volume II

Part A – General

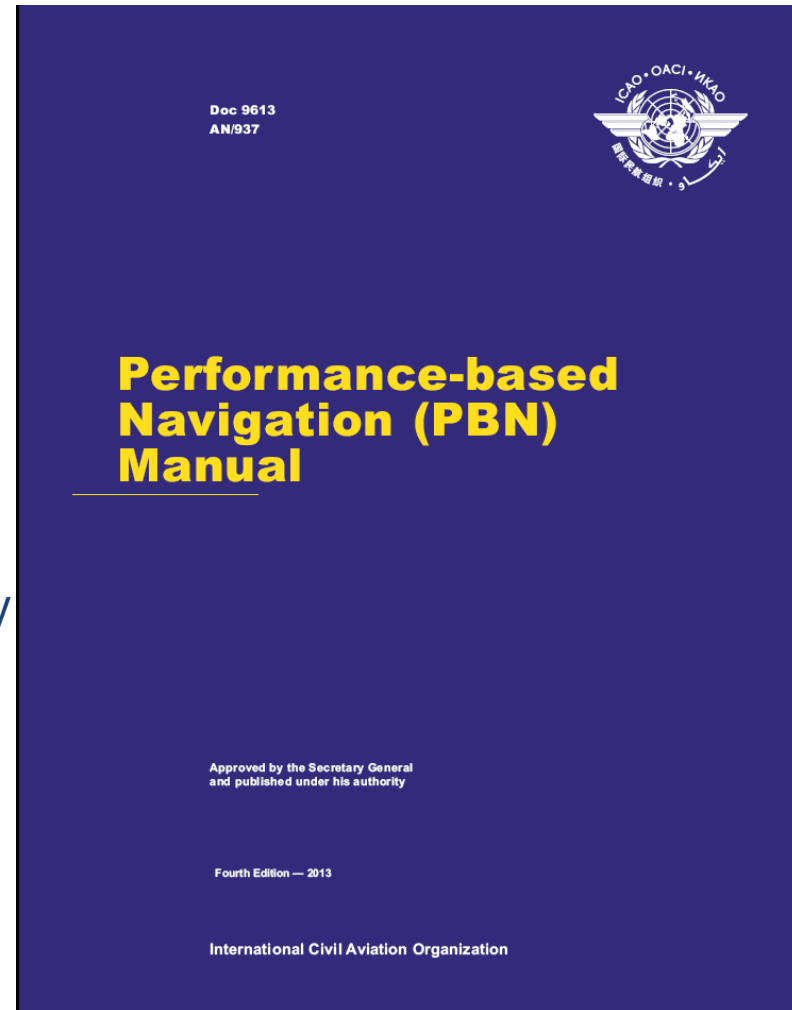
- Ch. 1. Introduction
- Ch. 2. OPMA
- Ch. 3. SA Considerations
- Ch. 4. Navigation Service Monitoring

