



ICAO NACC Regional Office
UNITING AVIATION in the NAM/CAR Regions since 1957

"Enhancement of State's Air Transport System and Regional Collaboration"

Oficina Regional NACC de la OACI
UNIENDO LA AVIACIÓN en las Regiones NAM/CAR desde 1957

"Mejora del Sistema de Transporte Aéreo de los Estados y Colaboración Regional"



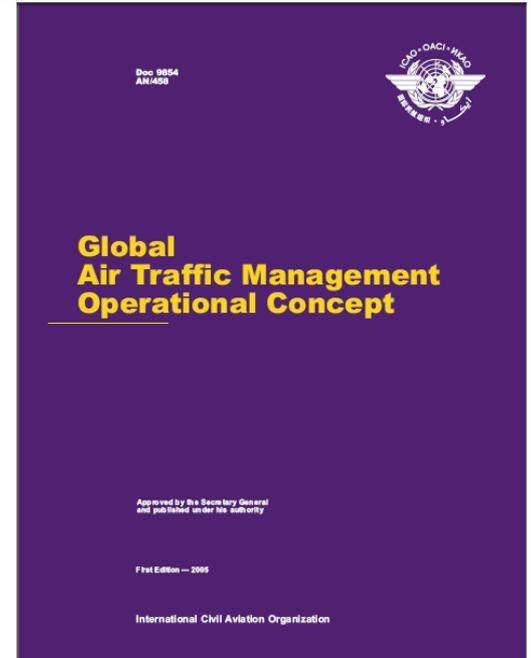
**Global Air Navigation Plan (GANP) and
the Aviation System Block Upgrades (ASBUs)
NCLB priorities**

Julio Siu, Regional Deputy Director
ICAO NACC Regional Office

State National Air Navigation Plan (ANP) Development
Workshop and First NAM/CAR Air Navigation Implementation
Working Group (ANI/WG) Aviation System Block Upgrades
(ASBU) Task Force (TF) Meeting (ASBU/TF/1)
ICAO NACC Office, March 12 to 15, 2018



“Do we know where to go?”



*“To achieve an **interoperable** global air traffic management system, for **all users** during **all phases of flight**, that **meets agreed levels of safety**, provides for **optimum economic operations**, is **environmentally sustainable** and **meets national security requirements**”*



GAP



A yellow diamond-shaped sign with a black border and two screws at the top and bottom. The sign is mounted on a brown post. The background is a clear blue sky with some light clouds.

**DRIVERS
FOR
CHANGE**

Aviation is
undergoing a
FUNDAMENTAL
change

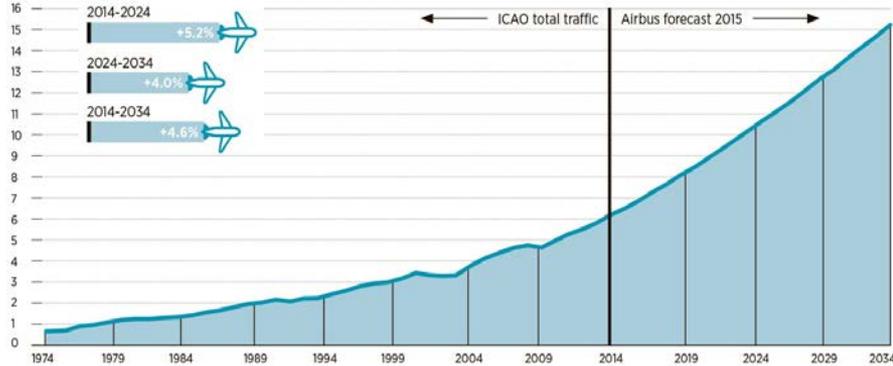


A NEW ERA IN AVIATION

✈ Demand, including new entrants

GLOBAL AIR TRAFFIC (TRILLION REVENUE PASSENGER KILOMETRES)

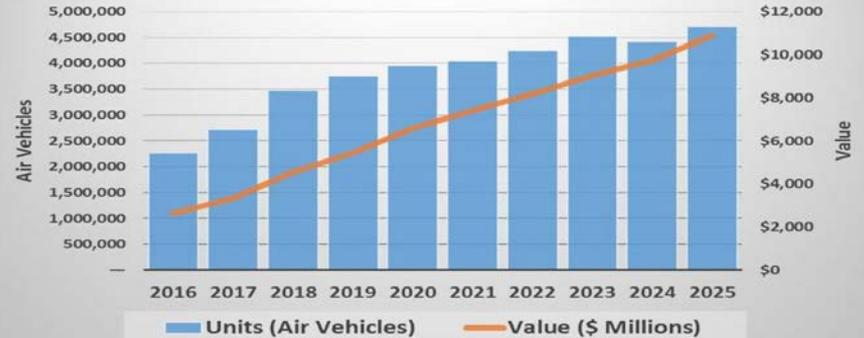
Traffic is expected to double in the next 15 years



Source: International Civil Aviation Organization (ICAO)/Airbus 2015



World Civil UAS Production Forecast





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A NEW ERA IN AVIATION

✈ Technology and information

✈ Full connectivity

**“ANYTHING THAT CAN BE
CONNECTED, WILL BE CONNECTED”**





A NEW ERA IN AVIATION

✈ Business Models





A high-performing Air Navigation System

Global interoperability	Ensure global interoperability
Access and equity	Access and equity to all airspace users
Capacity	Capacity to accommodate forecast demand
Efficiency	Increase efficiency of air operations
Flexibility and predictability	Enable flexibility to meet arrival times
Sustainability	Secure air navigation system sustainability
Resilience	Resilience to cope with system disruptions





