



# Global Air Navigation Plan, 8th Edition

## Aviation System Block Upgrades (ASBUs)

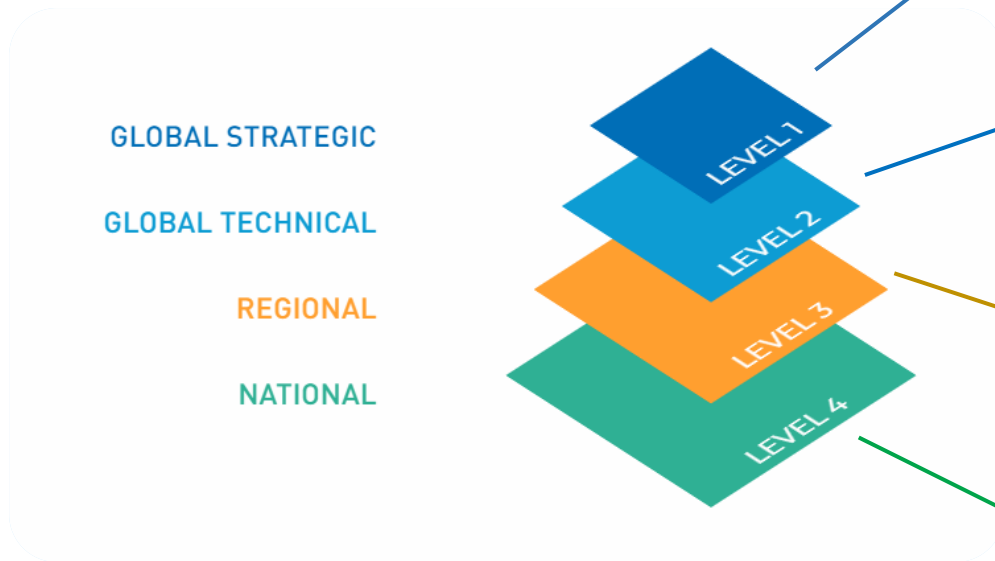
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Expert (Director Level)  
Aeronautical Radio of Thailand Ltd. (AEROTHAI)



# ICAO Doc 9750 Global Air Navigation Plan



## Multilayer Structure



- Vision
- Conceptual roadmap
- Global performance ambitions
- BBBs (Basic Building Blocks)
- ASBUs (Aviation System Block Upgrades)
- Performance-based decision making method
- RANP (Regional Air Navigation Plan)
- Other regional initiatives
- National plan
- Deployment plan



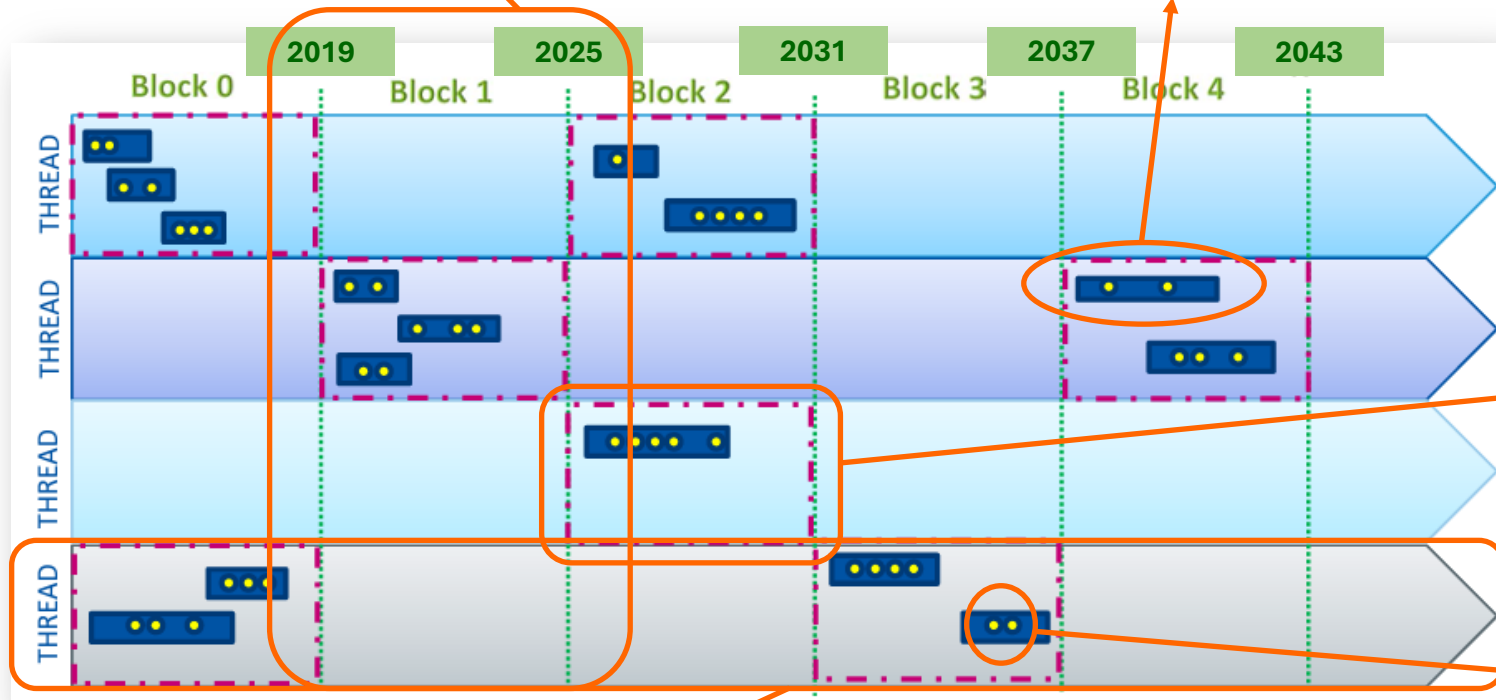


## Block

A **six-year timeframe** whose start defines a deadline for an element to be available for implementation

## Element

A **specific change** in operations designed to improve the performance of the air navigation system under specified operational conditions



## Module

**Group of elements** from a thread that will be available for implementation within the defined deadline established by the Block

## Enabler

**Component** (standards, procedures, training, technology, etc.) required to implement an element

## Thread

**Key feature area** of the air navigation system where improvements are needed in order to achieve the vision outlined in the GATMOC



# ASBU Key Concept



- 3 threads
  - » Operational thread: ACAS, ACDM, APTA, CSEP, DATS, FRTO, GADS, NOPS, OPFL, RSEQ, SNET, SURF, WAKE
  - » Information thread: AMET, DAIM, FICE, SWIM
  - » Technology thread: ASUR, COMI, COMS, NAVS

