



# GLOBAL AIR NAVIGATION PLAN ASBU FRAMEWORK

ICAO Workshop on the new version of the Global Air Navigation Plan (GANP)  
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# AGENDA

- 1. Global Air Navigation Plan**
- 2. ICAO ASBU framework**
- 3. Basic Building Block (BBB)**



# 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.






- **Doc 9854 Global Air Traffic Management Operational Concept (GATMOC) [2005]**
  - 11 Expectations (not Key Performance Areas)
- **Doc 9161 Manual on Air Navigation Services Economics [2006]**
  - Addresses performance in Chapter 4 Section C – Means of Measuring Performance and Productivity
- **Doc 9882 Manual on Air Traffic Management System Requirements [2007]**
  - Translation of the GATMOC into a set of requirements, cross-referenced to the GATMOC; section 2.1 defines overarching performance-related requirements, for all 11 Expectations
- **Worldwide Symposium on Performance of the Air Navigation System [2007]**
  - Significant attendance
- **Doc 9883 Manual on Global Performance of the Air Navigation System (MGPANS) [2009]**
  - Terminology, methods, processes & good practices (including the six-step ICAO performance management process); 11 KPAs derived from the 11 GATMOC Expectations; but note: the included indicators were only examples of what was in use in some Regions (some readers have erroneously assumed these were globally standardized KPIs)
- **Regional (performance framework) workshops [2009]**
  - ICAO Regions tasked by ICAO to start developing regional performance frameworks (as the time was not yet ripe to harmonize at global level)
- **AN-Conf/12: introduction of the ASBU methodology and outcome regarding performance [2012]**
  - Recommendation 1/15 – Performance monitoring and measurement of air navigation systems
  - Recommendation 1/16 – Access and equity considerations
  - Recommendation 6/11 – Regional performance framework – alignment of air navigation plans and regional supplementary procedures
- **Doc 9750 Global Air Navigation Plan (GANP) [GANP 2016]**
  - Performance chapter with 16 'Potential key performance indicators' for measuring performance outcome, and phased development approach for ICAO (until 2019, until 2022, 2022 and beyond)
  - ASBU Module benefits qualitatively (as free text) described at the level of KPAs
  - Implementation monitoring considered part of performance monitoring → has resulted in annual ASBU Implementation Monitoring Reports
- **Doc 9750 Global Air Navigation Plan (GANP) [GANP 2019]**
  - Major ASBU review; introduction of ASBU elements
  - Significant refinement and strengthening of performance based approach: 19 GANP KPIs, Performance objectives catalogue, foundation for future enhancements
  - Transition from document to on-line portal



The screenshot shows the ICAO GANP Portal website. The main heading is "WELCOME TO THE GLOBAL AIR NAVIGATION PLAN PORTAL". Below it, there is a section titled "THE GLOBAL AIR NAVIGATION PLAN" and a "MULTILAYER STRUCTURE OF THE GANP" diagram showing a hierarchy of layers: Global, Regional, and National. The diagram consists of three overlapping shapes: a blue triangle at the top, an orange triangle in the middle, and a green triangle at the bottom.

GLOBAL STRATEGIC	GLOBAL TECHNICAL
Provides high-level strategic direction for decisions makers to define the evolution of the global air navigation system towards a common agreed vision.	Supports technical managers in planning the implementation of air navigation services and in a range of other improvement work in a cost-effective manner.
 GANP STRATEGY	 ASBUs AN-SPA BBBs
Includes a chapter on Performance Ambitions	Performance Framework

REGIONAL	NATIONAL
Adds regional and sub-regional needs of areas in line with global objectives.	Development by States in coordination with relevant stakeholders, or an engagement process aligned with regional and global ones.
 APAC ANP  EURL ANP  RISM ANP  CARSAW ANP  AFAC ANP  MID ANP  NAF ANP	 NANP TEMPLATE  CBA CHECKLIST

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

<https://www4.icao.int/ganpportal/Tutorial>

# 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.



# GLOBAL TECHNICAL LEVEL

- Information maintained in information warehouse
  - Reports (paper) can be derived
- GLOBAL FRAMEWORK
  - BBBs
  - ASBUs

