



Airlines Requirements

“Obtaining Operational Improvements”

enabled by GANP/ASBUs



Outline

- What is an Operational Improvement?
- What is a GANP and an ASBU?
- Roadmap to success

Operational Improvement...

- A change to the way aircraft operate
 - On the airport surface
 - In the air
- That improves
 - Flight efficiency
 - On time performance
 - Etc.

Improvements...

- ... come from airline internal processes
- ... come from airline's service providers
- ... come from airports
- ... come from Air Navigation Service Providers (ATC)
- ... come from CAA (regulations)

Airline's Need

- Predictability for Network Operation:
 - Aircraft (OpSpecs, ETOPS, NAV-COM-SUR capabilities, etc.)
 - Cabin crew
 - Air crew
 - Passengers
 - Cargo
- System level Efficiency and Safety



Global Air Navigation Plan...



ICAO

CAPACITY AND EFFICIENCY

2013–2028
Global Air Navigation Plan



- The GANP represents a rolling, 15-year strategic methodology which leverages existing technologies and anticipates future developments based on State/industry agreed operational objectives.
- The Block Upgrades are organized in five-year time increments starting in 2013 and continuing through 2028 and beyond.

ASBUs – Menu of Operational Improvements

- ASBUs are the *menu* of operational improvements
- Modern ATM Concepts are focused on Performance
 - Surveillance
 - Communications
 - Navigation

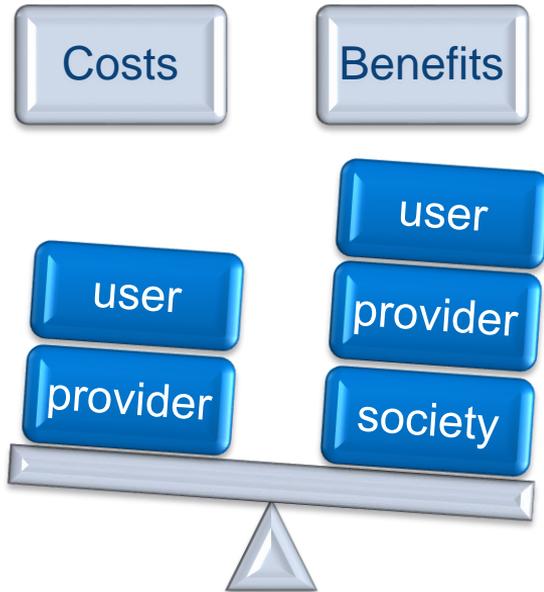




ASBUs – Menu of Operational Improvement

- Airlines do not need or want you to implement ASBUs [including PBN]...
- **UNLESS** the results brings operational improvements
 - ... have achievable operational benefits
 - ... that deliver tangible cost offsets

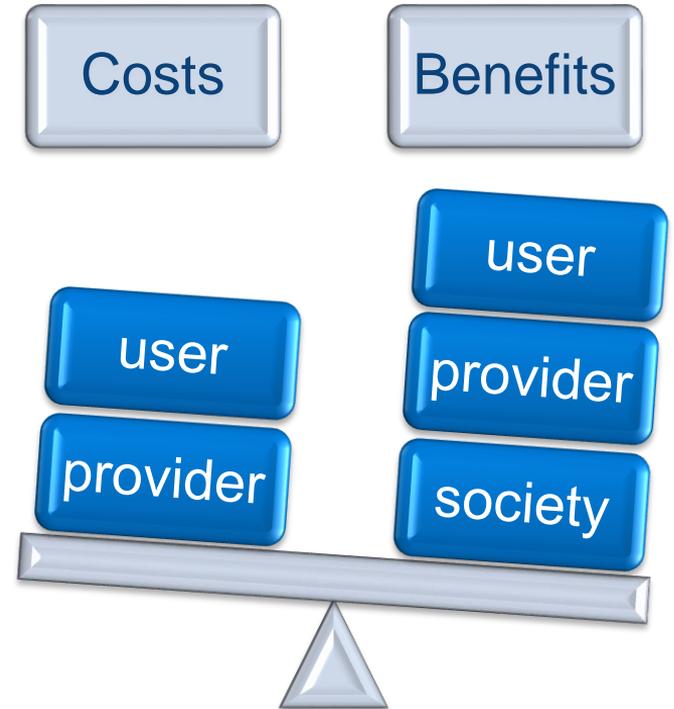
Calculate costs and benefits (all domains)



- ↗ Sum the costs to:
 - ↗ Service providers
 - ↗ Airspace users
- ↗ Sum the benefits to all parties
- ↗ Remember to **factor in time**

Operational Solutions

- Your benefits must **equal** or **outweigh** their costs to the overall system
- If not, the solution should not be implemented



Our Philosophy - Collaboration

Collaborative Decision Making

Collaborative Decision Making

Operations Concept

How do we deliver the Ops Improvement?

