Assistance for Action

Aviation and Climate Change Seminar

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Overview of the Aviation System Block Upgrades (ASBUs) Concept and PBN

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The 30’000 Feet View

- Air traffic growth expands two-fold once every 15 years
- Growth can be a double-edged sword
- Challenge is how to achieve both safety and operational improvements
  - Globally harmonized
  - Environmentally responsible
  - Cost-effective

Developing Tomorrow's Aviation System

- Investment certainty is required for:
  - Operators
  - Infrastructure providers
  - Equipment manufacturers
- Regulatory approval process must be outlined
  - Support States in introduction of significant changes

Developing Tomorrow's Aviation System

- ICAO developed a plan

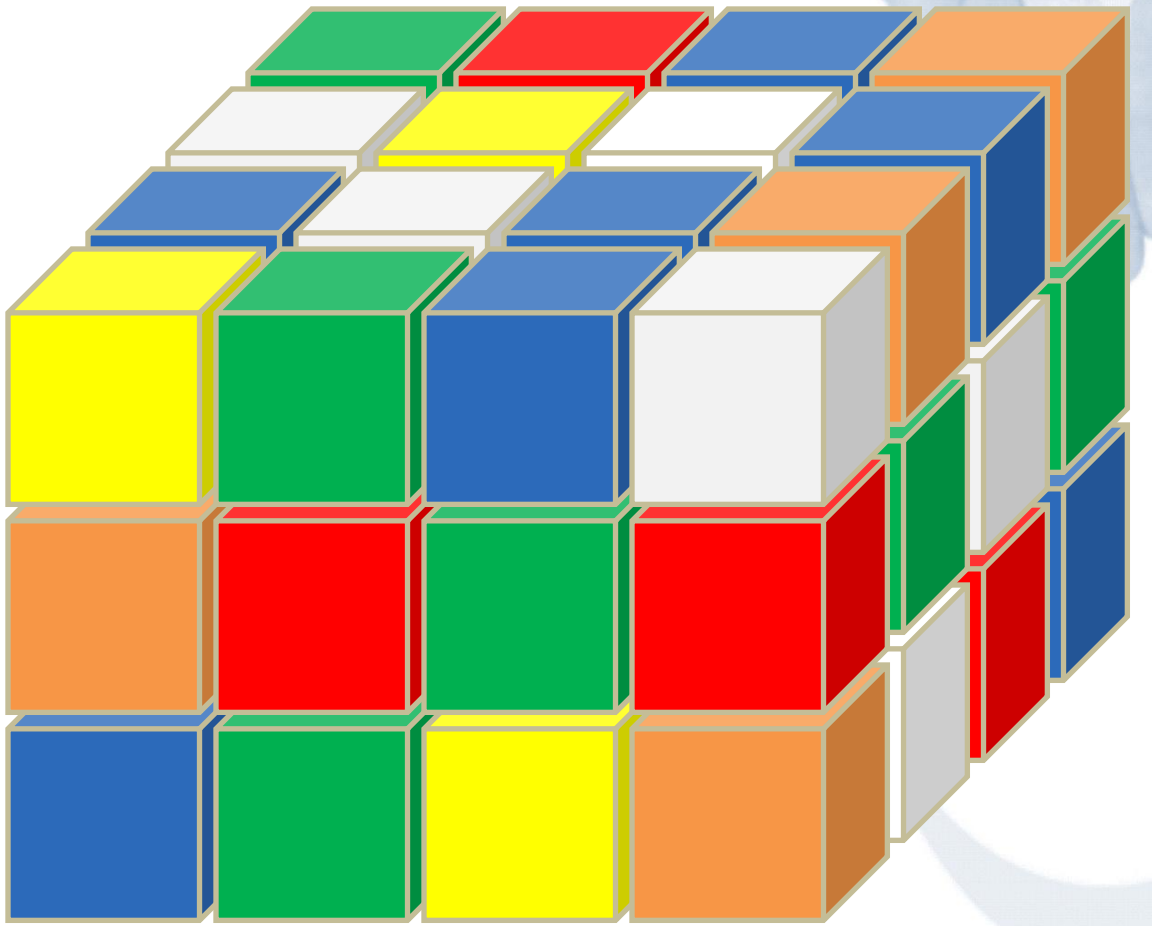
- Setting the stage for global interoperability

