

NTFM

**Thirteenth Meeting of the Asia/Pacific Air Traffic
Flow Management Steering Group (ATFM/SG/13)**

NATIONAL TRAFFIC FLOW MANAGEMENT SYSTEM

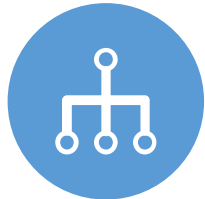
Presented by China

SUMMARY



4 phases of ATFM development

Developing from cognitive consistency, system interconnection, then network interconnection to cultural fusion



Sharing the concept and functions

Sharing the concept and functions of National Traffic Flow Management system (NTFM) built in China

Learn from each other

States and Administrations can learn from each other and reach an agreement to some extent in the development stage

Invitation for system interconnection

Inviting stakeholders to perfect the concept and functions of the construction about ATFM system together and all stakeholders are welcome to test system interconnection with NTFM

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Introduction

01

Introduction



Efficiency and Quality

With the increasing complexity of running environment about ATFM, ATFM system greatly enhances the efficiency and quality of ATFM through more efficient methods.



Gradually upgraded
ATFM system

04

03

Unified national traffic
flow management system



Scattered regional
ATFM system

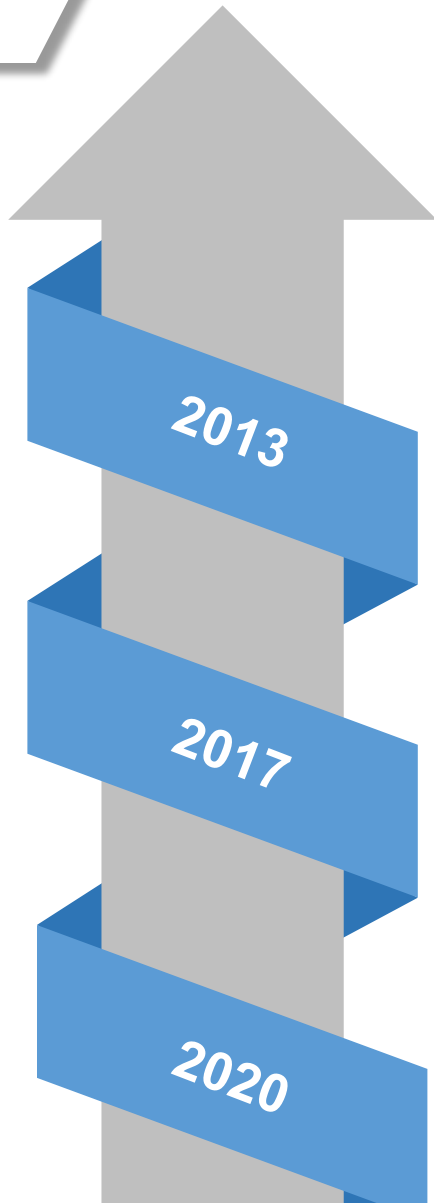
02

01

Auxiliary tools



Introduction



New generation of NTFM

Citing the ATFM concept and combines the operation of ATM and is supported by modern technology. Based on this system, a powerful ATFM network is built, forming the foundation of running environment about collaborative ATFM.



First generation of ATFM system

OMC and 8 regional ATFM units of ATMB have created their own ATFM system supported by four civil aviation enterprises



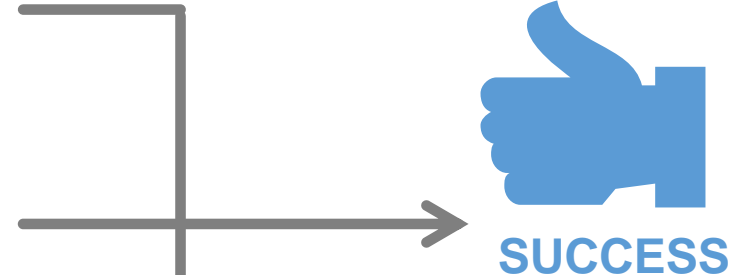
Limit of distributed ATFM system

With the double increase of flight volume of China in 2017, the nationwide information interaction, decision synchronization and integrated operation are increasingly urgent.