- ASBU Enablers

Assess

- Validate
- Cost effectiveness

Select & Implement

Decide Objectives



Collaborative
Decision
Making

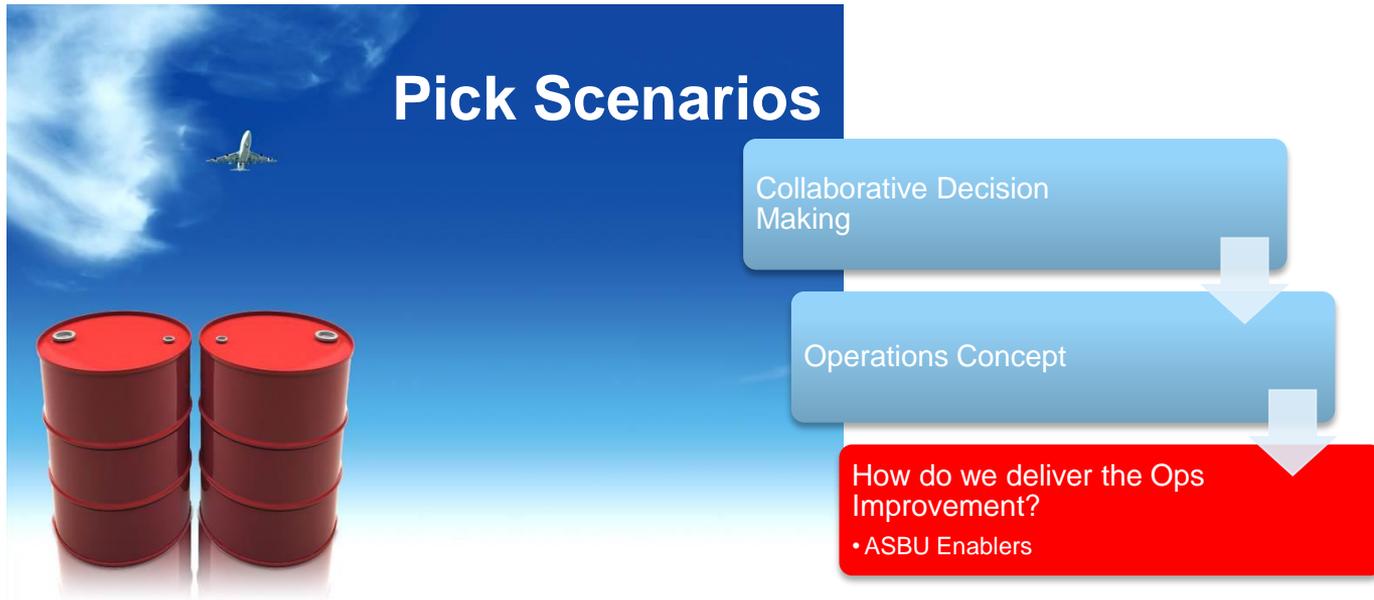


Operations
Concept

Use Multidisciplinary [Project] Teams

- ANSP Management
- Operational experts from ATM and airlines
- **(regulator?)**
- Representation as affected by the potential changes
-





Pick Scenarios

Collaborative Decision Making

Operations Concept

How do we deliver the Ops Improvement?

- ASBU Enablers

The slide features a blue background with a white airplane flying in the sky and two red oil barrels in the foreground. The text is arranged in a flowchart-like structure with three blue boxes connected by downward arrows, and a final red box.

