



INTERNATIONAL CIVIL AVIATION ORGANIZATION

A United Nations Specialized Agency

WKSP/ASBU/NAIROBI/2013-PPT/09

ASBU – Economic impact

Air Navigation Bureau

Outline



- Economic aspects of Global ATM System
 - Costs
 - Benefits
 - Cost/benefit studies
 - Business Case
 - Funding
 - Cost recovery
- Organizational format
- Outcome of ATConf/6

Economic and organizational aspects related to Global ATM Operational concept



- States should strive for the efficient and cost-effective implementation of the global ATM operational concept, using the **GANP as the implementation planning document**, through international cooperation and collaboration within the ATM community; and
- States should consider facilitating implementation of the global ATM operational concept by adopting, where appropriate, **a regional approach** in order to enhance transparency, efficiency, fairness, comparability and predictability of the costs of air transport infrastructure

System elements



Air Navigation infrastructure to Support ATM Operational Concept

- **ATM**
- **CNS**
- **AIM**
- **AGA**
- **MET**

Allocation of costs ...



Cost/ Benefit Item	CA A	Aircraft Operators	Total
Costs of Air Navigation System elements			
Capital costs and Recurring costs			
Ground	X	X	
Aircraft			
Training	X	X	
Purchases from intermediate service providers	X	X	
TOTAL	C1	C2	C

Allocation of Costs

- Resolution A32-19 provides guidelines.
- Cost allocation issues
 - multi-modal services
 - allocation options
- Categories
 - Aeronautical and non-aeronautical
 - Airport and en-route operations
 - Commercial and non-commercial users

Capital investment

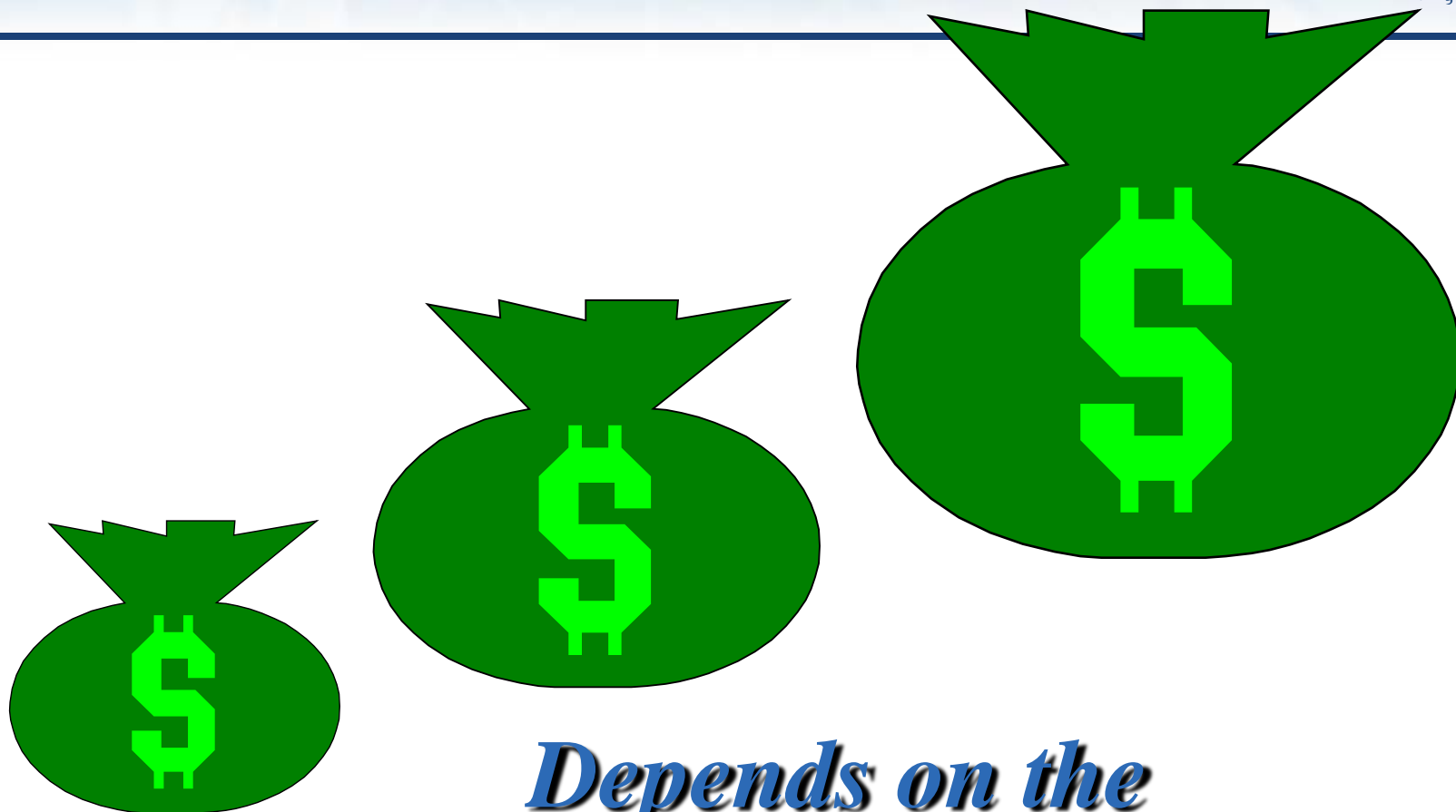
Who is responsible?



