

# ***FF-ICE journey and future plans of JCAB***

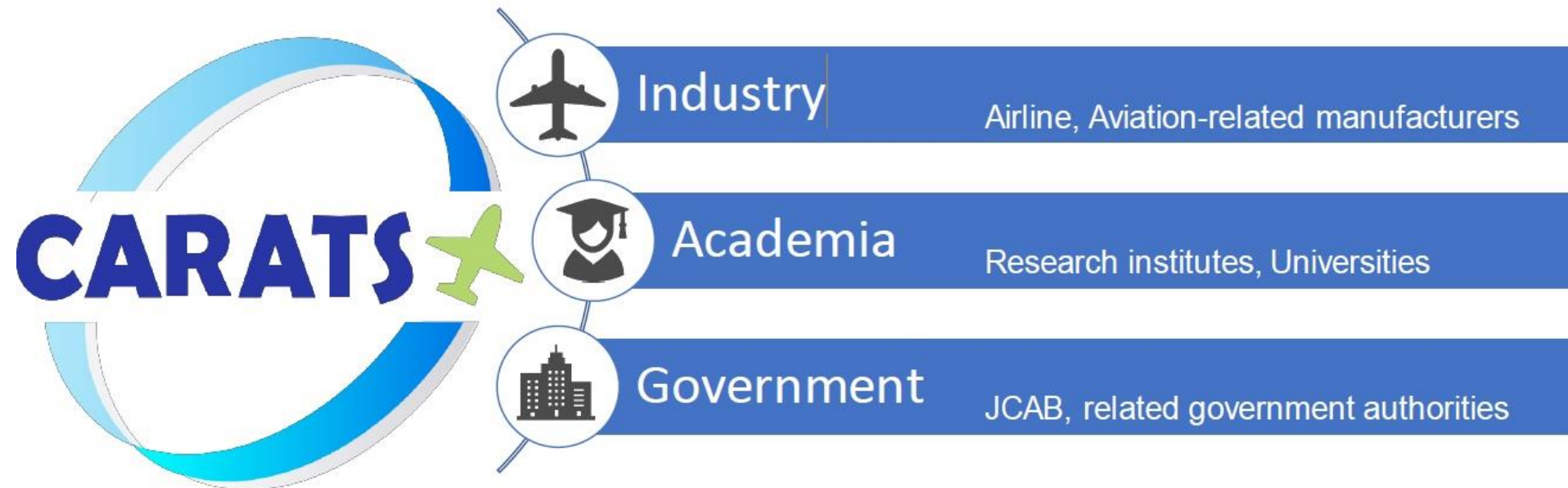
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Japan Civil Aviation Bureau

June 2024

## CARATS

- In Japan, initiatives toward TBO are being promoted within the framework of CARATS.
- Collaborative Actions for Renovation of Air Traffic Systems (CARATS) is a long-term action plan to renovate Air Traffic Systems in Japan.
- Led by the Japan Civil Aviation Bureau (JCAB) and in cooperation with industry, academia, and government, a long-term vision is being formulated to respond to increasing air traffic and user needs, and to contribute to economic growth and global warming countermeasures.



2019FY

**Airport-CDM**

**Advancement of meteorological observation information (Low altitude WX radar etc.)**

**Enroute Wide Area Multi-lateration (Improved surveillance capacity)**



2020FY

**RAIM Prediction optimization**

**GNSS performance monitoring**



2021FY

**Vertical Separation of Domestic Airspace (Western Japan)**

**Introduction and conjugation of DAPs (DAPs for WAM, ATC support)**

**Reducing separation in oceanic airspace (ADS-C CDP)**

**Wide Area Multi-lateration (Terminal Blind Areas)**

**Domestic CPDLC operations**

**Expansion DCL (ACARS)**



2022FY

**Dynamic variable airspace organization**

**Time-based management using CFDTs at single points (Initial operation)**

**Direct routing for high altitude airspace**

**Approach with curved routes with RF legs (RNP to ILS)**

**RNP2 (overlay)**

2023FY

**Quantification of weather forecast error**

# SWIM Initial Service (Type of Information)

FACE  
(Flight object  
Administration  
Center  
system)