ICAO's Role in ATM Modernization

“Increase the capacity and improve the efficiency of the global civil aviation system”

- ✈ Through the **GANP**, offer a long-term vision to assist all aviation stakeholders, and ensure continuity and harmonization among modernization programmes
- ✈ Through the **Aviation System Block Upgrades (ASBU)**, provide a consensus-driven modernization framework for integrated planning based on performance



STRATEGIC OBJECTIVE

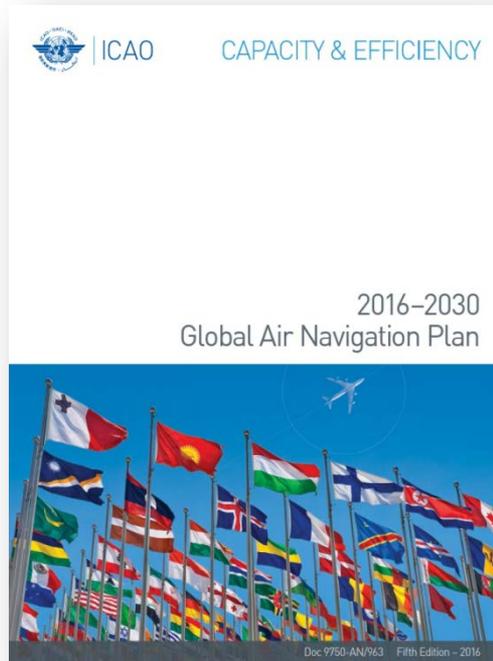
ICAO CAPACITY AND EFFICIENCY

2013-2028
Global Air Navigation Plan

Performance Improvement Area	Block 0 (2013)	Block 1 (2015)	Block 2 (2020)	Block 3 (2028 onward)
Airport Operations	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Globally Interoperable Systems and Data	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Optimum Capacity and Flexible Flights	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Efficient Flight Paths	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■



The Global Air Navigation Plan (GANP)



- Strategy to achieve a global interoperable air navigation system offering safe, secure and efficient air transport for people and goods worldwide, while limiting the impact of aviation on the environment.
- The GANP serves as a worldwide reference to transform the air navigation system in an evolutionary and inclusive manner so that no State or Stakeholder is left behind.



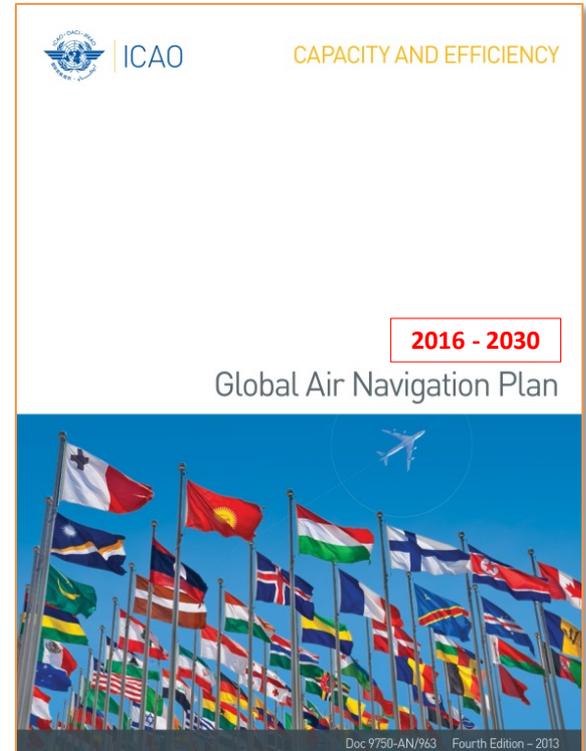
GANP Update

✈ Objectives

- ✈ **International and overarching framework** of a global investment plan: make it more usable towards implementation
- ✈ Keep it **stable** while making the necessary updates/additions
- ✈ Adjust the **periodicity** to the Assembly and ICAO editing cycles

✈ A Planning Document for Implementation

- ✈ GANP should be comprehensive planning tool to **support the development and implementation** of a harmonized global air navigation system