Part B – Implementing RNAV Operations

- Ch. 1~3 for RNAV 10, RNAV 5 and RNAV 1 & RNAV2 implementation

Part C – Implementing RNP Operations

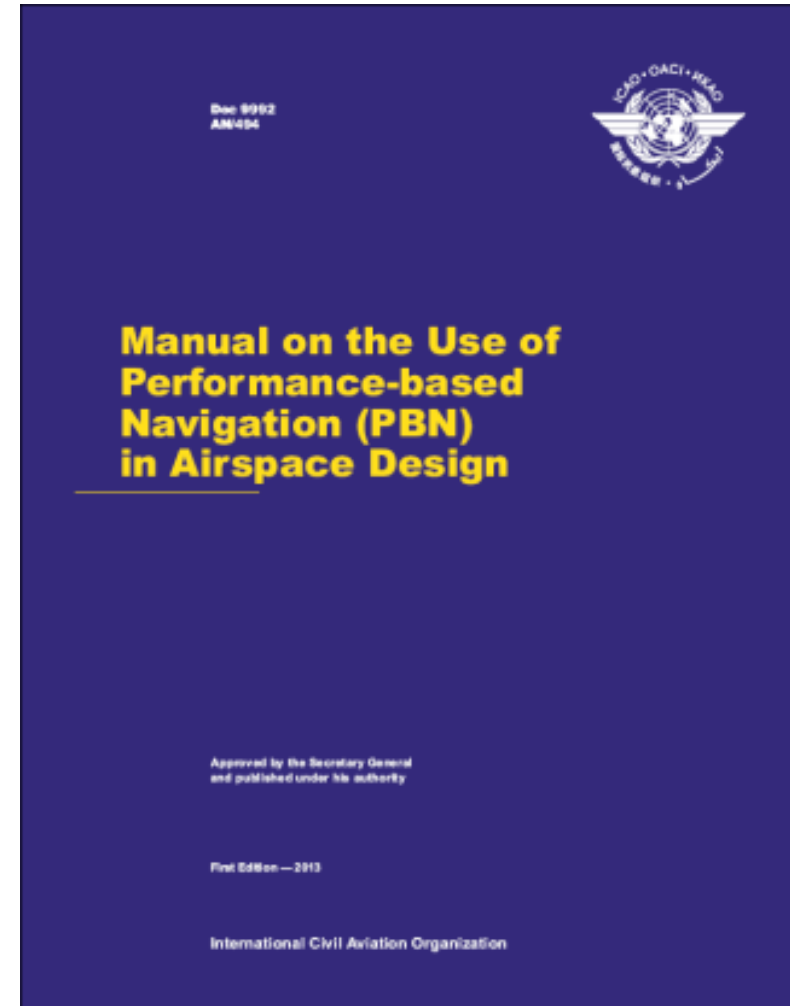
- Ch. 1~7 for RNP4, RNP 2, RNP 1, ARNP, RNP APCH, RNP AR ACH and RNP 0.3 implementation



ICAO Manual Overview



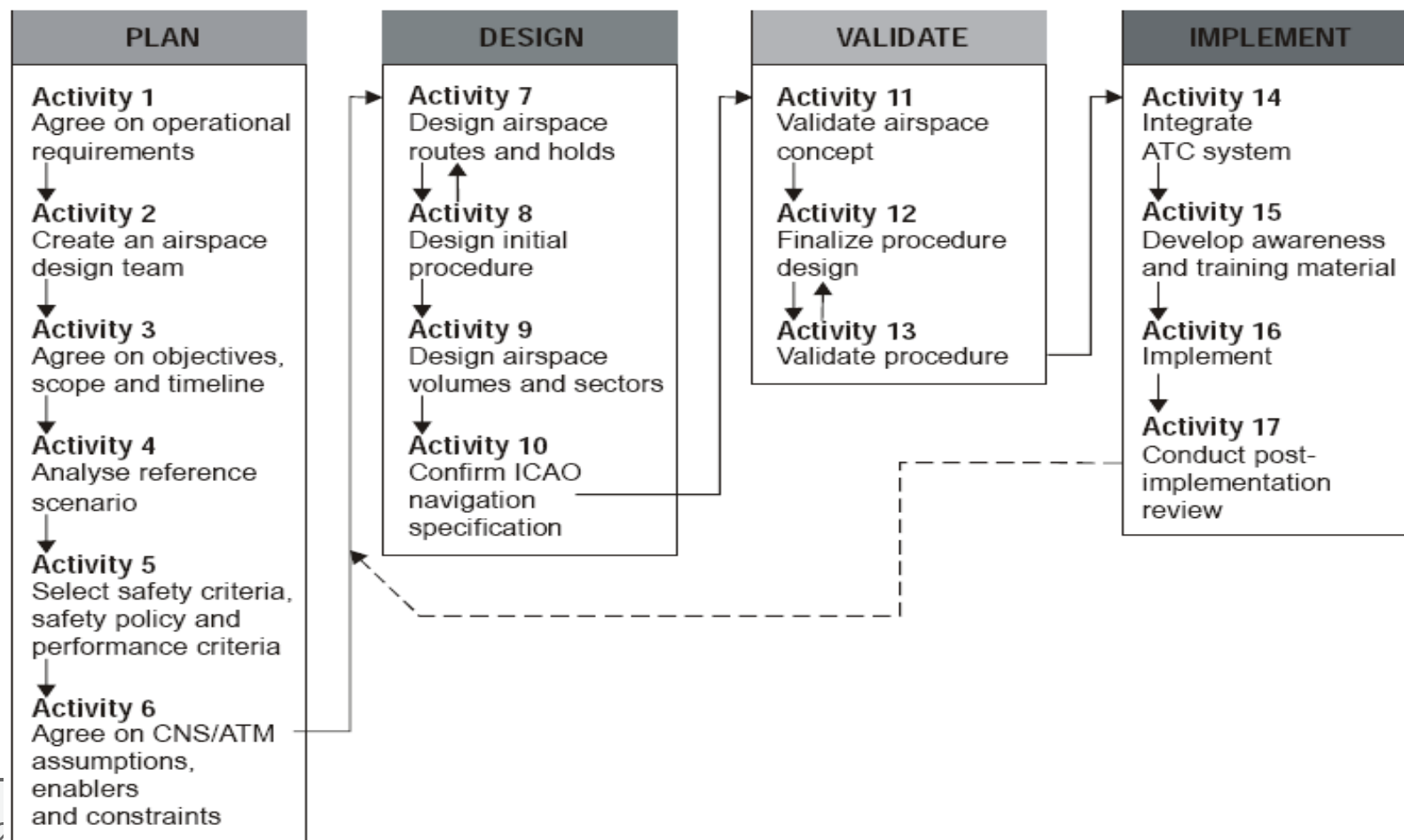
- ❖ **ICAO PBN Airspace Design Manual (Doc 9992)**
 - **Chapter 1- Background**
 - Includes PBN Concept, airspace concept and PBN benefits
 - **Chapter 2 - Process**
 - Explains **17 PBN airspace design processes** divided by phases, which are Planning Phase, Design Phase, Validation Phase and Implementation Phase