- States
- Service providers
- Airspace users

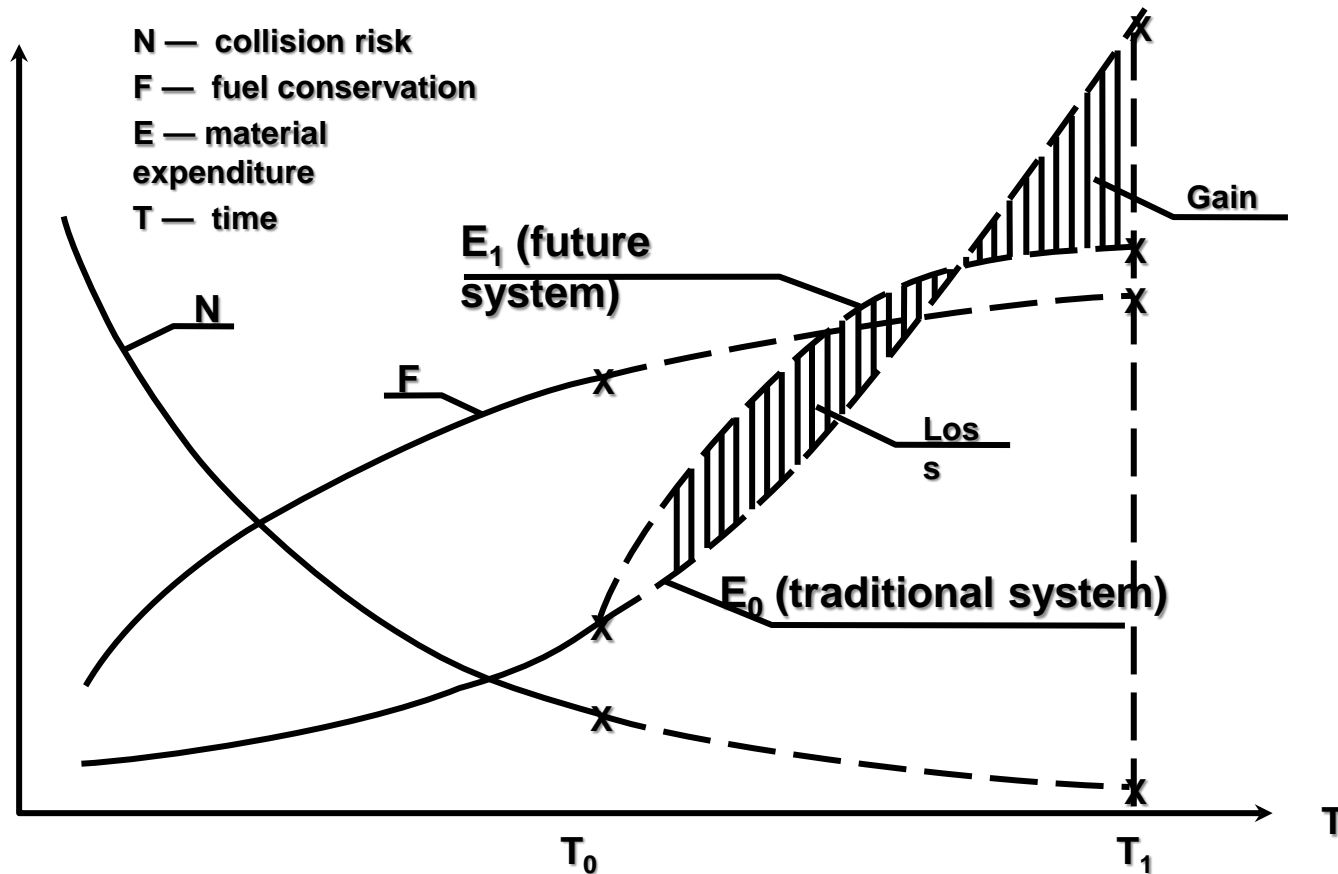


Again, how much?



*Depends on the
implementation options!*

General trend in the variation of the main factors of the ATM system



Benefits



Airlines benefits

- ✓ **Route optimization (time, fuel)**
- ✓ **Optimum altitudes**
- ✓ **Dynamic aircraft route planning**
- ✓ **More alternate airports**
- ✓ **Reduced contingency fuel**
- ✓ **Possible reduced crewing**
- ✓ **Increased aircraft utilization**
- ✓ **Greater payload capability**
- ✓ **Greater revenue generation**

State benefits

- **Improved level of service**
- **Consolidation of facilities**
- **Reduced maintenance costs**
- **Avoided capital costs**

