INTERNATIONAL CIVIL AVIATION ORGANIZATION
A United Nations Specialized Agency

ASBU SIP/MEXICO/2013-WP/5

Global Air Navigation Plan and Aviation System Block Upgrades (ASBU) Methodology

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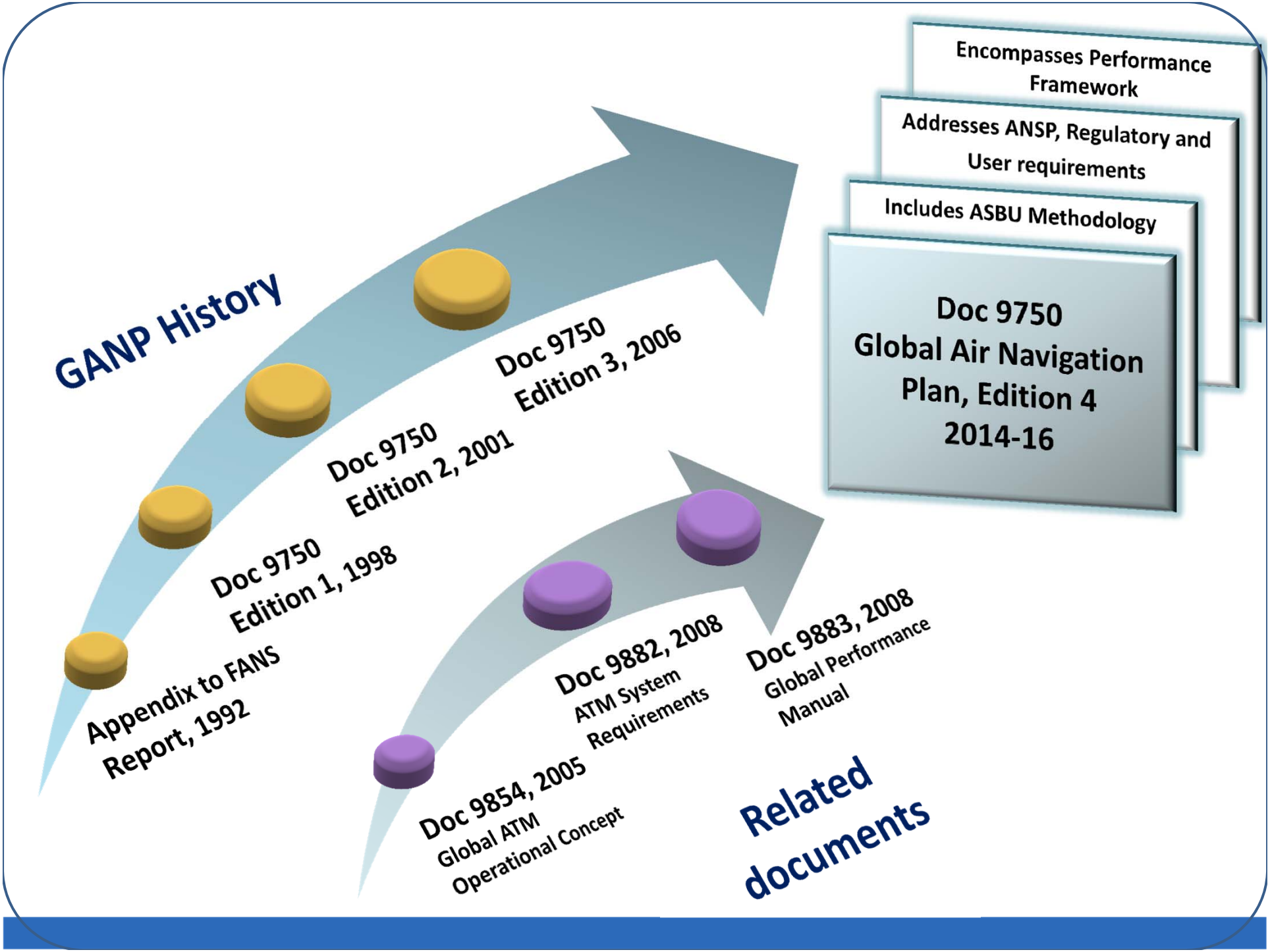
What is Global Plan?

