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Why ATFM: Cause and Benefits

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ICAO NACC ATM/SAR Regional Officer

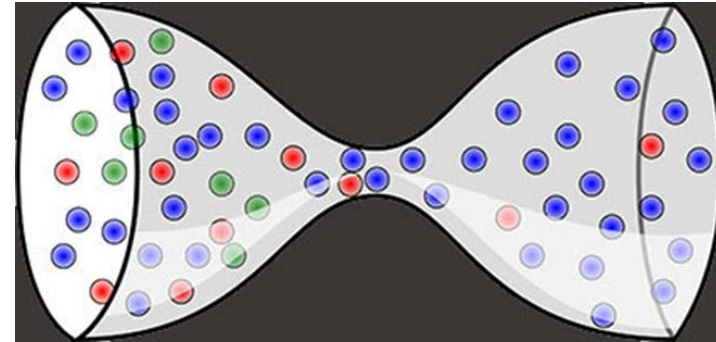
ICAO NACC Regional Office/September 2019





Theory of Constraints

- The Theory of Constraints is a methodology for identifying the most important limiting factor (i.e. constraint) that stands in the way of achieving a goal and then systematically improving that constraint until it is no longer the limiting factor. Constraints are often referred to as a bottleneck.
- Every complex system, including service processes, consists of multiple linked activities, one of which acts as a constraint upon the entire system; total process throughput can only be improved when the constraint is improved.
- Spending time optimizing non-constraints will not provide significant benefits; only improvements to the constraint will enhance the system. TOC seeks to provide precise and sustained focus on improving the current constraint until it no longer limits throughput, at which point the focus moves to the next constraint.





E/CAR - Eastern Caribbean
Caribe Oriental



Anguilla (UK)
Anguilla



Antigua and Barbuda
Antigua y Barbuda



Barbados
Barbados



British Virgin Islands (UK)
Islas Vírgenes Británicas



Dominica
Dominica



French Antilles
Guadeloupe, Martinique,
Saint Barthélemy (France)
Antillas Francesas
Guadalupe, Martinica,
San Bartolomé



Grenada
Grenada



Montserrat (UK)
Montserrat



Saba (Netherlands)
Saba



Saint Kitts and Nevis
San Kitts y Nevis



Saint Lucia
Santa Lucía



Saint Vincent and the Grenadines
San Vicente y las Granadinas



Sint Eustatius (Netherlands)
Sint Eustatius



Sint Maarten (Netherlands)
Sint Maarten



Trinidad and Tobago
Trinidad y Tabago



United States
Puerto Rico, Virgin Islands
Estados Unidos



Islas Vírgenes, Puerto Rico



C/CAR - Central Caribbean
Caribe Central



Aruba (Netherlands)
Aruba



Bahamas
Bahamas



Bonaire (Netherlands)
Bonaire



Cayman Islands (UK)
Islas Caimanes



Cuba
Cuba



Curaçao (Netherlands)
Curazao



Dominican Republic
República Dominicana



Haiti
Haití



Jamaica
Jamaica



Mexico
México



Turks and Caicos Islands (UK)
Islas Turcas y Caicos



United States
Estados Unidos



CA - Central America
Centroamérica



Belize
Belice



Costa Rica
Costa Rica



El Salvador
El Salvador



Guatemala
Guatemala



Honduras
Honduras



Nicaragua
Nicaragua



NAM - North America
Norteamérica



Canada
Canadá



Saint Pierre et Miquelon (France)
San Pedro y Miquelón



United States
Estados Unidos



United States
Estados Unidos



United States
Estados Unidos



CAR - Caribbean
Caribe



Bermuda (UK)
Bermuda



Mexico
México

NAM/CAR Regions

22 States

19 Territories

26 Civil Aviation Authorities (CAAs)

44 Flight Information Regions (FIRs) - 29 in NAM; 15 in CAR

22 Estados

19 Territorios

26 Autoridades de Aviación Civil (AACs)

44 Regiones de Información de Vuelo (FIR) - 29 en NAM; 15 en CAR



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NAM/CAR Regions – Characteristics & Challenges

Our Region has States that range from the most advanced economies and complex aviation systems in the world to some of the least developed economies and with minimal aviation systems and/or international compliance levels

In spite of this, our Systemic Assistance Program to our States has demonstrated great success when political will, commitment and leadership are in place



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NAM/CAR Regions – Characteristics and Challenges

Tourism in the Caribbean – main source of income
i.e. North America, South America and Europe

Limited resources – reduced number of staff, budgetary constraints

Political, economical, cultural and language diversity: different States - autonomous Territories

Different size of Countries: from small developing islands to world's most advanced and developed States

Natural phenomena- frequent threat: Hurricanes, earthquakes, volcanic ash, floods, etc.