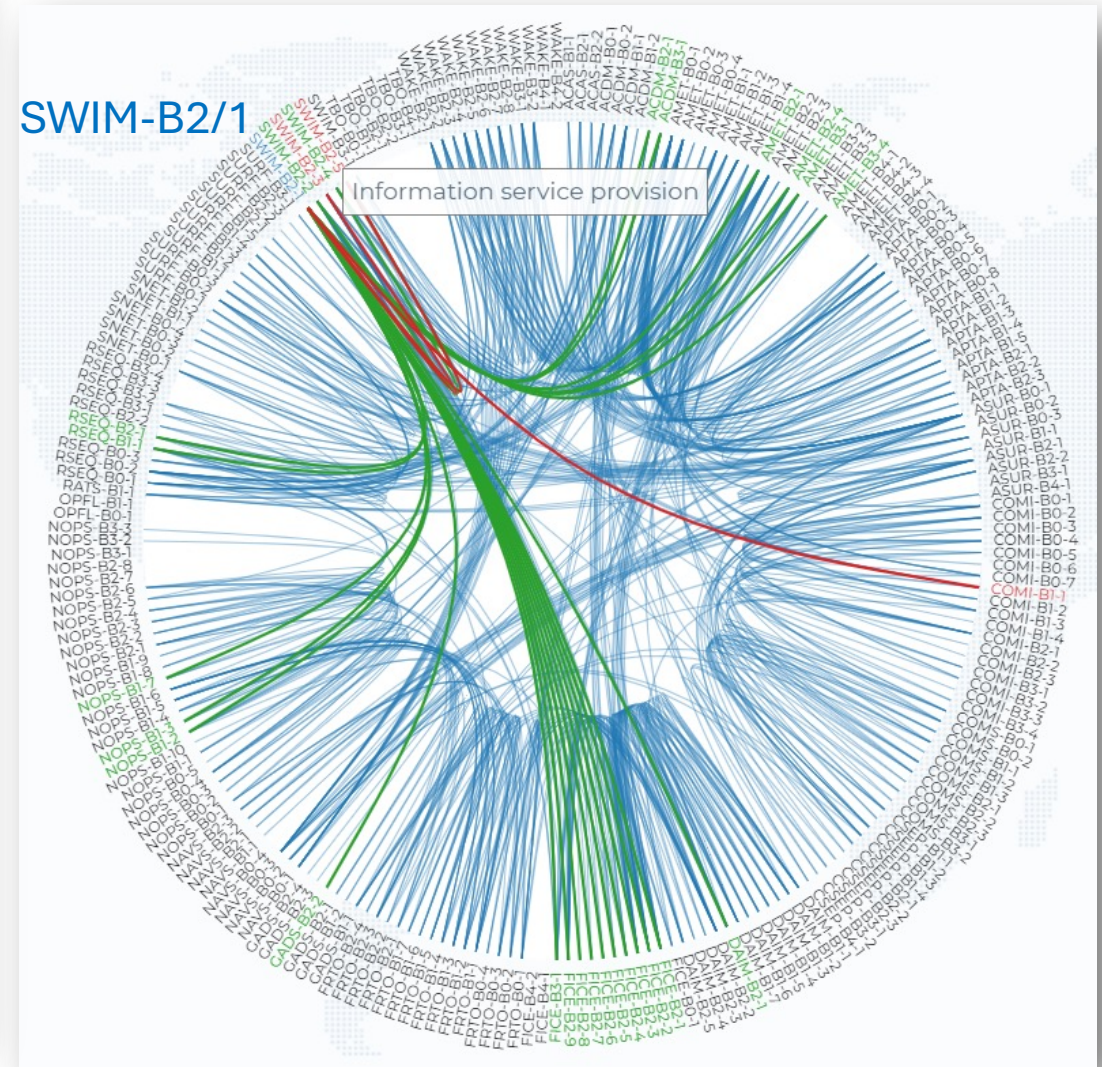
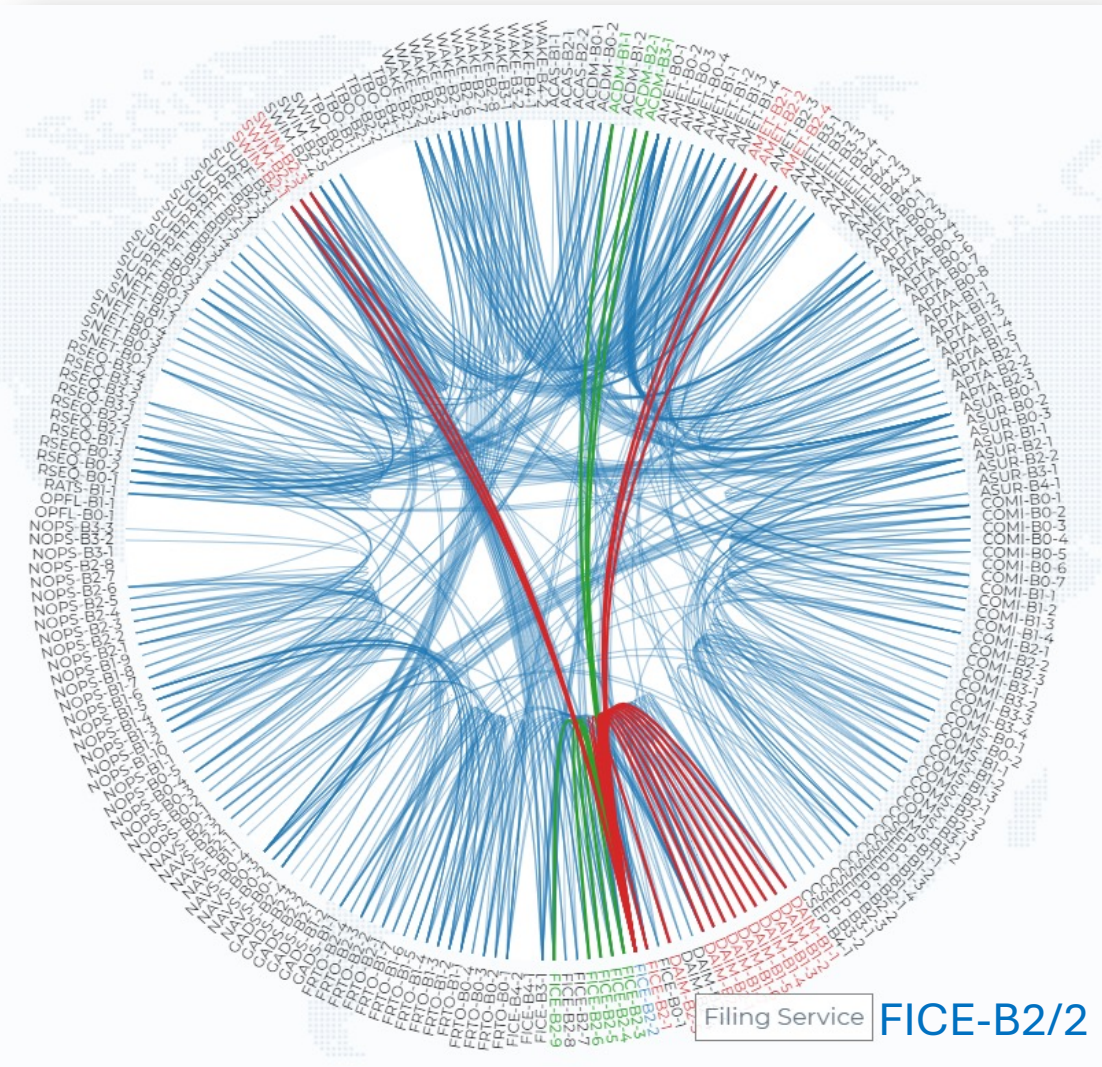
The screenshot shows the ICAO GANP Portal interface. On the left, there is a sidebar with filters for Threads, Blocks, and Maturity Level. The main content area displays a table of ASBU Elements under the ACAS thread.

Thread	Element	Status	Actions
ACAS	ACAS-B1/1 ACAS Improvements	Operational	📄 ⏪ ⏩
ACAS	ACAS-B2/1 New collision avoidance system	Operational	📄 ⏪ ⏩
ACAS	ACAS-B3/1 New collision avoidance capability as part of an overall detect and avoid system for RPAS	Operational	📄 ⏪ ⏩
ACAS	ACAS-B3/2 New collision avoidance capability for rotorcraft and UAM/ AAM operations	Operational	📄 ⏪ ⏩

\*Figure from GANP, 7th Edition

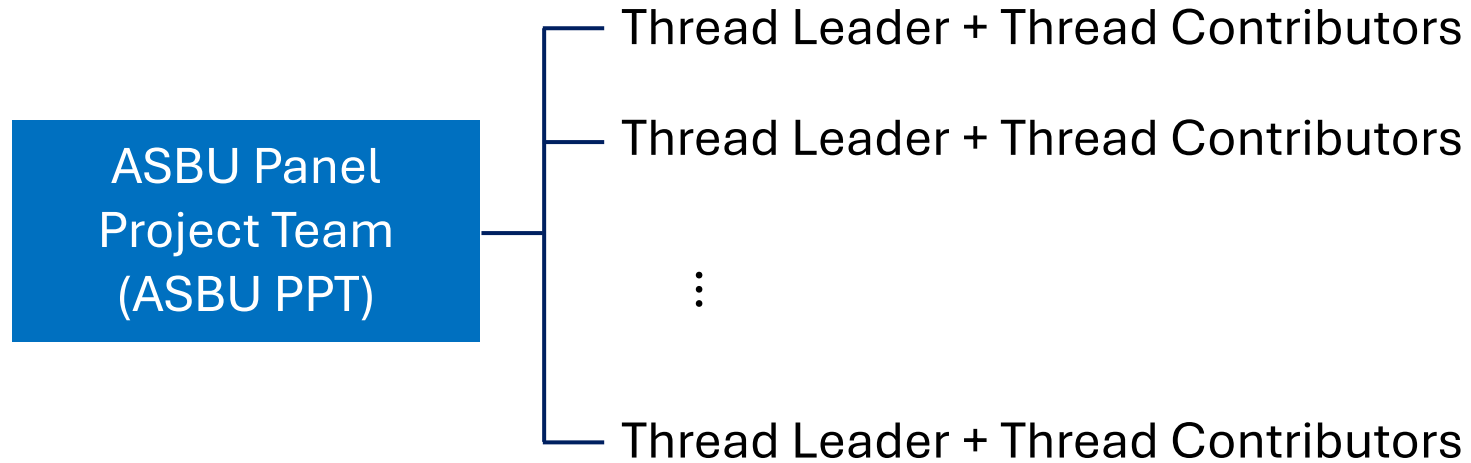


# ASBU Dependency Graph



\*Figures from GANP, 7th Edition

# ASBU Maintenance Process



- Thread Leader
  - » A Member/Advisor of the ANC Technical Panels
  - » Develop and coordinate changes to an ASBU thread
- Thread Contributor
  - » ASBU PPT member with expertise in areas related to an ASBU thread
- ASBU PPT Member
  - » Independent expert with a broad understanding of the air navigation system



# ASBU Maintenance Process



## Step 1: Submission of Change Requests

Thread Leaders and aviation stakeholders submit proposed changes to ASBU, using a standard template, supported by justification and documentation



## Step 2: Acceptance and Registration

ICAO Secretariat reviews each submission for completeness, relevance, and alignment with GANP objectives, and registers accepted requests for assessment.