- Strategic Document for regional and national planning for air navigation infrastructure
- Refers to five major disciplines
  - ATM, CNS, MET, AIM and AGA


GANP History
Appendix to FANS Report, 1992
Doc 9750 Edition 1, 1998
Doc 9750 Edition 2, 2001
Doc 9750 Edition 3, 2006
Encompasses Performance Framework
Addresses ANSP, Regulatory and User requirements
Includes ASBU Methodology
Doc 9750 Global Air Navigation Plan, Edition 4 2014-16
Doc 9854, 2005 Global ATM Operational Concept
Doc 9882, 2008 ATM System Requirements
Doc 9883, 2008 Global Performance Manual
Related documents

GANP- Contents (DOC 9750)

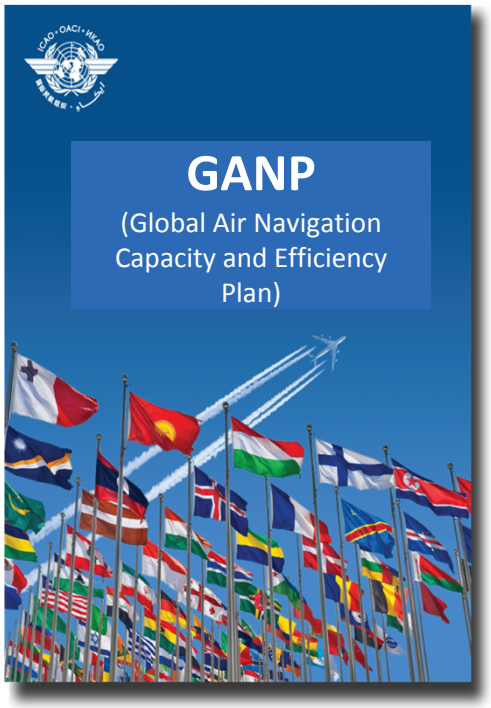
Strategic Objective: Capacity and Efficiency

Executive summary

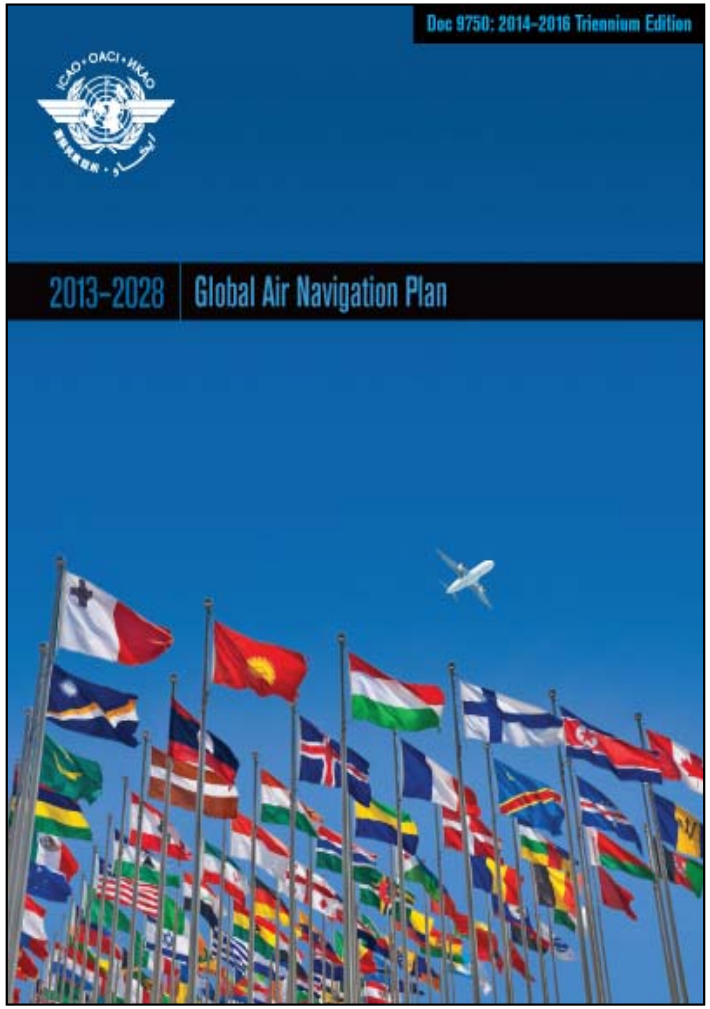
Introduction: Presentation of GANP
Chapter 1: ICAO's Ten Key Air Navigation Policy Principles
Chapter 2: Implementation
Chapter 3: Aviation System Performance

Appendices:

Appendix 1 Global Air Navigation Plan Evolution and Governance
Appendix 2 Aviation System Block Upgrades
Appendix 3 Hyperlinked Online Support Documentation
Appendix 4 Frequency Spectrum Considerations
Appendix 5 Technology Roadmaps
Appendix 6 Module Dependencies
Appendix 7 Acronym Glossary



GANP Policy Principles



1. Commitment to the Implementation of ICAO's Strategic Objectives and KPAs
2. Aviation Safety is the highest priority
3. Tiered Approach to Air Navigation Planning
4. Global Air Traffic Management Operational Concept (GATMOC)
5. Global Air Navigation Priorities
6. Regional and State Air Navigation Priorities
7. Aviation System Block Upgrades (ASBUs), Modules and Roadmaps
8. Use of ASBU Blocks and Modules
9. Cost Benefit and Financial issues
10. Review and Evaluation of Air Navigation Planning

What is new in the revised Global Plan?