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ECONOMIC DEVELOPMENT

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Economic and social impact of Aviation in the NAM / CAR Regions

The role of the aviation industry in the region

- ✈ Create direct and indirect jobs
- ✈ Support tourism and local businesses
- ✈ Stimulates foreign investment and international trade
- ✈ Contributes to sustainable development
- ✈ It helps improve living standards and alleviate poverty
- ✈ Support small and remote communities
- ✈ Facilitates the delivery of emergency and humanitarian aid





Economic benefits of aviation in Latin America

Direct economic contributions from the aviation sector

806.0 thousand

Direct jobs supported in regional aviation

\$40 billions

Direct regional economic impact

Fuente: OACI

Direct, indirect, induced and tourism economic contribution from the aviation sector

5.2 millions

Of jobs supported by aviation regionally

\$167 billions

Regional economic impact

JOB TOTAL		GDP TOTAL
5.2 million		\$167 billion
3,000,000	Tourism catalytic	\$60 bn
408,000	Induced	\$21.3 bn
941,000	Indirect	\$45.9 bn
806,000	Aviation direct	\$40 bn



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Increase Capacity



Enhance Efficiency





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Latin America and the Caribbean



Circ. 333, 87/190

Global Air Transport Outlook to 2030

and trends to 2040

Approved by the Secretary General and published under his authority



“Much of the traffic on the North America-Latin America and the Caribbean route group originates in North America.

The route depends on the strength of the North American economy and tourism development in the destination countries.

The Region is enjoying increasing political stability and the emergence of Brazil as a major industrial and economic power will help boost traffic growth.

Other nations are currently addressing political and economic concerns, but still have considerable potential for growth in the medium term. Brazil and Mexico represent the most important domestic markets in this region.”



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Latin America and the Caribbean



Circ. 333, AT/190

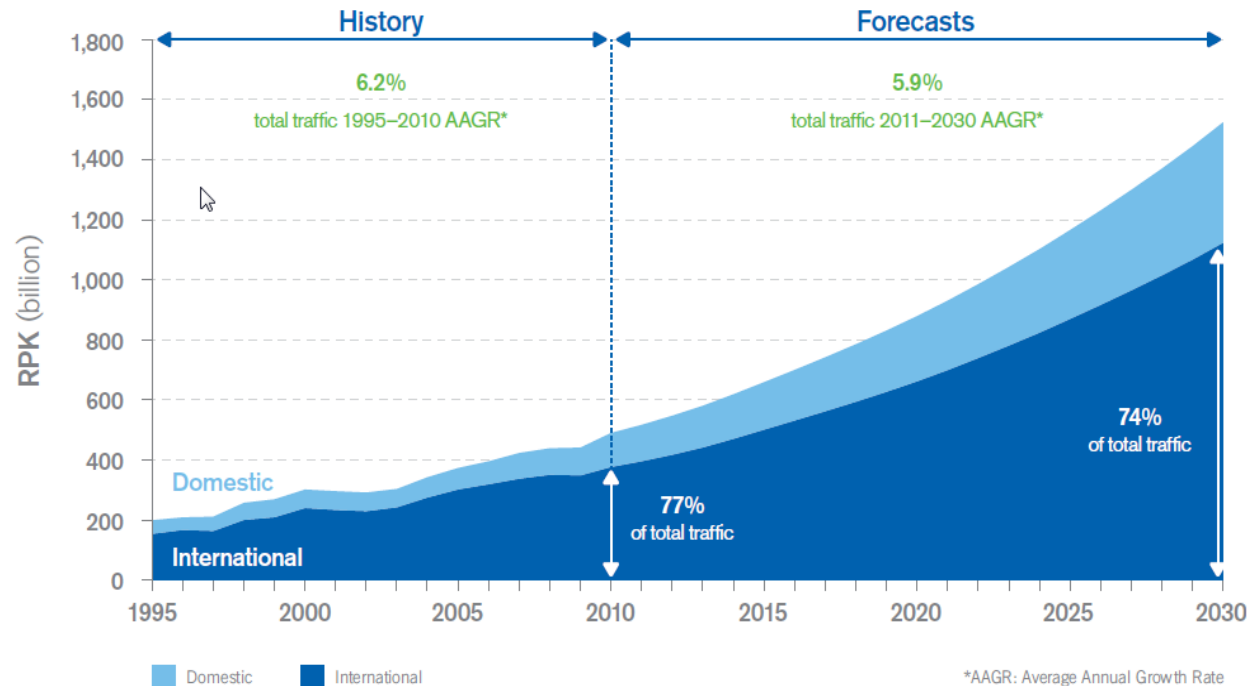
Global Air Transport Outlook to 2030

and trends to 2040

Approved by the Secretary General and published under his authority



Figure 5-75: Latin America and the Caribbean passenger traffic: history and forecasts





