ICAO Doc 9971 and APAC Cross Border ATFM Initiatives

Hiroyuki Takata

Regional Officer ATM (ATFM/CDM)
ICAO APAC RSO

Cross Border ATFM Workshop
New Delhi, India / 3rd Sep 2015

Outline

- Traffic trend in Asia Pacific Region
- GANP (ASBU) and iKIT
- Regional Sub-Office
- Sub-regional ATFM initiatives in APAC
- Doc 9971
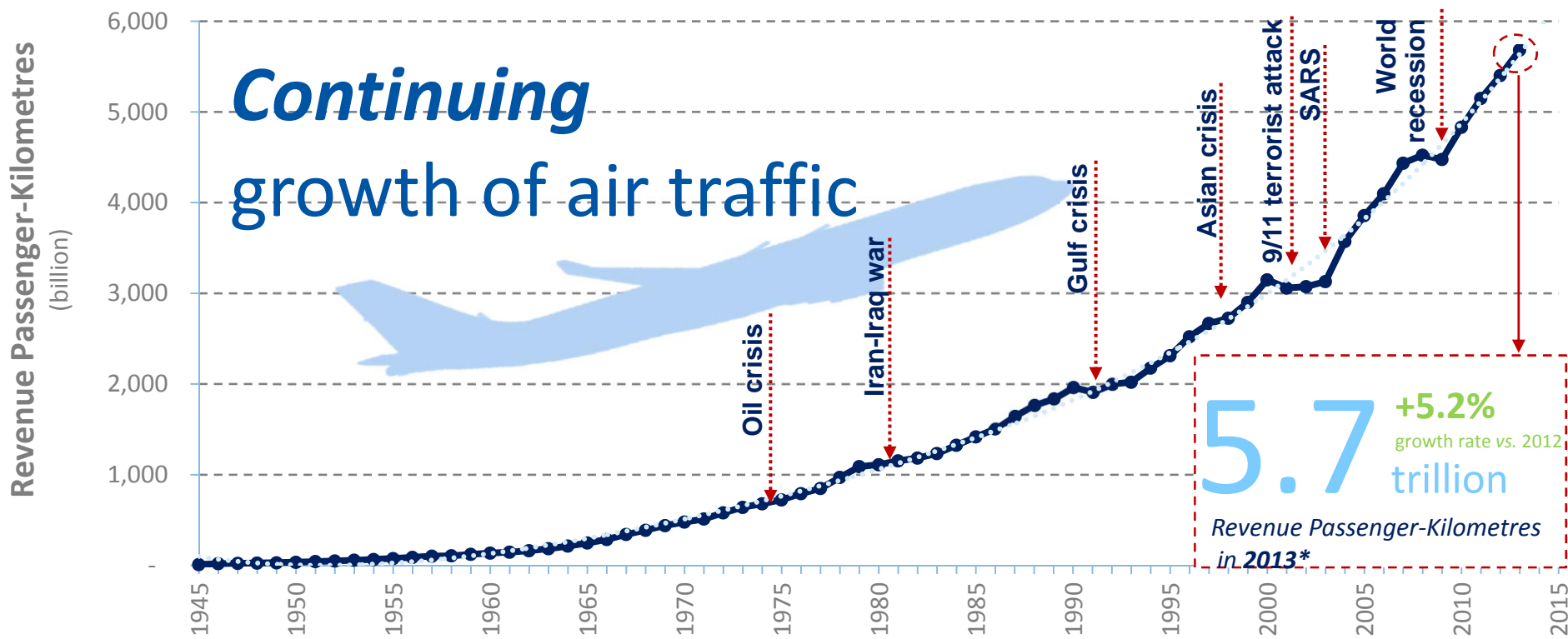 - Manual on Collaborative Air Traffic Flow Management

Traffic trend in APAC

ICAO BEIJING RSO   UNITING AVIATION

NO COUNTRY LEFT BEHIND

Continuing
growth of air traffic

Revenue Passenger-Kilometres (billion)

6,000

5,000

4,000

3,000

2,000

1,000

-

Oil crisis

Iran-Iraq war

Gulf crisis

Asian crisis

9/11 terrorist attack

SARS

World recession

5.7 trillion

+5.2% growth rate *vs.* 2012

Revenue Passenger-Kilometres in 2013*

1945 1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010 2015

Note: world total scheduled services

preliminary results

In APAC

- 8,086,343 scheduled departures (2013)
  - 30% share in terms of world RPKs (2012)
- Medium-term Passenger Traffic Forecasts (PKP)
  - +7.4% (2015)
  - +7.5% (2016)
- Foster international collaboration leading to optimal, seamless ATM Environment