Second generation of ATFM system

Second generation of ATFM system is designed and developed since 2017



SUCCESS
The ATFM concept, methods and procedures have realized the nationwide integrated operation since the second generation of ATFM system has been officially launched in 2020



Discussion

02

The concept of Internet of Everything (IOE)

A-CDM, A/DMAN

Merging and opening state of all control sectors

NTFM realizes the internet of information, system and even operation

Tower electronic flight strips (EFS), ATC automation system

Airlines, airports as well as other stakeholders

Elastic ATFM Network

#1 Network

NTFM is not only a system, but also a network connecting various information related to ATFM in China.

#2 Interaction

All users are one of nodes in this network, regardless of centralized operation, distributed operation or remote operation, all actions are shared and interacted

#3 Elasticity

This network is greatly elastic and can revise in time to achieve optimal results.

One flight take off early than CTOT

Finding the ability to hold in the air

ATC automation system

Modify other Airport flights CTOT

Tower electronic flight strips

Airlines, Airports

NTFM AUTO

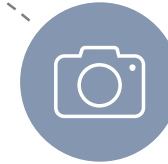


The Quality of CTOT

It is relatively difficult to figure out the optimal CTOT



CTOT performability



High-quality CTOT

Whether ATFM measures can achieve the desired effect



The efficiency and cost of ATFM measures



The Close Connection Between ATFM and ATC

Obscure boundary

No matter from personnel or job duties, there is boundary ambiguity between the work division of ATFM and the job duties of ATC for a period of time



ATFM was separated from ATC

At the beginning of ATFM development in China, because ATFM was just separated from ATC

Clear boundary

On account of gradually increase in ATFM tasks, not only does the division between ATFM and ATC become certain, but also their own responsibilities are gradually clear, the duty boundary between them starts to be clear as well



Integrated operation of ATFM and ATC

With the further increase of flight volume and complexity running environment, there is a higher need to enhance collaborative running efficiency



Collaborative, complementary and integrated

ATFM and ATC are not isolated or antagonistic, but collaborative, complementary and integrated in the process of NTFM construction.

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Efficiency and benefits

Close connection between ATFM and ATC will create greater overall efficiency and benefits when the flight volume reaches a certain level and ATFM develops to a certain stage

The Support of Modern Technology



The development of civil aviation is closely associated with modern technology improvement, so is the NTFM

Limited by restrictions such as system hardware support, processing ability, network bandwidth and intelligence level, the operation concept of ATFM is unable to be fully presented through the system by the first generation ATFM system

Better ATFM solutions

NTFM is highly supported by modern technology



Replace part of traditional work

The work of traditional ATFM personnel is widely replaced by the powerful computing capability and intelligence of the system



