

# APAC Trajectory-Based Operations (TBO) Pathfinder

Initiative under APAC ANSP Committee (AAC)



# APAC TBO Pathfinder

.... collaborative project to:  
define, demonstrate and develop the ConOps and requirements for TBO in the APAC region

## Define

Define ConOps for TBO in APAC



## Demonstrate

Demonstrate TBO scenarios and validate operational workflows and processes by utilising the key TBO building blocks

## Develop

Develop TBO requirements and roadmap for APAC



Oct 2023  
Letter of Intent (LOI) for APAC TBO Pathfinder project



Apr 2024  
Kick-off meeting; Goals finalized



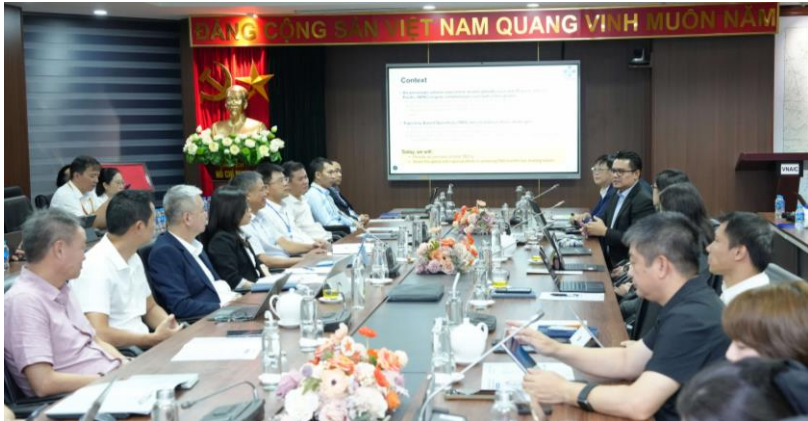
Jan 2025  
2<sup>nd</sup> Project Meeting; Progressed on deliverables



Feb 2026  
3<sup>rd</sup> Meeting; Conducted R2 TTX#1

# Key Updates (2025)

## WG1 DELIVERABLE - AWARENESS OF ICAO GLOBAL TBO CONCEPT



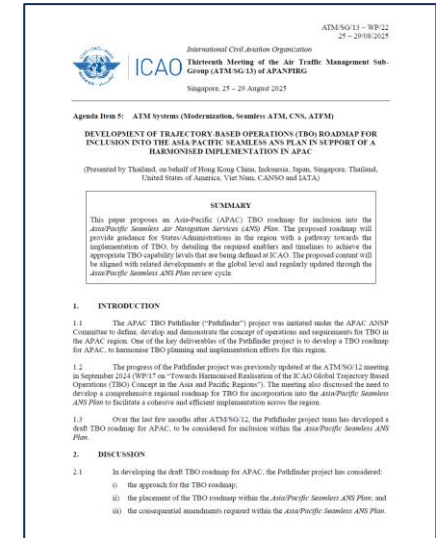
Exchange with ATM stakeholders at VATM (22 July 2025)

## WG2 DELIVERABLE - TRIALS AND CAPABILITIES BUILT-UP



FF-ICE/R1 Lab Demonstration in Hanoi (22 to 24 July 2025)