Aviation System Block Upgrades

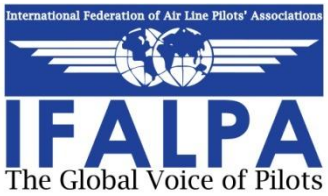
- Define global aviation system block upgrades
- For interoperability purposes
- Independent of when and where specific ATM improvement programmes are introduced

Why is this approach proposed?

The Reality of Our System Today…



A Team Effort



What is a Block Upgrade?

Measurable
Operational
Improvement

Air & Ground
Standards & Procedures

Air & Ground
Equipment / Systems
+ Approvals

Positive
Business Case

We Can Benefit From What Is Already Out There…

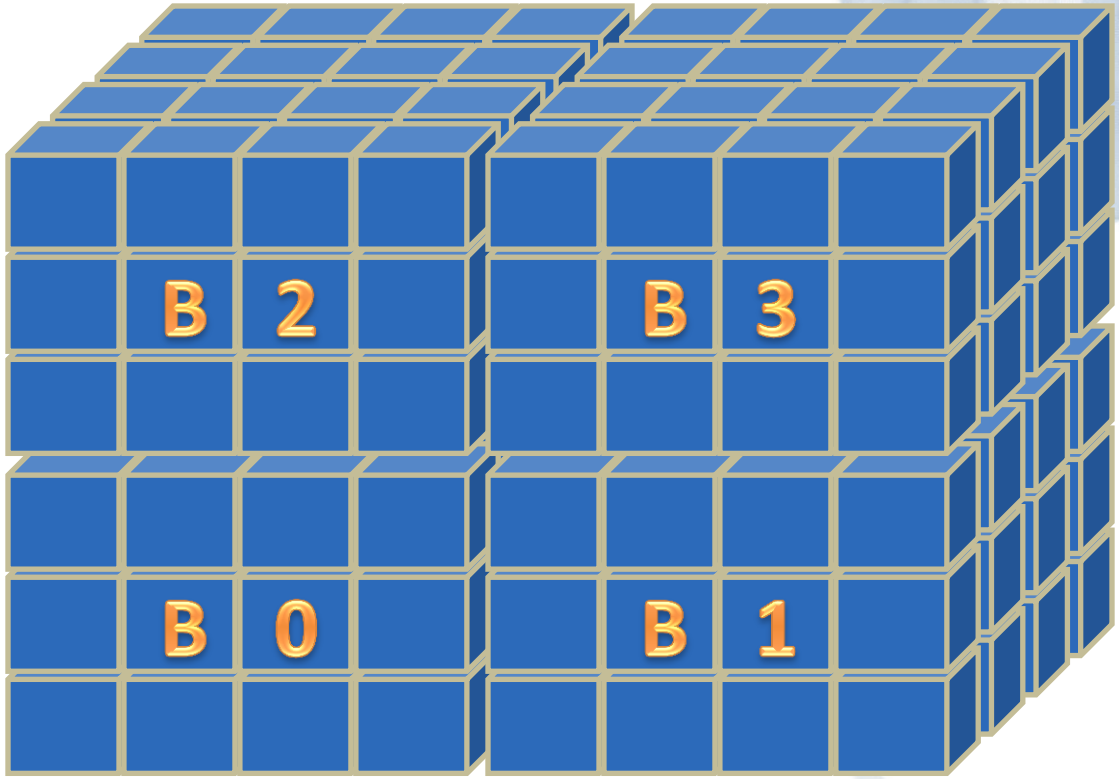
4 Blocks Upgrades are Proposed

Block 2

2023

Block 3

2028>



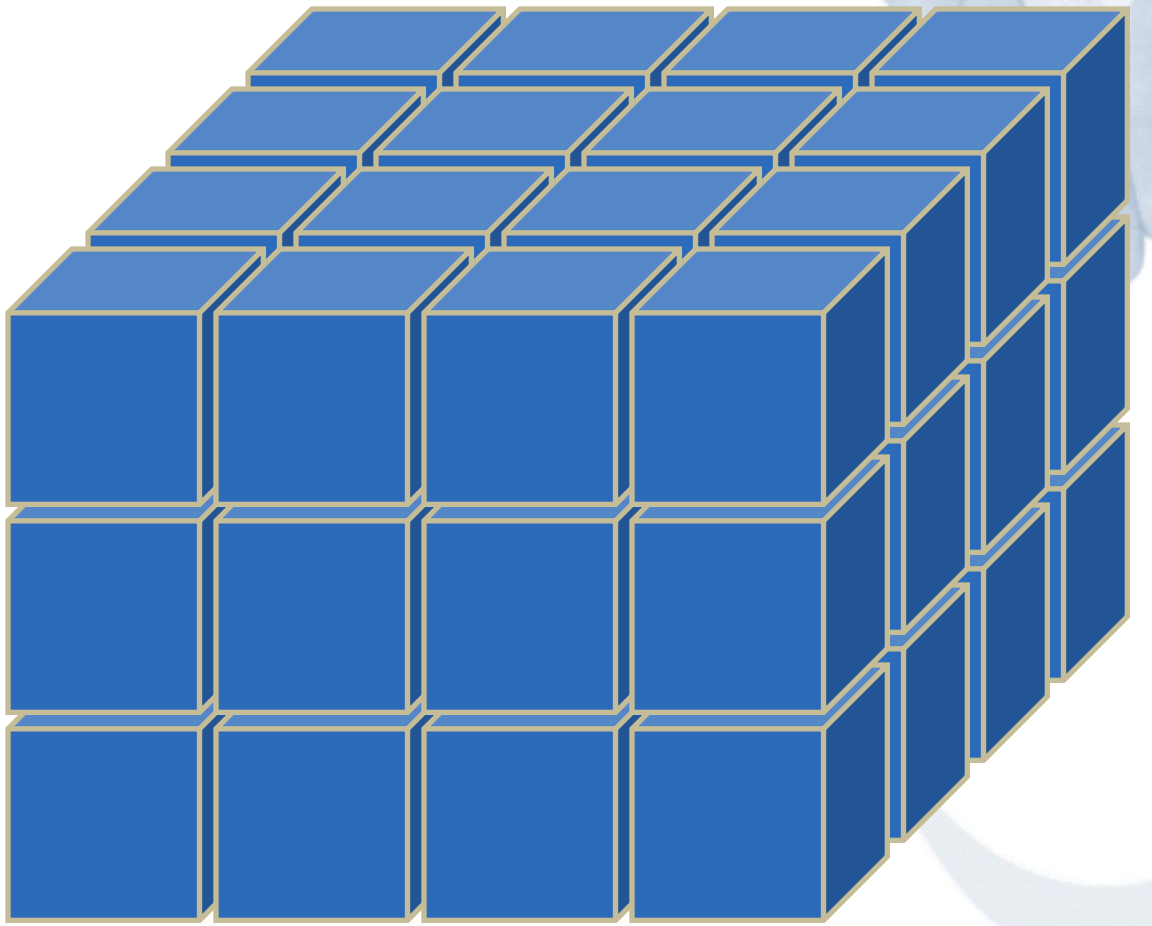
Block 0

Available now

Block 1

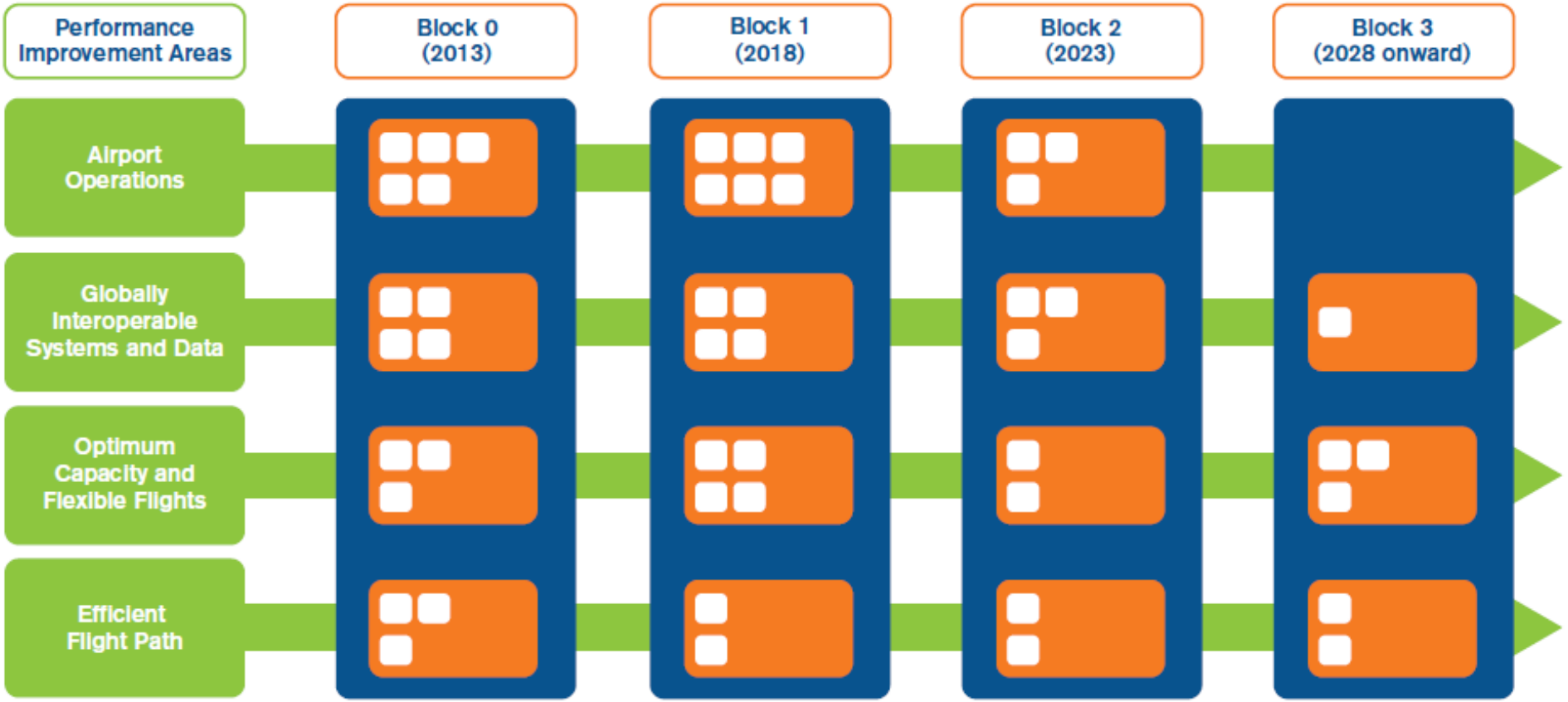
2018

A Block is Made Up of Modules...