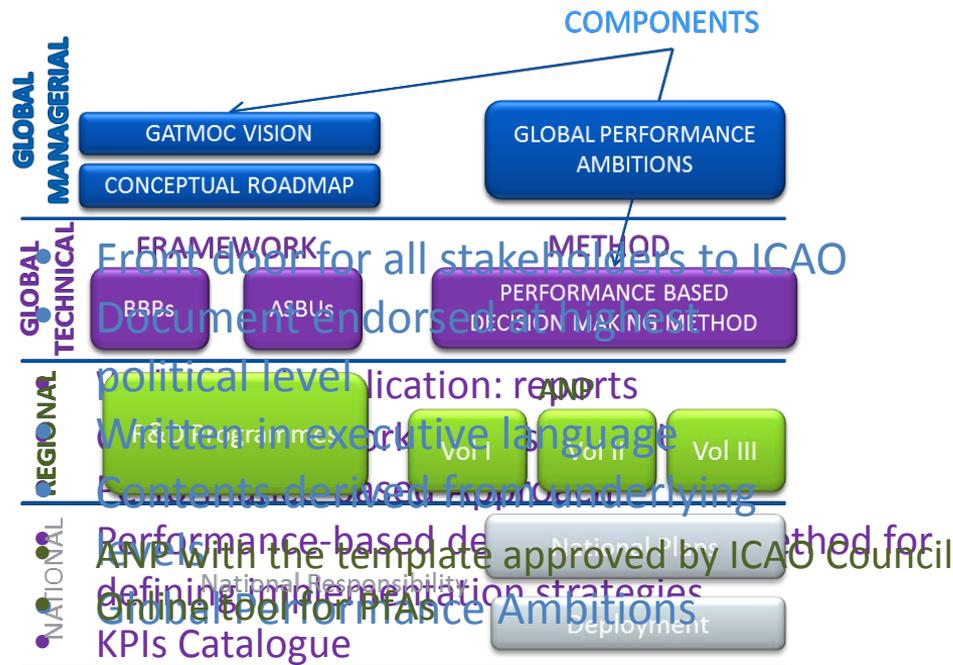
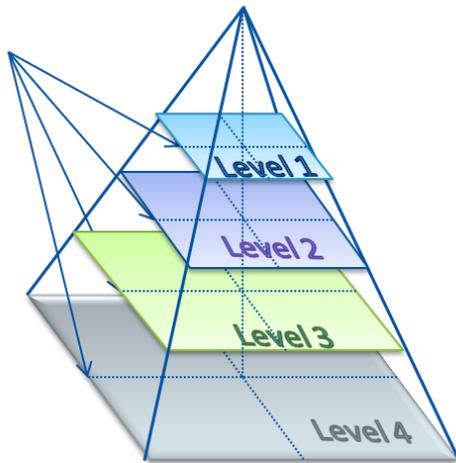




2019 Update of the GANP

Multilayer Structure

LAYERS





Search ICAO

ELEMENT OVERVIEW THREAD OVERVIEW ENABLERS

ELEMENT OVERVIEW

Functional Description Enablers Deployment Applicability Performance Impact Assessment

+ Add Element

WAKE-BO/1 Wake turbulence separation minima based on six aircraft categories



APTA-BO/1 PBN Approaches (with basic capabilities)



APTA-BO/2 PBN SID and STAR procedures (with basic capabilities)



APTA-BO/3 Cat I Precision Approach Procedures



APTA-BO/4 PBN transitions to/from xLS (with basic capabilities)





What is Global Plan?

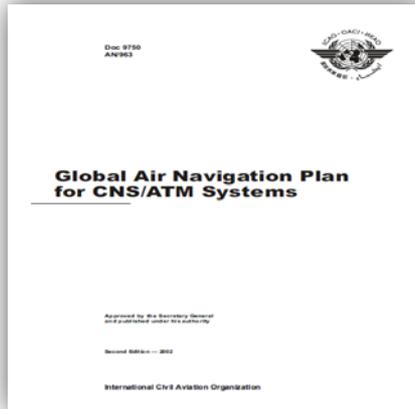
- Strategic Document for global, regional and national planning for air navigation improvements
- Refers to five major disciplines
 - ATM, CNS, MET, IM and AGA



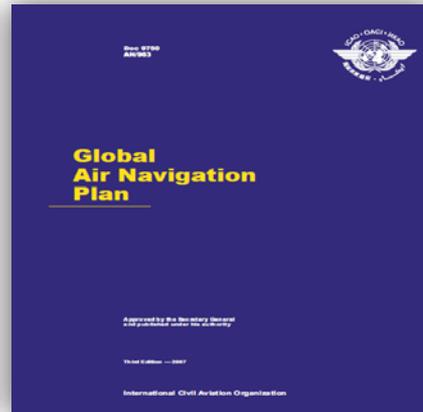


Global Air Navigation Planning: an evolution

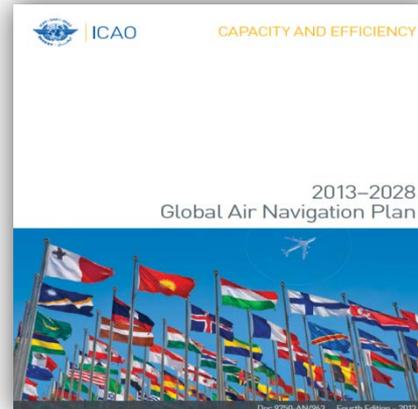
2002



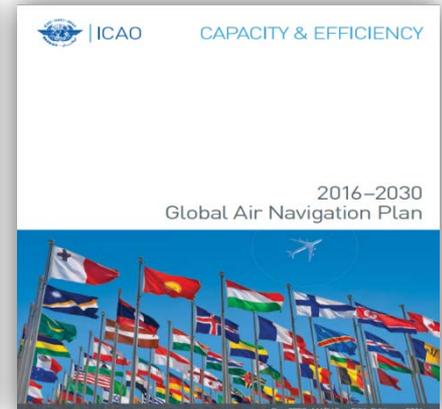
2007



2013



2016





GANP Goal: SOCIAL WELLBEING ALL PEOPLES OF THE WORLD

- ✈ More quiet
- ✈ Cleaner
- ✈ Safer
- ✈ More resilient
- ✈ More profitable



Statistics are based on all worldwide fatal accidents involving civil aircraft with a minimum capacity of 14 passengers, from the ASN Safety Database <https://aviation-safety.net>





