INTERNATIONAL CIVIL AVIATION ORGANIZATION

An Overview of GANP

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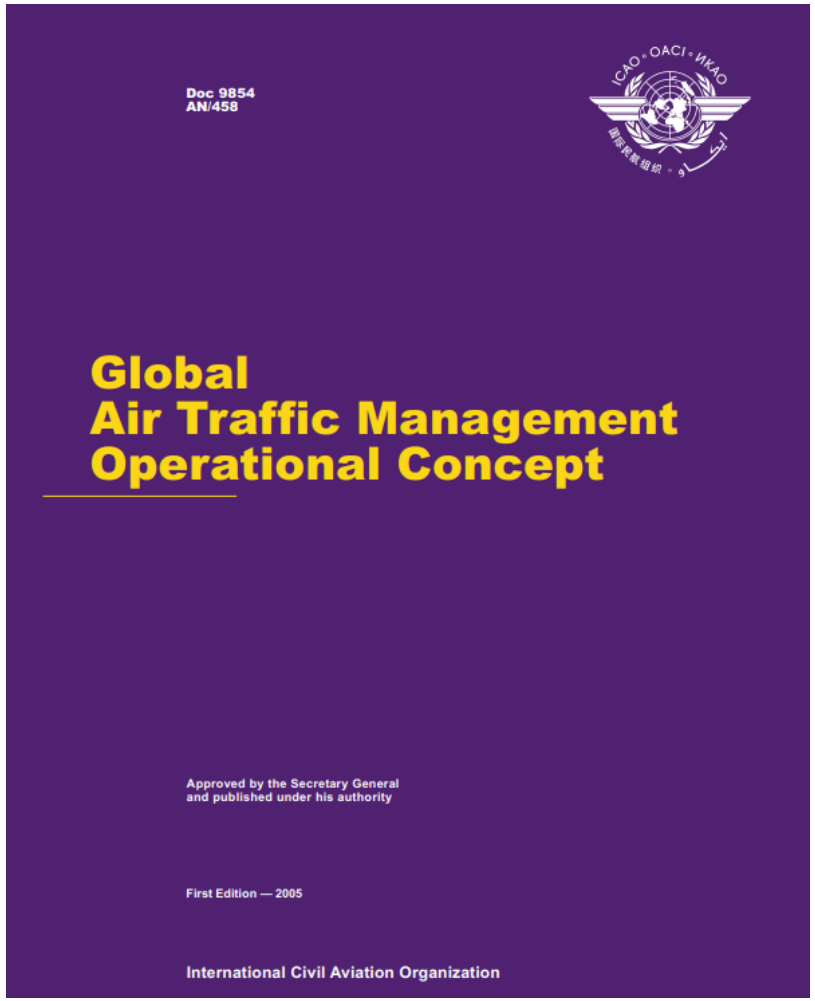
The future ATM Systems



GATMOC- 2005

The global air traffic management (ATM) operational concept presents the **ICAO vision of an integrated, harmonized and globally interoperable ATM system**. The planning horizon is up to and **beyond 2025**. The baseline against which the significance of the changes proposed in the operational concept may be measured is the global ATM environment in 2000.

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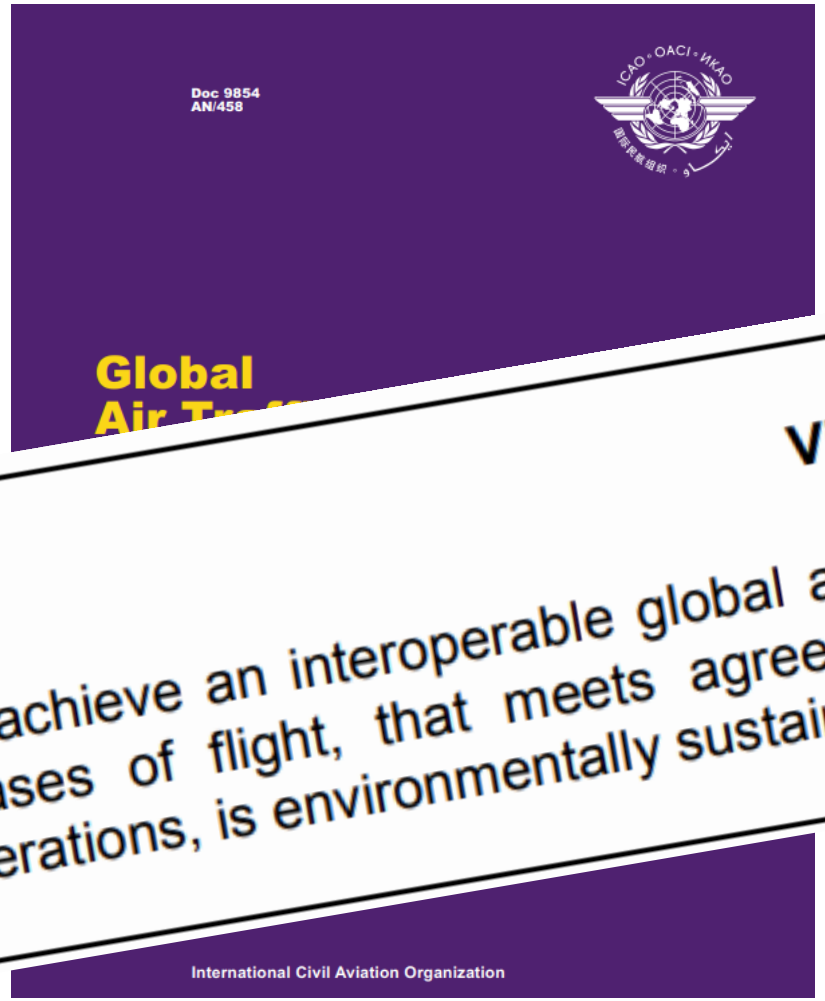
The future ATM Systems



GATMOC- 2005

Vision Statement

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.