} Consistent with Conceptual Roadmap and System Architecture
- PERFORMANCE-BASED APPROACH for ANS improvement
  - Performance-based Decision Making Method
  - Key Performance Indicators
- Clear definitions



# Basic Building Block (BBB)







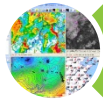
# Introduction

- ✈ The Basic Building Block (BBB) framework outlines the foundation of any robust air navigation system. It is nothing new but the identification of the essential services to be provided for International Civil Aviation in accordance with ICAO Standards. These essential services are defined in the areas of aerodromes, air traffic management, search and rescue, Meteorology and information management. In addition to essential services, the BBB framework identifies the end users of these services as well as the assets (communications, navigation, and surveillance (CNS) infrastructure) that are necessary to provide them.



✈ The BBB is considered an independent framework and not a block of the ASBU framework as they represent a baseline rather than an evolutionary step. 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. Once these essential services are provided, they constitute the baseline for any operational improvement.

# BBB Framework:



**Meteorological Information**



**Aeronautical Information**



**Search and Rescue**



**Air Traffic Management**



**Aerodrome Operations**



✈ The BBB framework will be updated every two years taking into account amendments to ICAO provisions. Although an initial draft of the BBB framework is presented online in the GANP Portal, the BBBs will be included in a web-based application in a format similar to the ASBU framework.

<https://www4.icao.int/ganpportal/BBB>



# BBB Verification

- ✈ to set a baseline for the system envisioned in the GANP and to ensure a robust foundation for the global air navigation system, an effective process should be established to verify, pursuant to Article 37 of the Chicago Convention, that the essential air navigation services identified in the BBB framework are provided.



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# THE ASBU FRAMEWORK





# 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 Thread

- ✈ Another key concept in the updated framework.
- ✈ The ASBU threads already existed in previous versions of the GANP and they were key feature areas of the air navigation system where improvements are needed in order to achieve the vision outlined in the Global ATM Operational Concept.
- ✈ The ASBU threads are been categorized in 3 groups:
  - Operational threads: ACDM, APTA, NOPS...
  - Information threads: SWIM, AMET, DAIM, FICE,...
  - Technology threads: COMS, COMI, NAVS, ASUR (previous roadmaps)





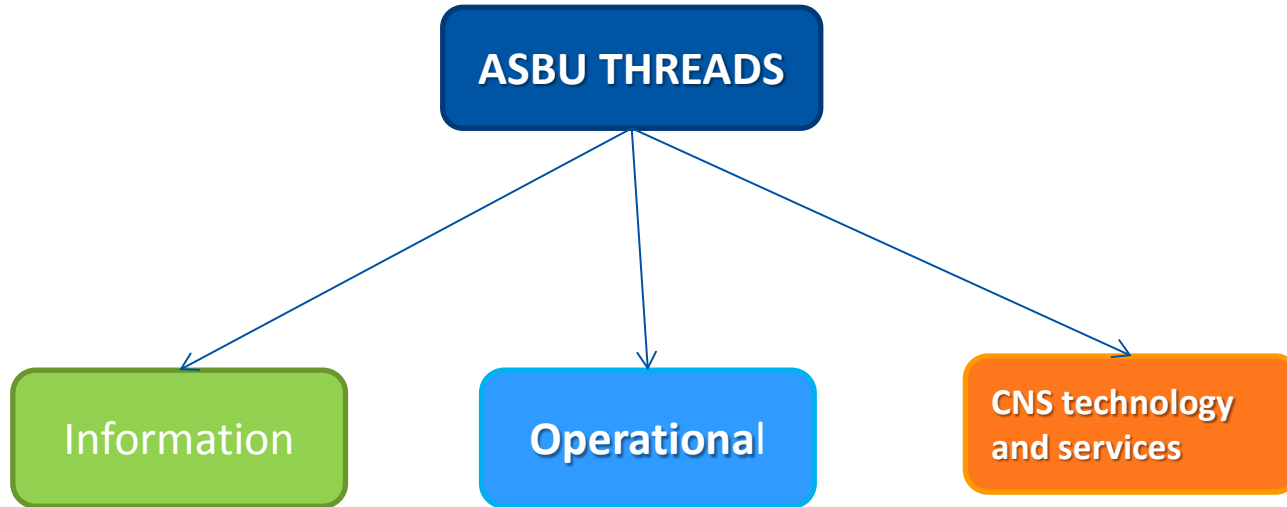
# ASBU Thread (cont)