  *Revenue Passenger-Kilometers (RPK)

  *Passenger-Kilometers Performed (PKP)

4.8%
3,470,000

Compound Annual Growth Rate (CAGR) Q1 2009 - Q1 2011
- ≥ 10%
- > 3%, < 10%
- > -3%, ≤ 3%
- ≤ -3%

13.4% CAGR
over the last two years

-3.7%
1,450,000
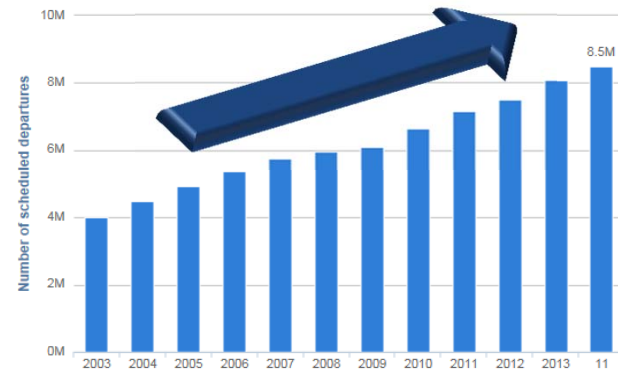
The global emerging economic centres are also leading in domestic growth. Dome...
traffic has increased in :

Brazil by **28%**   Russia by **23%**   China by **14%**   India by **14**

Traffic History
APAC

Number of scheduled departures

8.5M

2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 11

The world's largest market

- As the Asia Pacific region, the world's largest market for air transport, continues to grow, it becomes essential to optimize the use of available capacity through ATFM.

	Passenger Volume	Annual %
Indonesia	92,534,902	20.4
Thailand	62,831,288	16.4
China	404,174,939	11.8
Singapore	42,438,276	7.6
Malaysia	51,821,210	7.5
Japan	148,450,196	4.9
India	97,677,318	4.4
Hong Kong	44,399,060	3.9
Korea, Republic of	62,166,163	1.2
Australia	81,983,309	0.6
Asia/Southwest Pacific	1,075,572,893	8.5

Top Asia/Pacific Passenger Countries 2013

GANP (ASBU) and iKIT

ICAO's Role in ATM Modernization

STRATEGIC OBJECTIVE ②

ICAO — CAPACITY AND EFFICIENCY

2013–2028
Global Air Navigation Plan

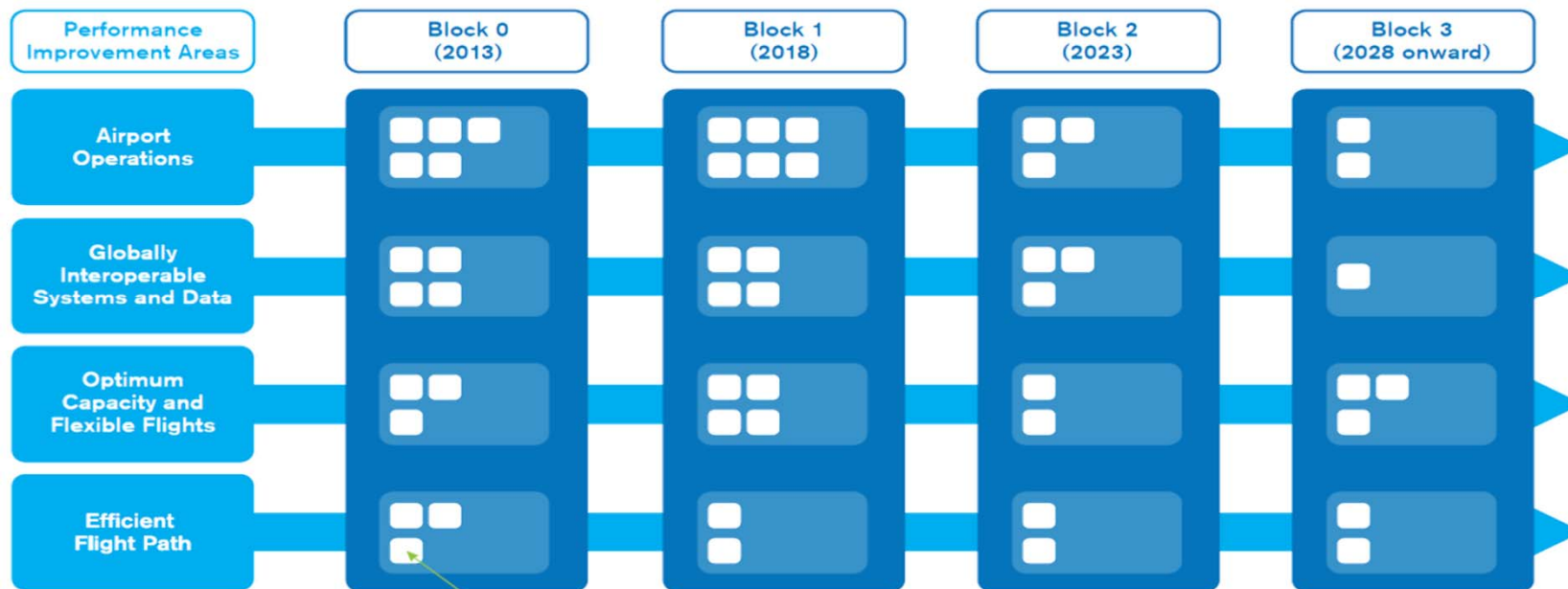*"Increase the capacity and improve the efficiency of the global civil aviation system"*