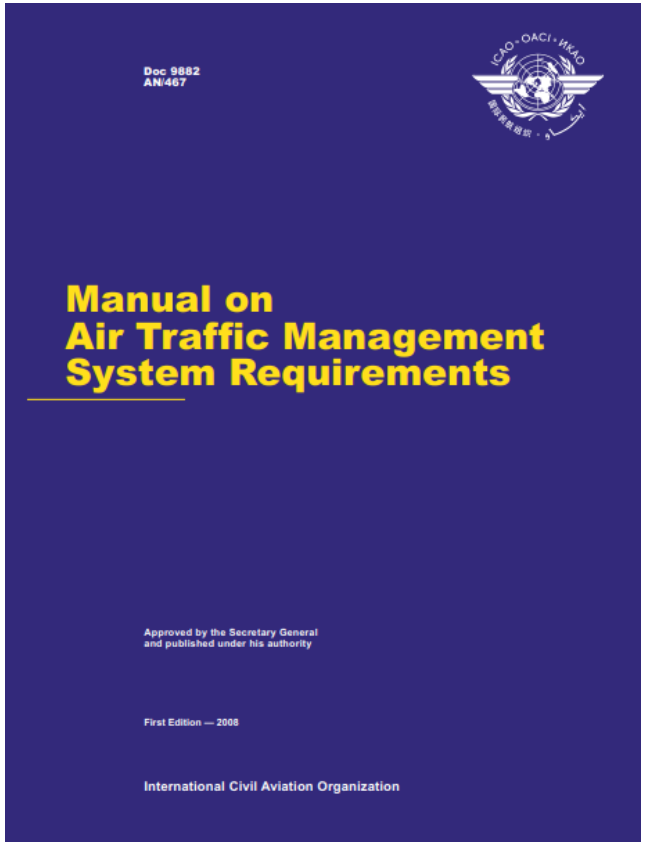
ATM System Requirements

1. Relationship Between ATM System Requirements, Performance-based Transition Guidelines And Global Performance

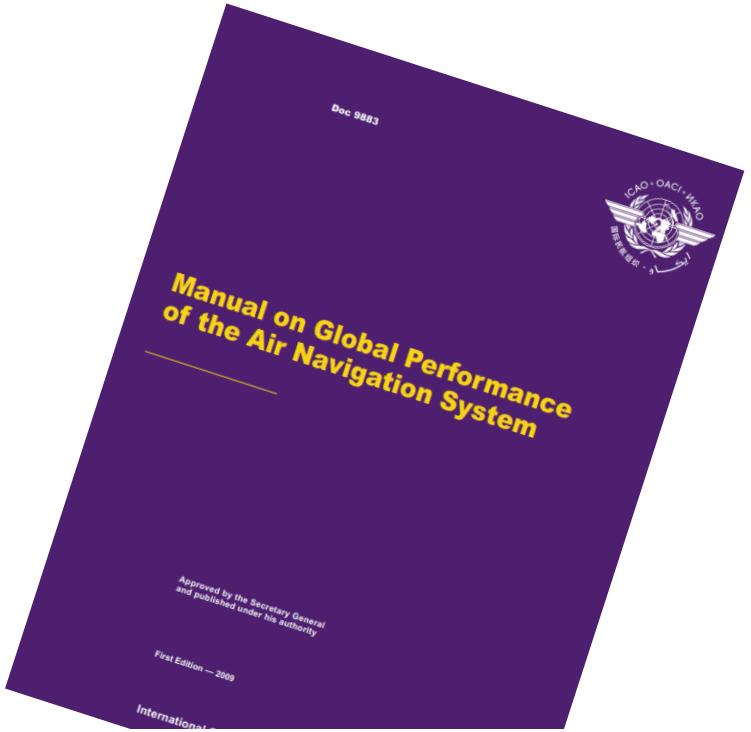
2. A comprehensive understanding of the intent of, and delivery mechanisms for, the ATM system envisioned in the Global Air Traffic Management Operational Concept (Doc 9854)

3. Define high-level requirements

4. ATM system performance will not progress as the direct result of the requirements; rather, the system is performance-driven, and levels of performance will differ in response to the demands of differing operating environments, in particular, a State, group of States, or regions.



ANS System Performance

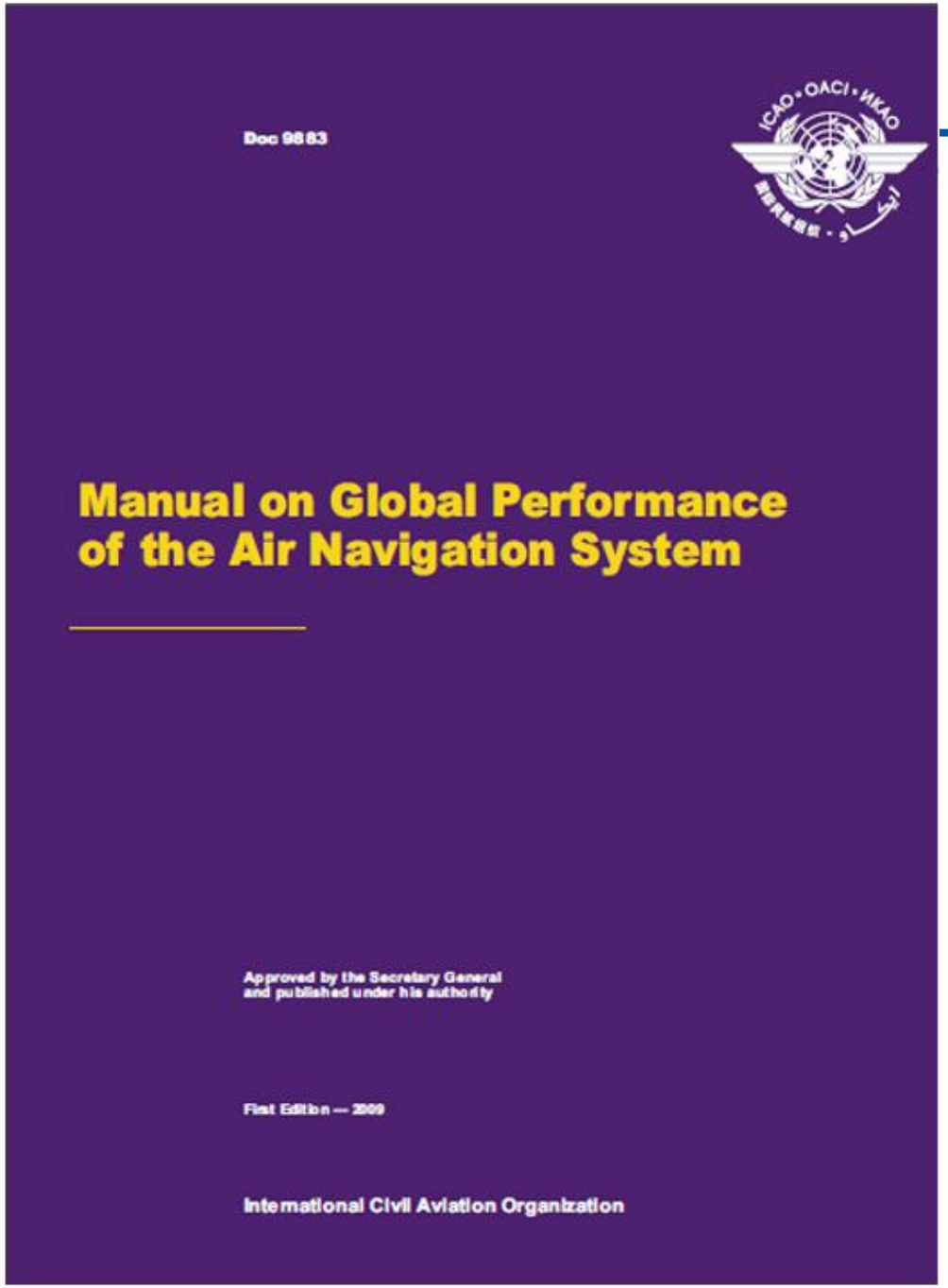


1.1.3 *Global Performance* (Part I of Doc 9883) focuses on the performance dimension. It describes a process for developing performance objectives, metrics and indicators in the context of overall ATM system behaviour responding to ATM community expectations. The manual provides guidelines for setting performance objectives and targets, as well as for monitoring, evaluating and forecasting ATM system performance.