Options Selection

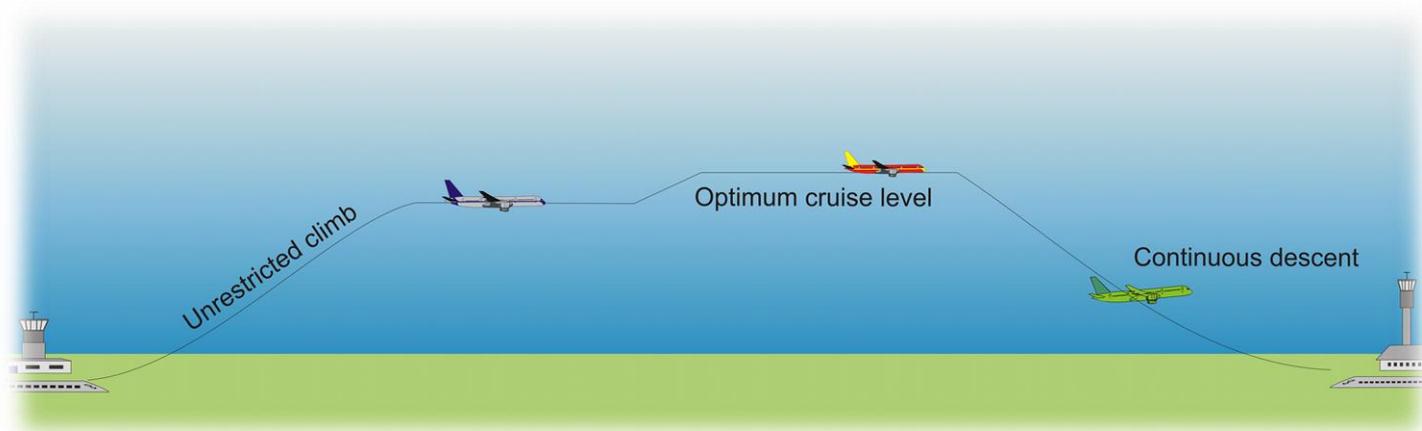
- What can you do with the tools and capabilities that are in place?
- Procedures
- Airspace
- Does the potential solution fit the environment?
- Are you surrounded by lower capability areas?
- Will the efficiency gains be possible?
- Are the aircraft capable of the required performance?
- Is the service provider (Airport, ATC) capable?
- Is the potential solution within the project scope?

Options Selection (cont'd)

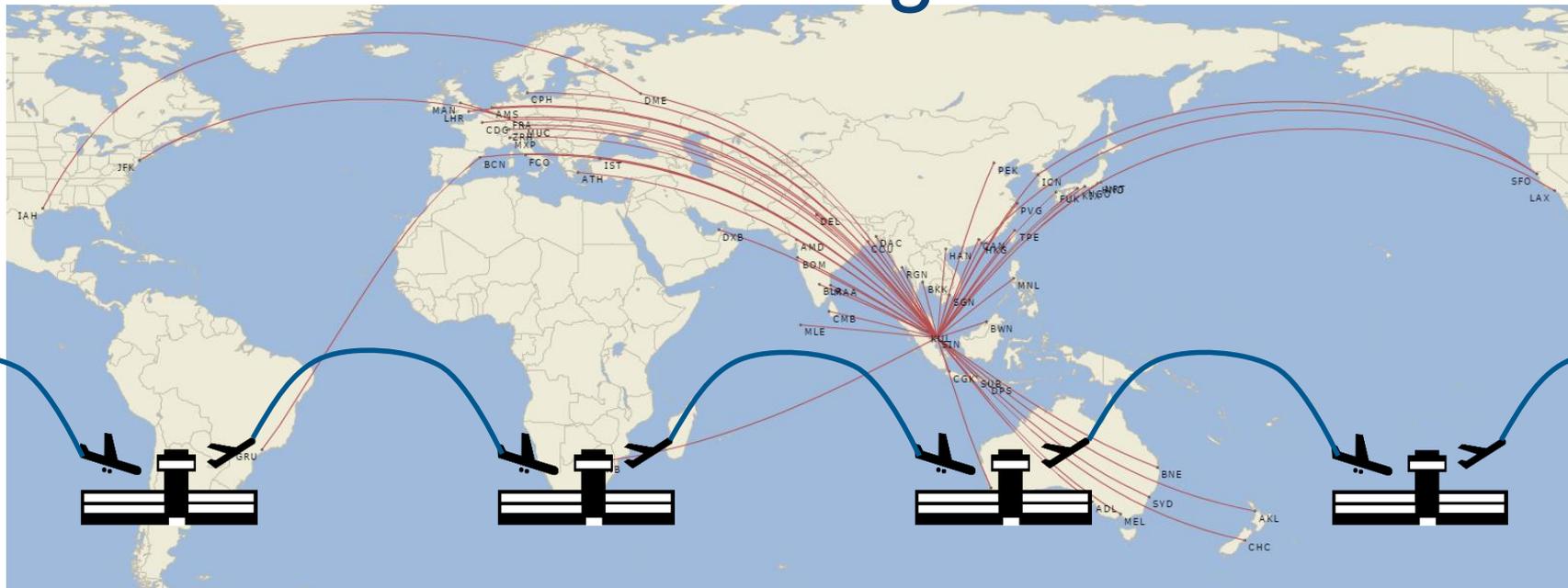
- Do you need technological change?
 - Pick from the ASBU modules
- Target the right Block (0 – 3)
- Consider phasing the implementation
- Target early benefits
- **Interoperability / Harmonization**
 - Avionics RQS
 - Regulation
 - Regional coordination (Eg. Separation)



Perfect Flight – Vertically & Laterally



But it's not about one flight...