...So a Block is Scalable *to Meet Regional or Local Needs*

Integrated Planning through Block Upgrades



Increased Runway Throughput Through Optimized Wake Turbulence Separation

Summary	Improved throughput on departure and arrival runways through optimized wake turbulence separation minima, revised aircraft wake turbulence categories and procedures.	
Main performance impact as per Doc 9854	KPA-02 – Capacity, KPA-06 – Flexibility.	
Operating environment/ Phases of flight	Arrival and departure	
Applicability considerations	Least complex – Implementation of revised wake turbulence categories is mainly procedural. No changes to automation systems are needed.	
Global concept component(s) as per Doc 9854	CM – conflict management	
Global plan initiatives	GPI-13: Aerodrome design GPI 14: Runway operations	
Main dependencies	Nil	
Global readiness checklist		Status (ready now or estimated date)
	Standards readiness	2013
	Avionics availability	N/A
	Ground systems availability	N/A
	Procedures available	2013
	Operations approvals	2013

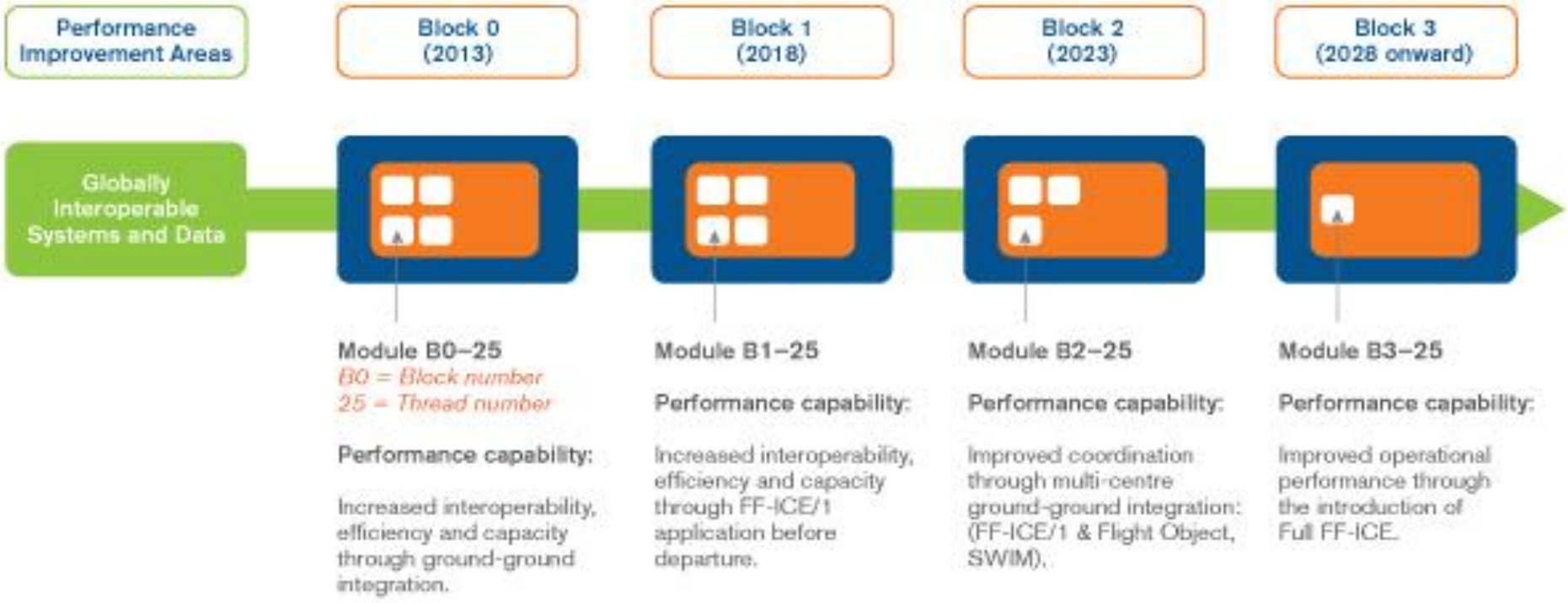
Block 0:
Capabilities within our Grasp Today

- Block 0 initiatives must leverage on existing on-board avionics
- 3 Priorities have been agreed to:
  - Performance Based Navigation (PBN)
  - Continuous Descent Operations (CDO)
  - Continuous Climb Operations (CCO)