1.1.4 The *Performance-based Transition Guidelines* (Part II of Doc 9883) address the evolutionary nature of the operational concept. They provide guidance for transition from the baseline system of 2000 to a "mature-state" performance-based system envisioned by the OCD for 2025 and beyond. The strategy is based around delivering continuous and incremental performance enhancements.

PERFORMANCE MANAGEMENT PROCESS

- Principles:
  - Strong focus on desired/required results
  - Reliance on facts and data for decision making
  - Collaborative justified decision-making



What is the GANP?

- The GANP is an important planning tool for setting global priorities to drive the evolution of the global air navigation system and ensure that the vision of an integrated, harmonized, globally interoperable and seamless system becomes a reality.

THE GLOBAL AIR NAVIGATION PLAN

The Global Air Navigation Plan (Doc 9750) is the ICAO's highest air navigation strategic document and the plan to drive the evolution of the global air navigation system, in line with the Global Air Traffic Management Operational Concept (GATMOC, Doc 9854) and the Manual on Air Traffic Management System Requirements (Doc 9882). Developed in collaboration with and for the benefit of stakeholders, the GANP is a key contributor to the achievement of ICAO's Strategic Objectives and has an important role to play in supporting the United Nations 2030 Agenda for Sustainable Development.

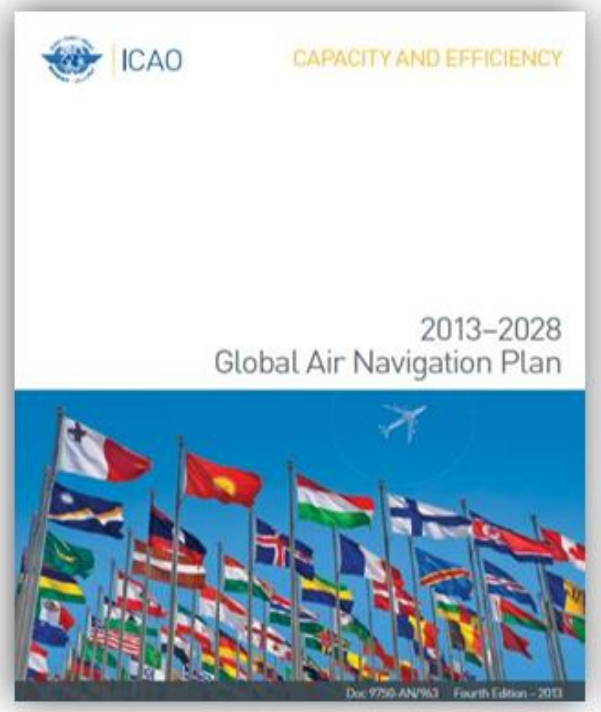
The content of the GANP is organized into a multilayer structure with each layer tailored to different audiences. This allows for better communication with both high-level and technical managers with the objective that no State or stakeholder is left behind. The four-layer structure is made up of global (strategic and technical), regional and national levels, and provides a framework for alignment of regional, sub-regional and national plans. The four-layer structure facilitates decision making by providing a stable strategic direction for the evolution of the air navigation system and, at the same time, timely relevance in the technical content.

Global Air Navigation Planning: an evolution

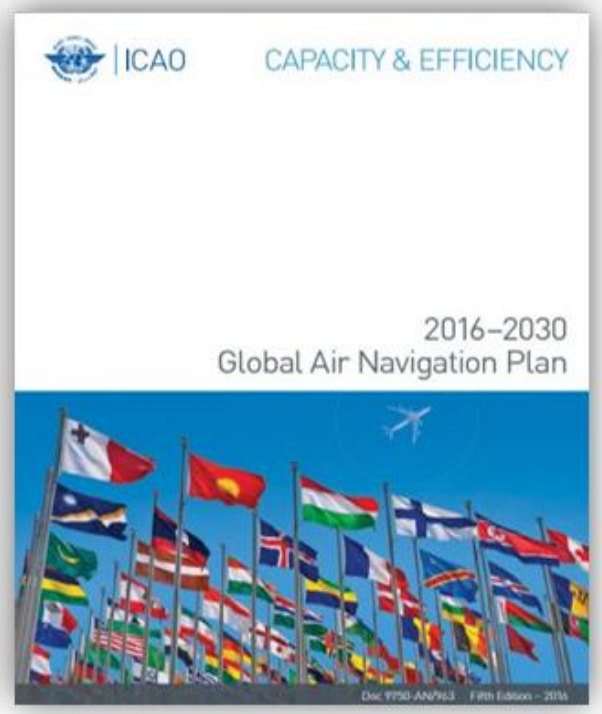
2002

2007

2013



2016



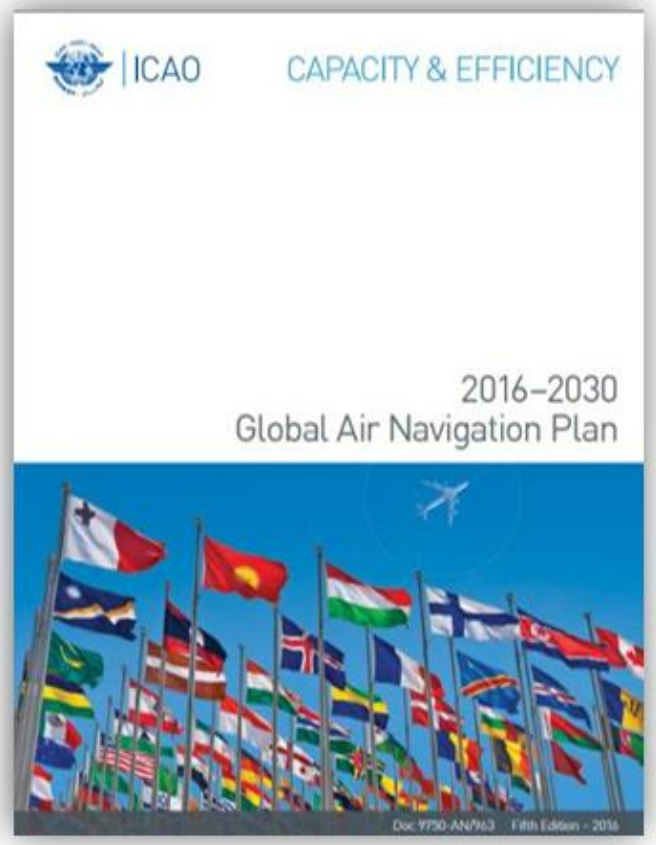
GANP 2013

"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 (ASBUs),** provide a consensus-driven modernization framework for integrated planning based on performance