- ✈ This updated version of the GANP presents the following major changes regarding the threads:
  - The CCO and the CDO threads have been merged into the APTA thread, which has expanded its scope to cover terminal and approach operations.
  - Some elements in the OPFL thread have been moved to FRTO, so FRTO will from now on cover horizontal and vertical en-route flight efficiency. However, in order to respect stability, elements in Block 0 and one element in Block 1 have been left in OPFL.
  - The RPAS thread is TBD, however, the lower airspace operations improvements have been reflected as elements in other threads.



## ASBU Thread (cont)

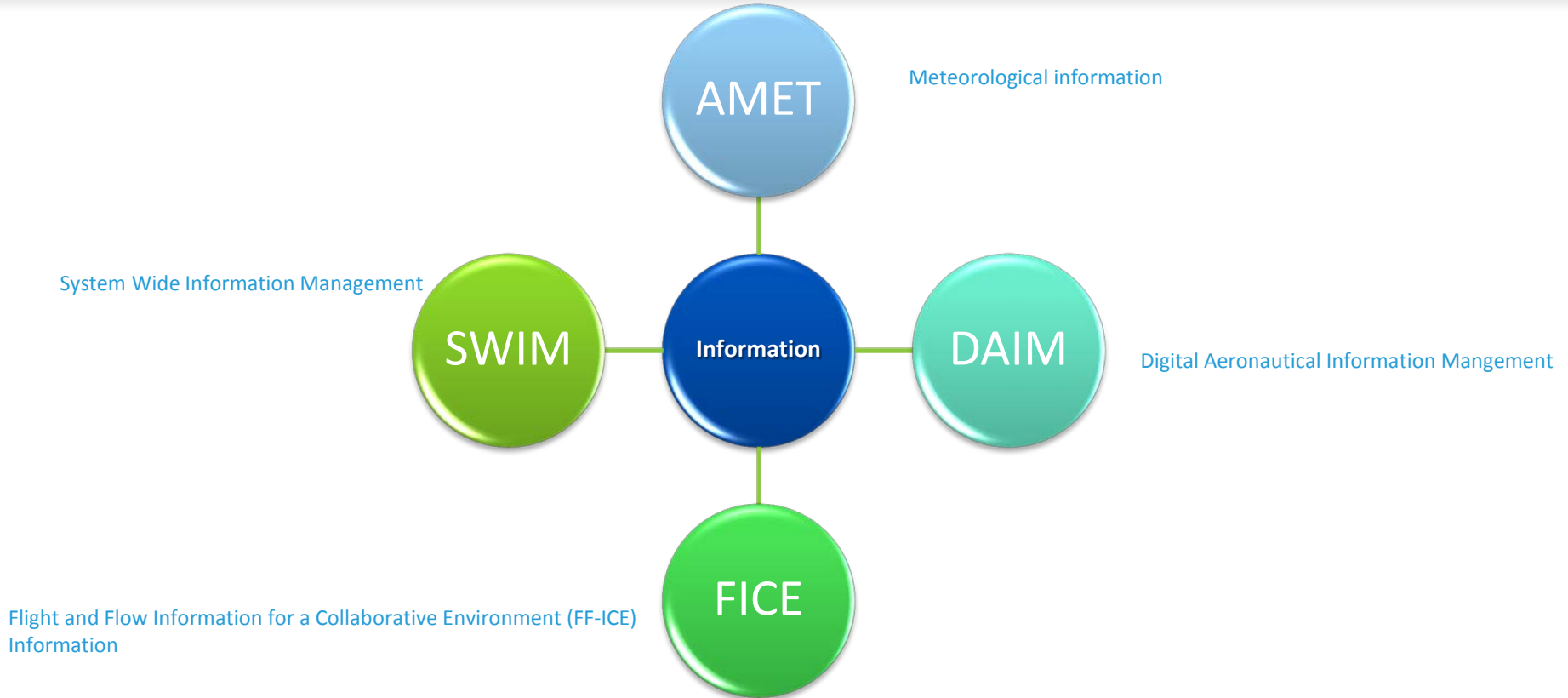
- Higher airspace operations improvements have also been reflected as elements in other threads.
- There is a new thread for global tracking: GADS.
- The roadmaps have become technology threads in order to show the dependencies on them of the other ASBU elements.
- The TBO thread has been updated based on the TBO concept and as an integrating concept, its elements are the elements from the operational threads. The communication elements in the previous versions of the TBO thread are now in the COMS (communication services) thread.





