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# INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY

Module 5 – Update on Activities Led by the NACC/WG for the Development of the e-ANP Volume III

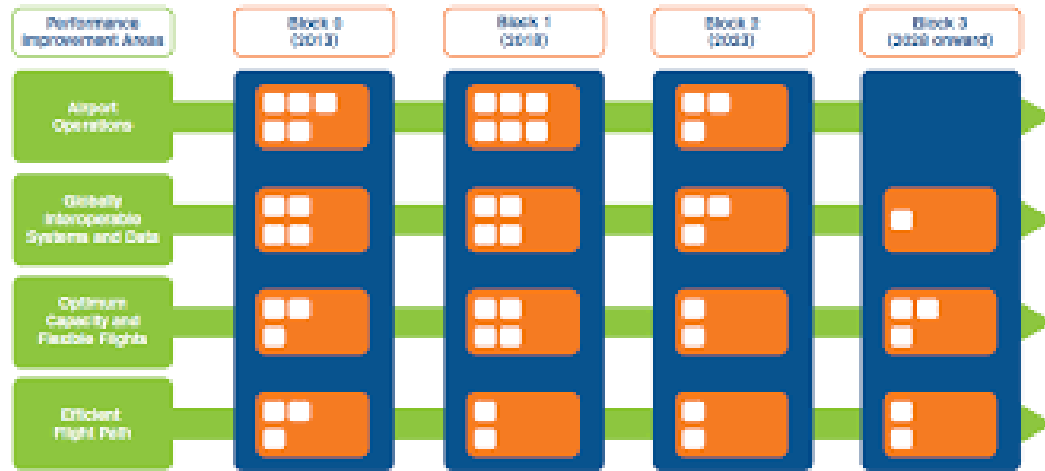


# UPDATE ON ACTIVITIES LED BY THE NACC/WG FOR THE DEVELOPMENT OF THE e-ANP VOLUME III

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ICAO NACC

# REGIONAL STRATEGY



Evaluation of the Basic Building Blocks (BBB)



Evaluation of its elements (ASBU)



Identification and measurement of Key Performance Indicators (KPI)



Development of National Air Navigation Plans of the States.

## Basic Building Blocks (BBB)

The Basic Building Blocks (BBBs) outline the foundations of any robust air navigation system and identify the essential services that must be provided to international civil aviation following ICAO standards. Essential services are identified in AGA, MET, ATS (ATM), AIS/AIM, SAR, and CNS.





**To ensure the provision of seamless air navigation services based on the deployment of interoperable systems and harmonized procedures, States should promote the implementation of BBBs through their national air navigation plans as a strategic part of their national air navigation planning framework.**

# Aviation System Block Upgrade (ASBU)



- ✈ The ICAO GANP ASBU methodology is a programmatic and flexible global approach that allows all Member States to improve their air navigation capabilities based on their specific operational requirements.



- ✈ Each ASBU element contains information on its functional description, enablers, implementation applicability, and performance impact assessment. States should understand that ASBU elements are addressed to meet an operational need or resolve a deficiency, and increase efficiency and safety.



- ✈ Why? The main purpose is to provide a summary of the essence of the element. For operational elements, it provides information on the direct relationship of performance.