GANP 2016

- **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 serve as a comprehensive planning tool to **support the development and implementation** of a harmonized global air navigation system



Main Goals of the 2019 GANP

- **Useful for all Stakeholders**
- **Evolution of the global air navigation system**
  - Promote investment in **innovation** through research and development activities
  - Align Regional **Research and Development Programmes**
- **Support implementation**
  - **ASBU framework**
  - Alignment global, regional and national planning
  - **Performance-based** decision making method
  - Optimize **allocation and use of resources** for air navigation
- **ICAO provisions and future standards**

GLOBAL AIR NAVIGATION PLAN

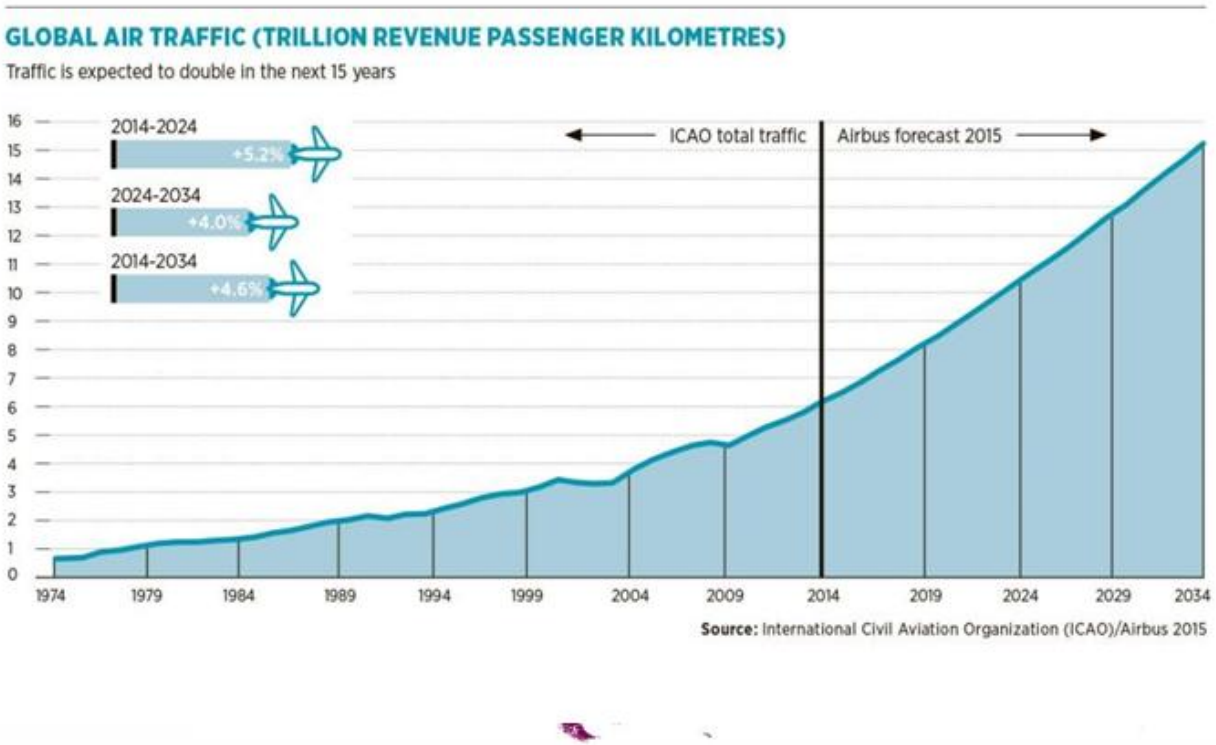
https://www4.icao.int/ganpportal/

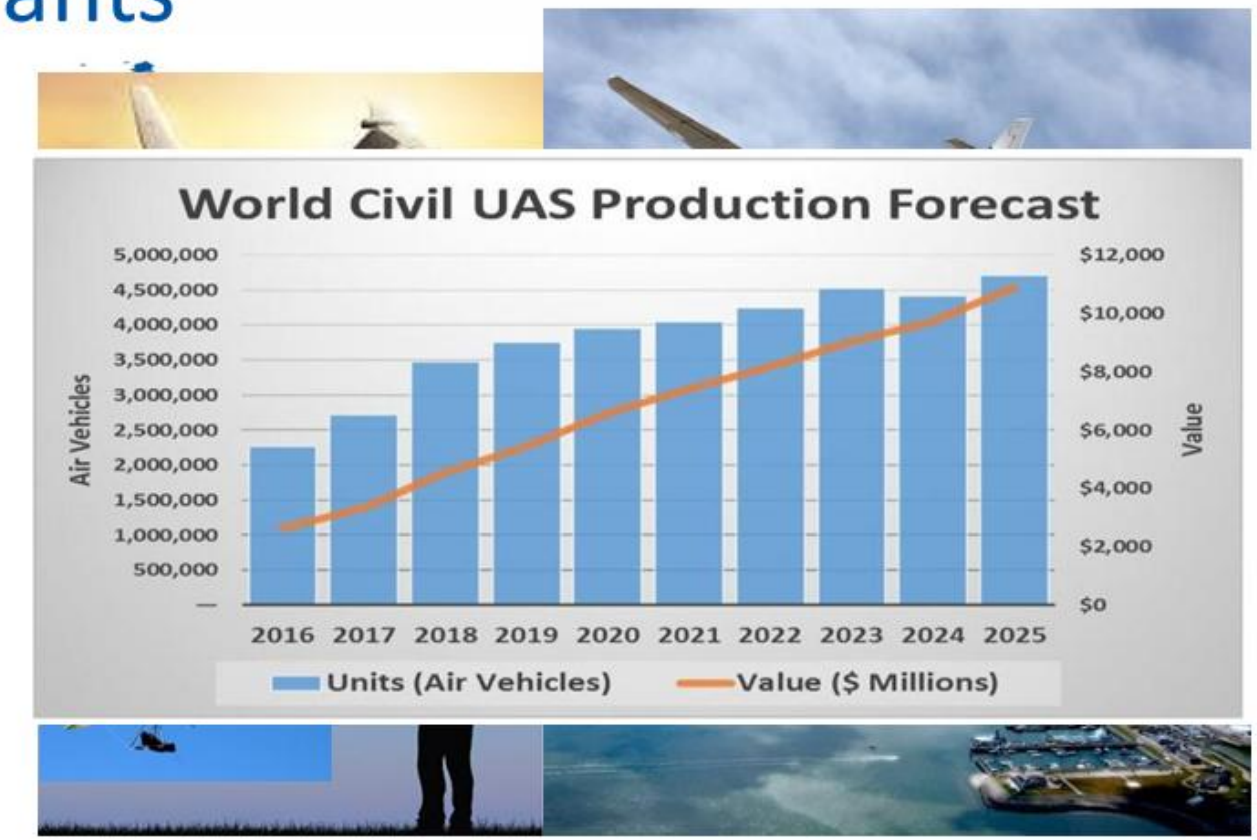
GLOBAL STRATEGIC LEVEL

- Electronic document
- Target audience: decision-makers
- Seven chapters:
    1. Intro
    2. Roles and responsibilities
    3. Challenges and opportunities
    4. The vision
    5. Performance ambitions
    6. The conceptual Roadmap
    7. From concept to operations

A NEW ERA IN AVIATION

Demand, including new entrants





An exciting future full of opportunities

- **Upper atmosphere**
  - Balloons, RPAS, space activities
  - Single homogenous region
- **Low density areas**
  - Different type of aircraft
  - Different missions
- **High density areas**
  - Traffic will continue to increase
  - Same or enhanced level of performance expected

Manned vs. unmanned traffic

- + 362,000 aircraft
- 23,000 airliners
- Growth of 750 /year

- + 4,000,000 drones
- Expected 400k commercial
- Growth of 150,000 /year

A NEW ERA IN AVIATION

- Technology and information
  - Autonomous systems
  - Artificial intelligence

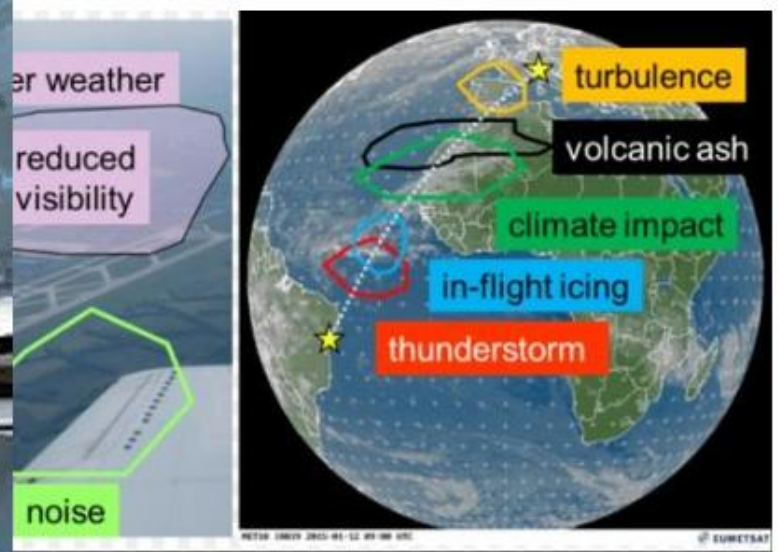
A NEW ERA IN AVIATION

- Technology and information
  - Full connectivity

“ANYTHING THAT CAN BE CONNECTED, WILL BE CONNECTED”