- Through the **GANP**, offer a **long-term vision** to assist **all aviation stakeholders**, and ensure **continuity** and **harmonization** among modernization programmes

- Through the **Aviation System Block Upgrades (ASBU)**, provide a consensus-driven **modernization strategy** for integrated planning

Needs Analysis / Validation

Compliance & Verification

if needed

Global Plans

Global & Regional

Assess & Measure
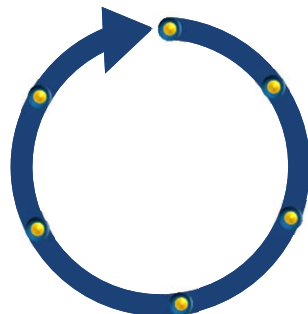
SARPs & PANS

Implementation Planning

Training & Guidance

Extending Modules to Tool Kits

Performance Improvement Areas

- Airport Operations
- Globally Interoperable Systems and Data
- Optimum Capacity and Flexible Flights
- Efficient Flight Path

ASBU MODULES

- **APTA – Airport Accessibility**
- **ACDM – Airport CDM**
- **SURF – Surface Operations**
- **AMET – Advanced Meteorological Info.**
- **FRTO – Free Routing**
- **NOPS – Network Operations**
- **ASEP – Airborne Separation**
- **CCO – Continuous Climb Operations**
- **CDO – Continuous Descent Operations**
- **TBO – Trajectory Based Operations**

Operational Improvement

Improves the efficiency of terminal control area (TMA) operations

iKIT

Improves the efficiency of terminal control area (TMA) operations
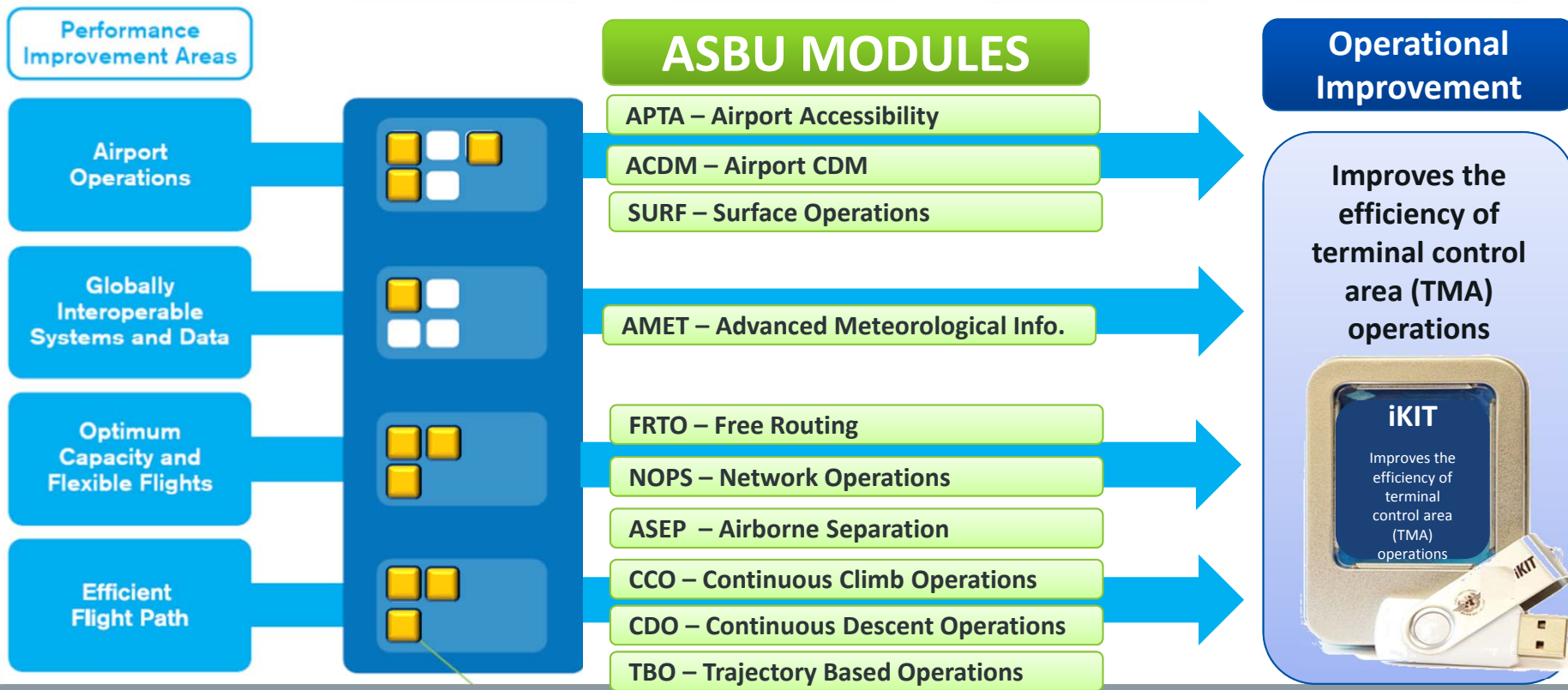
Extending Modules to Tool Kits