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Key Concepts

- ✈ Management by trajectory
- ✈ Information sharing
- ✈ Network and flight centric
- ✈ Integrated infrastructure
- ✈ Multi-modal transport system





Doc 9750: 2014-2016 Triennium Edition



2013-2028 Global Air Navigation Plan



GANP Policy Principles

1. **Commitment to the Implementation of ICAO's Strategic Objectives and KPAs**
2. Aviation Safety is the highest priority
3. Global Air Traffic Management Operational Concept (GATMOC)
4. **Regional and National Air Navigation Priorities**
5. Aviation System Block Upgrades (ASBUs), Elements and Roadmaps
6. **Cost Benefit and Financial issues.**



Doc 9750: 2014-2016 Triennium Edition



2013-2028 Global Air Navigation Plan



Benefits

- ✈ Represents a rolling, 18-year strategic methodology
- ✈ Leverages existing technologies and anticipates future developments
- ✈ Offers a long-term vision
- ✈ Assist ICAO, States and industry to ensure continuity and harmonization among their modernization programmes.



Doc 9750: 2014-2016 Triennium Edition



2013-2028 Global Air Navigation Plan



Content

- ✈ Identifies issues to be addressed in the near future alongside financial aspects of aviation system modernization
- ✈ Recognizes importance of collaboration and partnership and addresses its multidisciplinary challenges.



Doc 9750: 2014-2016 Triennium Edition



2013-2028 Global Air Navigation Plan



Content

- ✈ Information on online support documentation, description of ASBU Threads, and Technology Roadmaps, as well as financial guidance
- ✈ Explores the need for more integrated aviation planning at both regional and national level



Doc 9750: 2014-2016 Triennium Edition



2013-2028 Global Air Navigation Plan



Content

- ✈ Link improvements in air navigation with reduction in aviation emissions –as aviation pursues its commitment to comprehensively reduce its environmental impacts.



Aviation System Block Upgrades – Definition

✈ What is an ‘Aviation System Block Upgrade’ (ASBU)?

A global operational framework that allows all Member States to advance their air navigation capabilities based on their specific operational requirements.



What is the Basis for Block Upgrades?

- ✈ Foundation of blocks originates from existing near term implementation plans
- ✈ 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 **elements are not required in all airspaces or airports.**



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 efficiency
- ✈ 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.



National/Regional Plans - interoperability challenges

Examples..



Many Regional and National ATM modernization programmes are being developed worldwide

- They are following the Global ATM Operational Concept view, but nevertheless **they are different in their own way**
- Resulting in **interoperability and procedures harmonization challenges**



What is the difference between current implementation approach and ASBU framework?

✈ Current method

- ✈ Scope covers only **ground equipment for ANSPs**
- ✈ Planning based on short and medium term