A NEW ERA IN AVIATION

- Humans

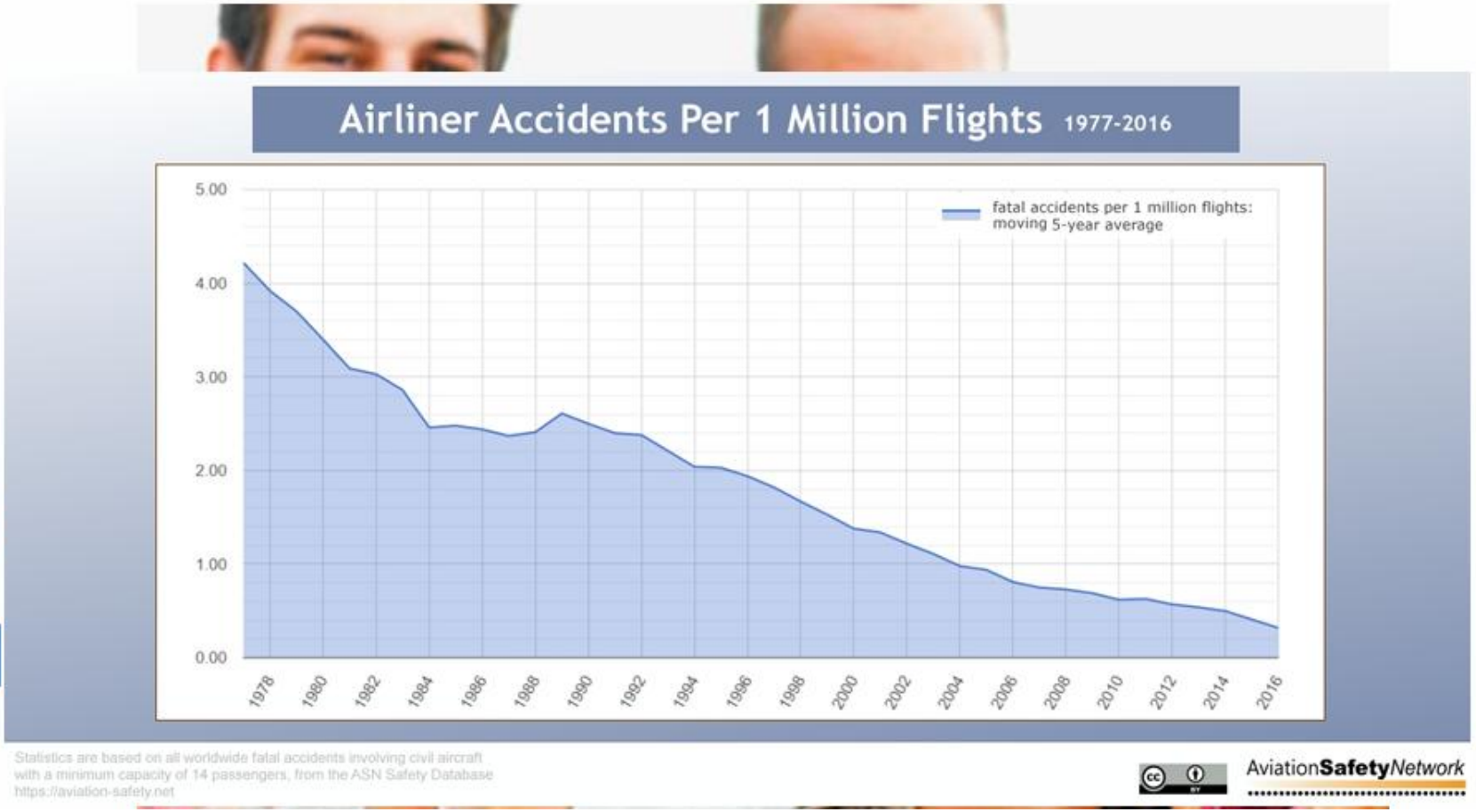


A NEW ERA IN AVIATION

- Business Models

SOCIAL WELLBEING ALL PEOPLES OF THE WORLD

- More quiet
- Cleaner
- Safer
- More resilient
- More profitabl

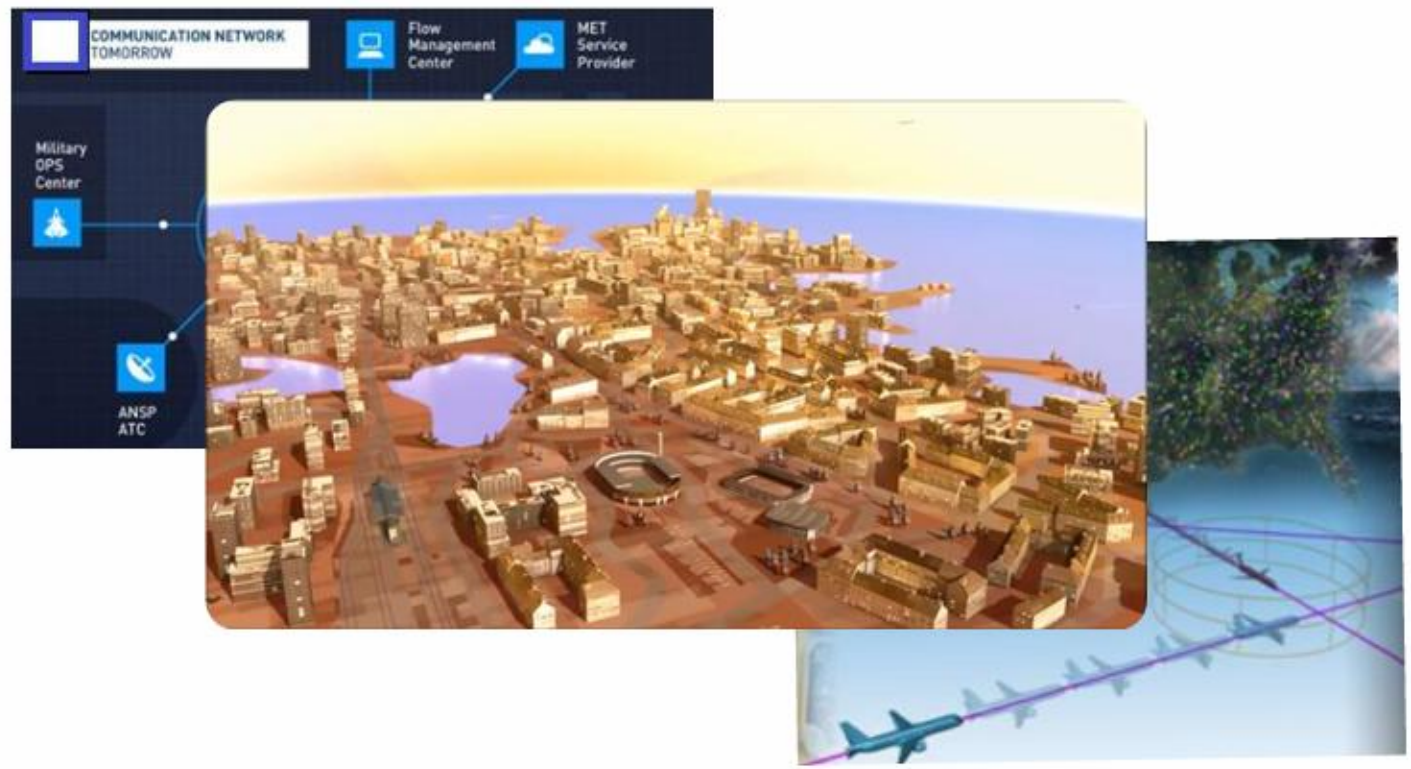


A high-performing Air Navigation System

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

In a time of change…

- Transformational change is needed
  - Information Management
    - Digital data MET, AI, FICE,…
    - Information exchange over IP
  - Management by trajectory
    - Time based management
    - Synchronization
    - Automation



GLOBAL TECNICAL LEVEL

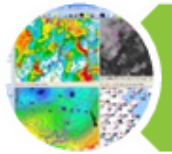
- Web-based platform
- Target audience: technical experts and implementers
- 2 Global frameworks
  - BBBs
  - ASBUs
- Associated Performance Framework
  - Catalogue of performance objectives
  - List of KPIs
- Performance Management process
  - AN-SPA

Global Technical Level

- The global technical level includes two technical frameworks, the basic building blocks (BBBs) and Aviation System Block Upgrades (ASBUs), with its associated performance framework, which includes performance objectives and key performance indicators (KPIs). The BBB framework outlines the foundation of a robust air navigation system. It can also be viewed as the commitment of the State, under the Convention on International Civil Aviation (Doc 7300), to provide essential air navigation services for the safe and orderly conduct of international civil aviation.

Basic Building Block (BBBs) Framework

- Basic Building Block (BBBs) Framework
  - Backbone of any robust air navigation system
  - Nothing new: Basic services according to ICAO SARPs and PANS
  - Aerodrome operations, CNS, air traffic management, meteorology, search and rescue, and aeronautical information



Meteorological Information

Aeronautical Information

Search and Rescue

Air Traffic Management

Aerodrome Operations

ASBU Framework

ASBU Block

Specific concept of operations.
Deadline for an element to be available for implementation.

ASBU Thread

Key feature area of the air navigation system.