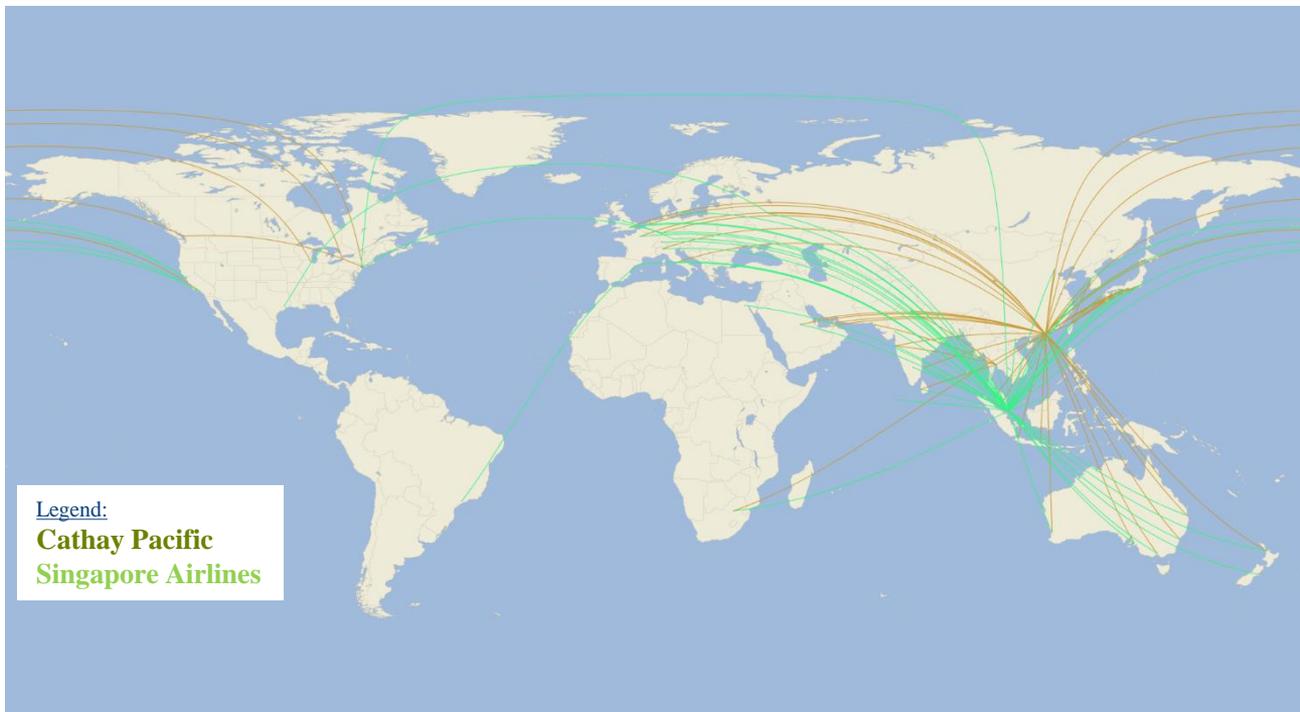




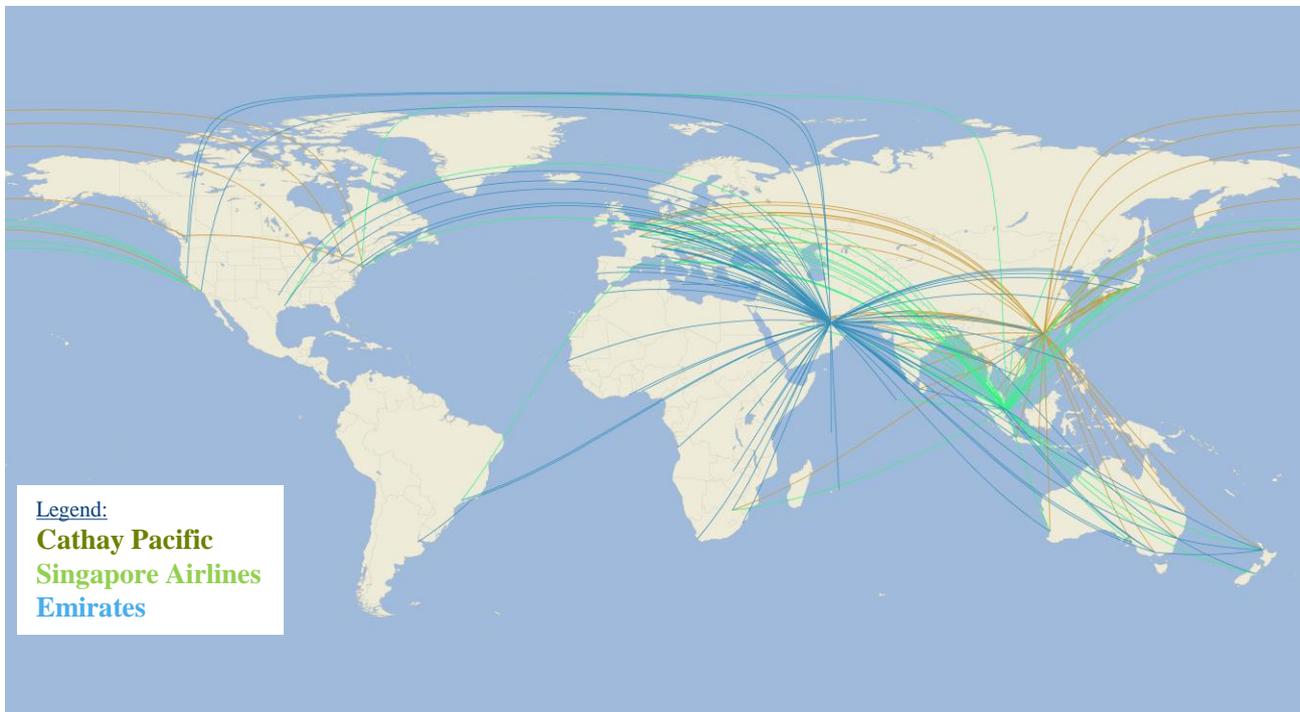


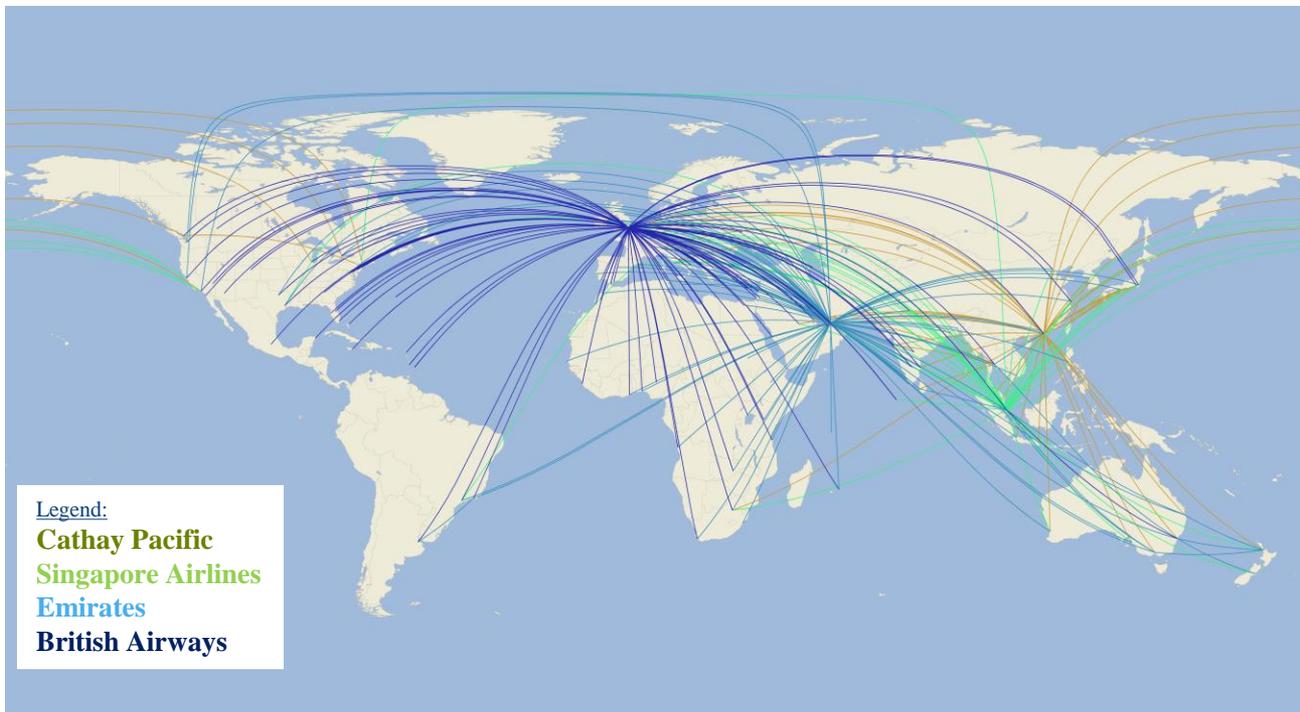


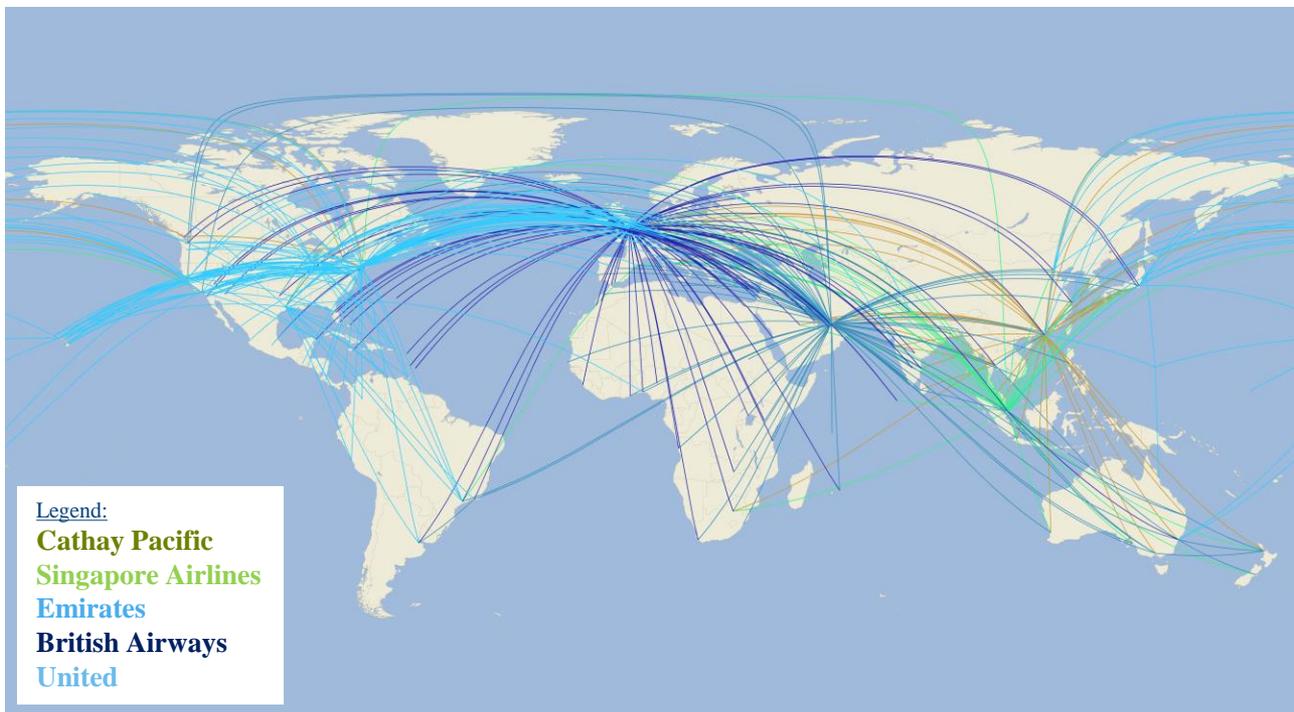




Legend:
Cathay Pacific
Singapore Airlines







➤ “More/less restrictive black hole effect”



Regional coordination

➤ “More/less restrictive black hole effect”



Regional coordination



Regional
coordination

Assess Scenarios



Define KPIs & Metrics

Costs

- Equipage
- Infrastructure
- Systems
- Training
- Qualifications

Benefits

- Reduced fuel burn
- Reduced aircraft Time in System
- Reduced noise
- Reduced complexity
- Increased predictability
- Increased Safety
- Increased use of capabilities

Failure / success criteria

- Option must result in
- Option must NOT result in...
- Consider Interoperability and Harmonization
 - Does your option require greater capability than the other places the aircraft operate?
 - Does your option require a different 'box' than the other states?