ICAO Manual Overview

❖ ICAO PBN Airspace Design Manual (Doc 9992)

➤ Airspace concept development and implementation process



ICAO Manual Overview



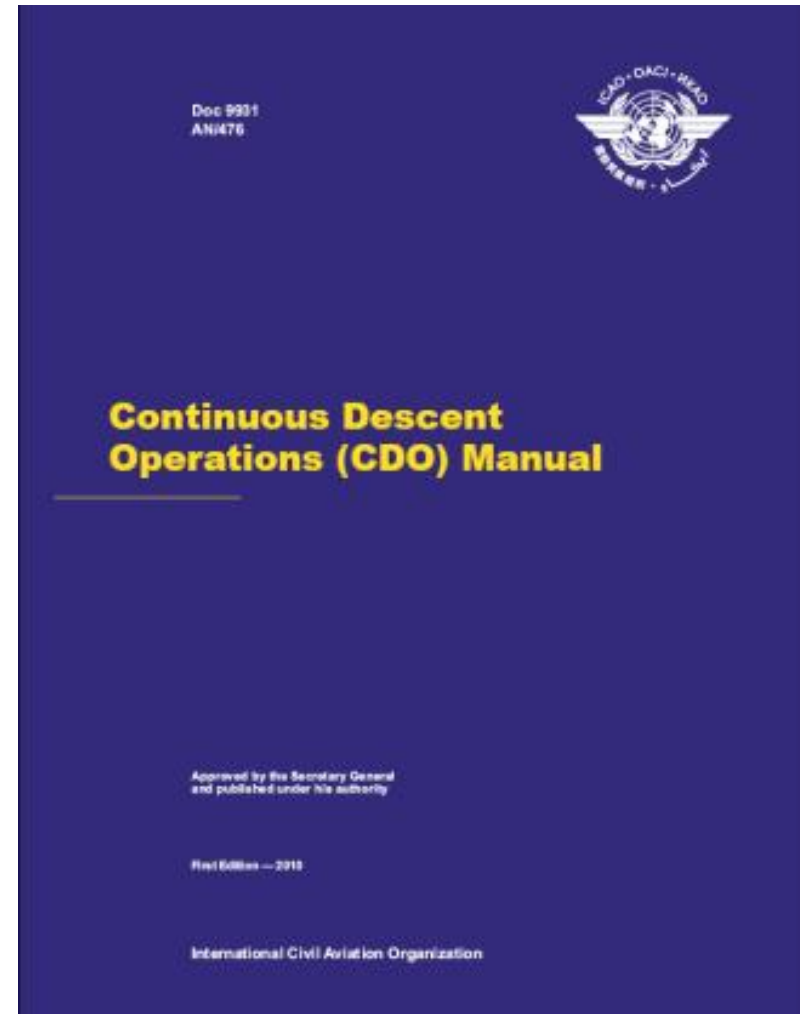
❖ ICAO CDO Manual (Doc 9931)