✈️ **ASBU elements have different maturity levels:**

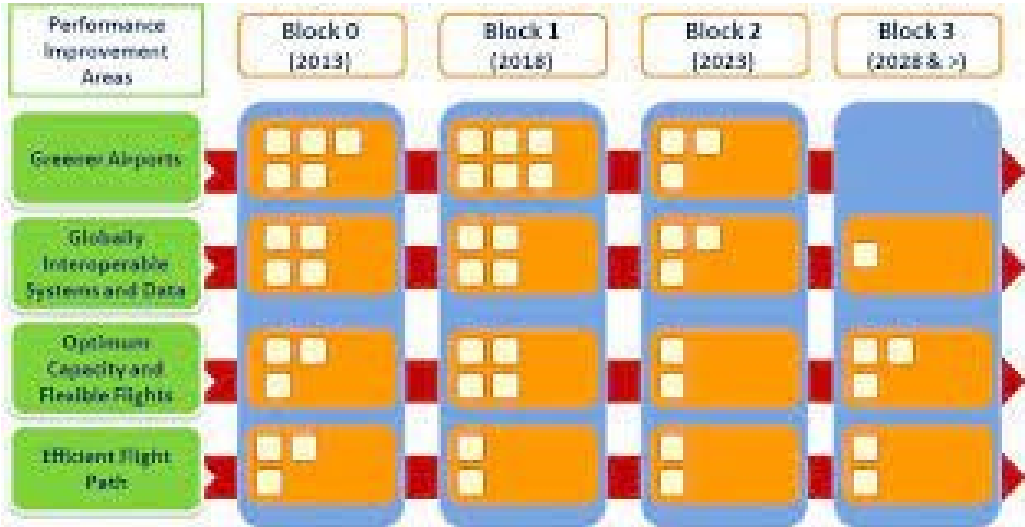
**Ready for deployment:** This maturity level focuses on the end of the system development and initial global operational capability.

**Standardization:** This level of maturity focuses on defining the provisions necessary for system interoperability and harmonization of procedures.

**Validation:** This maturity level focuses on industrial research and validation and includes proof of concept validation, implementation and testing of independent prototypes, testing, and prototyping in a representative environment, and demonstration of engineering feasibility complete in real system application.

**Concept:** This level of maturity focuses on exploratory research and includes scientific research and research into basic principles.

# AVIATION SYSTEM BLOCK UPGRADE (ASBU)



TECHNOLOGY

INFORMATION

OPERATIONAL

# AVIATION SYSTEM BLOCK UPGRADE (ASBU)





# ENABLERS

## CATEGORIES:

- ✈ *Regulatory provisions, and regulations.*
- ✈ *Operative procedures*
- ✈ *Capacity of the systems onboard (avionics)*
- ✈ *Ground infrastructure*
- ✈ *Training*
- ✈ *Operative authorization*
- ✈ *Others*



## TYPE OF ENABLER:

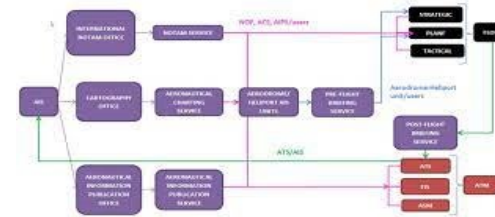
- ✈ *National regulatory framework.*
- ✈ *Information exchange*
- ✈ *Onboard aircraft systems*
- ✈ *Ground infrastructure*
- ✈ *Training*
- ✈ *Certification*
- ✈ *Others*

# EVALUATION OF THE ANS IMPLEMENTATION STATUS (INFRASTRUCTURE AND SERVICES)

## Evaluation of the ASBU elements

Performance Measurement Area	Block 0 (2012)	Block 1 (2016)	Block 2 (2020)	Block 3 (2024+)
Asset Operations	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Essential Information Systems and Data	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Optimum Capacity and Flexible Flights	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Advanced Flight Paths	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■