No	GANP third edition (Nov 2006)	GANP fourth edition (Nov 2012)
1	Scope coverd only ground equipment for ANSPs	Scope extends to airspace users and regulators
2	P (paper)–based	E (electronic)–based

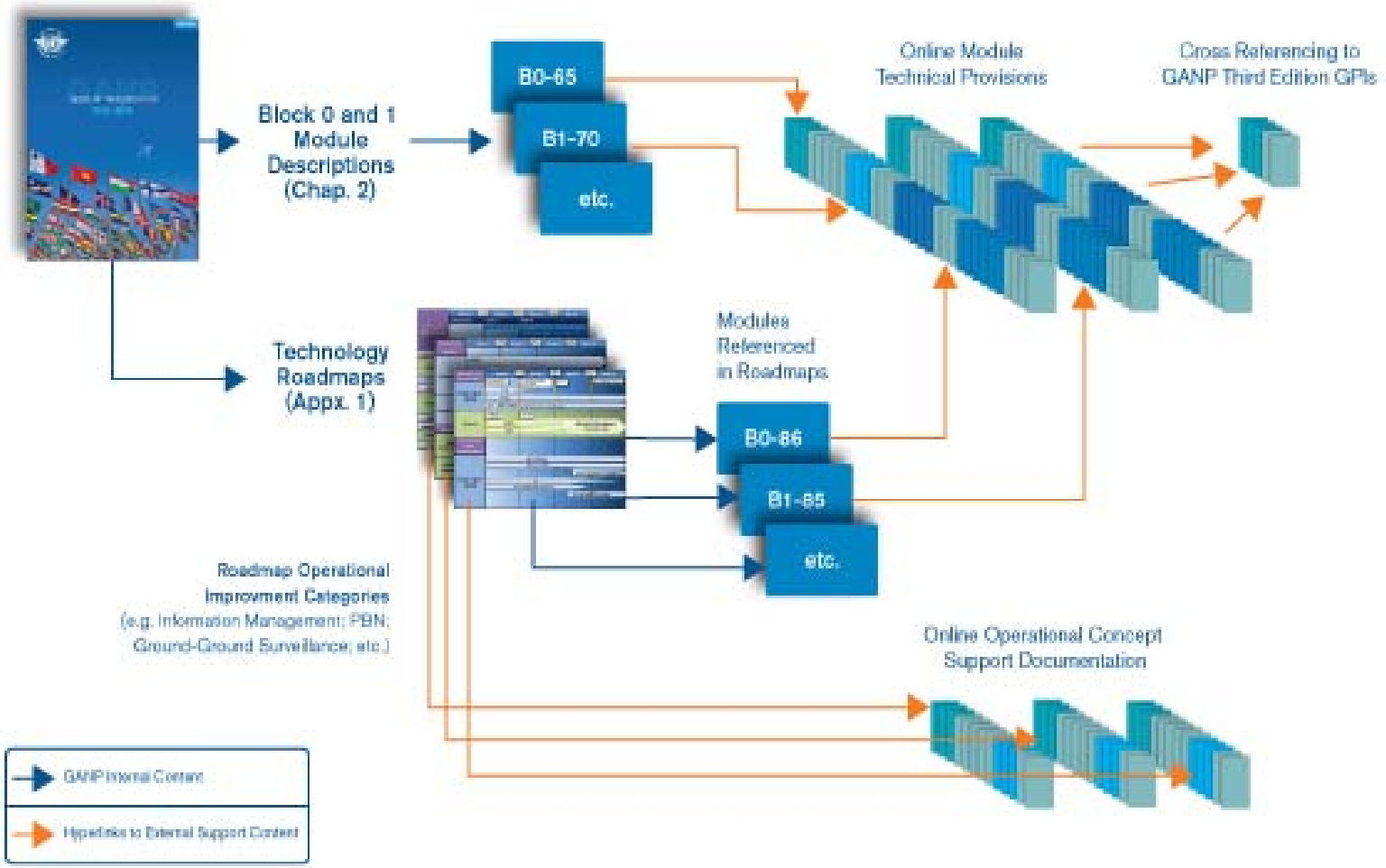
What is new in the revised Global Plan?