Performance Improvement Areas	Block 0 Today & beyond; based on operational need	
Airport Operations	Optimization of approach procedures Increased runway throughput through WT separation Improve traffic flow through runway sequencing Safety and efficiency of surface operations Improved airport operations through airport-CDM	Integrated AMAN/DMAN /SMAN
Globally Interoperable Systems and Data	Digital aeronautical information management Increased interoperability, efficiency and capacity MET information supporting enhanced operation	Full FF-ICE And More
Optimum Capacity and Flexible Flights	Improved flow performance through network planning Improved ops. through enhanced en-route trajectories Initial capability for ground surveillance Air traffic situational awareness (ATSA) Improved access to optimum flight levels ACAS improvements Increased effectiveness of ground based safety nets	Traffic Complexity Management
Efficient Flight Path	Initial application of data link en-route Improved flexibility and efficiency in descent profiles Improved flexibility and efficiency in departure profiles	Full 4D – TBO And More

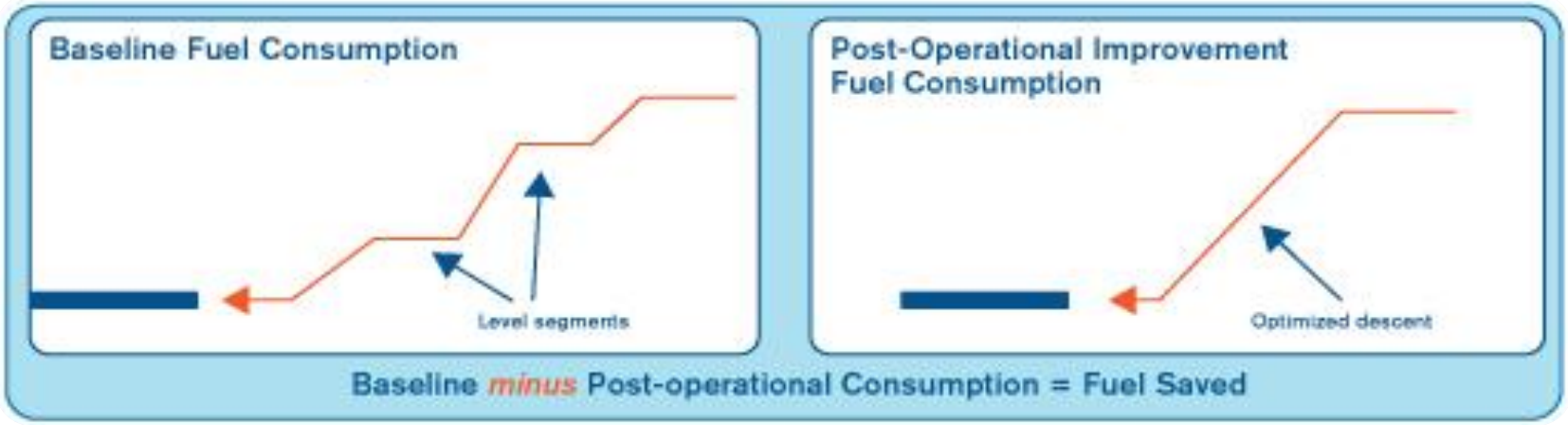
Benefiting from All the Modules

- There is added value in using all modules
  - States should view modules in B0 & B1 as critical:
    - Formalizing a minimum track
  - They will allow for benefits down the road in B2 & B3



The Cost of Not Implementing

- Focusing on what it will cost if modules are not implemented:
  - Increased risk of serious incidents and accidents
  - Negative impact on operations
  - Environmental repercussions
  - etc.



Desired Outcomes of AN-Conf/12

- Endorsement of:
  - Global Air Navigation Plan, as unified planning mechanism
- Agreement on:
  - Integrated work programme
  - Structure and management of “Expert Groups”
- Recommendations on ICAO technical work programme:
  - Endorsement for short term Block Upgrades
  - Agreement on Block 1
- Clear strategic direction for future infrastructure:
  - Endorsement for medium and long term Block Upgrades
  - Agreement on Blocks 2 & 3

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