## Evaluation of the BBB



## e-ANP Volume I and II update



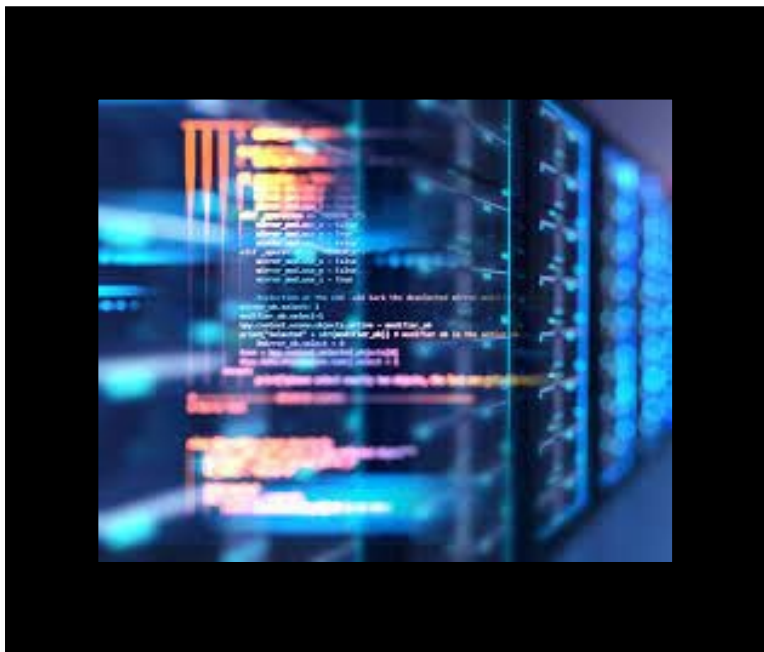
# KEY PERFORMANCE INDICATORS (KPI) MEASUREMENT

KPIs are quantitative means of measuring current/past performance, expected future performance, and actual progress in achieving performance objectives. For Air Navigation Services, they provide information to be reviewed by States on service performance and support decision-making for operational improvements.

## Characteristics of the data:

1. ¿What kind of data is it?
  2. ¿Which is the source of the data?
  3. ¿How accurate the data is?
  4. ¿What is the periodicity in which data is obtained?
  5. ¿What are the characteristics of the data format?
  6. ¿Which validation data process is followed?
  7. ¿Who are the data providers?
  8. ¿What is the metadata (type of data, date, time, system that got it, who got it, etc.)?
- A clear and accurate definition of the data.

## DATA PROVIDERS



Database(s) of flight itineraries, airports, airlines and/or Air Navigation Service Providers (ANSP)



Airports (airport operations, A-CDM), airlines (OOOI data), ADS-B data providers and/or ANSPs, ATFM Service.



Others, according to the systems implemented in each State and agreements maintained with data providers.

# KEY PERFORMANCE INDICATORS DEFINED IN THE e-ANP VOLUME III FORMAT



## **Eficiencia:**

KPI08: Additional time in terminal airspace.

KPI02: Taxi-out additional time.

KPI13: Taxi-in additional time.

KPI04: Filed flight plan en-route extension.

KPI05: Actual en-route extension.



## **Capacidad:**

KPI06: En-route airspace capacity.

KPI09: Airport peak capacity.

KPI10: Airport peak throughput.



## **Predictibilidad:**

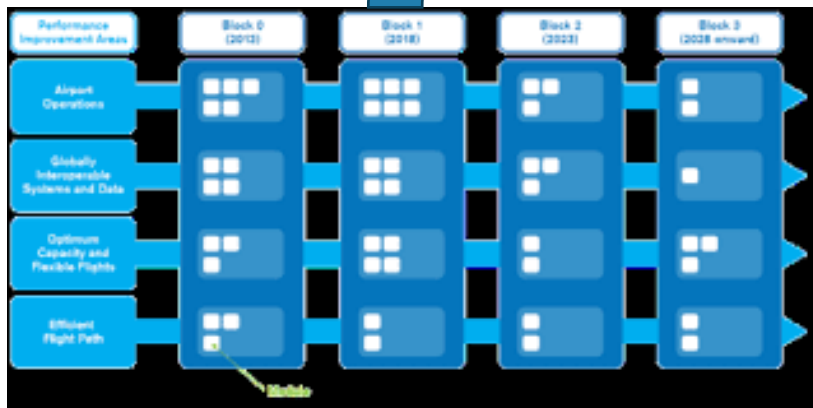
KPI01: Departure punctuality.

KPI14: Arrival punctuality.

KPI15: Flight time variability.