Airport benefits

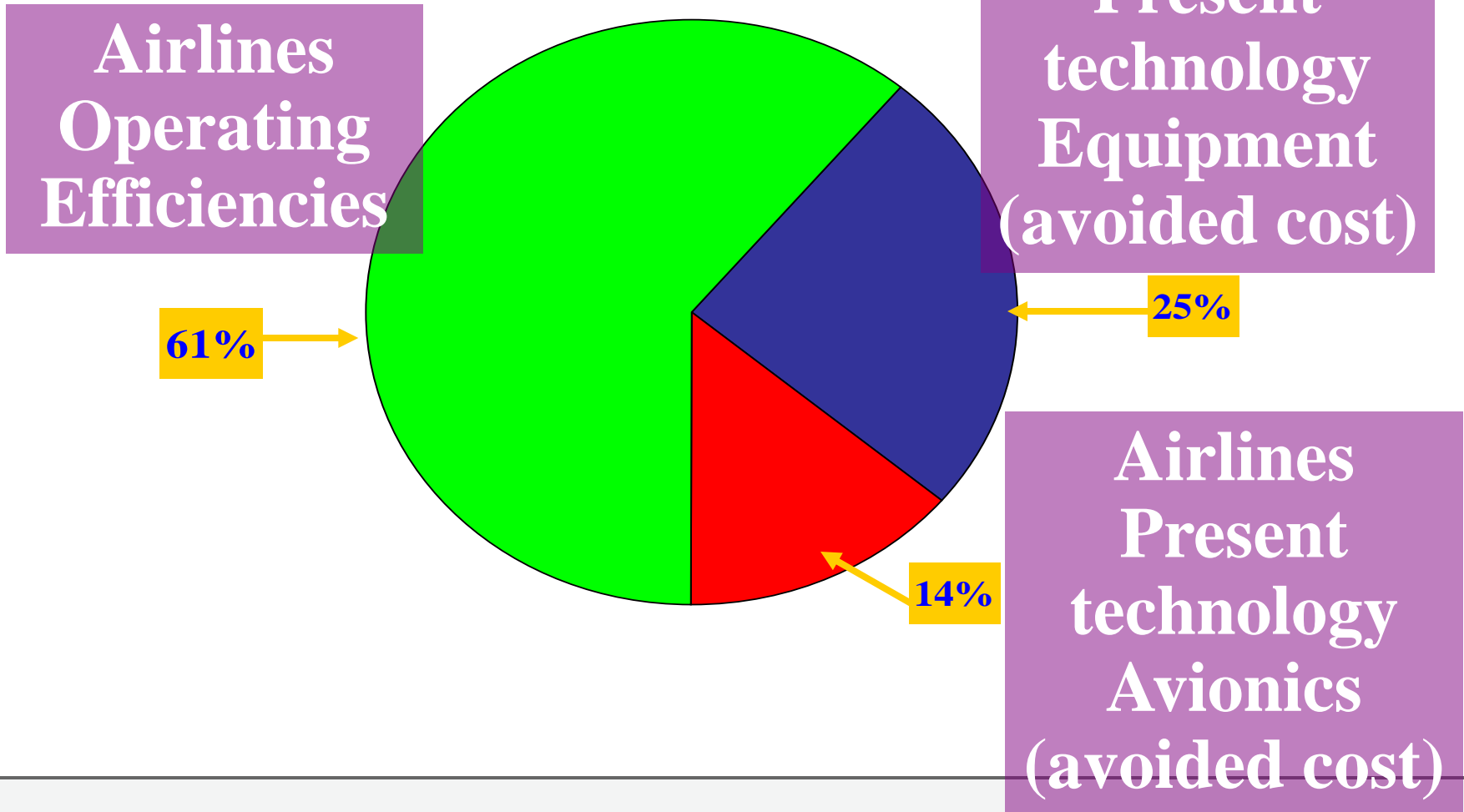
- **Increased airports capacity**
- **Improved airside management**
- **Decrease in diversions in instrument meteorological conditions**
- **Enhanced revenues**
- **Happy passenger**

Allocation of benefits



Cost/Benefit Item	CAA	Aircraft Operators	Passengers	Totals
Benefits of Air Navigation Systems elements				
Avoided equipment costs (Present technology)				
Ground				
Aircraft	X	—	—	
Efficiency improvements	—	X	—	
Passenger time savings	X	X	—	
TOTAL	—	—	X	
	B1	B2	B3	B
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Benefit shares