Aeronautical Information	Digital NOTAM Distribution Service
	Digital NOTAM Registration Service
	AIP Data Distribution Service
	Digital NOTAM Request Service
	AIP File Download Service
	AIP Viewing Service
ATIS Information	ATIS Information Distribution Service
	ATIS Information Request Service
Turbulence Information	C-PIREP Registration Service
	C-PIREP Distribution Service
	C-PIREP Request Service
Weather Information	Weather Information Distribution Service
FPL Information	FPL Filing Service
	ATS Information Distribution Service
	ATS Information Request Service
Providing Complex Information	Airport Profile Service
	Airspace Profile Service
	PKG Request Service
Other Information	Message Webmail Service

Spot  
Management  
System



Airport SLOT

Slot Request Service



**MASS**

(Messaging-system for ATM as SWIM Service)



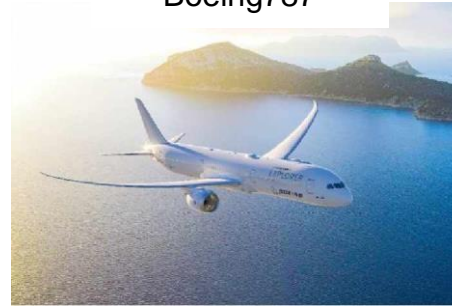
**Users**





- In June 2023, in collaboration with the aviation authorities of the United States, Singapore and Thailand, and Boeing company, we conducted the world's first test flight using an actual aircraft to verify the practical utility of Trajectory Based Operations.

ecoDemonstrator  
Boeing787



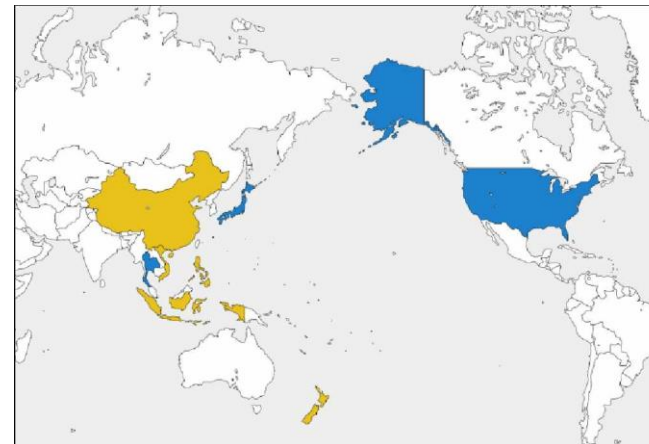
Ceremony at Narita Airport



Signing Ceremony at Air  
Navigation World 2023







- From 2024, “APAC TBO Pathfinder Project” started.
- China, New Zealand, the Philippines, Indonesia and Vietnam have been newly added to the group, and within the next four years, the 9 participating countries plan to jointly conduct test flights using actual aircraft to specifically verify the operational use case and benefit of TBO.