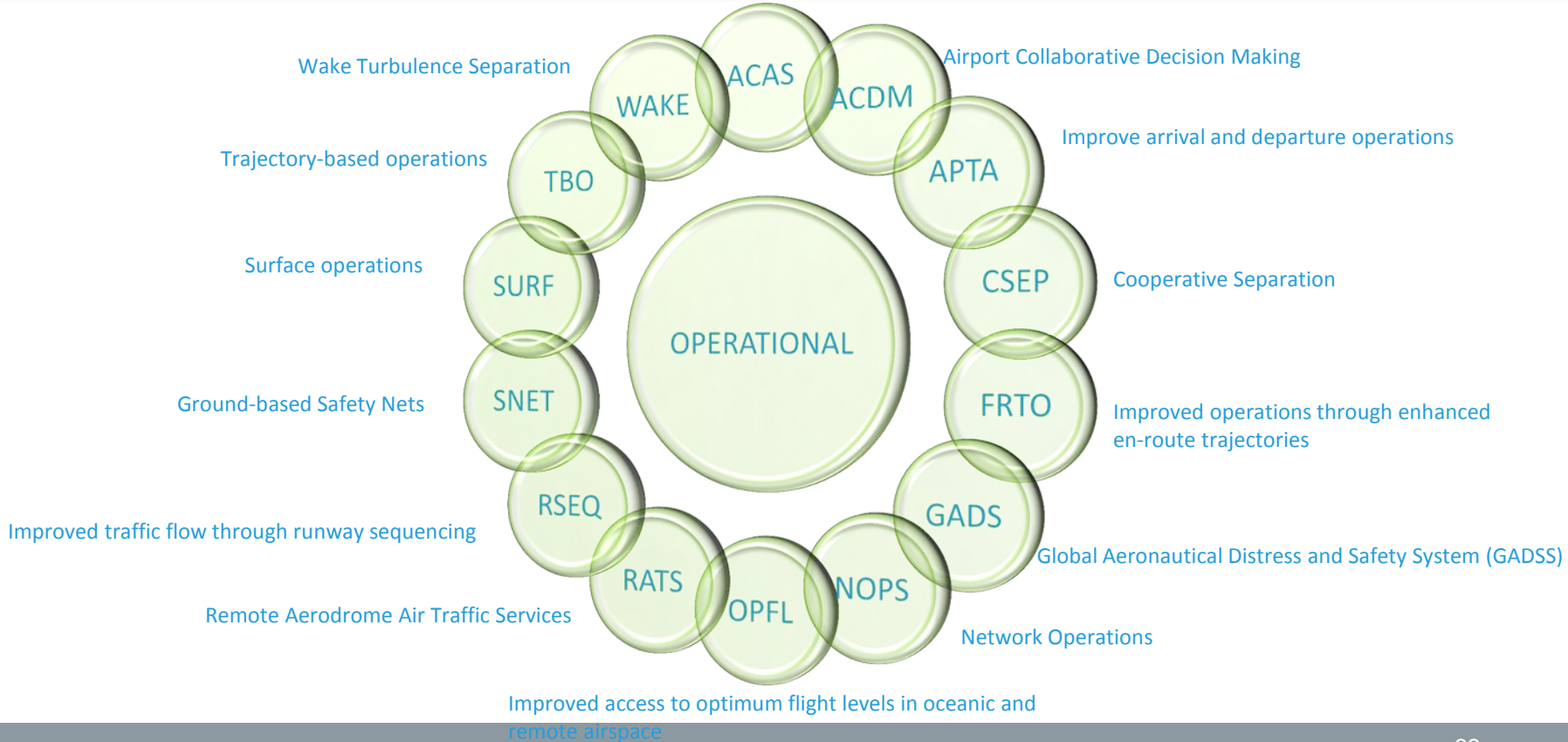
# ASBU Module

- The last key concept in the updated framework.
- The ASBU modules already existed in previous versions of the GANP and they are the crossing point between the threads and the blocks. Therefore, an ASBU module is the 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.
- As such, if in the digital ASBU framework we select in the filter one ASBU thread and one Block, we will obtain the elements that constitute the module.