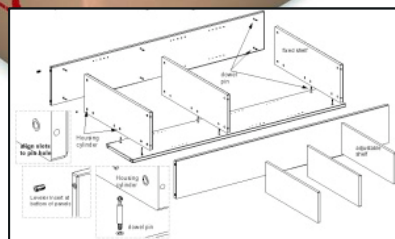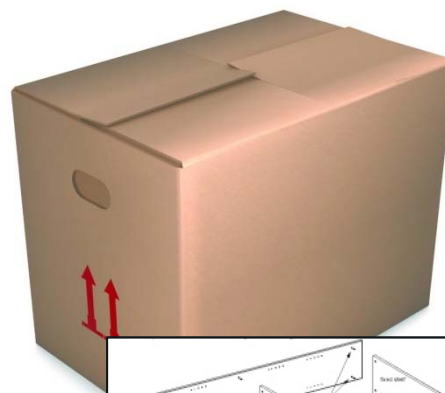**ASBU Modules**

Implementation Kit

Regulatory and Operational Improvement

IMPLEMENTATION Kits (iKIT)

- What it should include:
  - **Narrated briefing** (in all languages)
  - **Overview** of the iKIT
  - Reason for the changes – **benefits**
  - How benefits are **measured**
  - **Explanation of changes** as per the sub-components
  - Attachments (if necessary):
    - **New** documentation/guidance material (for States)
    - **Revised** documentation (for States)
    - **Links** to ICAO on-line store (for others)

2016
Initial steps to improve demand/capacity balancing

Implementing ASBU modules:
XXXX, XXXX, XXXX

Operational Improvement:
Optimizes airspace and airport usage through demand/capacity balancing

iKIT

ICAO Asia and Pacific
Regional Sub-Office (RSO)

ICAO APAC RSO

- ICAO Council agreed to establish a Regional Sub-Office (RSO) of the Asia Pacific (APAC) Office on 14 November 2011.