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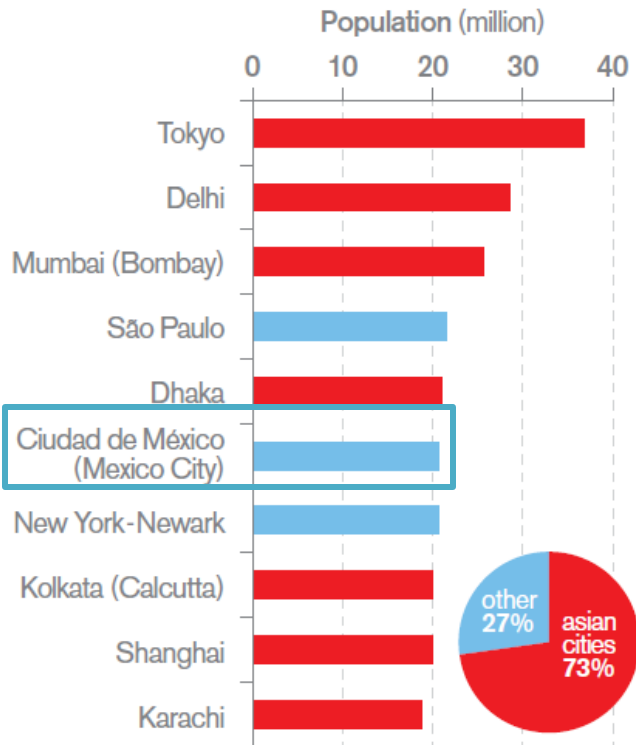
Circ. 333, A7/190

Global Air Transport Outlook to 2030 and trends to 2040

Approved by the Secretary General and published under his authority



2030: Top ten cities



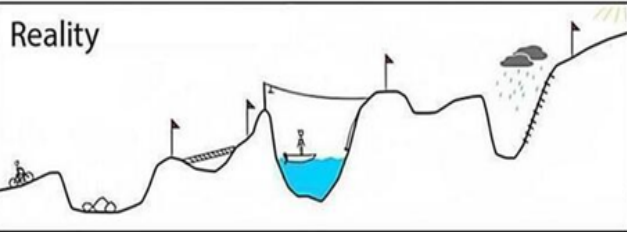


Regional Challenges

Your plan



Reality



- ✈ Sustained increase of demand.
- ✈ Extremely different ANS systems.
- ✈ Individual analysis for regional problems.
- ✈ Airspace Optimization.
- ✈ Harmonization and interoperability.
- ✈ Implementation based on favorite solutions (instead of problem solving).



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Why ATFM

✈ ATFM is an enabler of Air Traffic Management (ATM) efficiency and effectiveness. It contributes to the safety, efficiency, cost-effectiveness, and environmental sustainability of an ATM system. It is also a major enabler of global interoperability of the air transport industry.



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ATFM Benefits

- ✈ Enhanced ATM system safety.
- ✈ Increased system operational efficiency and predictability through CDM processes.
- ✈ Increased situational awareness among stakeholders and a coordinated, collaborative development and execution of operational plans.
- ✈ Effective management of irregular operations and effective mitigation of system constraints and consequences of unforeseen events.
- ✈ Reduction of aviation-related greenhouse gas emissions.
- ✈ Enhanced ANSPs coordination and collaboration.
- ✈ Help to identify the ATM system constraints.



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ATFM Regional Guidance



ICAO

Doc 9971

Manual on Collaborative
Air Traffic Flow Management (ATFM)

Third Edition, 2018



Approved by and published under the authority of the Secretary General

INTERNATIONAL CIVIL AVIATION ORGANIZATION



INTERNATIONAL CIVIL AVIATION ORGANIZATION

Caribbean/South American Air Traffic Flow Management
Concept of Operation

(CAR/SAM ATFM CONOPS)

2019 - 2024



CARIBBEAN/SOUTH AMERICAN AIR TRAFFIC FLOW MANAGEMENT MANUAL
(CAR/SAM ATFM MANUAL)

Version 1.1	
Date	October 2010



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ATFM Regional Guidance/Tools

CADENA



THE NEXT CADENA WEB CONFERENCE WILL BE HELD ON FRIDAY, SEPTEMBER 13 2019, AT 1400 UTC



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Slow ATFM/CDM Implementation CAR Region

- ✈ ATM systems have managed their growth reactively.
- ✈ Different levels of requirements/constraints.
- ✈ Lack of resources to support implementation (human resources in particular).
- ✈ Slow implementation of enabling systems.
- ✈ Lack of high level commitment for implementation.



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NAM/CAR ATFM Activities

✈ NAM/CAR ANI/WG ATFM Implementation Task Force

- ✈ Work programme implementation

- ✈ Annual Meetings

- ✈ Periodic Teleconferences

- ✈ 2019 Survey

✈ ATFM/CDM FAA Training



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Future Plans

- ✈ NACC ANS Regional Implementation Strategy
- ✈ Rethink interaction between ATM Operational Components (AOM, DCB, AO, TS, CM, AUO and ATM SDM)
- ✈ Regional support with Technical Assistance Implementation Projects



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Conclusions

- ✈ The implementation of ATFM is a fundamental need to ensure the sustainable growth of air traffic in the CAR Region.
- ✈ The strong interdependence with the airspace system of United States imposes the need to implement systems that are compatible and harmonized with it.
- ✈ ICAO support for this issue should take into consideration the diversity of needs and possibilities of the different airspaces and air navigation systems of the Region.
- ✈ The components of the air navigation system, which are enabling the ATFM, deserve clear and prioritized attention.



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Questions?





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THANK YOU