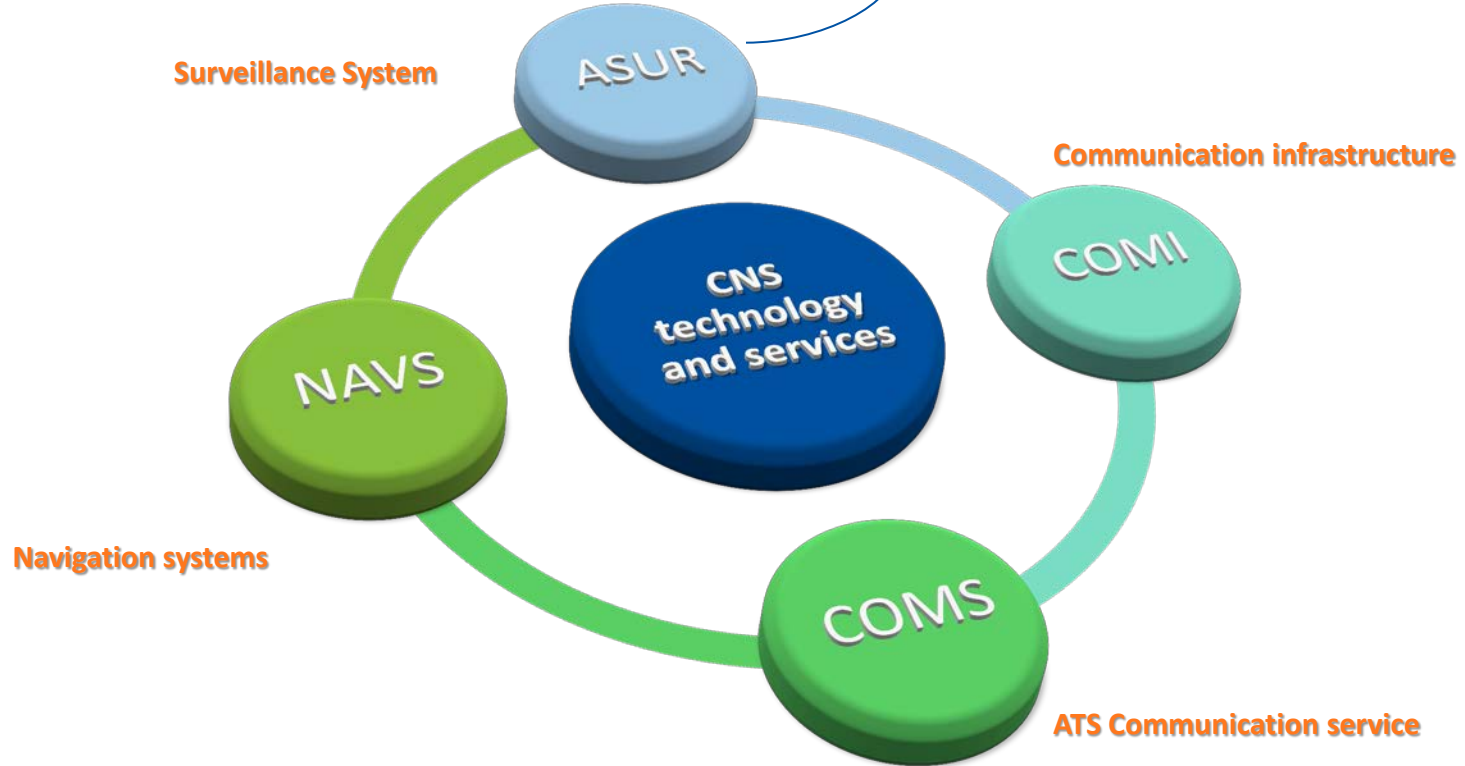
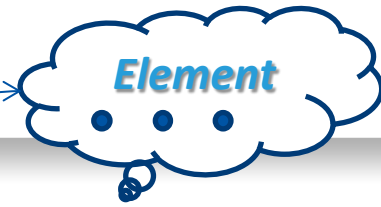
Airborne Collision Avoidance System (ACAS)