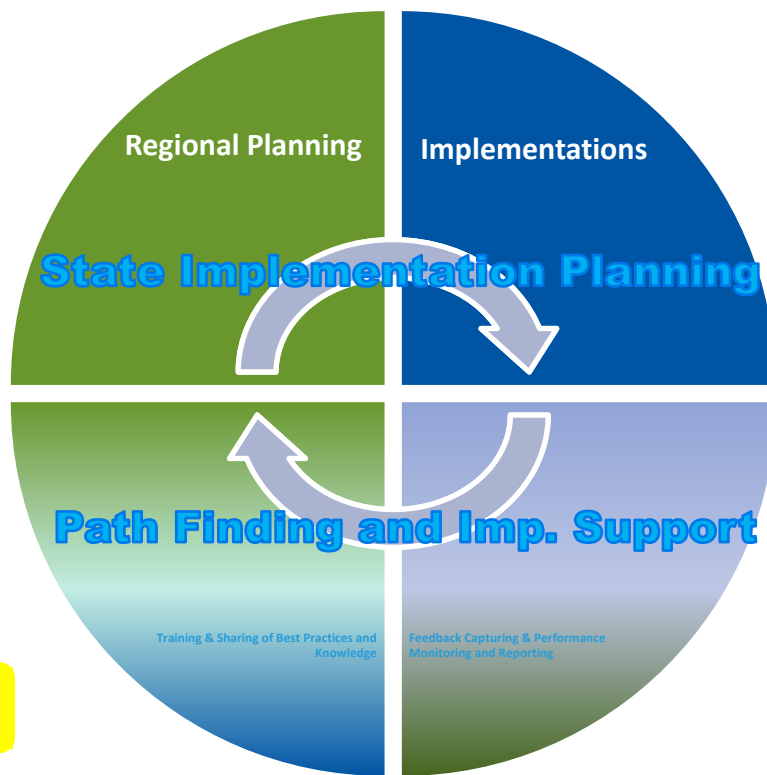- RSO was inaugurated in Beijing, China on 27 June 2013.

RSO - Responsibilities

- To improve airspace organization and maximize ATM performance and capability in Asia and Pacific.

- To support States on **implementation** of efficient management of airspace and air traffic flow in the APAC Region through Airspace Organization and Management (AOM), Collaborative Decision Making (CDM), Air Traffic Flow Management (ATFM), Flexible Use of Airspace (FUA) and Performance-Based Navigation (PBN) aimed at meeting traffic growth.

RO as Main Player
RSO as Supporting Player

RO as Supporting Player
RSO as Main Player

Regional Planning

Implementations

State Implementation Planning

Path Finding and Imp. Support

Training & Sharing of Best Practices and Knowledge

Feedback Capturing & Performance Monitoring and Reporting

Note: *Performance Monitoring and Reporting will be under the responsibility of the RO.*

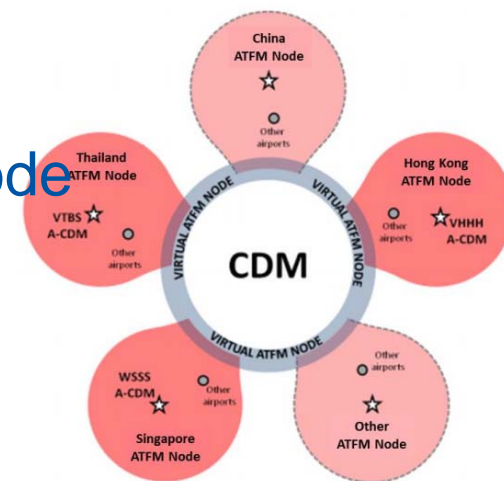# Regional ATFM Initiatives
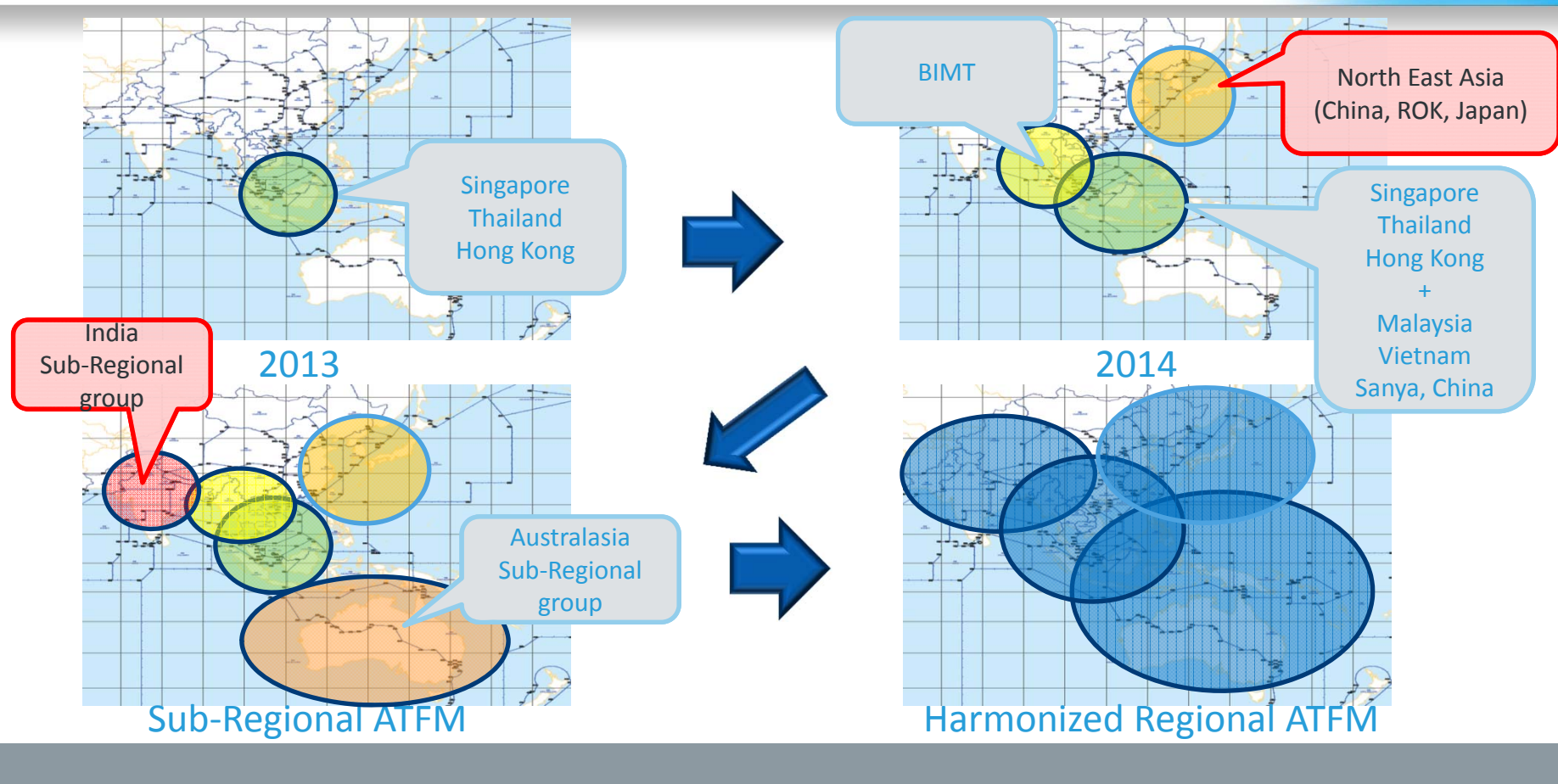
Multi-Nodal ATFM Group