## WG3 DELIVERABLE - ROADMAP

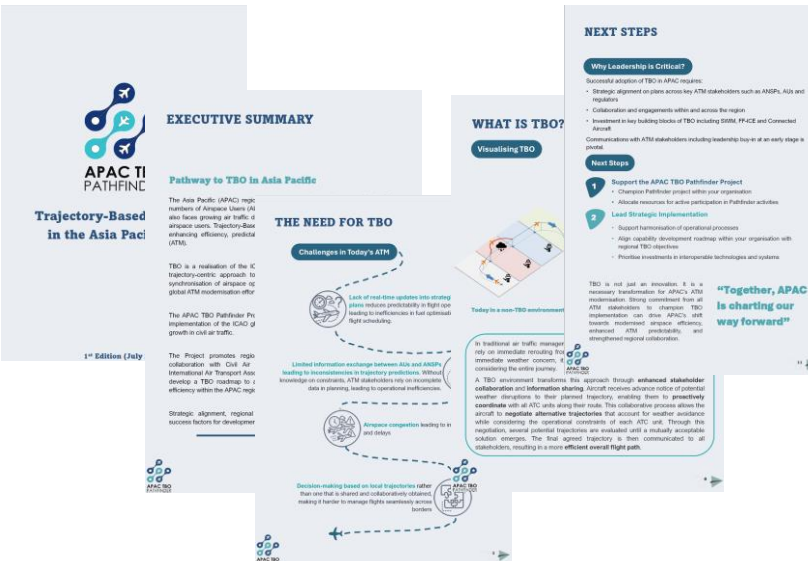


### TBO Roadmap for Asia Pacific Seamless ANS Plan

#### Conclusion ATM/SG/13-6: TBO RELATED REVISIONS FOR THE ASIA/PACIFIC SEAMLESS ANS PLAN

What:	That, noting the need for harmonised implementation planning of Trajectory-based Operations (TBO) to guide States/Administrations in this region, that:	Expected impact:
1) the TBO roadmap (as per ATM/SG/13 WP/22 Appendices A to E) be incorporated into the 2026 revision of the Asia/Pacific Seamless ANS Plan; and		<input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
2) a new Phase VI be included in the Asia/Pacific Seamless ANS Plan to enable reference to the TBO levels.		
Why:	To ensure regional harmonisation of TBO and guide States/Administrations on implementation planning	Follow-up: <input type="checkbox"/> Required from States
When:	29-Aug-25	Status: <input type="checkbox"/> Subgroup <input checked="" type="checkbox"/> Adopted by
Who:	<input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other:	Adopted by

Conclusion ATM/SG/13-6 (2025)



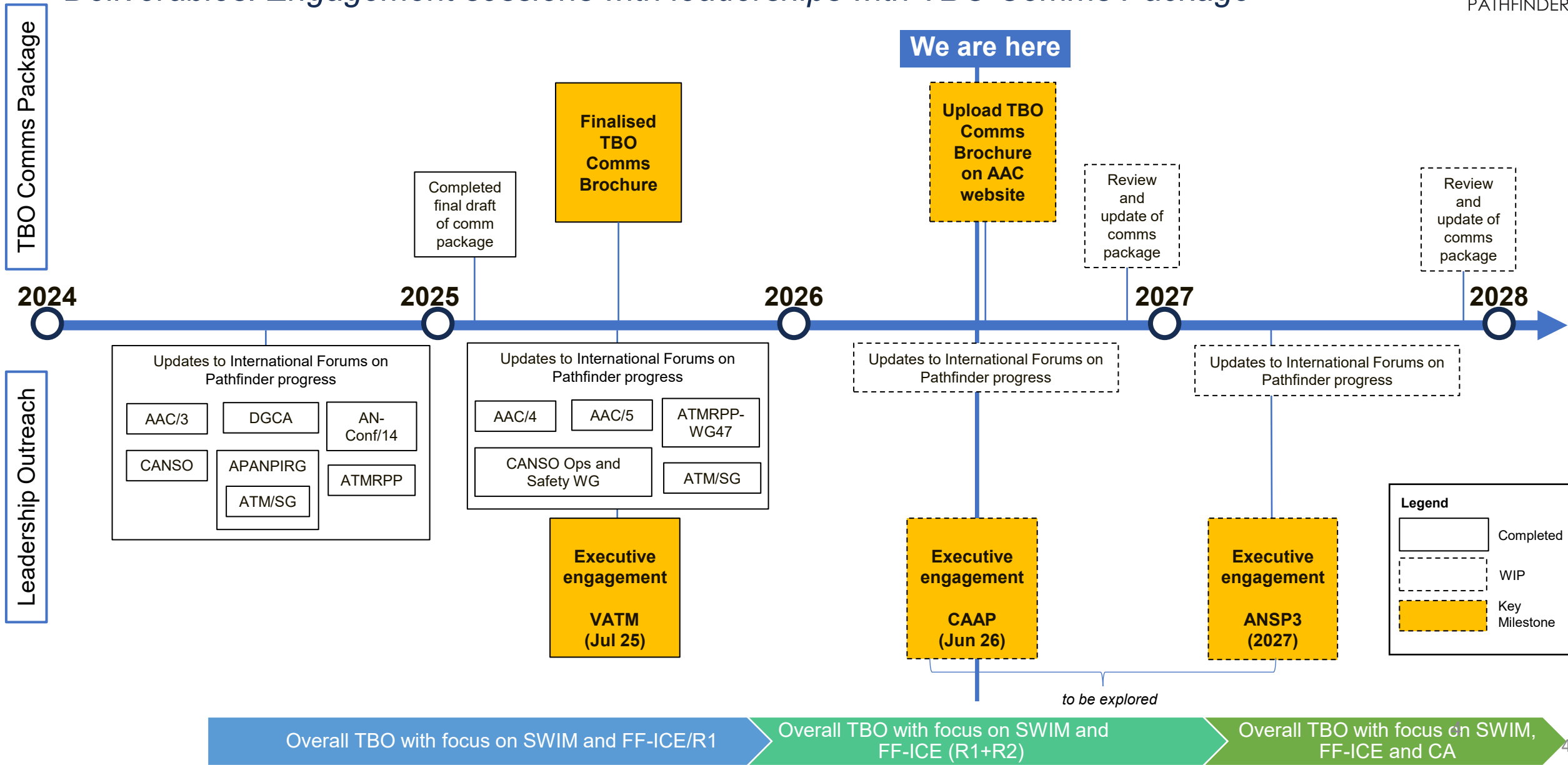
Comms Brochure – TBO in the Asia Pacific Region (1st edition)