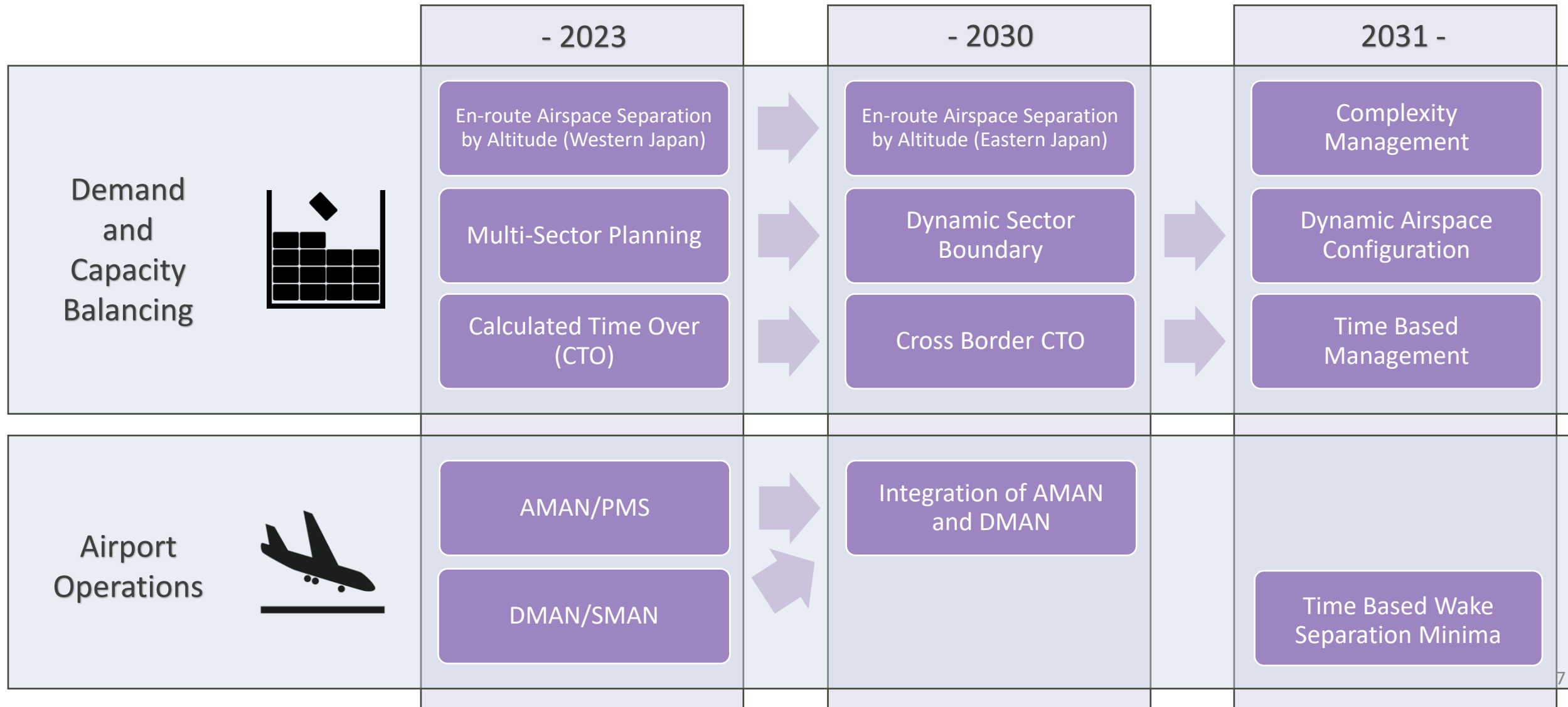
Continue to participate from MR TBO Demo  
Newly joining Pathfinder Project