No	GANP third edition (Nov 2006)	GANP fourth edition (Nov 2012)
3	No individual roadmap for enablers	Separate technology roadmaps for C, N, S, IM and avionics
4	Implementation was based on near term and medium terms	Implementation is based on near, medium and long terms through Blocks 0, 1, 2 and 3 timeframes

What is new in the revised Global Plan?

No	GANP third edition (Nov 2006)	GANP fourth edition (Nov 2012)
5	Supported by paper based Regional ANPs	Supported by web based Regional ANPs, called eANPs
6	Quantification of fuel savings and corresponding environmental benefits was not available	ICAO Fuel Savings Estimation Tool (IFSET) will be a part of the revised global plan

Mapping of the hyperlinked documents



A Shared Vision for the Future

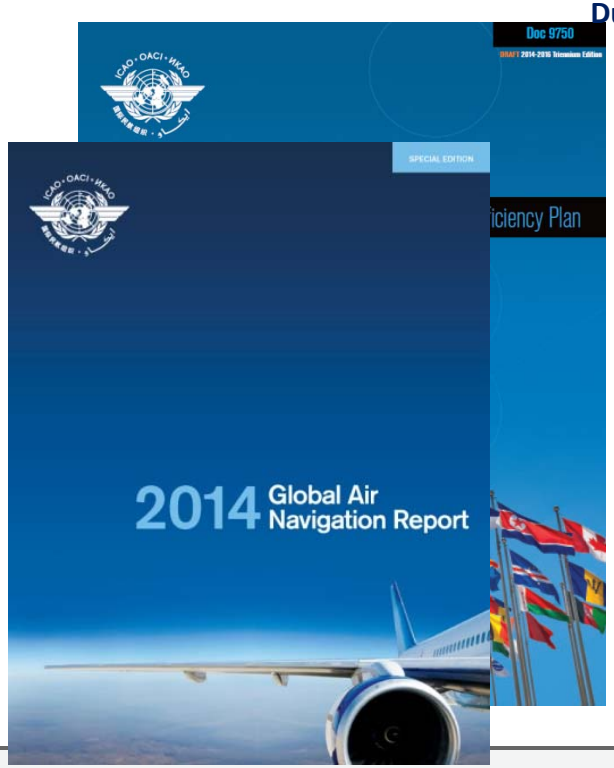
- **Working Strategically**
  - Annual reports on the Strategic Objectives