- Level 3 ATFM Nodes
  - China
  - Hong Kong China
  - Singapore
  - Thailand
- Level 2 ATFM Nodes
  - Indonesia
  - Malaysia

- Level 1 ATFM Nodes
  - Cambodia
  - Philippines
  - Viet Nam
- Advisory ATFM Node
  - Australia

NARAHG

- North-Asia Regional ATFM Harmonization Group
- China, Japan and Republic of Korea
- Principles of Cooperation were agreed
- Post Operations Analysis
  - Japan-ROK-Beijing
  - Japan/ROK-Shanghai
- Exchanging data (ADP)
- Trial Daily Telecon

FIRST MEETING OF THE NORTH ASIA REGIONAL ATFM HARMONISATION GROUP (NARAHG/1)
ICAO Asia and Pacific Regional Sub-Office, Beijing, China
21-22 August 2014

BIMT

- Bangladesh, India, Myanmar and Thailand
- ATFM harmonization agreed under BIMT standing agenda
- Establish CDM telecon / process
- RSO is invited to facilitate
  ATFM agenda

Mekong

- Vietnam, Laos PDR, Cambodia, Thailand and Myanmar
- ATFM is a standing agenda in Mekong Coordination Meeting
- Possible Foundation ATFM workshop
  in Mekong States in 2016

Doc 9971
Manual on Collaborative ATFM

Doc 9971

Doc 9971
AN/485

Manual on Collaborative
Air Traffic Flow Management

Approved by the Secretary General
and published under his authority

First Edition – 2012

International Civil Aviation Organization
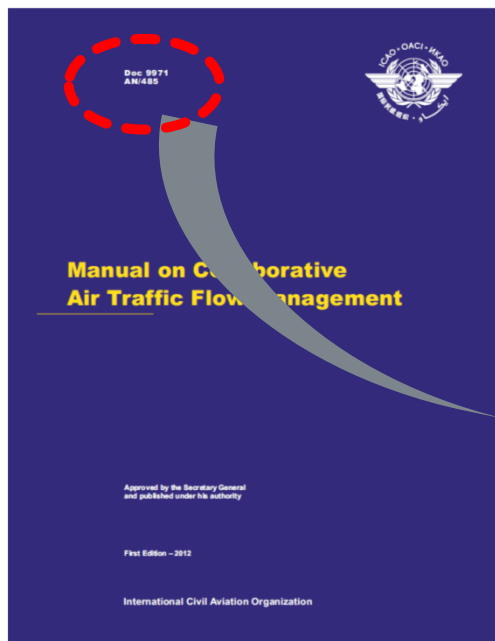
Doc 9971