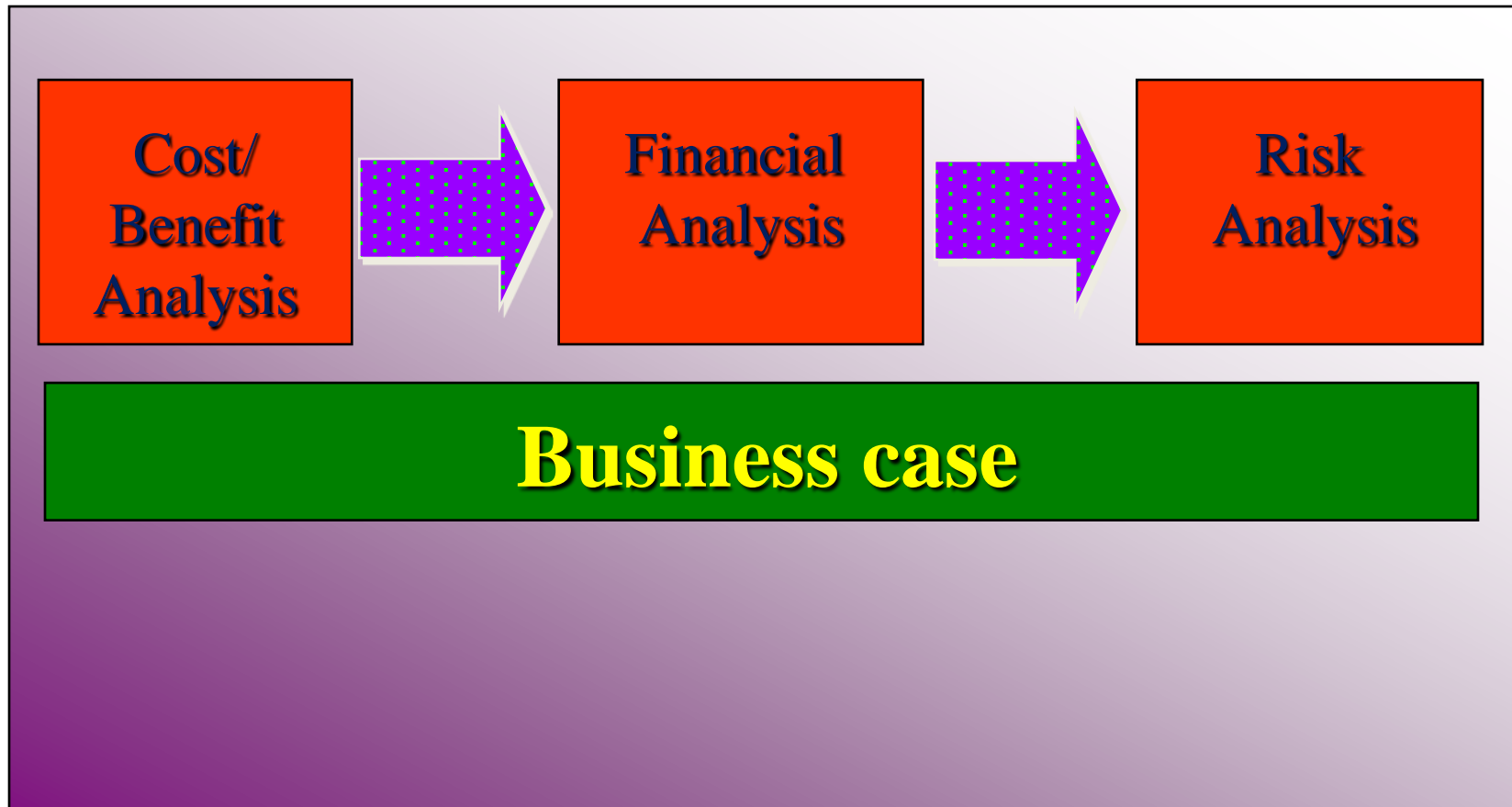
Cost/Benefit studies



- The cost/benefit study to address the financial viability and implementation options
- Measure of economic viability
 - Net present value (preferred method: $\text{Benefit-Costs} > 0$)
 - Cost-effective
 - Least cost
 - Snapshot
 - Utility value
 - Pay-off period
- Sensitivity analysis
 - Analysis to ensure wide fluctuations in changing data conditions are taken into account
- Validate the model using the best judgment

What is Business case ?

A tool supporting planning and decision-making that can be used by public as well as private entities



Business Case and Business Plan



- A business case:
 - is specific to a project, a policy or a program proposal, and
 - covers the lifecycle of the proposal;
- A business plan
 - normally covers an entire organization or enterprise, and
 - is limited in time (typically 3 to 5 years)

Why do we need a Business case?