➤ Part A – CDO Overview

- Includes Description of CDO, specific stakeholder issues and CDO implementation overview and prerequisites

➤ Part B – Implementation Guidance

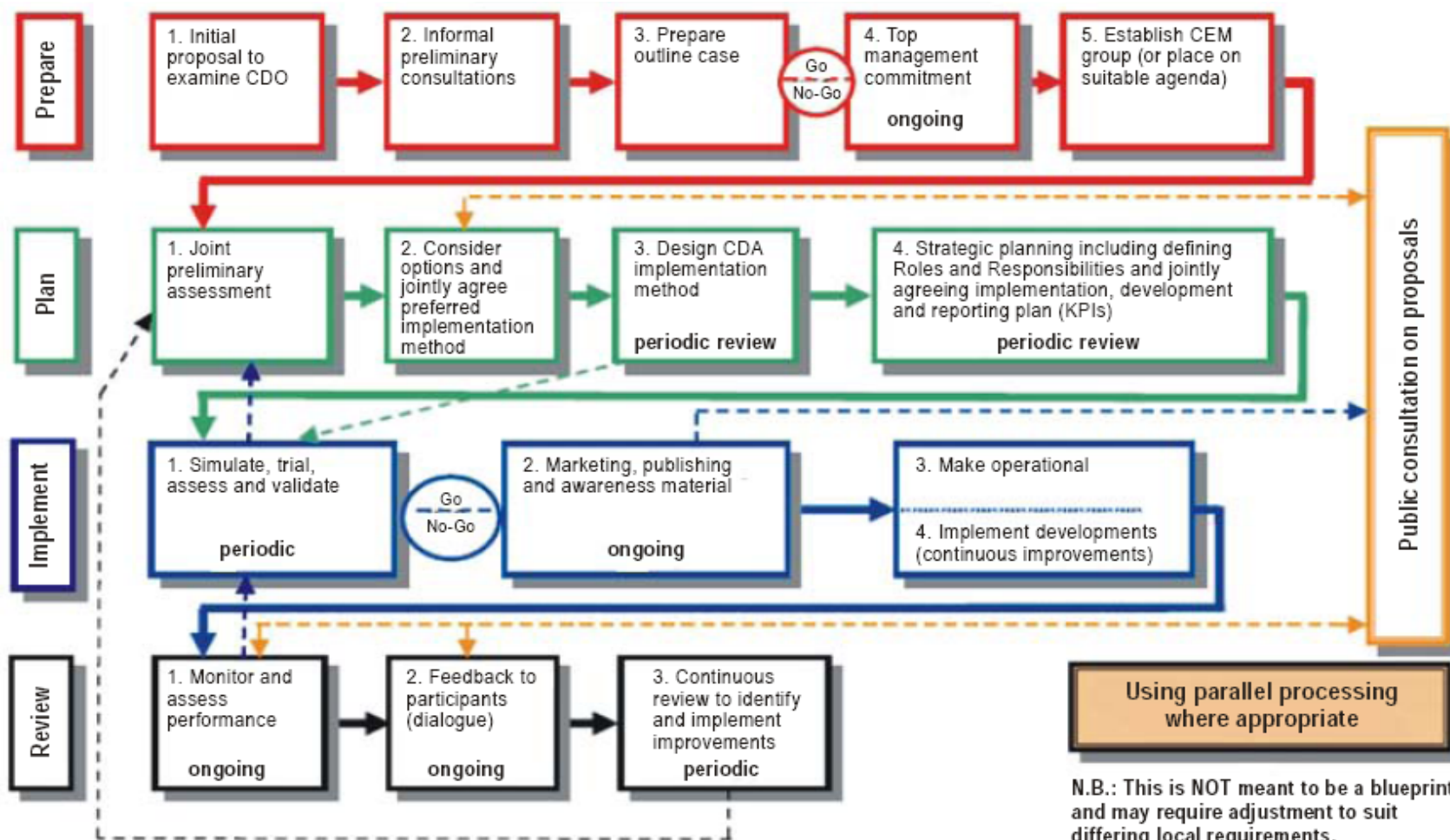
- Explains **CDO implementation processes** divided by phases, which are Preparation Phase, Planning Phase, Implementation Phase and Review Phase