## Step 3: Initial Assessment

ASBU PPT conducts a preliminary review of Change Requests, identifying dependency, and evaluating consistency and completeness



# ASBU Maintenance Process



## Step 4: Final Assessment

A detailed assessment is performed, incorporating data and stakeholder feedback, and final decisions are made to approve, reject, or defer each request.



## Step 5: Change Implementation

- ASBU PPT submits approved changes to GANP SG for approval
- If endorsed by the Assembly, approved changes are integrated into the ASBU framework, quality-checked, and published through the GANP portal



# ASBU Update, GANP – 8th Edition

## Overview



- ASBU element update
  - » Block 0, Block 1, and Block 2 update
  - » (More complete) Content of Block 3 elements
  - » Inclusion of Block 4 and Block 5 elements
  - » Feasible application of automation and machine learning
  - » Expected services for operations in lower airspace, cooperative airspace, and higher airspace
- Thread ConOps update
  - » Thread ConOps content update
  - » Linkage between Thread ConOps and Conceptual Roadmap
  - » List of ASBU elements to fulfill each step of Thread ConOps



# ASBU Update, GANP – 8th Edition

## Overview



- TBO-related
  - » Removal of TBO thread
  - » Inclusion of TBO-related capabilities in ASBU elements
  - » Linkage to TBO in Thread ConOps
- Performance framework
  - » Inclusion of "Safety" performance objectives/KPIs in ASBU elements



# ASBU Update, GANP – 8th Edition Overview



- ASBU Overview Report  
<https://ganpportal.icao.int/repository/eightheditiondeliverable2a>
- ASBU Assessment Report  
<https://ganpportal.icao.int/repository/eightheditiondeliverable2b>



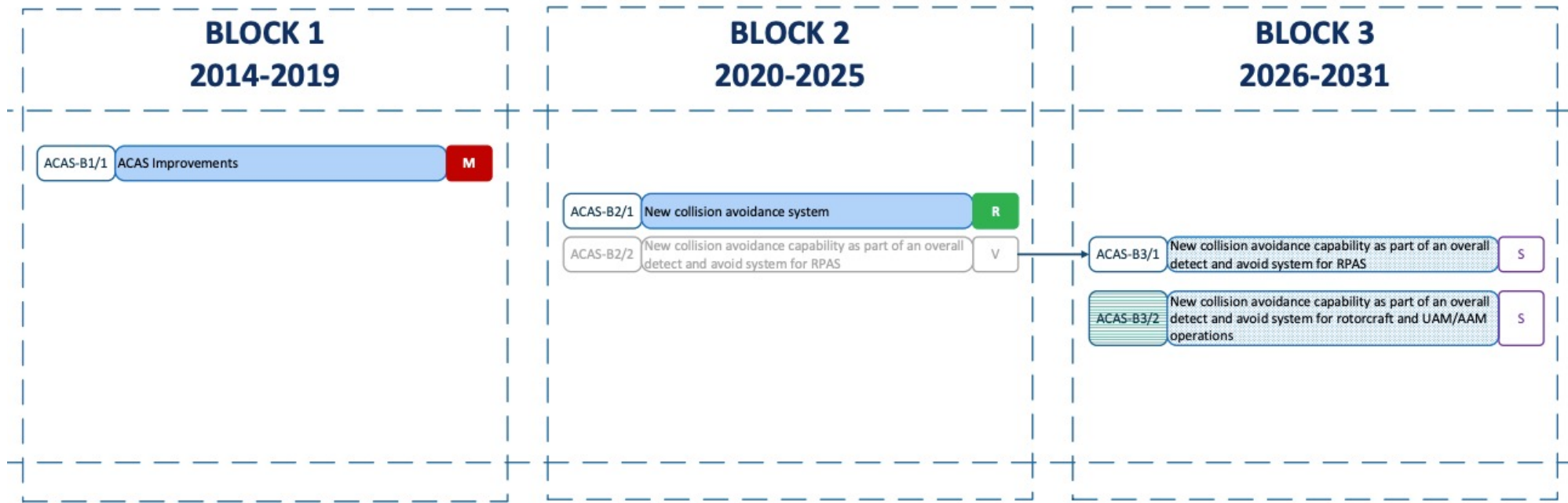
# ASBU Update, GANP – 8th Edition

## ACAS – Overview



### Airborne Collision Avoidance System

- New element in Block 3
- Delay of element from Block 2 to Block 3
- Inclusion of applicability to new entrants



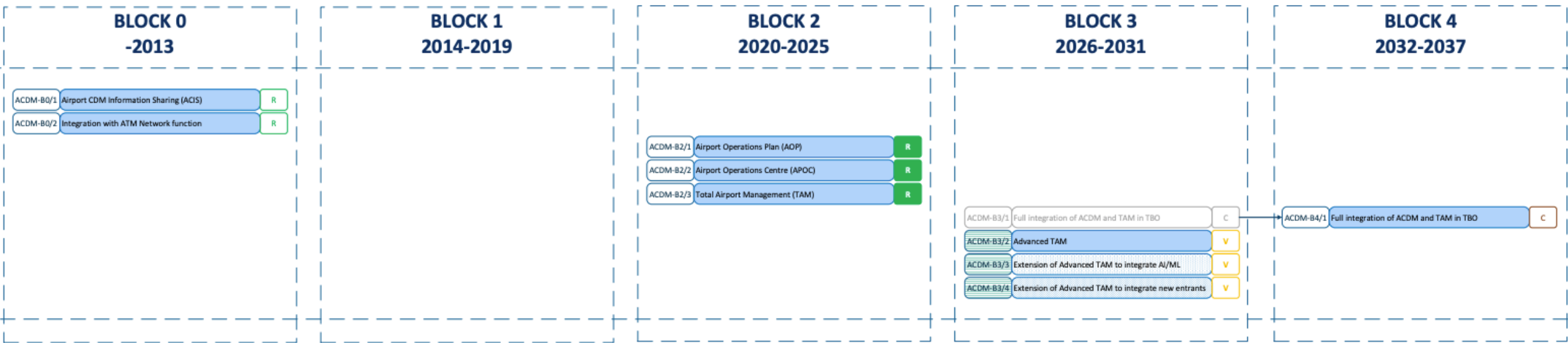
# ASBU Update, GANP – 8th Edition

## ACDM – Overview



### Airport Collaborative Decision Making

- New elements in Block 3
- Delay of element from Block 3 to Block 4
- Inclusion of applicability to new entrants and use of automation/machine learning