Draft Developed in collaboration with industry partners -completed

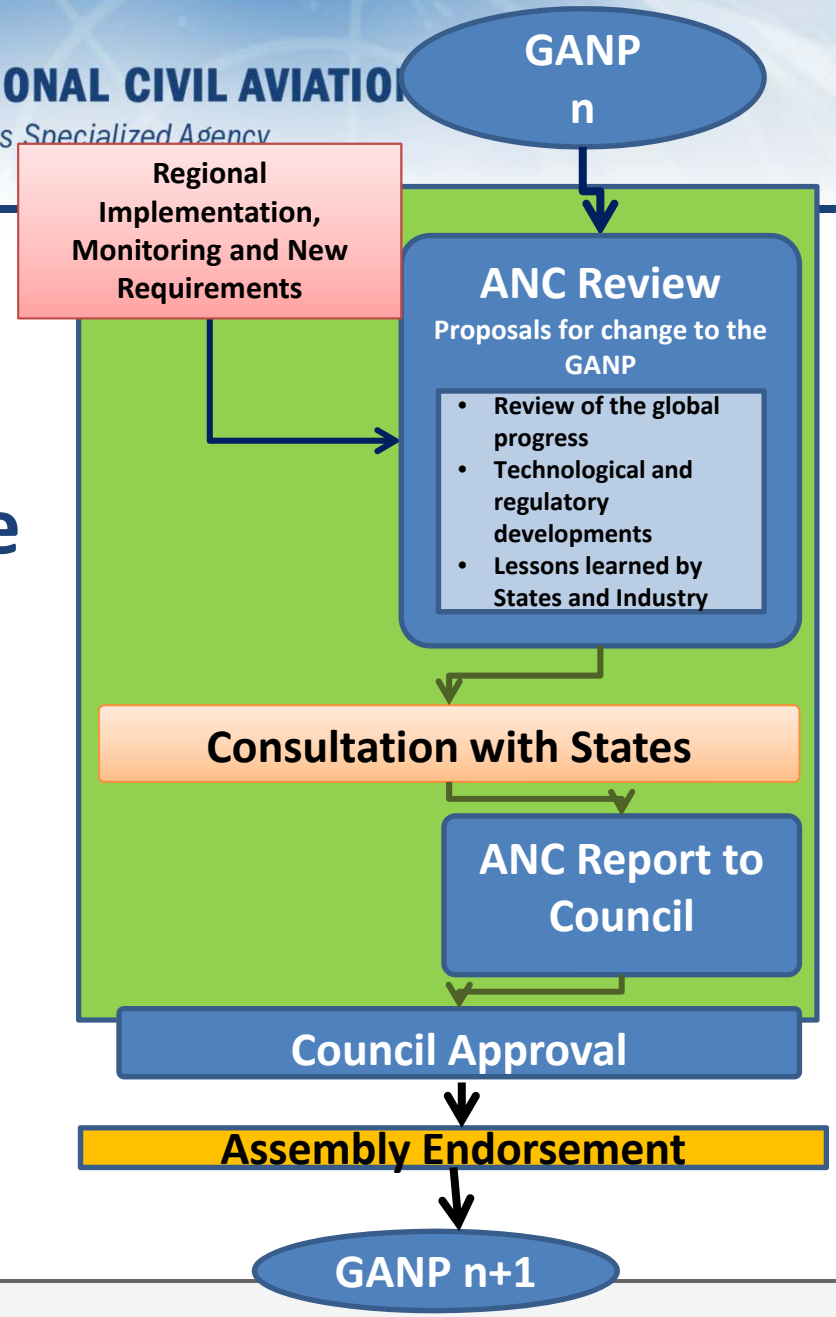
ANC Review Spring 2013-completed

Council Approval Spring 2013-completed

Assembly Endorsement Due in Nov 2013



GANP Update Process



Following Recommendation 1/1 b) of the 12th Air Navigation Conference, the GANP will be submitted to States before approval.

ASBU framework

- **What is ASBU framework?** Today's Challenges, Tomorrow's Needs, Why ASBU methodology and ASBU explanation

Today's Challenges

- Air traffic growth expands two-fold every 15 years
- Growth can be a double-edged sword. Challenge is how to achieve both safety and operational improvements
- The 37th session of ICAO General Assembly advised to redouble our efforts with focus on ensuring interoperability of systems while at the same time maintaining or enhancing aviation safety.

New National/Regional Plans - interoperability challenges

Examples..

Many Regional and National ATM modernization programmes are being developed worldwide

- They are following ICAO's Global Air Navigation Plan and Operational Concept, but nevertheless they are different in their own way
- thus resulting in interoperability challenges

Tomorrow's Needs

- Global framework is needed to ensure:
  - Safety is maintained and enhanced
  - ATM improvement programs are harmonized
  - Barriers to future efficiency and environmental gains are removed, at reasonable cost

Harmonize the Global Agenda

- Initial NextGen/SESAR Symposium (2008)
- Convened Standards Organization Roundtable (2009)
- Established working agreements with Standards Organizations on shared work programmes (2010)

What is the Basis for Block Upgrades?

- Foundation of blocks originates from existing, near term implementation plans and extracted from (examples):

SESAR

CARATS
Collaborative Actions for Renovation of Air Traffic Systems

- Aligned with ICAO ATM Operational Concept
- Block upgrades will allow structured approach to meet regional and local needs , while considering associated business cases
- They reflect recognition that all modules are not required in all airspaces

What is the difference between current and ASBU methodology?

- **Current methodology**
  - Scope covers only ground equipment for ANSPs
  - Planning based on short and medium term
  - Implementation process is through GPIs
- **ASBU methodology**
  - Scope extends to airspace users and regulators
  - Planning based on short, medium and long terms
  - Implementation process is through Blocks and corresponding modules