High-quality CTOT

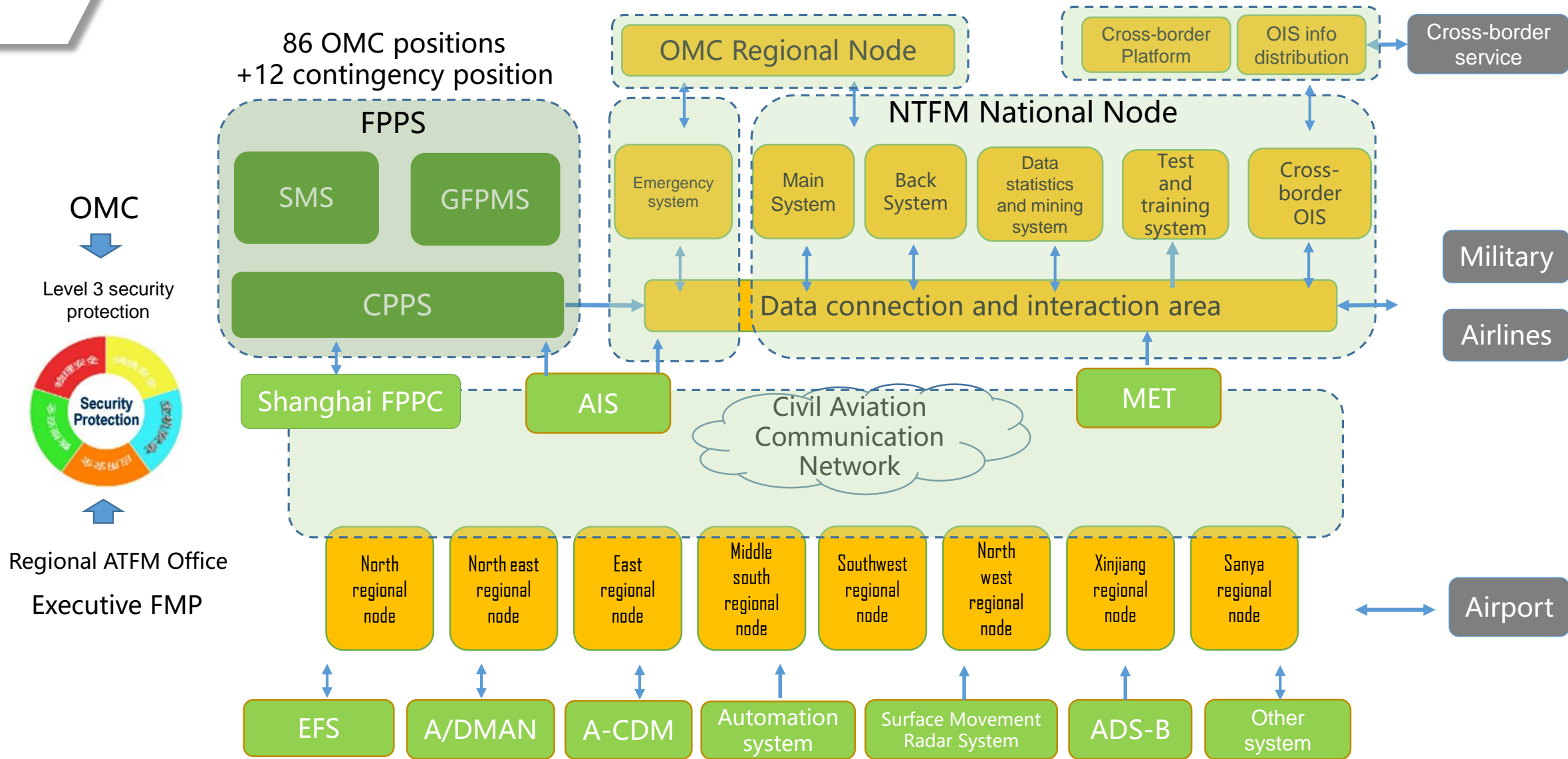
Shifting the work focus of ATFM personnel from making ATFM measures to select the best solution of ATFM and so on, the optimal solution and CTOT can be found by the system.

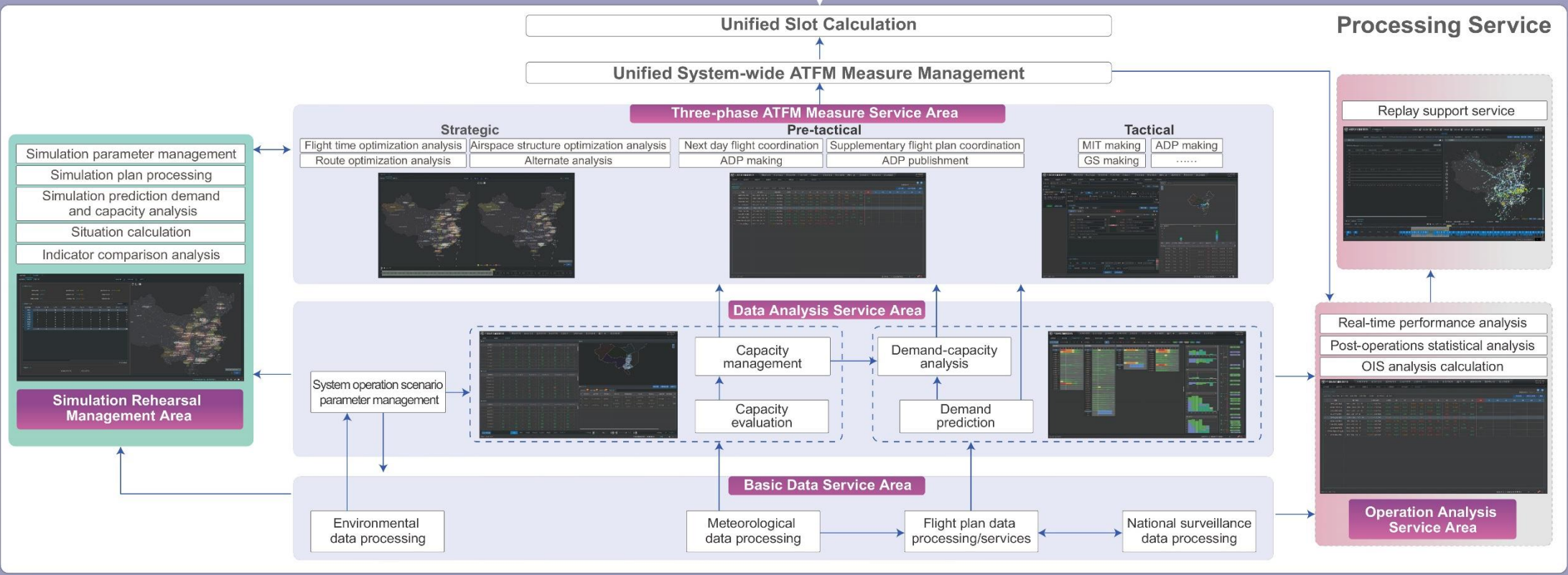
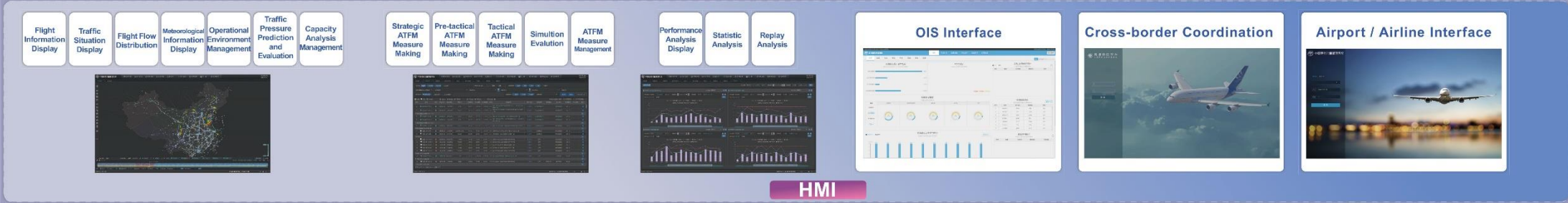