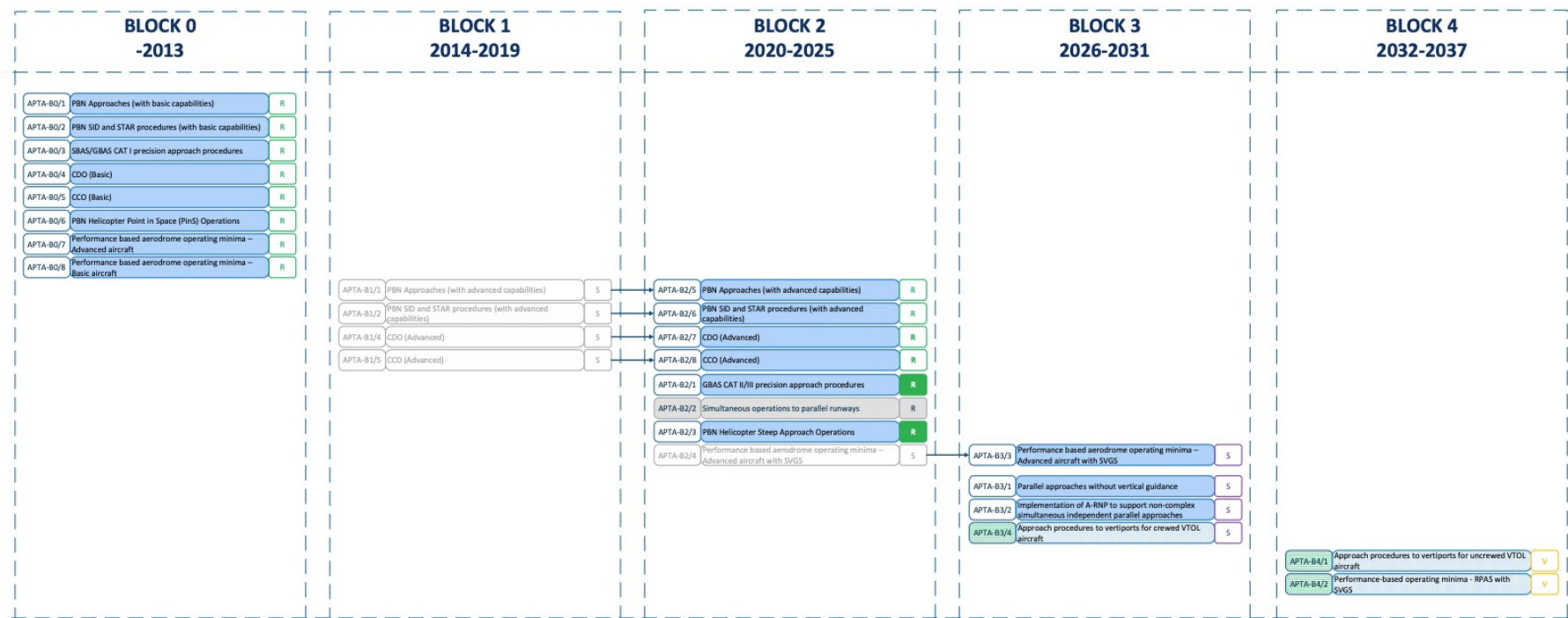
# ASBU Update, GANP – 8th Edition

## APTA – Overview



### Arrival and Departure Operations

- New elements in Block 3 and Block 4
- Removal of element in Block 2
- Delay of elements from Block 2 to Block 3
- Inclusion of applicability to new entrants and use of automation/machine learning



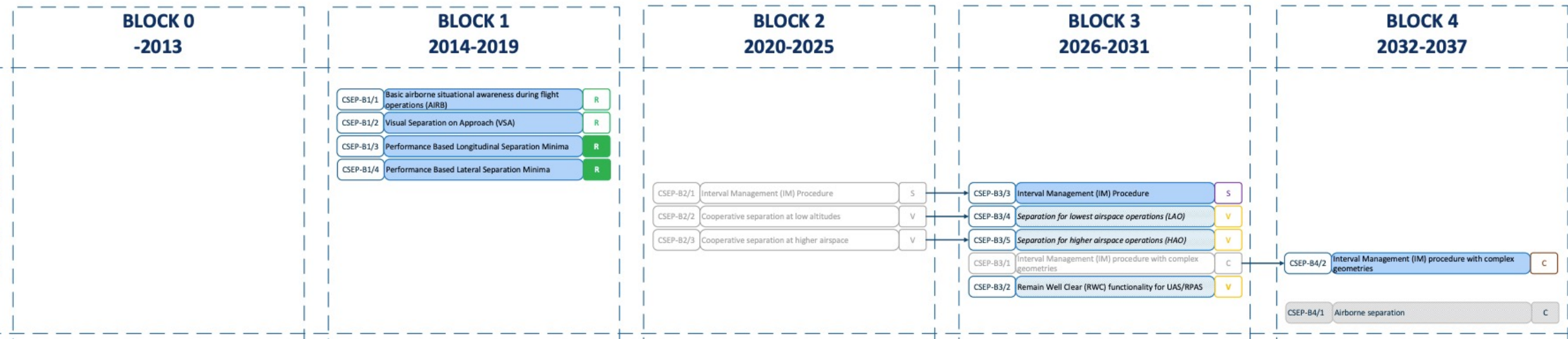
# ASBU Update, GANP – 8th Edition

## CSEP – Overview



### Cooperative Separation

- No new element
- Removal of element in Block 4 due to the significant work required for integration and interoperability between manned and unmanned operations
- Delay of elements from Block 2 to Block 3 and Block 3 to Block 4
- Reflection of the agreed approach to the new entrants