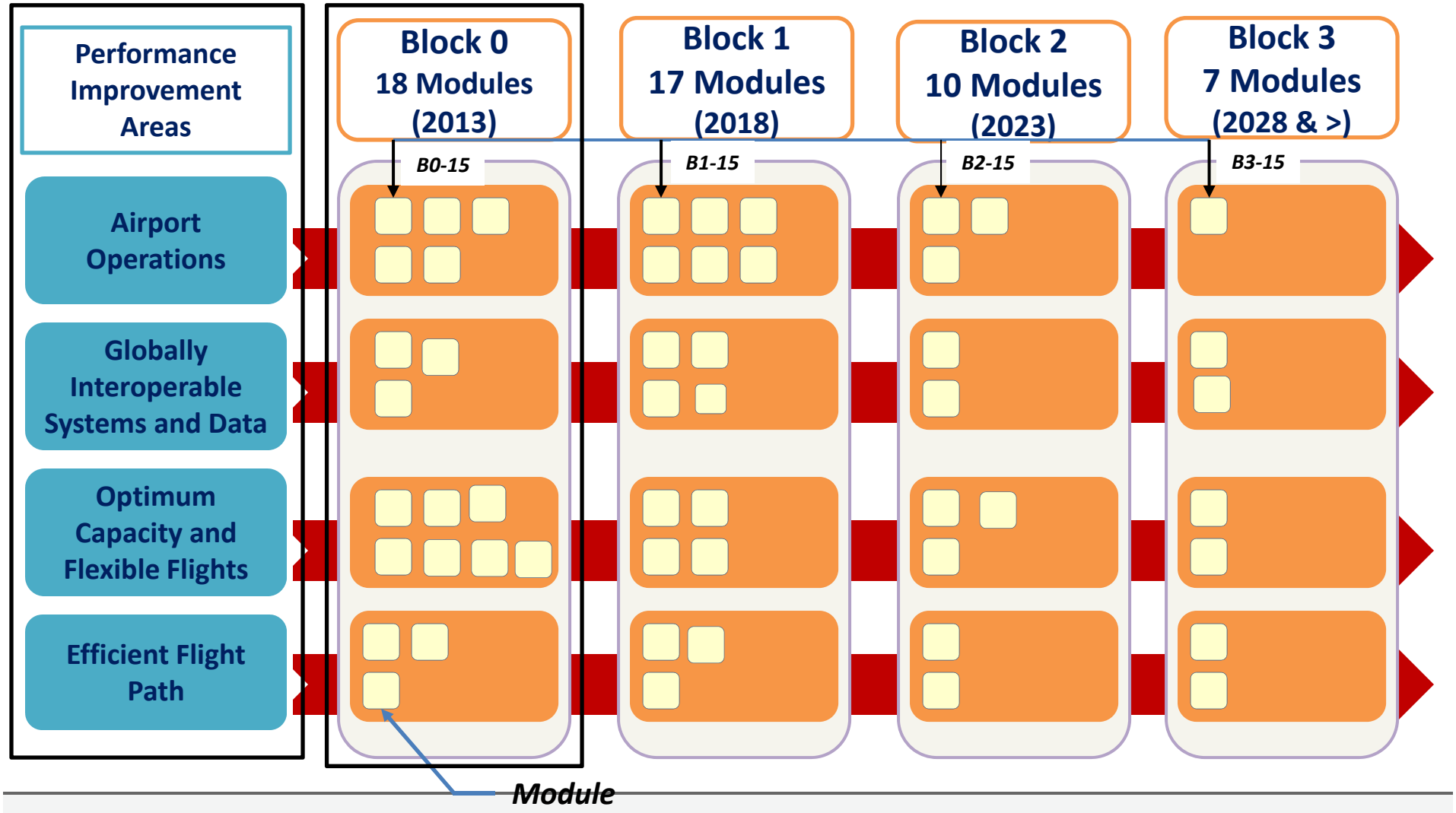
What are the advantages of ASBU methodology?

- Takes into account all related issues such as air/ground Systems, air/ground procedures, air/ground regulatory requirements and business case formulation,
- One stop planning at the same time flexible and scalable
- Modules provide a series of measurable, operational performance improvements, which could be introduced as needed