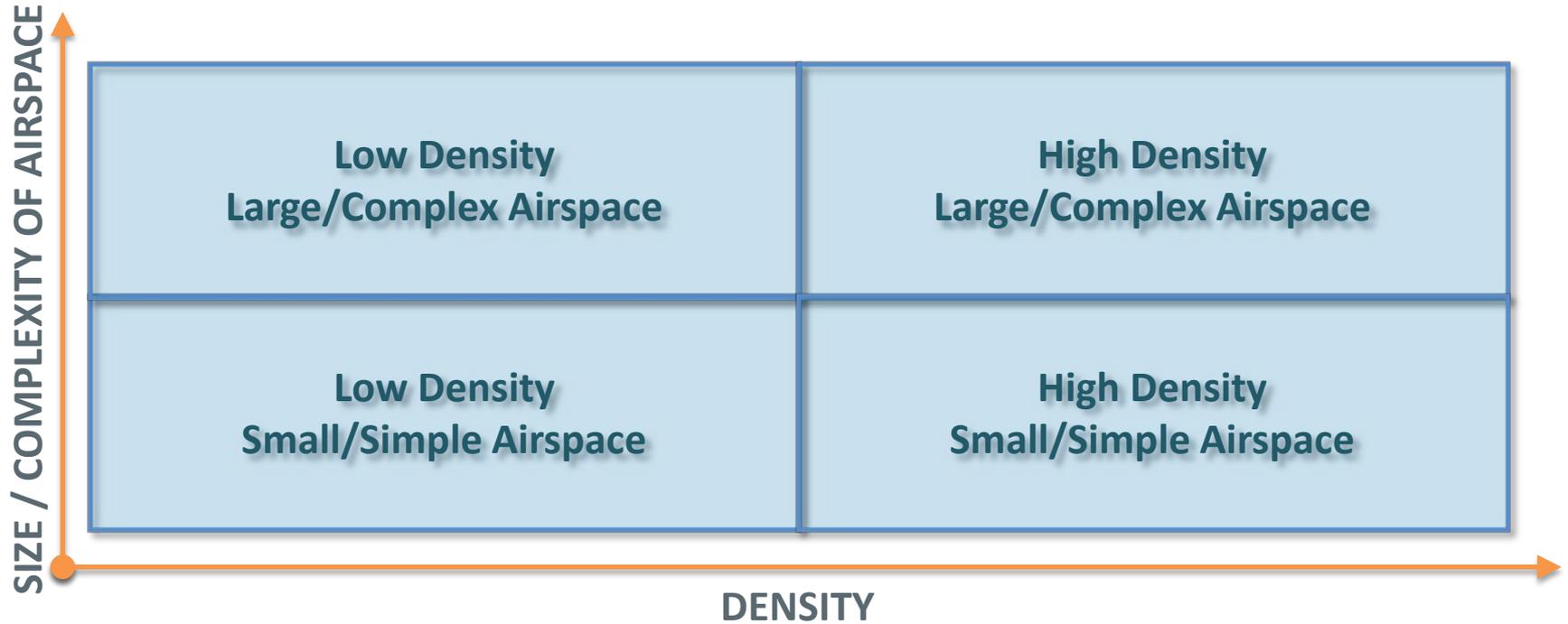
✈ ASBU framework

- ✈ Scope extends to **airspace users** and regulators
- ✈ Planning based on short, medium and **long terms**
- ✈ Provisions development process is through Blocks and corresponding module elements
- ✈ **Envisages enhancement in performance and not in implementation of technologies**



What are the advantages of ASBU framework?

- ✈ 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**
- ✈ Module elements provide a series of **measurable, operational performance improvements**, which can be introduced as needed.

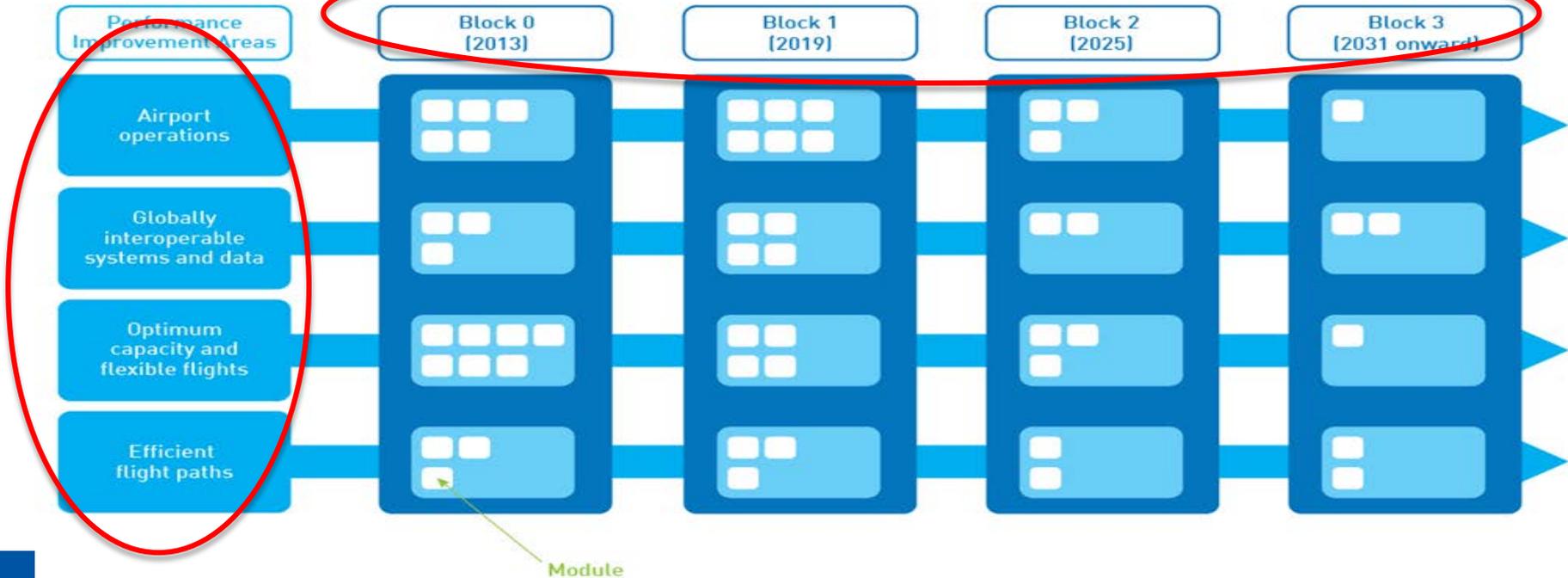




ASBU framework

4 Performance Improvement Areas

6-year blocks (new 2016)