ASBU Element

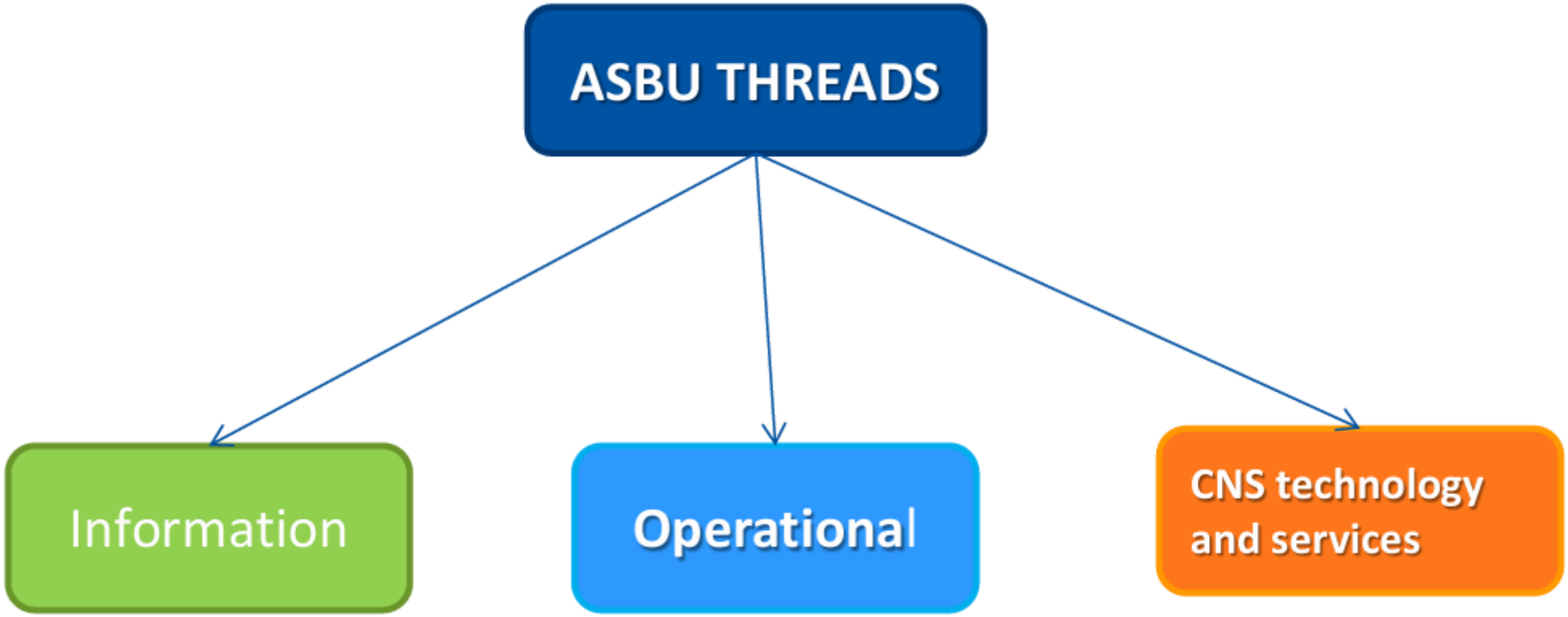
A specific operational improvement

ASBU Enabler

Component (standards, procedures, training, technology,…)

ASBU Module

A group of elements from a thread.