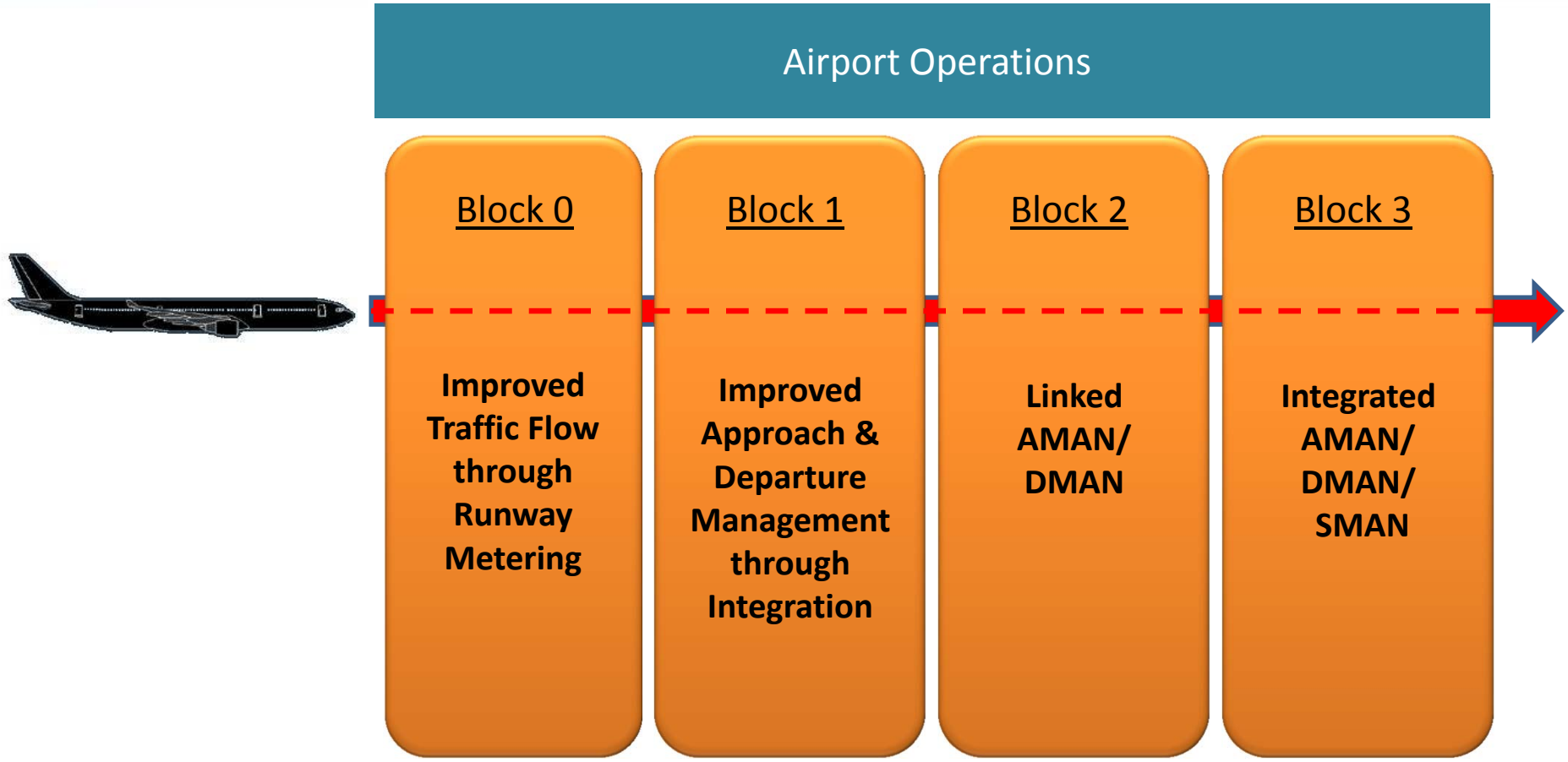
Aviation System Block Upgrades – Definition

- What is an 'Aviation System Block Upgrade' (ASBU)?
- **Each Module is defined as follows:**
  - Intended *Operational Improvement/Metric* to determine success
  - Necessary *Procedures*/Air and Ground
  - Necessary *Technology*/Air and Ground
  - Positive *Business Case* per Upgrade
  - *Regulatory Approval* Plan/Air and Ground
  - *Well understood* by a Global Demonstration Trial
    - All synchronized to allow initial implementation
    - Won't matter ***when or where*** implemented