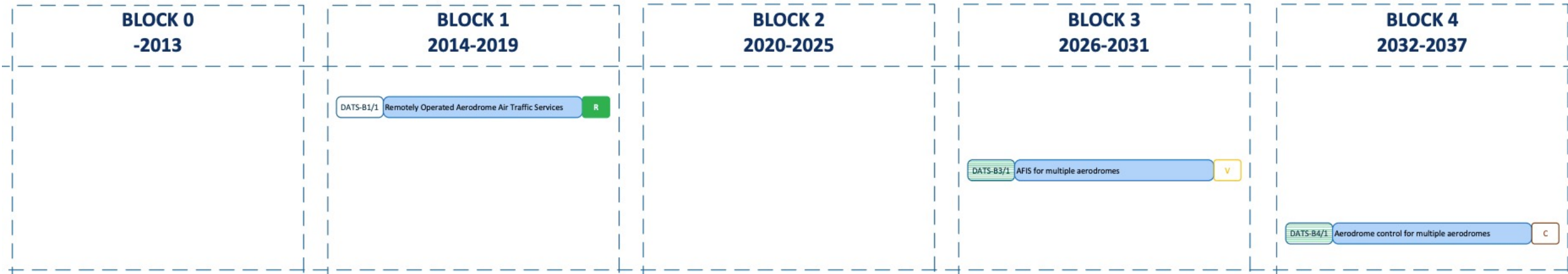
# ASBU Update, GANP – 8th Edition

## DATS – Overview



### Digital Aerodrome Air Traffic Services

- New elements in Block 3 and Block 4



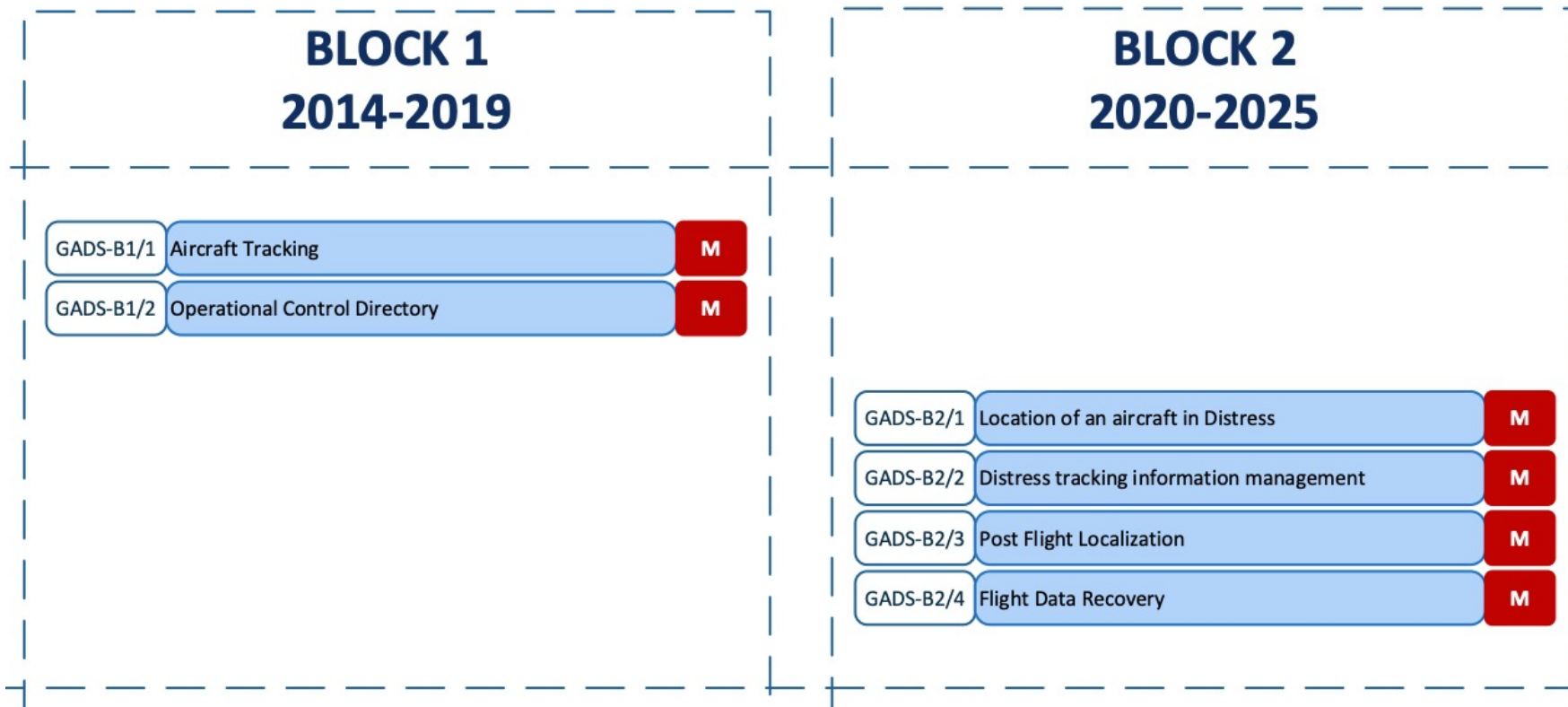
# ASBU Update, GANP – 8th Edition

## GADS – Overview



### Global Aeronautical Distress and Safety System

- Changes to the maturity level → Mandatory implementation



# ASBU Update, GANP – 8th Edition

## NOPS – Overview



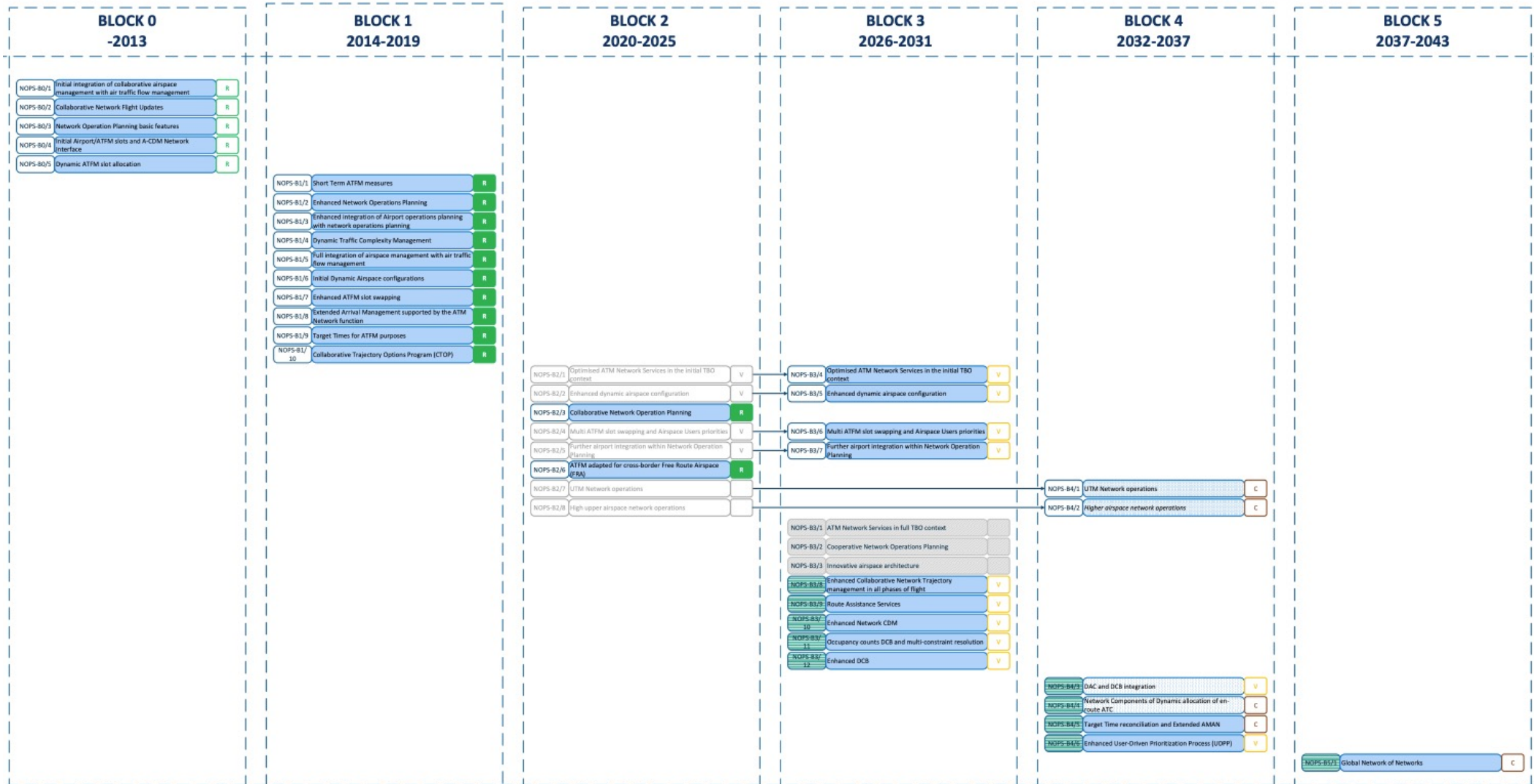
### Network Operations

- New elements in Block 3, Block 4, and Block 5
- Removal of elements in Block 3
- Delay of elements from Block 2 to Block 3 and from Block 2 to Block 4
- Inclusion of applicability to new entrants and use of automation/machine learning



# ASBU Update, GANP – 8th Edition

## NOPS – Overview



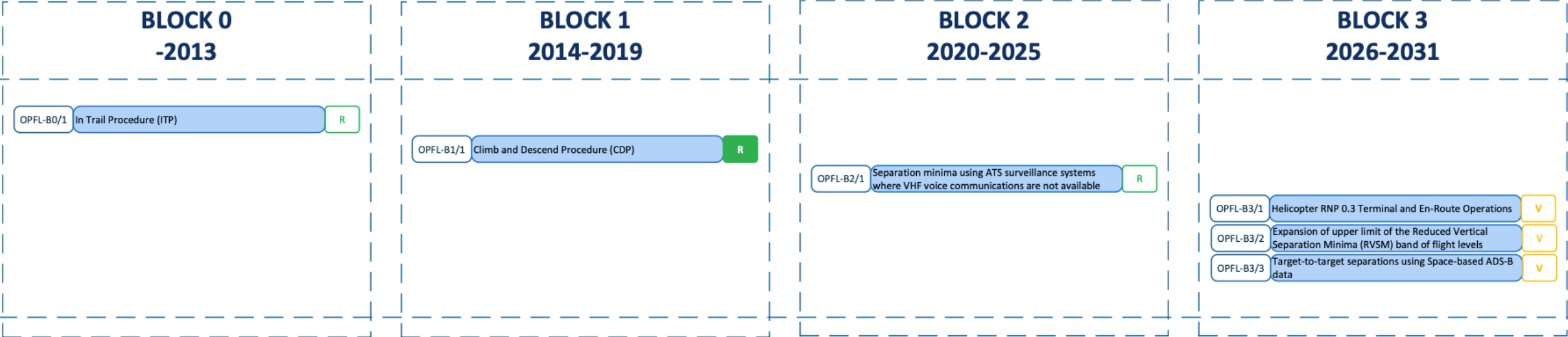
# ASBU Update, GANP – 8th Edition

## OPFL – Overview



### Access to Optimum Flight Levels in Oceanic and Remote Airspace

- Change to maturity level



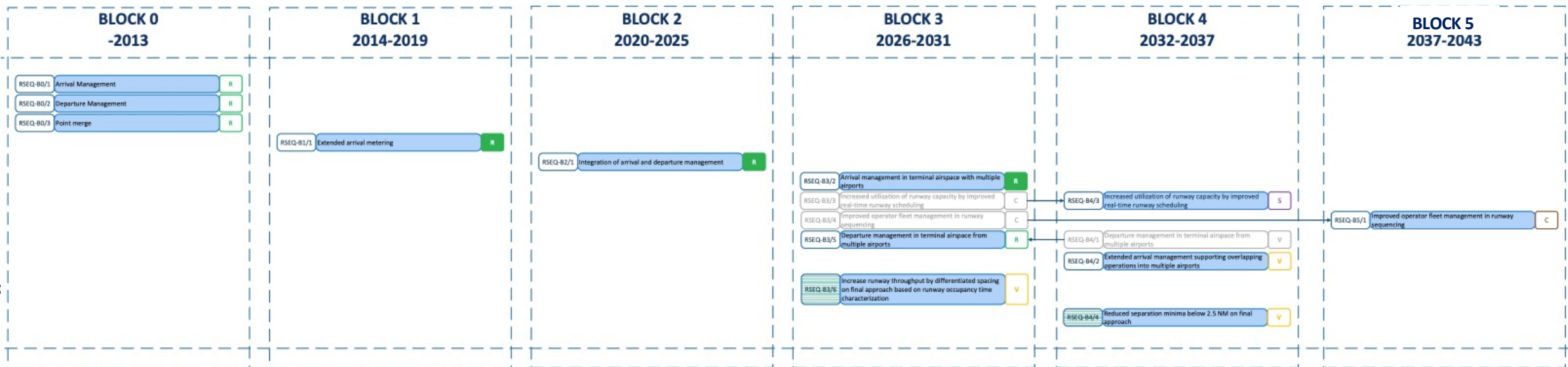
# ASBU Update, GANP – 8th Edition

## RSEQ – Overview



### Runway Sequencing

- New elements in Block 3 and Block 4
- Delay of elements from Block 3 to Block 4 and from Block 4 to Block 5
- Move of elements from Block 4 to Block 3