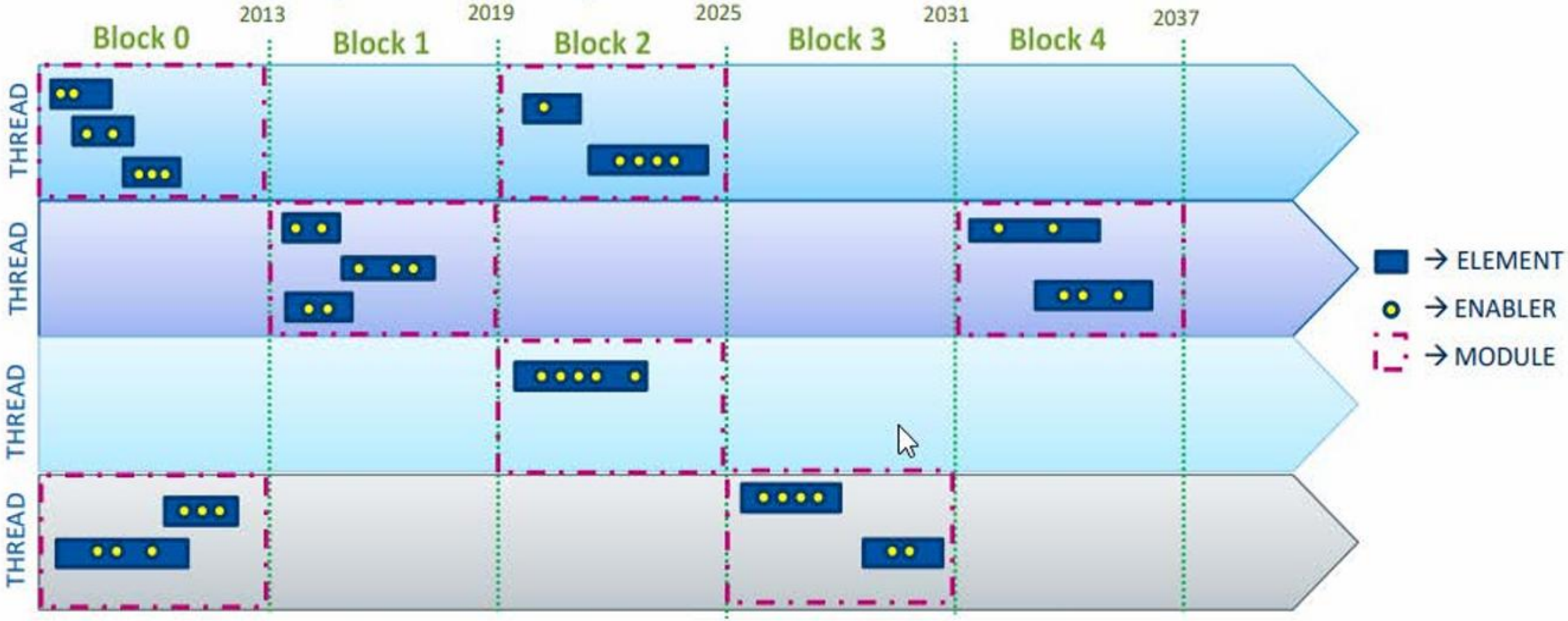

ASBU THREADS
Information
Operational
CNS technology and services

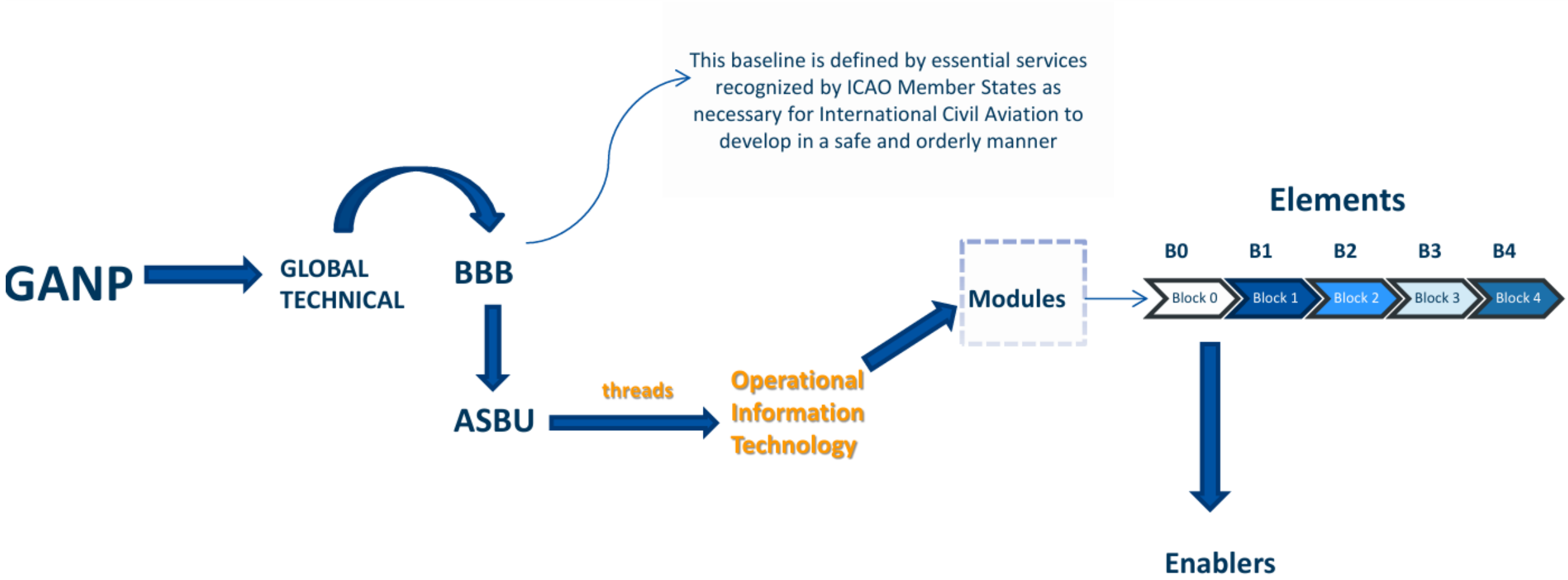
ASBU Enabler

- Another key concept in the updated framework.
- The ASBU enablers are a new concept in the updated ASBU framework.
- They are the components (standards, procedures, training, technology, etc)
- required to implement an element.
- Their goal is to identify the stakeholders involved in the implementation of an ASBU element as well as all the necessary requirements, in order to ensure an effective implementation. Some of the enablers can be elements in other threads, for instance: avionics or ground systems in the technology threads.


Regulatory provisions
Ground System Infraestructure
Operational Procedures
Enablers
Training
Airbone System Capacity

ASBU key concepts




This baseline is defined by essential services recognized by ICAO Member States as necessary for International Civil Aviation to develop in a safe and orderly manner
GANP
GLOBAL TECHNICAL
BBB
ASBU
threads
Operational Information Technology
Modules
Elements
B0
B1
B2
B3
B4
Block 0
Block 1
Block 2
Block 3
Block 4
Enablers

BBBs vs ASBUs

- BBBs:
  - Compliance with ICAO SARPs and PANS
- ASBUs:
  - Group of operational improvements to advance air navigation capabilities and improve the performance of their air navigation system in a cost effective way

REGIONAL & NATIONAL LEVELS

- eANP tool
  - Under development
  - Available for the Eighth edition
- National template
  - Under development
  - Available for the Eighth edition

GANP Lifecycle

ICAO Assembly, at its 39th Session

- Expansion of the GANP lifecycle through **three-year minor and six-year major updates**, as relevant, to provide for stability.
- ICAO Air Navigation Global Events schedule

Exception: Due to the COVID-19 pandemic the HLSC of 2021 was cancelled so the GANP updates were presented directly to the ICAO Assembly in 2022. The HLCC did not address air navigation matters.

- ICAO Global Air Navigation Events
  - GANIS/SANIS, ANConf, General Assembly

GANP 6th Edition

Global Air Navigation Events

Symposiums: GANIS/SANIS

December 2017