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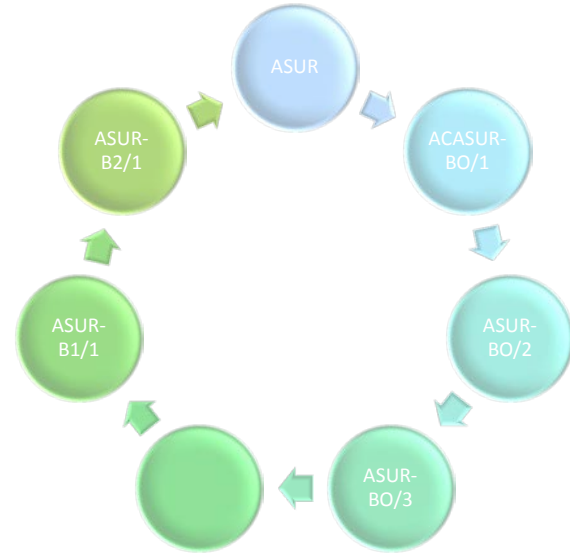
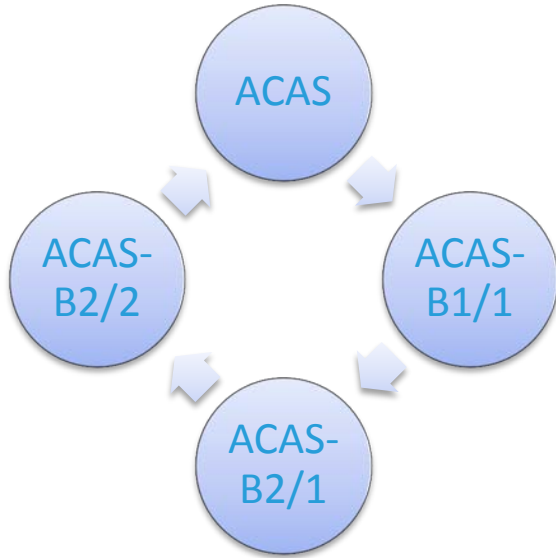




# ASBU Elements



















- ✈ The main concept of the updated ASBU framework.
- ✈ The ASBU elements were defined in previous versions of the GANP in an inconsistent manner. With the digitalization of the framework, they have become the core concept and they have been defined in a harmonized manner.
- ✈ An ASBU element is a specific change in operations designed to improve the performance of the air navigation system under specified operational conditions.







## ACDM

ACDM-B0/1	Airport CDM Information Sharing (ACIS)	Operational	  
ACDM-B0/2	Integration with ATM Network function	Operational	  
ACDM-B1/1	Airport Operations Plan (AOP)	Operational	  
ACDM-B1/2	Airport Operations Centre (APOC)	Operational	  
ACDM-B2/1	Total Airport Management (TAM)	Operational	  
ACDM-B3/1	Full integration of ACDM and TAM in TBO	Operational	  