# ASBU Update, GANP – 8th Edition

## SNET – Overview



### Ground-based Safety Nets

- New element in Block 4

BLOCK 0 -2013	BLOCK 1 2014-2019	BLOCK 2 2020-2025	BLOCK 3 2026-2031	BLOCK 4 2032-2037
<p>SNET-B0/1 Short Term Conflict Alert (STCA) R</p> <p>SNET-B0/2 Minimum Safe Altitude Warning (MSAW) R</p> <p>SNET-B0/3 Area Proximity Warning (APW) R</p> <p>SNET-B0/4 Approach Path Monitoring (APM) R</p>	<p>SNET-B1/1 Enhanced STCA with aircraft parameters R</p> <p>SNET-B1/2 Enhanced STCA in complex TMAs R</p>			<p>SNET-B4/1 En-route short-term wake encounter conflict alerting using ground-based prediction C</p>



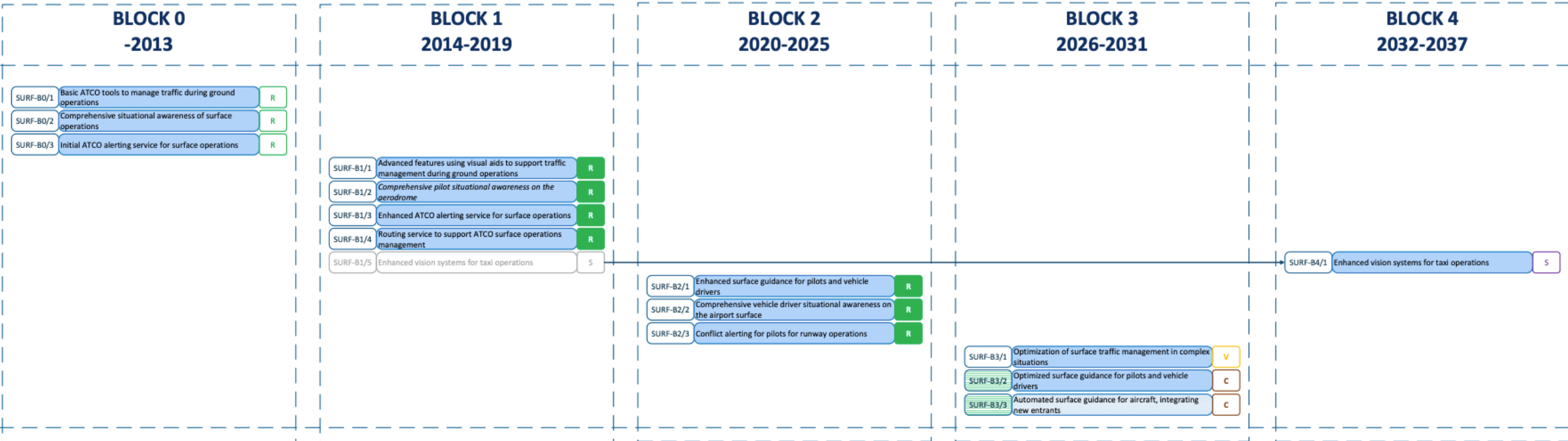
# ASBU Update, GANP – 8th Edition

## SURF – Overview



### Surface Operations

- New elements in Block 3
- Delay of elements from Block 1 to Block 4
- Inclusion of applicability to new entrants and use of automation/machine learning



# ASBU Update, GANP – 8th Edition

## WAKE – Overview



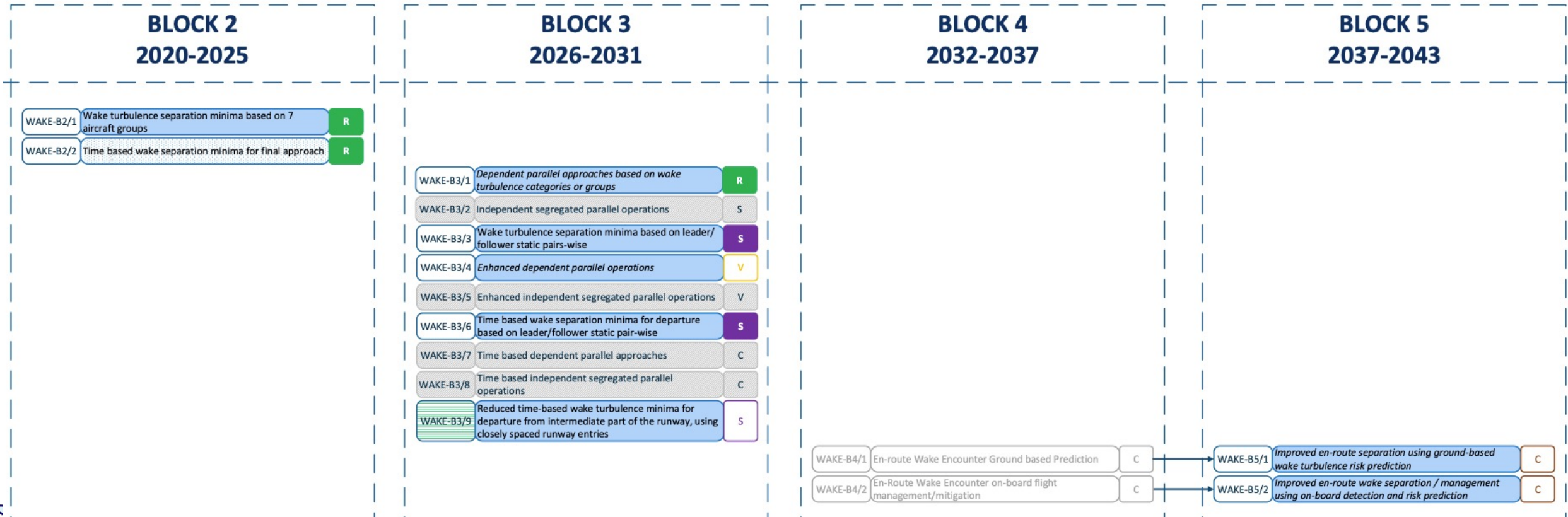
### Wake Turbulence Separation

- New elements in Block 3
- Removal of elements from Block 3
- Element in Block 4 splitted into 2 elements; one moved to SNET, another delayed to Block 5
- Delay of element from Block 4 to Block 5
- Inclusion of applicability to new entrants and use of automation/machine learning