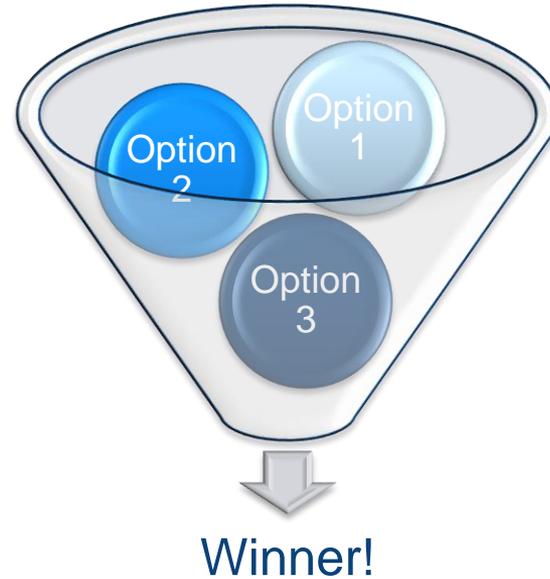
Select & Implement



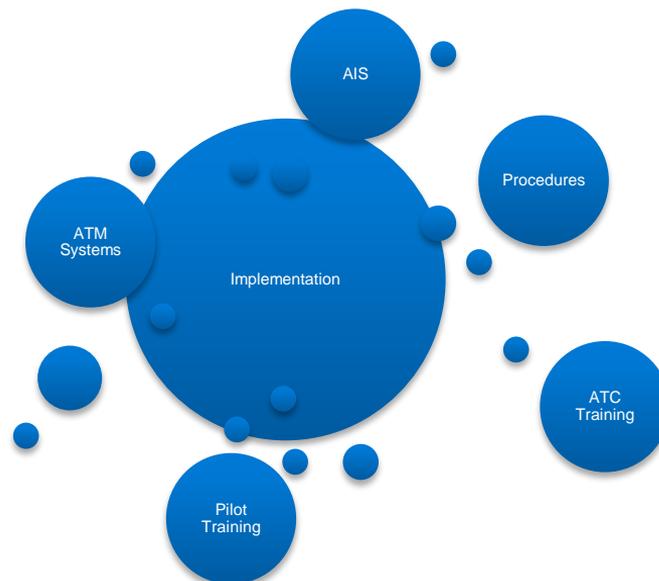


WHAT TO PICK?

Pick the best Option



Implement



USING 'AIRSPACE' AS A CASE STUDY

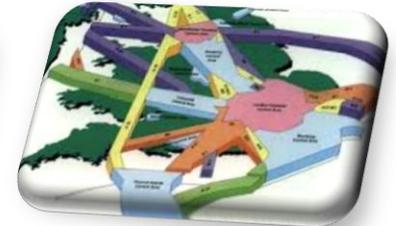
What is an Airspace Concept?

- An airspace concept is a master plan of the intended airspace design and its operation



What is an Airspace Concept?

- Describes in detail the **airspace organization** and its **operations**,
- Addresses all the **strategic objectives** identified for the project,
- Addresses all **CNS/ATM enablers**,
- Identifies all **operational and technical assumptions**.



Why Develop an Airspace Concept?

An Airspace Concept provides a structured and systematic process:

- For the setting, review and tracking of goals and objectives.
- For communication of goals and objectives.
- To justify and track resources used for implementation.
- a baseline reference upon which to measure improvements.



How to Create an Airspace Concept?

- The process of developing an Airspace Concept is described in ICAO DOC 9992:

The tool was created with Navigation in mind but it is broadly applicable in all circumstances

Manual on
The Use of Performance-Based
Navigation (PBN) in Airspace
Design



How to Create an Airspace Concept?

- Airspace Concept development uses a high level sequential outline of processes:

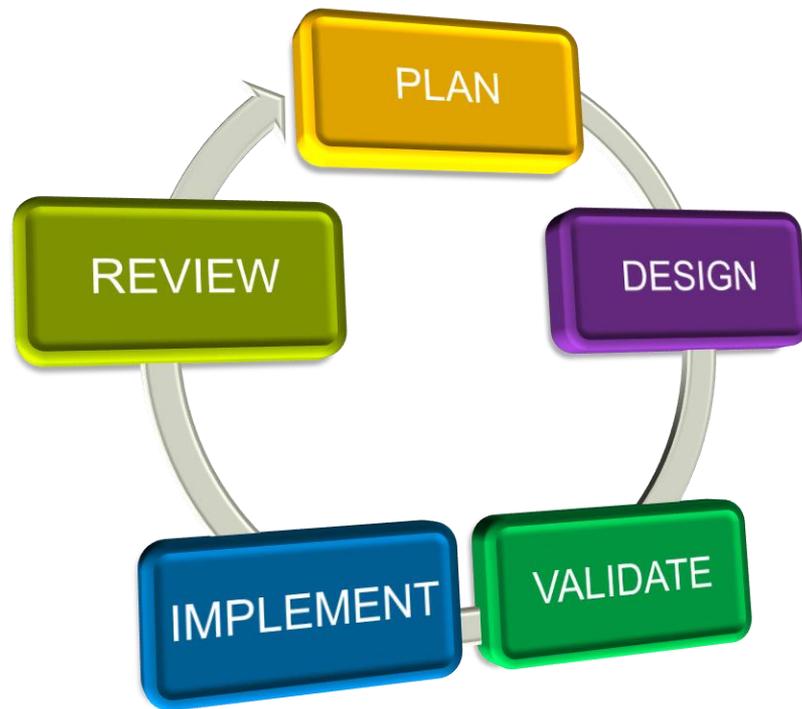
PLAN

DESIGN

VALIDATE

IMPLEMENT

Improvement Cycle



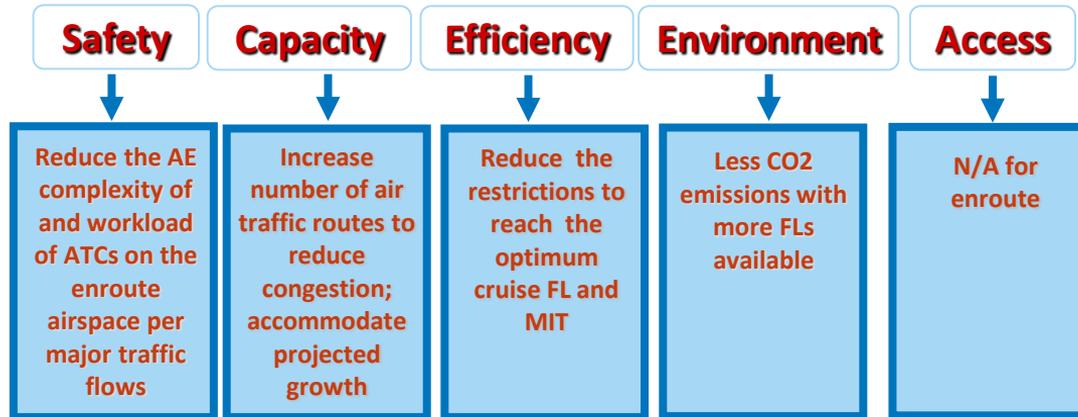
Define Operational Requirements

- What do we want to accomplish?
- categorized in terms of:
 - safety,
 - capacity,
 - efficiency,
 - environment, and
 - access.

PLAN



Define the Concept



PLAN

Establish a Solution Design Team

➤ Based on needs of the project.

- Project leader
- **Airspace user representatives (pilot)**
- **ATC experts**
- **Procedure Designers,**
- **Airspace Planners,**

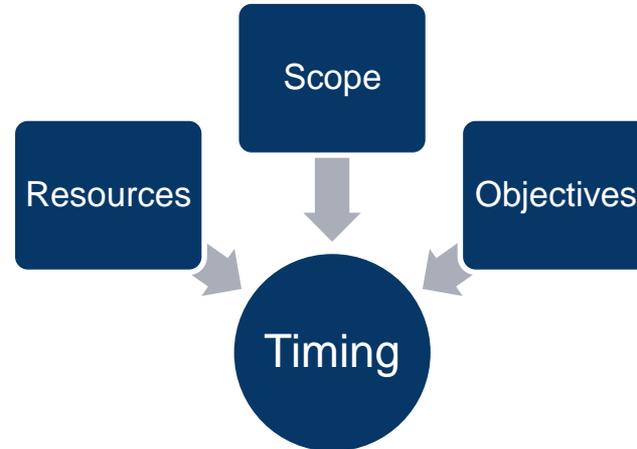


Add or consult members as necessary.

PLAN

Agree on Objectives, Scope, Timeline

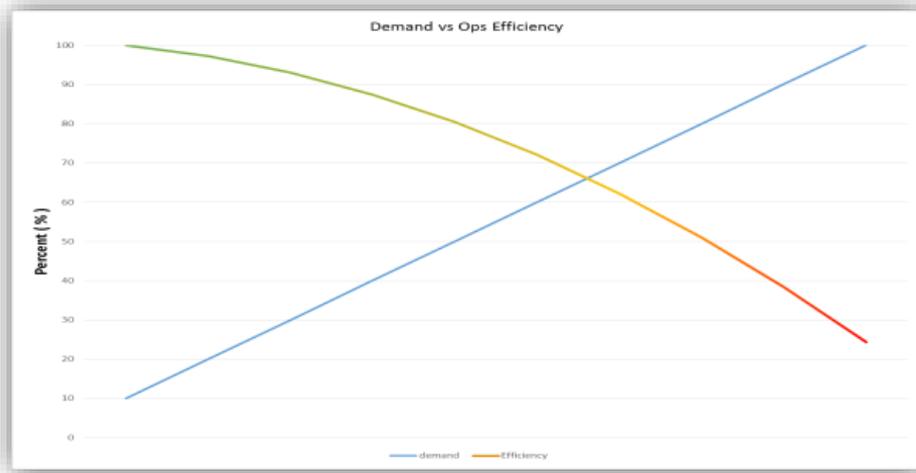
- Objectives from Operational Requirements
- Scope sets the limits of the project
- timeline + end date.



Strategic Objectives

STRATEGIC OBJECTIVES

Safety Capacity Efficiency Environment Access



- Strategic objectives may be in conflict!
- Need balance

Questions??