More efficiency & Less workload

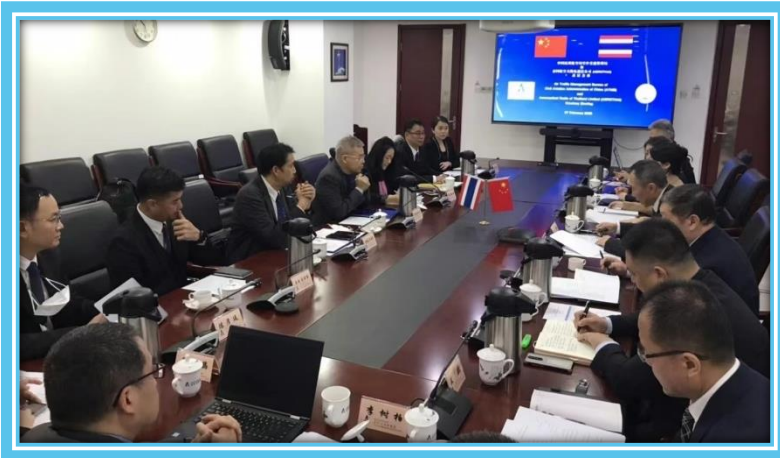
The great improvement of automation enhances work efficiency and reduce workload, what's more, it can provide stakeholders with ATFM service through better ATFM solutions.

NTFM - System Structure





Interconnection of Cross-Border ATFM system



Proceed the internet of ATFM information

ATMB CAAC is willing to proceed the internet of ATFM information with the States and Administrations in the Asia-Pacific region under the framework and provisions of ICAO. All stakeholders are welcome to test the interconnection of ATFM system with China

Tripartite senior leadership meeting

Macau China plans to join a unified coordination platform based on NTFM to achieve information sharing. Mainland China and Hong Kong China successfully conducted the AFTN-based ATFM information interactive test on 29 June and 29 November 2022, and planned to discuss the normalized operation mode of both sides 2023 to promote ATFM system interconnection

ATMB and AEROTHAI courtesy meeting

ATMB CAAC and AEROTHAI successfully conducted AFTN-based ATFM information interactive on 8 March 2023

GDP test between ATMB and MOLIT

ATMB CAAC also plans to conduct a GDP test on Da Nang, Viet Nam landing flights with MOLIT





**Action By
The Meeting**

03

Action By The Meeting



Note the information contained in this paper

01



Research and perfect the construction about ATFM system together

02



All stakeholders are welcome to test the system interconnection with NTEM

03



Discuss any relevant matters as appropriate

04



THANKS

FOR YOUR TIME

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Presented by China