# 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.

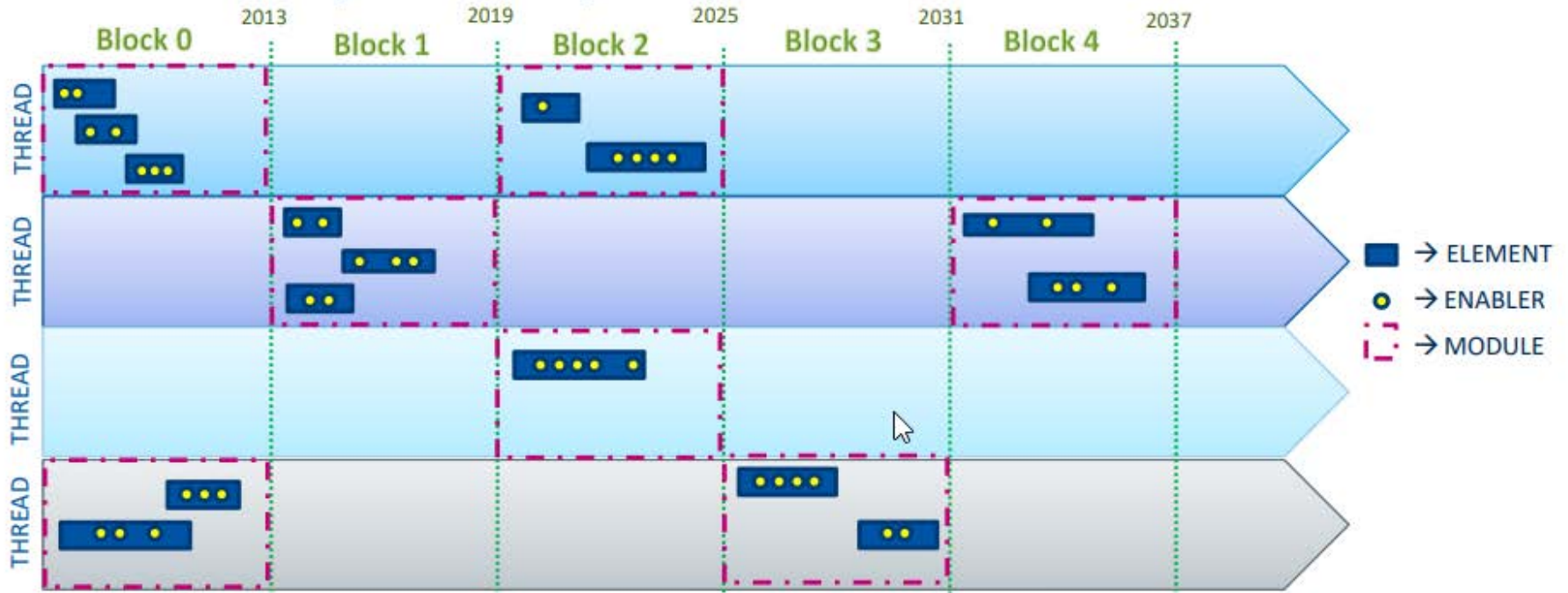




# ASBU Block

- Another key concept in the updated framework.
- The ASBU blocks already existed in previous versions of the GANP and they introduced the “time” dimension to the framework.
- An ASBU Block is the end date of a six years timeframe that defines a deadline for an element to be available for implementation. This implies, that the element and all the enablers associated to it, need to be available for implementation by the ASBU block year.
- ASBU Blocks years: 2013, 2019, 2025, 2031....