Understanding the Relationships



Threads Between Modules… and Across Blocks

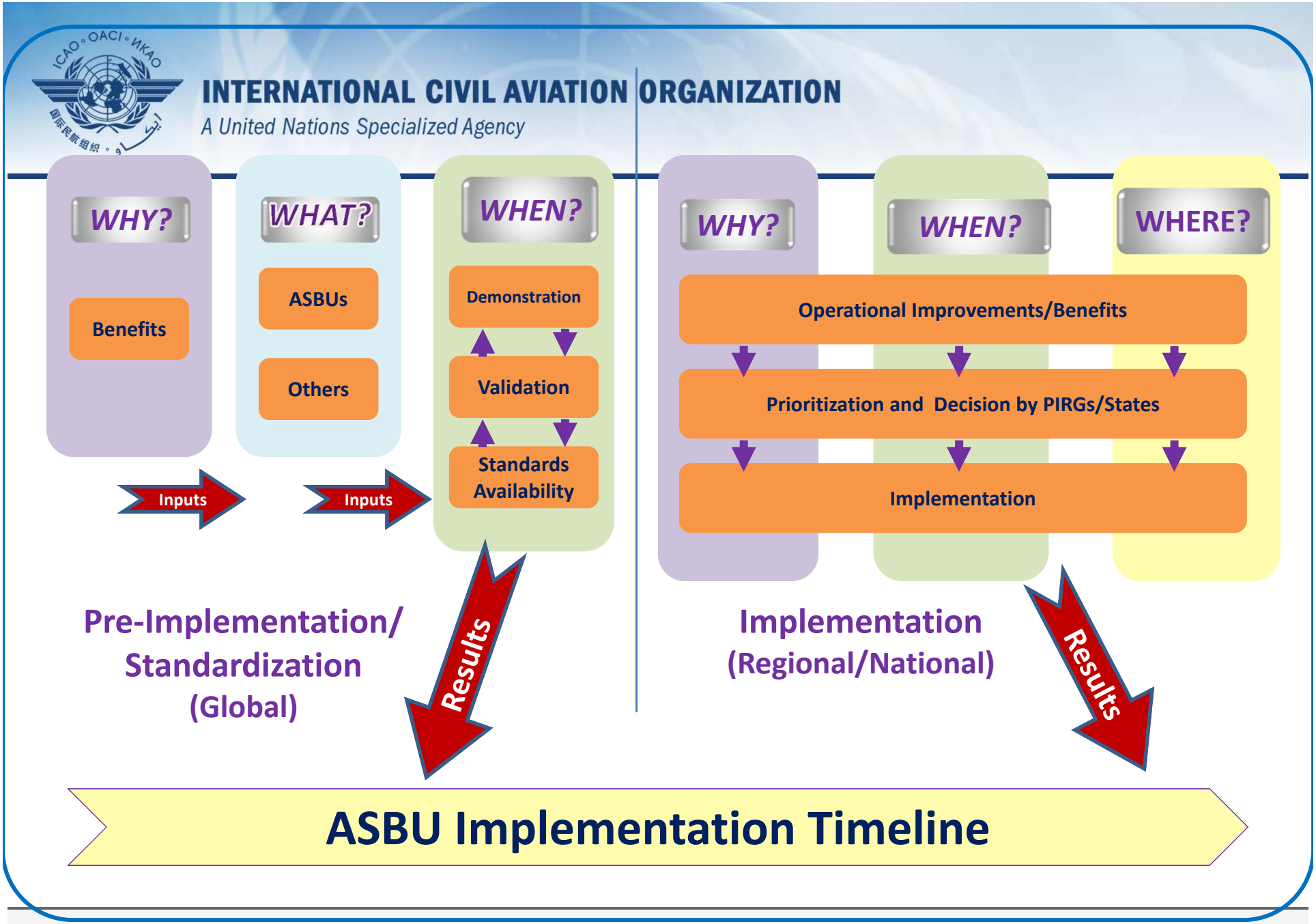


How Blocks are organized?

- Timing/sizing of the block upgrades are in response to
  - need for Mature standards,
  - Integrated air and ground solutions and
  - Establishment of positive business cases
- Block “0” optimizes current onboard equipage and provides baseline
- Modules lacking specific maturity are purposefully placed in later blocks
- Block upgrades respond to issue of non-homogeneous areas

Summary of ASBU Approach

- **Addresses ANSP, aircraft and regularity requirements**
- **Identified 4 improvement areas**
- **Implementation through Block Upgrades (0,1,2, and 3) each comprising a number of modules**
- **Each module is explained in a standardized 4-5 pages template**
  - provide a series of measurable, operational performance improvements
  - Organized into flexible & scalable building blocks
  - Could be introduced as needed
  - all modules are not required in all airspaces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WHY?
Benefits
WHAT?
ASBUs
Others
WHEN?
Demonstration
Validation
Standards Availability
Inputs
Inputs
Pre-Implementation/ Standardization (Global)
Results
WHY?
WHEN?
WHERE?
Operational Improvements/Benefits
Prioritization and Decision by PIRGs/States
Implementation
Implementation (Regional/National)
Results
ASBU Implementation Timeline

Global Rollout & Feedback

- **Convened Global Air Navigation Industry Symposium (GANIS) in September 2011**
  - Facilitated over 500 participants from Industry, States and International Organizations to gain insight
  - Ultimately commit to the initiative
  - Platform established to enable continuous feedback
- **Held ASBU briefings and regional workshops worldwide**

Next Steps in ASBU implementation PIRGs and States

Recommendation 6/1 of AN-Conf/12 – Regional performance framework – planning methodologies and tools

a) finalize the alignment of regional air navigation plans with the Fourth Edition of the *Global Air Navigation Plan* (Doc 9750, GANP) by **May 2014;**

b) focus on implementing aviation system block upgrade Block 0 Modules according to their operational needs, recognizing that these modules are ready for deployment;

Next Steps in ASBU implementation PIRGs and States

Recommendation 6/1 of AN-Conf/12 – Regional performance framework – planning methodologies and tools

c) use the eANPs as the primary tool to assist in the implementation of the agreed regional planning framework for air navigation services and facilities;

d) involve regulatory and industry personnel during all stages of planning and implementation of aviation system block upgrade modules;

e) develop action plans to address the identified impediments to air traffic management modernization as part of aviation system block upgrade planning and implementation activities;


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