# RELATION OF THE ASBU ELEMENT WITH THE KEY PERFORMANCE INDICATOR (KPI)

ASBU Elements: ready for implementation



KPI01: Departure punctuality

KPI02: Taxi-out additional time

KPI04: Filed flight plan en-route extension

KPI05: Actual en-route extension

KPI07: En-route ATFM delay

KPI10: Airport peak throughput

KPI11: Airport throughput efficiency

KPI13: Taxi-in additional time

KPI16: Additional fuel burn

KPI17: Level-off during climb

KPI18: Level capping during cruise

KPI19: Level-off during descent

KPI20: Number of aircraft accidents

KPI21: Number of runway incursions

KPI22: Number of runway excursions

KPI23: Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)



# ¿What must I do?

¿Where I am?

*Establish my baseline!*



My objective

# ESTABLISHING THE BASELINE



## Establish a Baseline



Evaluate the BBB



Evaluate the implementation status of the ASBU elements (ready form implementation)

Update the e-ANP Volume I and II



Identify the metadata related to the ASBU elements for the KPI measurement



Identify priorities

Identify future objectives

NANP Development

Feed the e-ANP Volume III

## IDENTIFICATION OF PRIORITIES AND FUTURE OBJECTIVES

1. BBB and ASBU evaluation result
2. Resolution of deficiencies, solution of failures, and solving needs.
3. Use of the Air Navigation - System Performance Assessment Tool (AN-SPA).

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

*The objective of this tool is to promote a performance-based approach to cost-effective air navigation system modernization. This tool guides the aviation community in applying a six-step performance management process and selecting relevant operational improvements within the ASBU framework.*

*Collaborative decision-making is key to cost-effective modernization of the air navigation system and therefore all aviation stakeholders must be involved.*

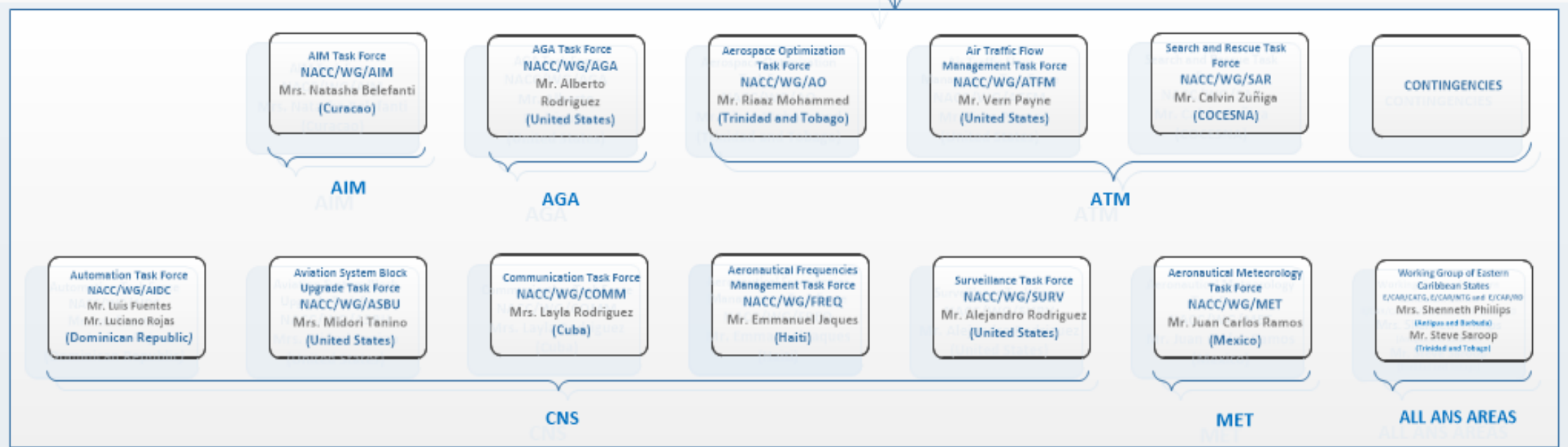


1. **A correct establishment of the baseline**
2. **Correct identification of data and metadata to measure KPIs**
3. **Training**
4. **Correct planning**