Industry technical input

13th Air Navigation Conference

October 2018

State technical input

40th Session General Assembly

September 2019

Decisions

Seventh Edition of the GANP (Minor update)

- No Symposium
- Not discussed in a Conference
- Minor input from HLCC due to cancelation of HLSC in 2021
  - No Secretariat paper
- Endorsed by the 41th Session of the ICAO Assembly in 2022

GANP 8th Edition

Symposium AN World

23 - 27 October 2023

Industry technical input

14th Air Navigation Conference

26 August to 6 September 2024

State technical input

42nd Session General Assembly

23 Sep 2025 - 03 Oct 2025

Decisions

Highlights from the A42

Established a clear mandate to pursue long-term strategy for transforming air transport.

Participants

Record-breaking **3394** registered participants

Member States

192 Member States

Int. Organizations

58 International Organizations

Resolutions

32 Resolutions passed

42nd session of the ICAO Assembly

Agenda Item 23: Global Aviation Safety and Air Navigation Plans

- A42-WP/31 – A COMPREHENSIVE STRATEGY FOR AIR NAVIGATION: ENDORSEMENT OF THE EIGHTH EDITION OF THE GLOBAL AIR NAVIGATION PLAN (GANP)

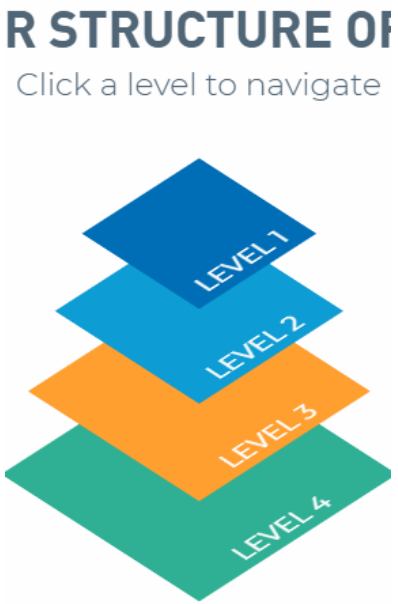
➢ Endorsement of the eighth edition of the GANP

ICAO

NINTH EDITION OF THE GANP

The 42nd Session of the Assembly agreed to extend the duration of the GANP update cycle to **six years** and that ICAO:

- focus on **supporting States in implementing the GANP and developing national plans**
- develop and disseminate guidance on a **minimum implementation path**, providing clear, actionable steps and timelines for States;
- facilitate the use of the guidance provided within the GANP framework for **reporting performance** in a transparent, holistic and harmonized manner; and
- develop guidance for the integration of **initiatives across regions**, including an approach to define a minimum set of GANP initiatives to be implemented globally with associated timelines, and an approach whereby neighboring regions would define a set of **joint GANP initiatives and implementation timelines between themselves**.



Thank You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