# ASBU Update, GANP – 8th Edition

## WAKE – Overview



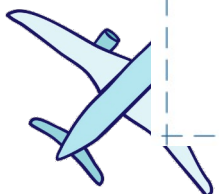
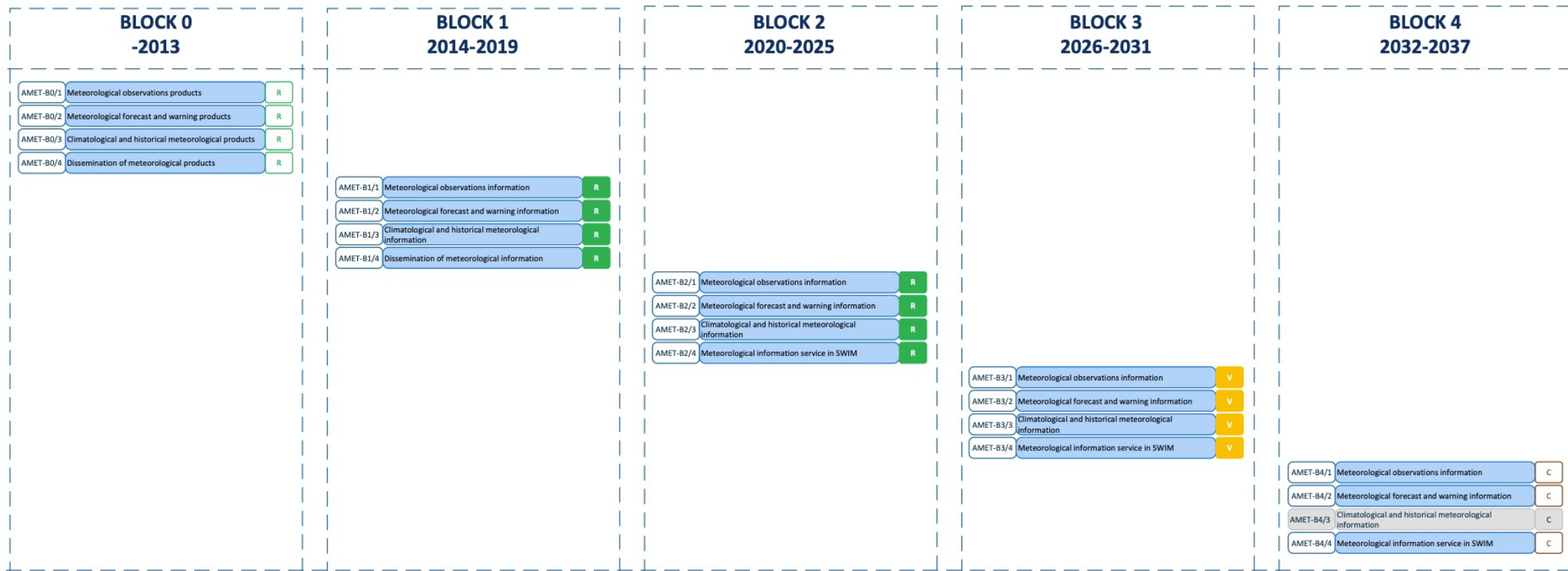
# ASBU Update, GANP – 8th Edition

## AMET – Overview



### Meteorological Information

- Changes to the maturity level
- Removal of element in Block 4



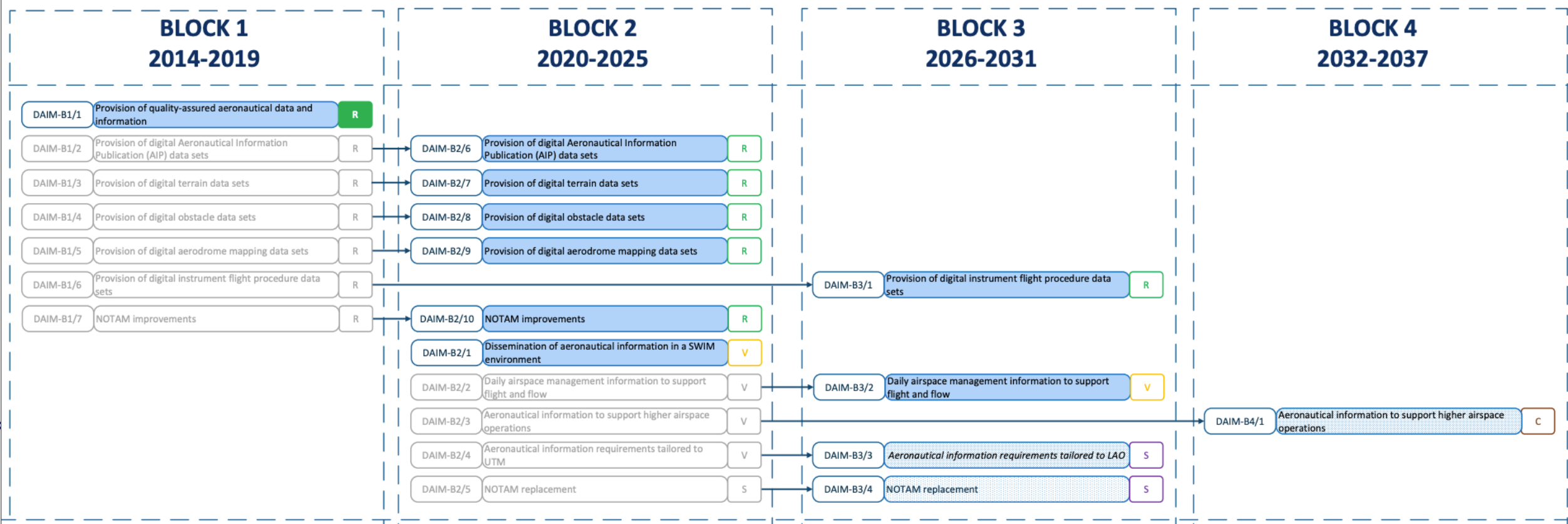
# ASBU Update, GANP – 8th Edition

## DAIM – Overview



### Digital Aeronautical Information Management

- Delay of elements to later Blocks
- Inclusion of applicability to new entrants and use of automation/machine learning



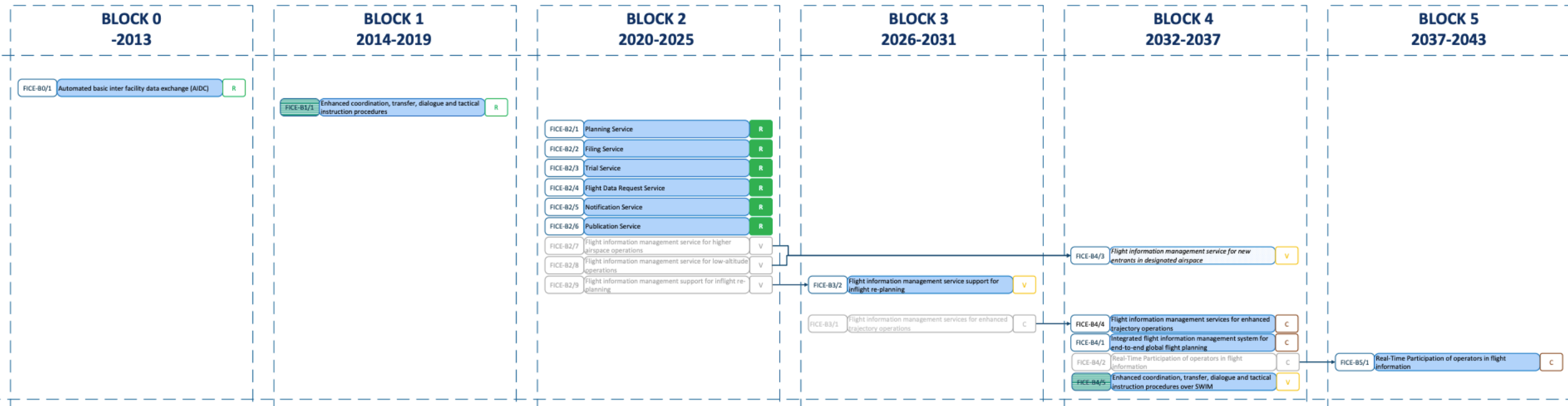
# ASBU Update, GANP – 8th Edition

## FICE – Overview



### FF-ICE

- New elements in Block 1 and Block 4
- Delay of elements to later Blocks
- Inclusion of applicability to new entrants