- Doc 9971 has been published in 2012 with only Part 1 – Collaborative Decision Making (CDM)

- Doc9971 Part 2 – Air Traffic Flow Management (ATFM)

- This document was created by "ATFM coordination team" led by ICAO HQ (Brazil, EUROCONTROL, FAA, Hong Kong, India, Japan, Russia, Thailand, IATA, CANSO, ICAO ROs)

- Doc9971 Part 3 – Airport CDM (ACDM) will be published in the future

Doc 9971 (Cont'd)

- Doc 9971 is intended to for the following stakeholders;

    - Air navigation service providers
    - Airspace users
    - Airline operation centers
    - Airport operators
    - Airport ground handlers
    - Airport slot coordinators
    - Regulators
    - Military authorities
    - Security authorities
    - Meteorological agencies
    - Industries related to aviation

Doc 9971 (Cont'd)

- Doc 9971 shows basic ideas of ATFM

    – What is the starting point regarding the development of an ATFM service?
    – What are the foundational objectives and principles of ATFM?
    – What are the benefits of implementing an ATFM service?
    – How does an ATFM service operate?
    – How is an ATFM service structured and organized?
    – What are the roles and responsibilities of the stakeholders in the ATFM service?
    – How is the capacity of an airspace sector and airport determined?
    – How are ATFM processed applied in order to balance the demand and capacity within its area of responsibility?
    – How is an ATFM service implemented?
    – What are ATFM Measures and how are they established and applied?
    – What data and information are exchanged in an ATFM service?
    – What terminology/phraseology is used in ATFM?
    – What resources are available to States regarding the various aspects of ATFM?

Doc 9971 (Cont'd)

- In addition, as Appendix

  – Sample of international ATFM operations planning telephone
    conference format
  – Sample of ATFM data exchange agreement
  – Determining airport acceptance rate (FAA)
  – Determining sector capacity (FAA)
  – Example of capacity planning and assessment process (Euro Control)
  – Example of planning process for ATFM implementation
  – Template of letter of agreement between flight management units

Doc 9971 (Cont'd)

- Chapter 1.   Introduction
- Chapter 2.   The ATFM service
- Chapter 3.   ATFM structure and organization
- Chapter 4.   Capacity, demand and ATFM phases
- Chapter 5.   ATFM implementation
- Chapter 6.   ATFM measures
- Chapter 7.   Data exchange
- Chapter 8.   ATFM communication
- Appendix A.-G.

ATFM philosophy

- 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.