# 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**



**Enablers**

# ASUR

## TECHNOLOGY ROADMAPS

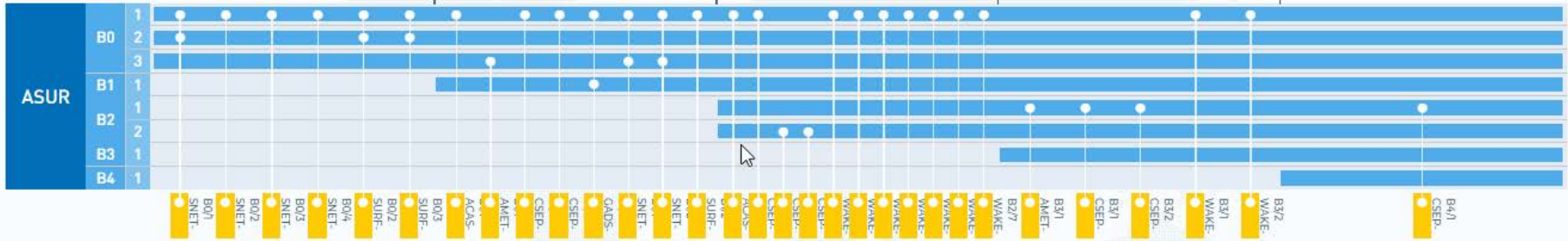
ASUR

2013

2019

2025

2031





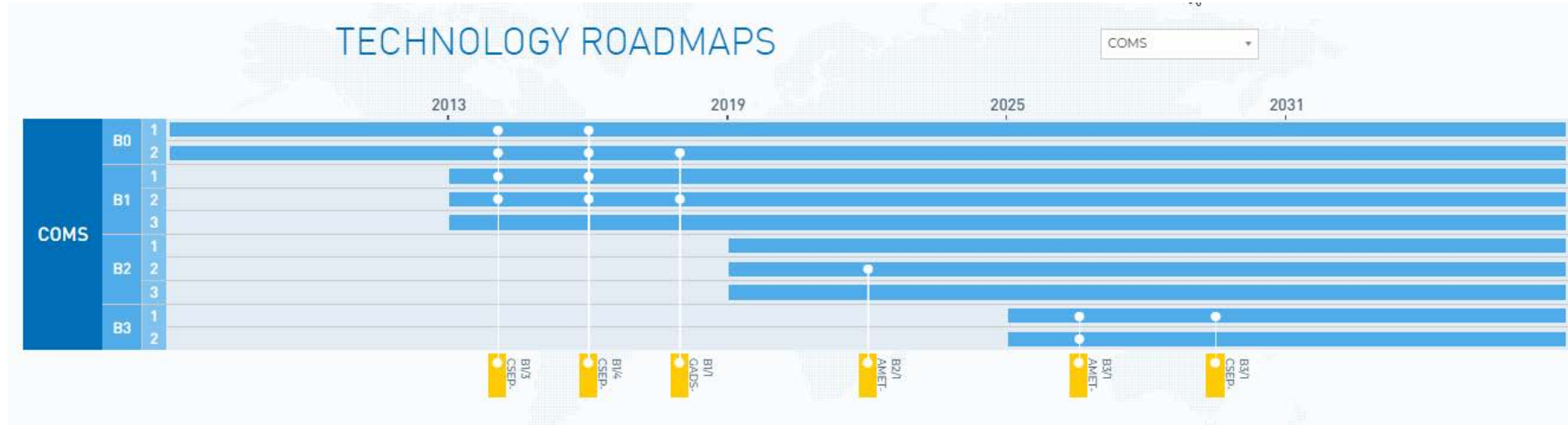
# COM1

## TECHNOLOGY ROADMAPS

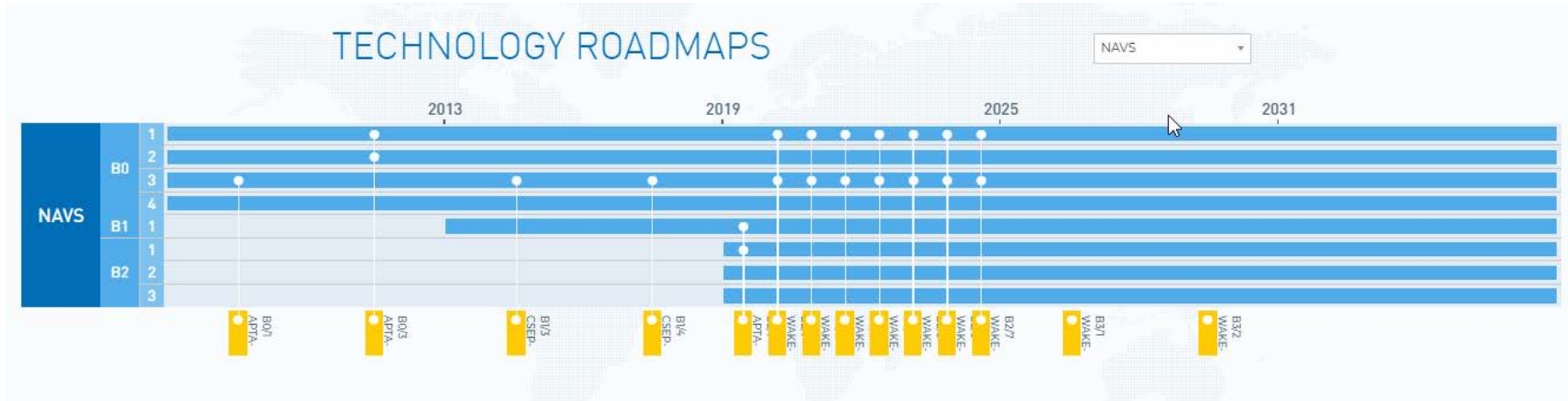
COM1



# COMS



# NAVS





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South American  
(SAM) Office  
Lima

ICAO  
Headquarters  
Montréal

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) Sub-office  
Beijing

Asia and Pacific  
(APAC) Office  
Bangkok



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