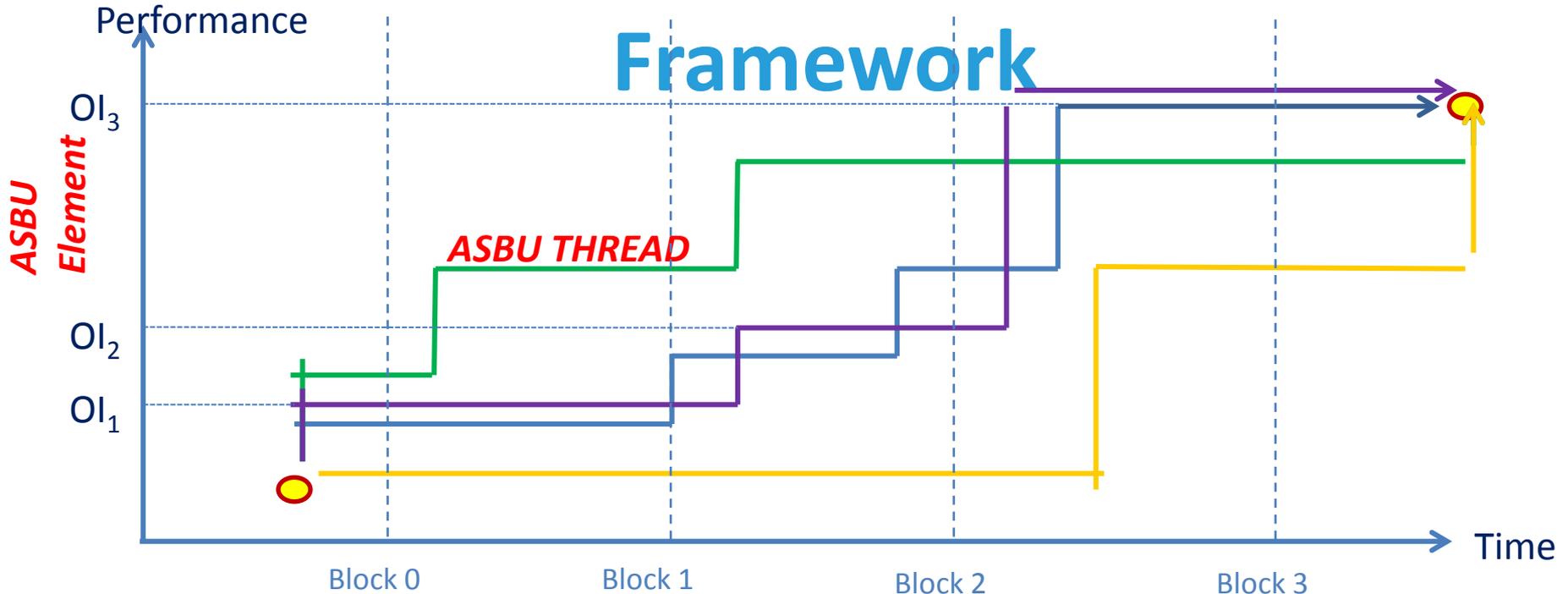


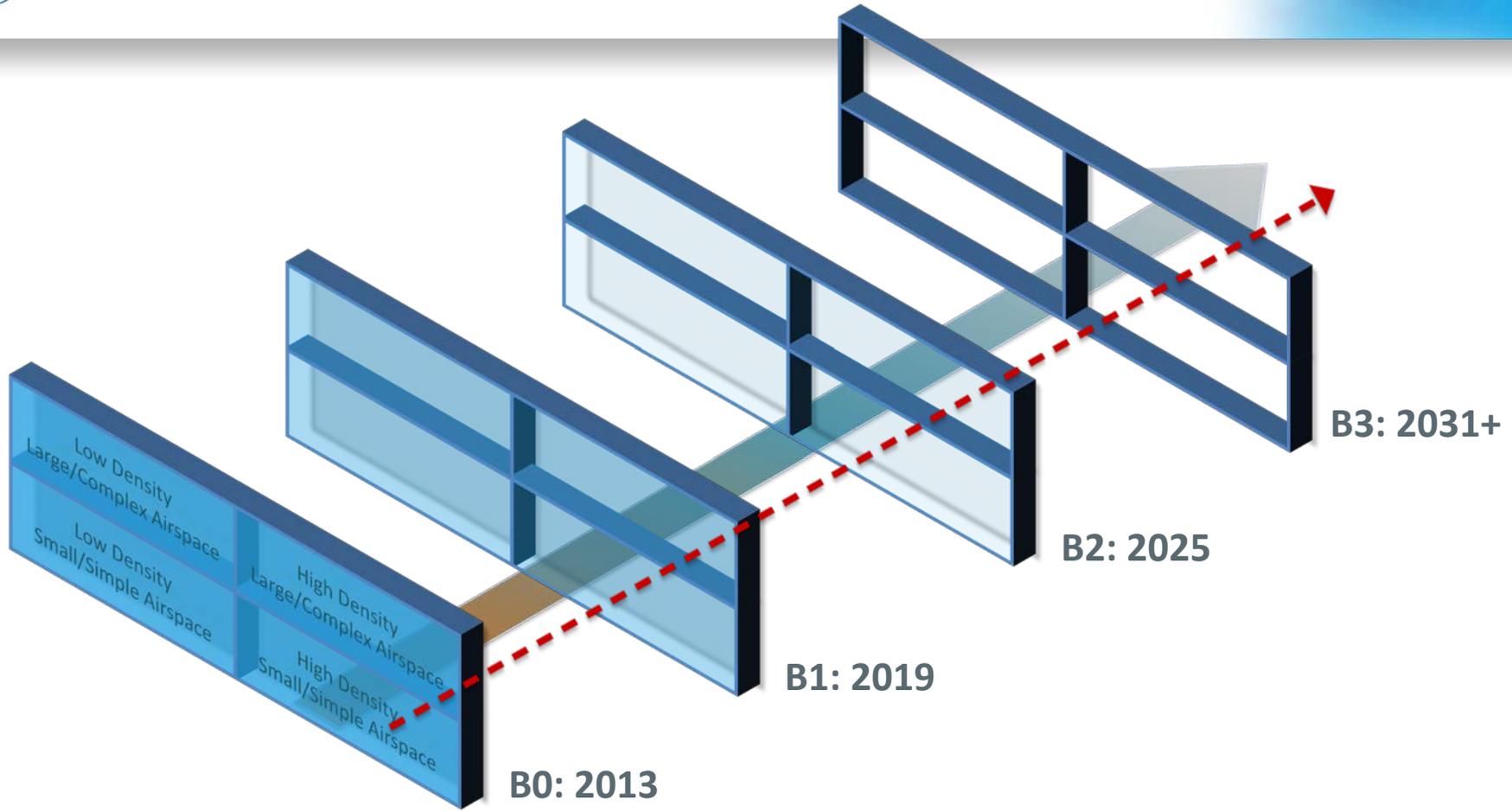
Key concepts

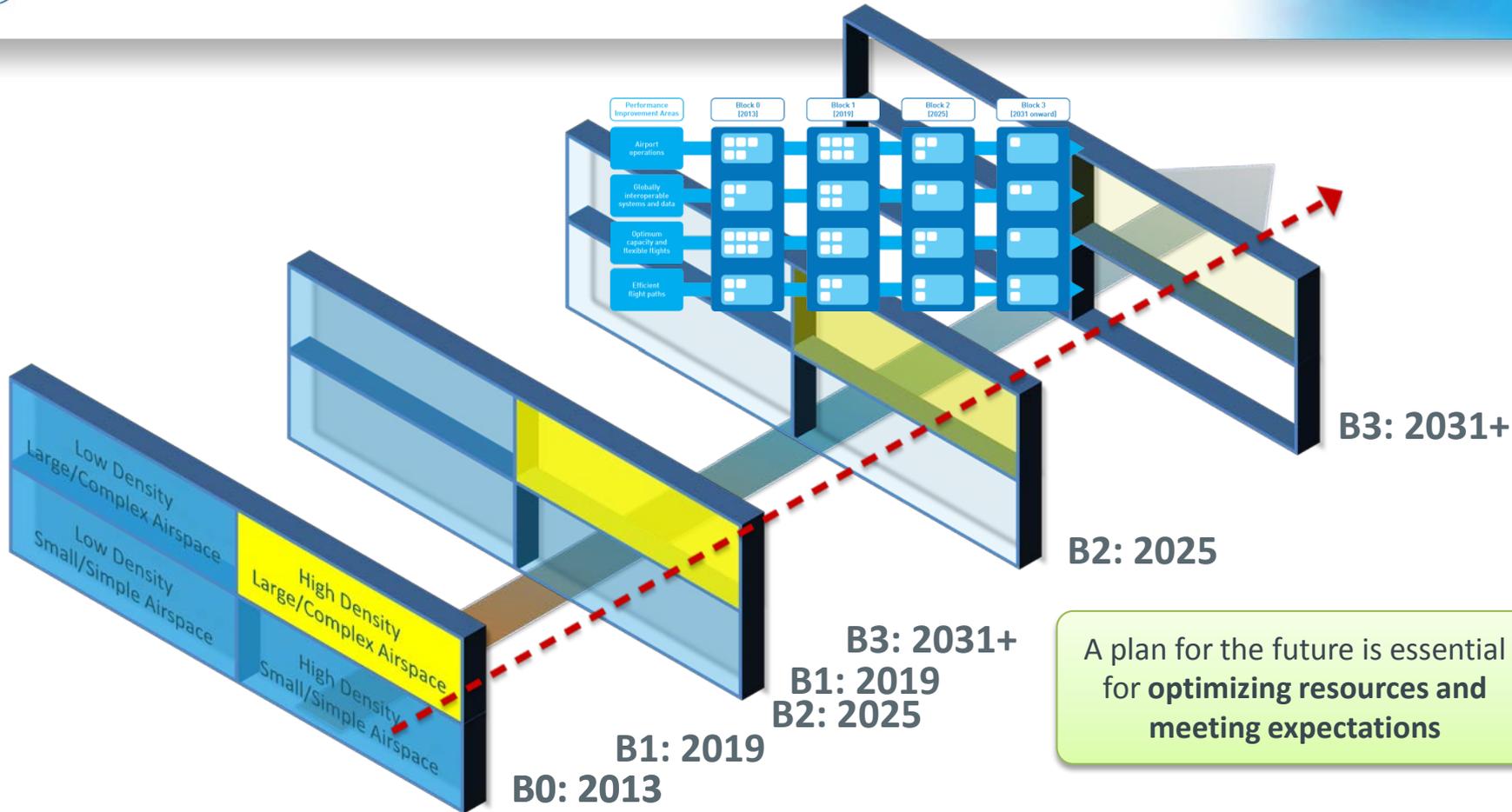
- ✈ **ASBU Thread:** key feature area of the air navigation system that needs improvement in order to achieve the vision outlined in the Global ATM Operational Concept.
- ✈ **ASBU Element:** a specific change in operations designed to improve the performance of the air navigation system under specified operational conditions.
- ✈ **ASBU Enabler:** component (standards, procedures, training, technology, etc) required to implement an element.
- ✈ **ASBU Block:** a six year timeframe whose starting date defines a deadline for an element to be available for implementation.
- ✈ **ASBU Module:** a group of elements from a thread that, according to the enablers' roadmap, will be available for implementation within the defined deadline established by the ASBU Block.