- To convince the target audience:
 - of the need for the proposal
 - of the feasibility of the proposal
 - that the proposal is cost effective and beneficial
 - that the proposal is financially viable
 - that the risks involved are manageable
- To be able to prioritize proposals

Content of a Business Case



- The main sections of a business case are:
 - Description of the proposal
 - Identification of the stakeholders / partners
 - Cost-benefit analysis
 - Financial analysis
 - Risk analysis and management

- Sources of financing include:
 - Contribution from governments (national or foreign)
 - Commercial sources (debt financing)
 - Accumulated excess of revenues over costs (profits)
 - Bonds
 - Equity financing (share capital)
 - Leasing

Cost recovery



- Cost allocation and cost recovery principles are set forth in ICAO Document 9082
- Methods of cost recovery
 - Direct collection from users
 - Joint charges collection agency
 - Delegation to external agency

Organizational format for ANSPs

Level	Type of Organization
National	Government department Autonomous public sector undertaking Private organization
Multinational/ Subregional/ Regional	Service provided by one government Service provided by group government Organization with own legal responsibility
Global	Service provided by one government Service provided by group government Organization with own legal responsibility

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Conclusions on ASBU economic issues



- **ICAO policies and guidance on funding air transport infrastructure** through airport and air navigation services charges, through pre-funding of projects and through the allocation of GNSS costs **remain valid**;
- The relevance of the recently updated ICAO policies and guidance material contained in *ICAO's Policies on Charges for Airports and Air Navigation Services* (Doc 9082) and the *Manual on Air Navigation Services Economics* (Doc 9161) **should be assessed** in the context of the modernization of the air transport system;
- **A multi-disciplinary working group should be established** in order to **consider the economic and operational challenges associated with the air navigation services** upgrades in particular, and with financing the air transport system in general



- **Recommendation 2.7/1 — Modernization of the air transport system . The Conference recommends that:**
 - a) **States should continue to implement ICAO policies and guidance** that can be applied to funding air transport infrastructure through airport and air navigation services charges;
 - b) ICAO, in cooperation with States, international organizations and the industry, should **establish a multi-disciplinary working group to consider the challenges** associated with the establishment of operational and economic incentives, such as **service priority, to allow early benefits of new technologies and procedures**, as described in the ASBUs modules, to support operational improvements, while maximizing safety, capacity and overall system efficiency, taking into account the needs expressed at AN-Conf/12;

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Recommendation on ASBU economic issues



- **Recommendation 2.7/1 — Modernization of the air transport system. The Conference recommends that:**
 - c) **ICAO should undertake measures to ensure** widespread awareness and **knowledge of its policies and guidance** and other material related **to funding infrastructure** and ensure that they remain relevant, current, and responsive to the changing situation.

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Recommendation on ASBU economic issues



- **Recommendation 2.7/3 — Infrastructure Management**

The Conference recommends that:

a) **States should consider the establishment of autonomous entities to operate airports and ANSPs,** taking into account economic viability as well as the interests of the users and other interested parties, and ensure that the recommendations made at Conference on the Economics of Airports and Air Navigation Services (CEANS) are implemented;

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Recommendation on ASBU economic issues



- **Recommendation 2.7/3 — Infrastructure Management**

The Conference recommends that

- b) **States should promote quality air navigation services** performance through good governance;
- c) **ICAO should** take relevant measures **to ensure widespread awareness and knowledge of its policies on user charges and its guidance material related to governance, ownership, control and management of airports and air navigation service providers (ANSFs),** and ensure that they remain relevant, current, and responsive to the changing situation; and



- **Recommendation 2.7/3 — Infrastructure Management**

The Conference recommends that

d) **ICAO should continue to monitor changes in airport and ANSP commercialization and privatization,** collect information from States on the level of implementation of the policies on charges for airports and air navigation services, and publish and regularly update this information in the form of a Supplement to Doc 9082.



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(SAM) Office
Lima

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Headquarters
Montreal

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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) Office
Bangkok

Thank You

A world map is shown in a light blue color. Eight colored dots are placed on the map, each connected by a thin line to a text label describing an ICAO office. The dots are: a blue dot in North America (Mexico City), a blue dot in South America (Lima), an orange dot in North America (Montreal), a blue dot in West Africa (Dakar), a blue dot in Europe (Paris), a blue dot in the Middle East (Cairo), a blue dot in East Africa (Nairobi), and a blue dot in Southeast Asia (Bangkok). The Montreal dot is highlighted with an orange color, matching the text label.