The objectives of ATFM

- Enhance the safety

- Reduce ATC workload

- Optimize airspace capacity

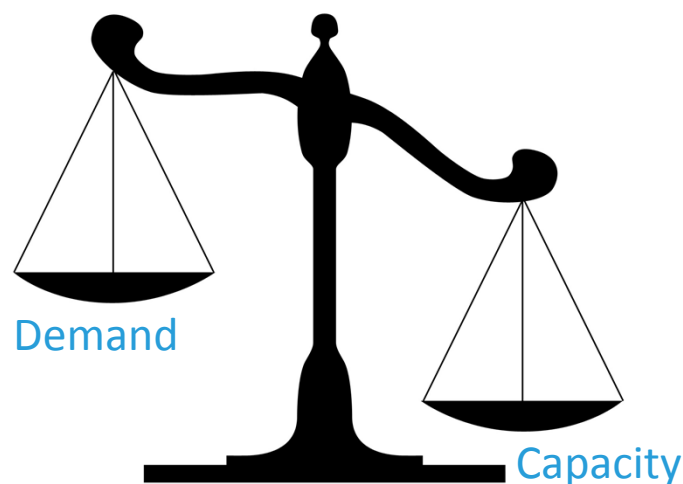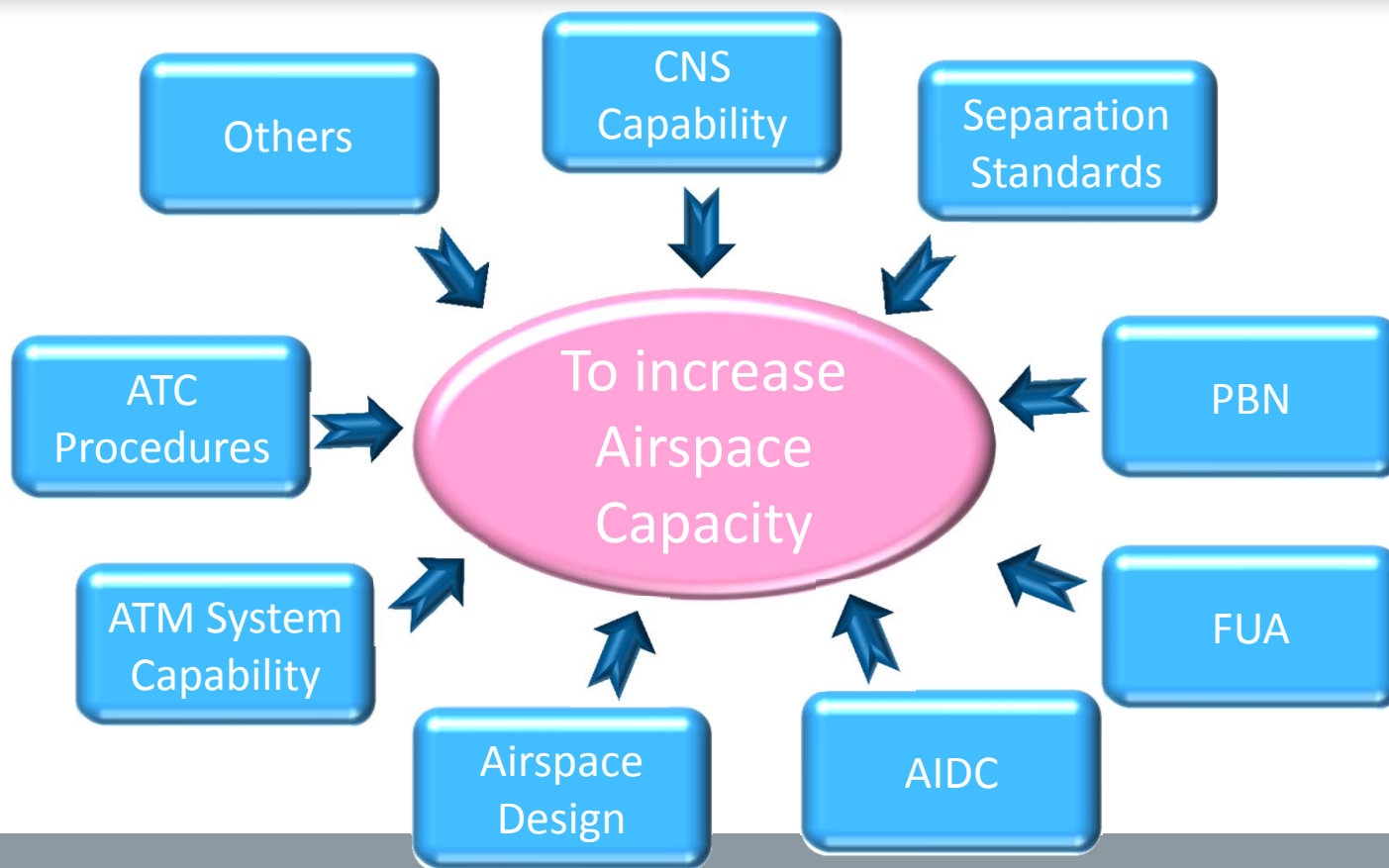- Maximize operational benefits and global efficiency

What is ATFM?

- ## ATFM is
  ### demand/capacity balancing

Demand

Capacity

Others

CNS Capability

Separation Standards

ATC Procedures

To increase Airspace Capacity

PBN

ATM System Capability

FUA

Airspace Design

AIDC

Keys to the successful implementation

- The CDM process is a key enabler of an ATFM strategy
- Achieving a robust coordination among aviation stakeholders (CDM)

  – All the stakeholders work together to improve the overall performance of the ATM system
  – Such coordination will take place within a FIR, between FIRs, and ultimately, between regions

Keys to the successful implementation

- ATFM and its applications should *NOT* be restricted to one State or FIR
  - Because of their far-reaching effects on the flow of traffic elsewhere
  - PANS-ATM, Doc 4444 states that ATFM should be implemented on the basis of a regional air navigation agreement or, when appropriate, as a multilateral agreement
- Airspace is a common resource for all users and ensure equity and transparency

ICAO BEIJING RSO   UNITING AVIATION

NO COUNTRY LEFT BEHIND

ICAO

North American Central American and Caribbean (NACC) Office
Mexico City

South American (SAM) Office
Lima

ICAO Headquarters
Montréal

Western and 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) Sub-office
Beijing

Asia and Pacific (APAC) Office
Bangkok

THANK YOU