ICAO Manual Overview

❖ ICAO CDO Manual (Doc 9931)

➤ CDO Implementation Roadmap

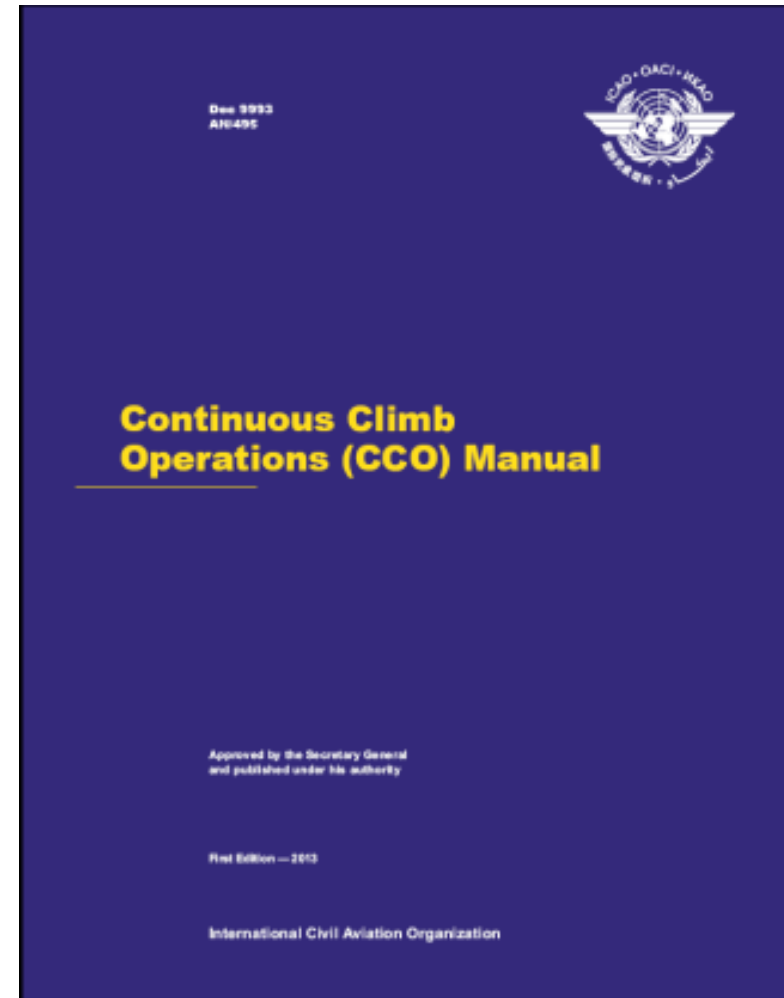


ICAO Manual Overview



❖ ICAO CCO Manual (Doc 9993)