Aviation System Block Upgrades (ASBU) Framework





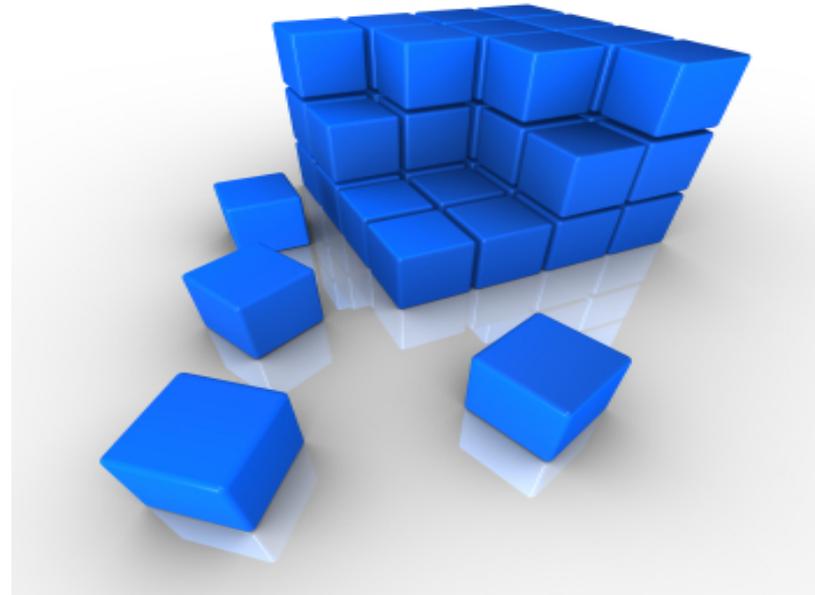


A plan for the future is essential for optimizing resources and meeting expectations



ASBUs Summary

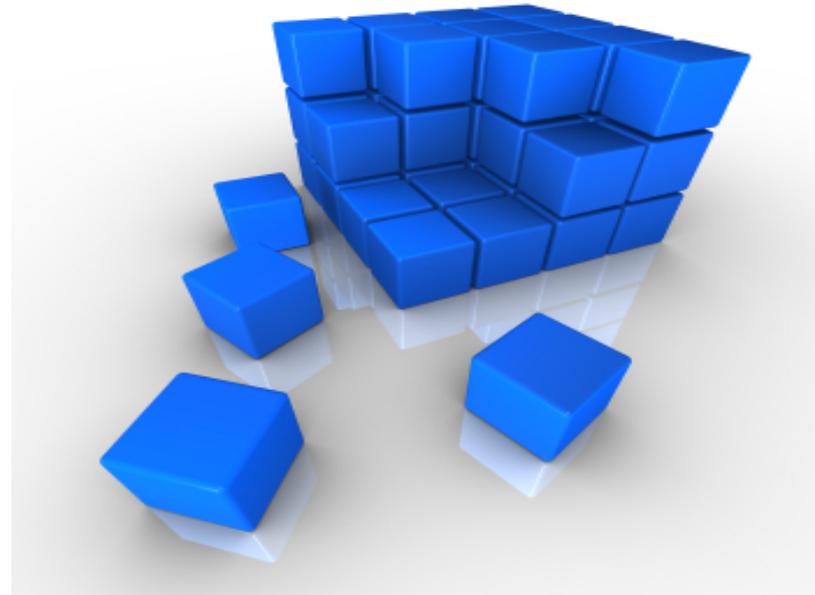
- ✈ **Addresses ANSP, aircraft and regulatory requirements**
- ✈ **Identify 4 improvement areas**
- ✈ **Availability of provisions through Block Upgrades (0,1,2, and 3) each comprising a number of threads**
- ✈ **Each thread and its elements is explained in a standardized 4-5 pages template**





ASBUs Summary

- Provide a series of measurable, operational performance improvements
- Organized into flexible & scalable building blocks
- Can be introduced as needed
- All elements are **not** required in all airspaces.





2017 NCLB analysis show (Inspectorate):

Three Major Deficient Areas and Critical Element Challenges:

AGA

Licensing, certification,
authorization and approval
obligations (CE-6)

ANS

Technical personnel
qualification and training
(CE-4)

AIG

Technical guidance, tools
and the provision of safety-
critical information (CE-5)



2017 Desired Performance Level **was not achieved**

**PBN, ATFM and SAR
advancements have fallen short
of what was projected**

- PBN: Lack of ATM Expert dedicated full time to this subject
- ATFM: NACC Regional Office failed to recognize/adapt implementation strategy to the situation
- SAR: The establishment of the SAR Oversight system was poorly addressed by the NACC Regional Office / Lack of commitment from States

2018- Work Plan

- New Strategies for PBN, ATFM and SAR implementation
- PBN: Updated PBN Airspace Concept, Operational ATC improvements, ATS Routes and Procedure Design initiative (FPP)
- ATFM: Enhancement of Training (courses in Miami, Dominican Republic), ATFM Operational Concept revised, Implementation Meeting
- SAR: Implementation Meeting and Agreement review based on USOAP results



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Questions?

THANK YOU!