# ASBU Update, GANP – 8th Edition

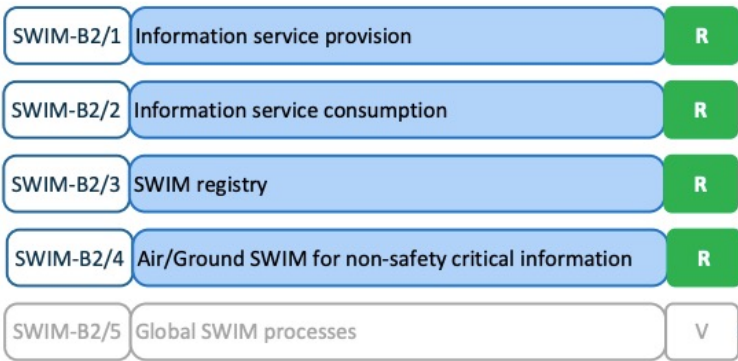
## SWIM – Overview



SWIM

- Delay of elements to later Blocks

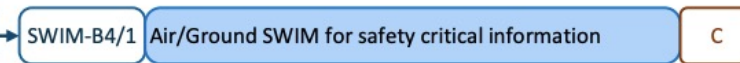
### BLOCK 2 2020-2025



### BLOCK 3 2026-2031



### BLOCK 4 2032-2037



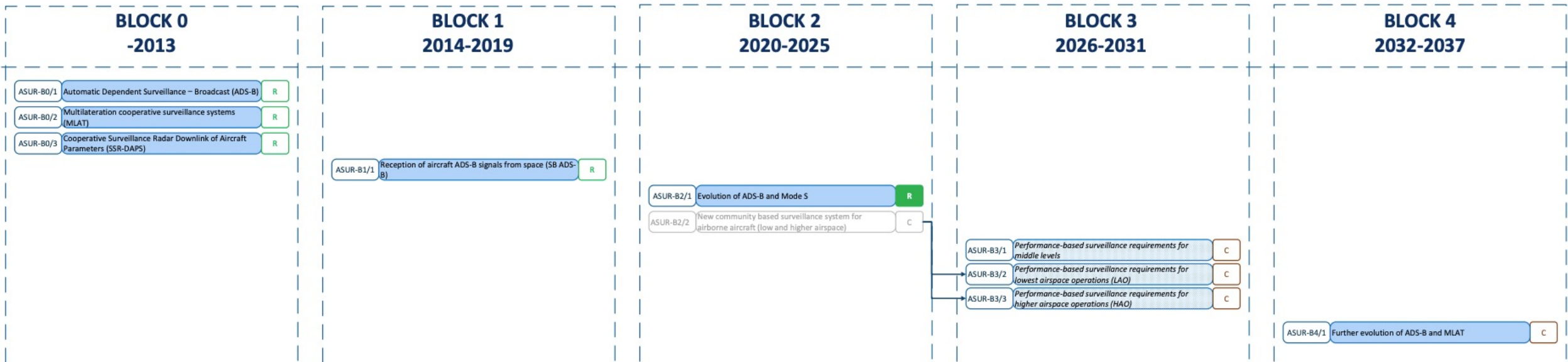
# ASBU Update, GANP – 8th Edition

## ASUR – Overview



### Surveillance Systems

- Delay of elements to later Blocks
- Inclusion of applicability to new entrants



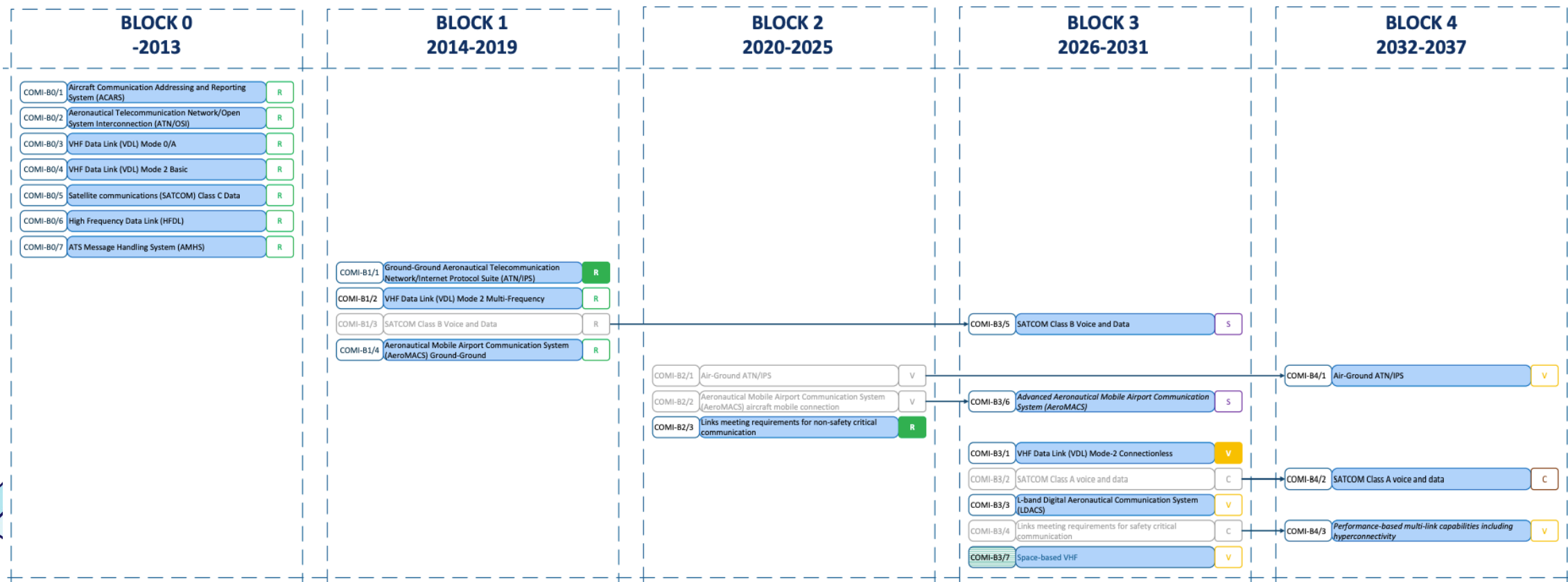
# ASBU Update, GANP – 8th Edition

## COMI – Overview



### Communication Infrastructure

- New element in Block 3
- Delay of elements to later Blocks



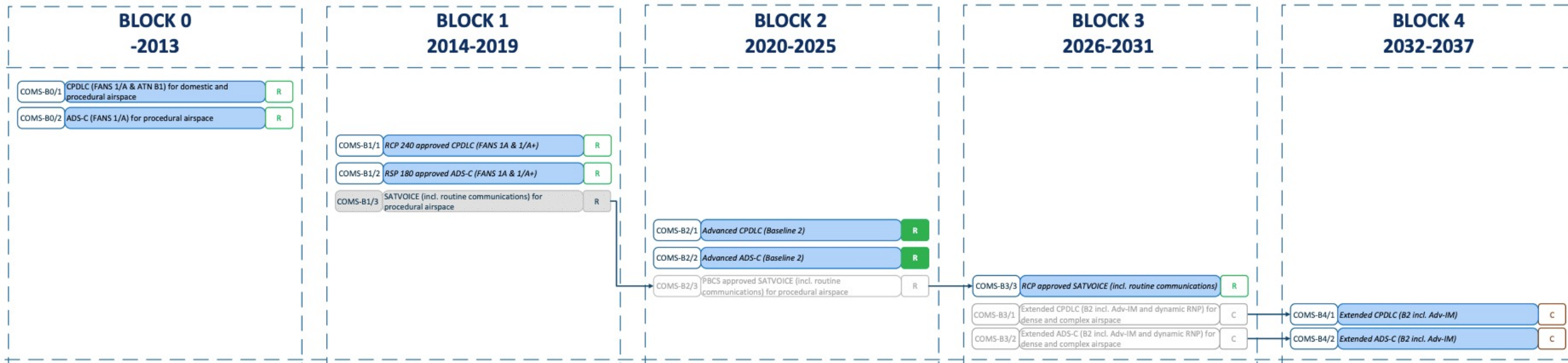
# ASBU Update, GANP – 8th Edition

## COMS – Overview



### ATS Communication Services

- Removal of element in Block 1
- Delay of elements to later Blocks



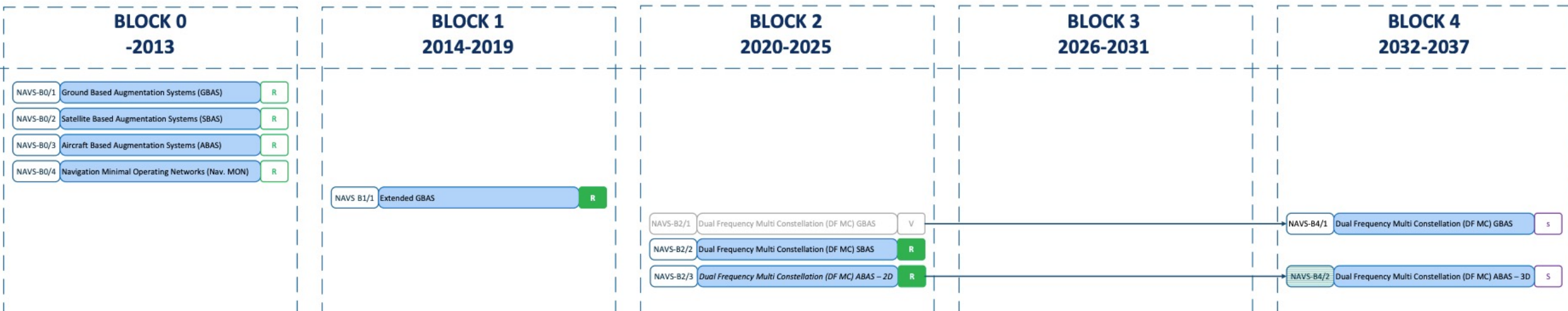
# ASBU Update, GANP – 8th Edition

## NAVS – Overview



### Navigation Systems

- Delay of elements to later Blocks





**THANK YOU**