# North American, Central American and Caribbean Working Group (NACC/WG)

- ❑ The NACC/WG is the only regional implementation mechanism and integrates all the Task Forces of the different air navigation areas and is the mechanism through which the region reports its level of implementation.
- ❑ The NACC/WG integrates the Task Forces of Aeronautical Information Management (AIM), Air Traffic Management (ATM), Communications, Navigation and Surveillance (CNS), and joint tasks with Aerodromes and Ground Aids (AGA) and Meteorology (MET). In addition, it integrates joint work on cybersecurity for air navigation and unmanned aircraft operations.
- ❑ The different Task Forces lead the specific tasks of their areas, and through the Group of Rapporteurs that make up the different Task Forces, decisions are made about the implementation and improvements at the regional level in air navigation.
- ❑ The NACC/WG is the mechanism through which it reports to the CAR/SAM Planning and Implementation Regional Group (GREPECAS), which is the Planning and Implementation Regional Group (PIRG), which reports to the Air Navigation Commission.





Note: All Task Groups comprise designated members of NAM/CAR States, International Organizations and members of the Industry.



# NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN WORKING GROUP (NACC/WG)



## AIM

1. Leading the documentation process.
2. Working on the evaluation of BBBs regionally.



## AGA

1. Development of a strategy for the evaluation of the BBB in AGA.
2. It has established two regional “Case Studies” that will be the basis for the regional training process and obtain the regional evaluation of the BBB in AGA.



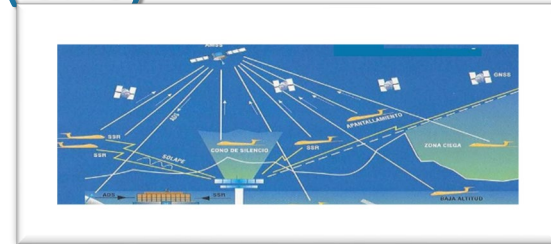
## ATM

1. Through the sponsorship of the MCAAP project and in coordination with the regional ATM Regional Officer and the rapporteur of the Optimization Task Force, the regional strategy for the evaluation of the BBB in ATM is being developed.



# NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN WORKING GROUP (NACC/WG) COMMUNICATIONS, NAVIGATION AND SURVEILLANCE (CNS)

## Enabler of the required infrastructure



01

### AUTOMATION

Working on the implementation of automated channels and the evolution to FFICE - (Air Traffic Control Process Enabler)

04

### FREQ

Establishment of the mechanism to ensure that the frequencies necessary for current and future aviation services can be implemented.

02

### ASBU

Developing the regional format for the development of the air navigation plans of the States.

Through a Task Force, the mapping of information for the KPIs is being carried out.

05

### SURV

Their priority is establishing surveillance data throughout the region.

03

### COMM

Developing the Caribbean communications network project "CANSNET"

**Aviation Internet.**

06

### EAST-CARIBBEAN GROUPS

They have been integrated into each of the Task Groups according to their experts.

## NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN WORKING GROUP (NACC/WG)



MET

1. Development and implementation of BBB elements in MET.



SAR

1. Working with some Regional Officers to develop a BBB regional strategy in SAR.

# CONCEPTUAL ROADMAP

The global air navigation system is becoming more complex as it meets new demands. To manage this complexity, meet global performance ambitions, and realize the GANP vision, the air navigation system must transform and rely on the use of emerging technologies, information, and operations concepts, many of which are not specifically designed for aviation purposes.



**EVOLUTIVE STEP 1:** FLIGHT OPERATIONS IN AN ENRICHED DIGITAL ENVIRONMENT



**EVOLUTIVE STEP 2:** OPERATIONS BASED ON TIME THANKS TO THE INFORMATION REVOLUTION.



**EVOLUTIVE STEP 3:** OPERATIONS BASED ON TRAJECTORIES ENABLED BY TOTAL CONNECTIVITY THROUGH AVIATION INTERNET.



**EVOLUTIVE STEP 4:** THE COMPLETE PERFORMANCE MANAGEMENT SYSTEM IS FOCUSED ON THE NEEDS OF THE ENTERPRISE/MISSION.



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Thank You!