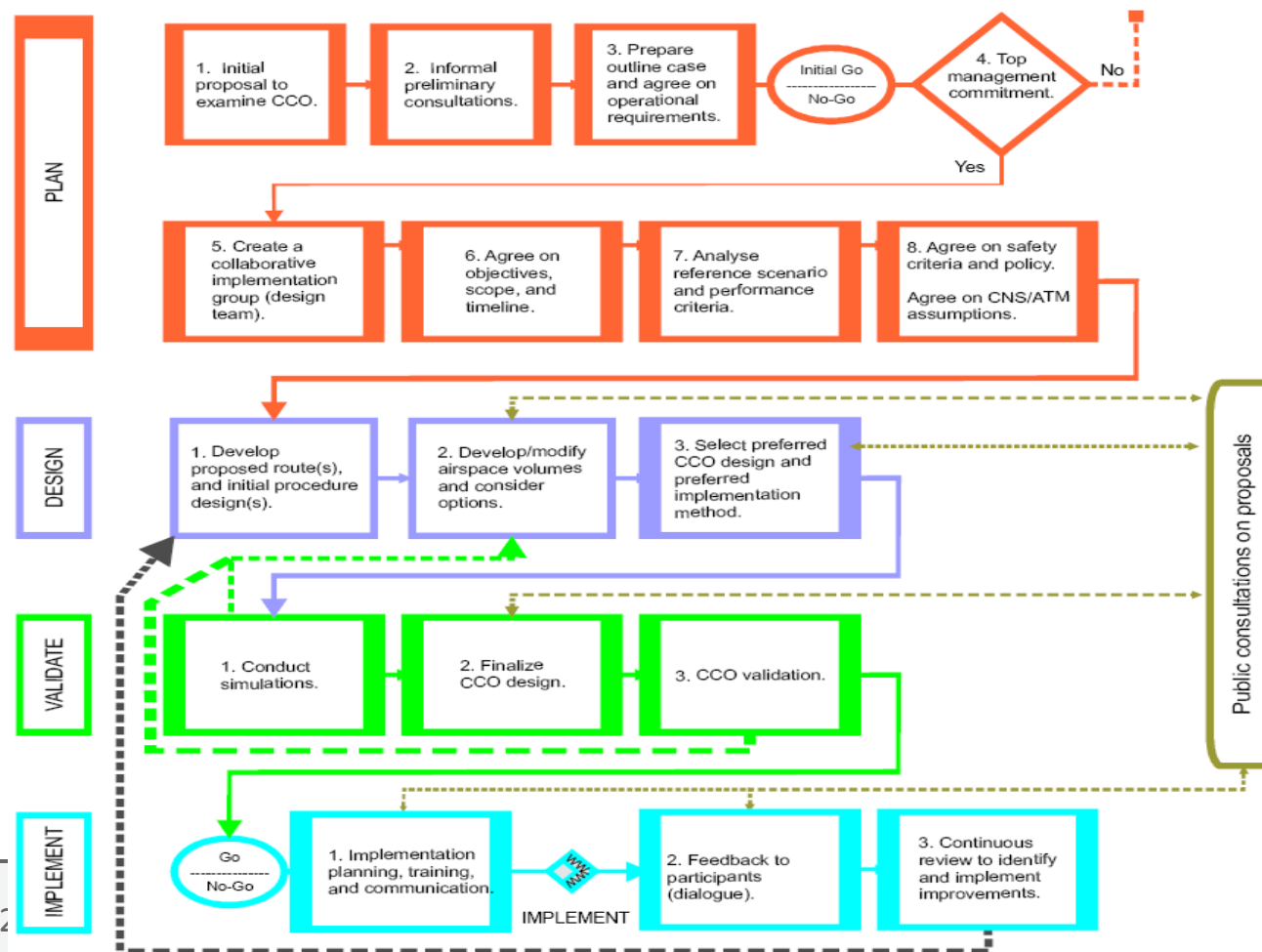
- **Part A – CCO Overview**
 - Includes Description of CCO, specific stakeholder issues and CCO implementation overview and prerequisites
- **Part B – Implementation Guidance**
 - Explains **CCO implementation processes** divided by phases, which are Planning Phase, Design Phase, Validation Phase and Implementation Phase