## CARATS measures towards TBO (1 / 3)

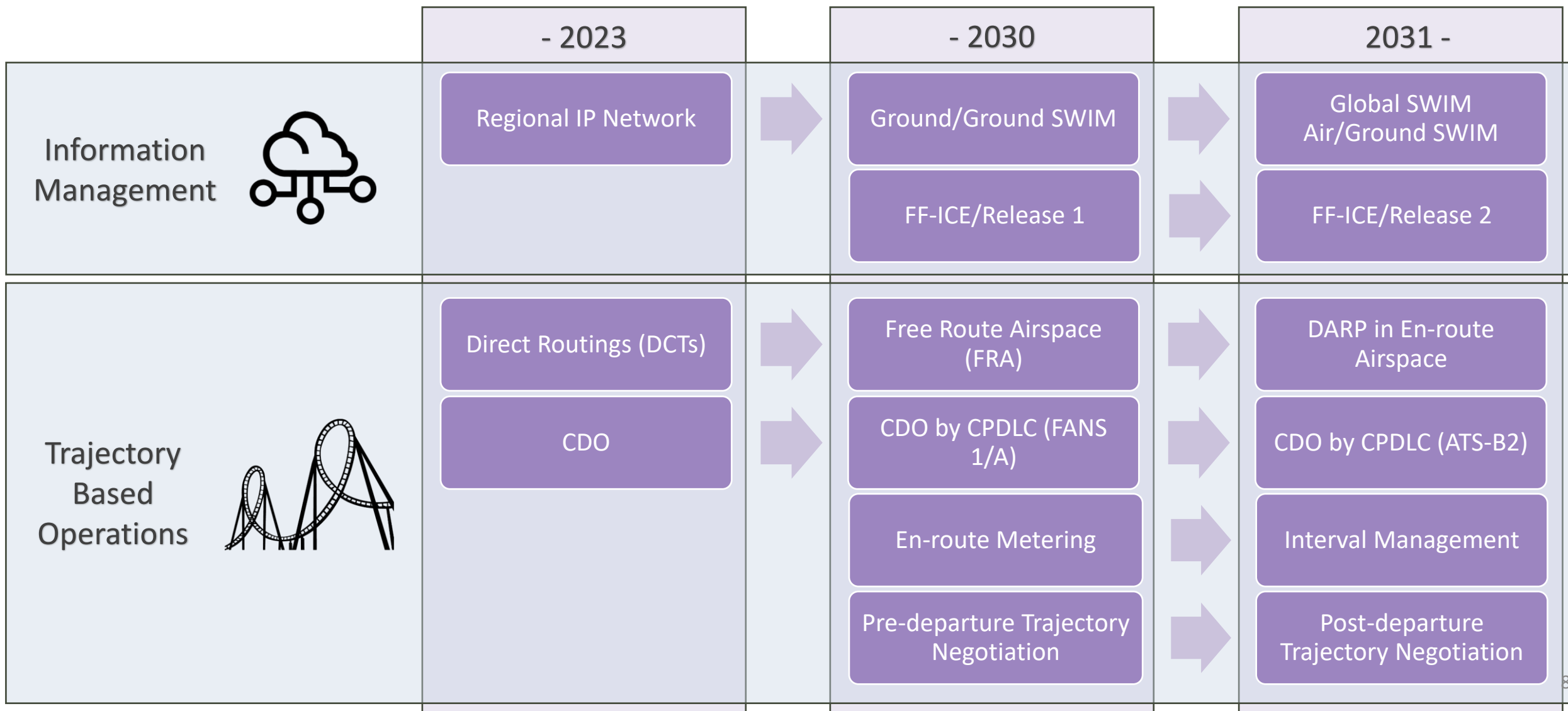
		- 2023		- 2030		2031 -
Surveillance		<div>Wide Area Multi-lateration (WAM)</div> <div>Downlink Aircraft Parameters (DAPs)</div>	→	<div>ADS-B</div> <div>Weather Data from DAPs</div>	→	<div>Improve Tracking Accuracy by DAPs</div>
Communication		<div>CPDLC in Domestic Airspace</div>	→	<div>Expand Domestic CPDLC Message Set</div>	→	<div>ATN/IPS &amp; ATS B2 (D-TAXI/D-RVR/ HZWX/EPP)</div>
Navigation		<div>RNAV5/RNP2</div> <div>RNP to ILS</div>	→	<div>RNP2</div> <div>LP/LPV</div>	→	<div>A-RNP (TOAC)</div> <div>GBAS CAT II/III</div>
Meteorological		<div>High Temporal/Spatial Resolution Forecast</div>	→	<div>Conversion of WX Information to Operation/Capacity</div>	→	<div>Full MET-ATM Integration</div>

## CARATS measures towards TBO (2 / 3)





## CARATS measures towards TBO (3 / 3)



# Thank You

Air Traffic Control Division  
Air Traffic Services Department