ICAO Manual Overview

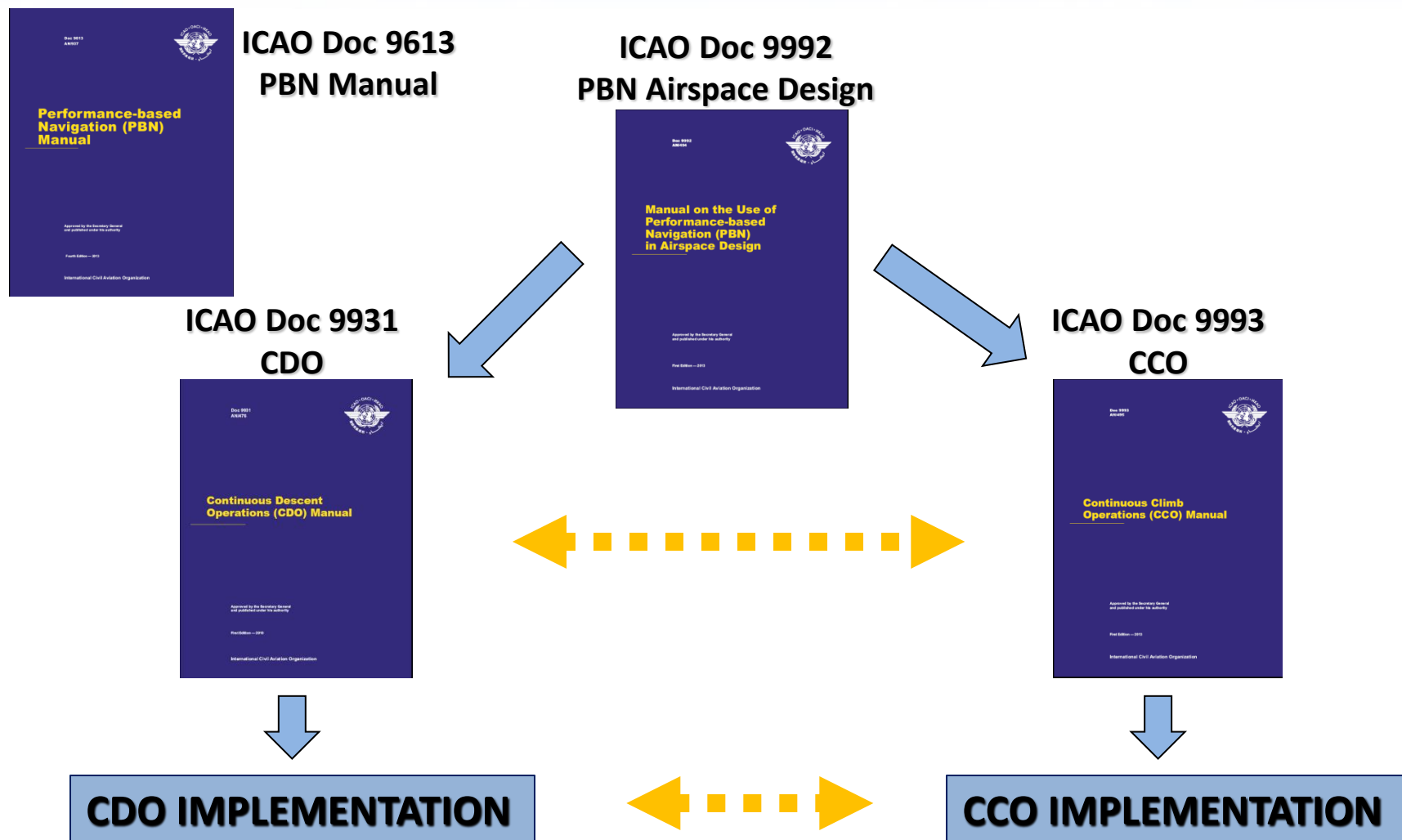
❖ ICAO CCO Manual (Doc 9993)

➤ CCO Implementation Roadmap



Note : Use parallel processing where appropriate.

CDO, CCO and Airspace



ICAO Manual Overview

❖ Other ICAO Documents related to Airspace Design

- PANS-OPS (Doc 8168)
- PANS-ATM (Doc 4444)
- Regional Supplementary Procedures (Doc 7030)
- Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689)
- Air Traffic Service Planning Manual (Doc 9426)
- Safety Management Manual (SMM) (Doc 9859)
- Quality Assurance Manual for Flight Procedure Design (Doc 9906)
 - Volume 1 — Flight Procedure Design Quality Assurance System
- GNSS Manual (Doc 9849)
- Manual on Testing Radio Navigation Aids (Doc 8071)
- Manual on Required Communication Performance (RCP) (Doc 9869)



North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montreal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Office
Bangkok

Asia and Pacific
Regional Sub-Office
Beijing (APAC RSO)

Questions?



North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montreal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Office
Bangkok

Asia and Pacific
Regional Sub-Office
Beijing (APAC RSO)

Thank You