Collaborating on Operational Scenarios with use of FF-ICE/R1

# WG1 – Learning and Advocacy

Deliverables: Engagement sessions with leaderships with TBO Comms Package

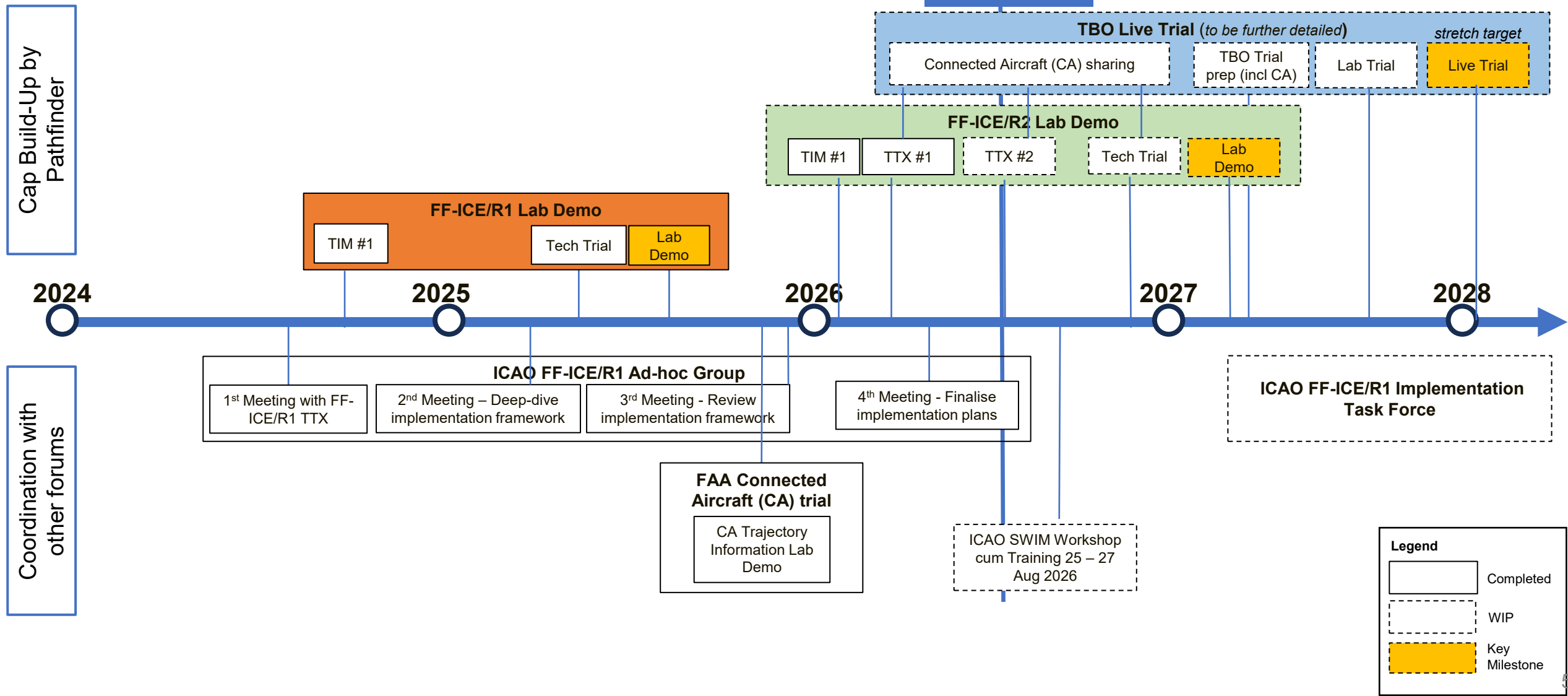


# WG2 – TBO Trials and Capabilities Build-Up

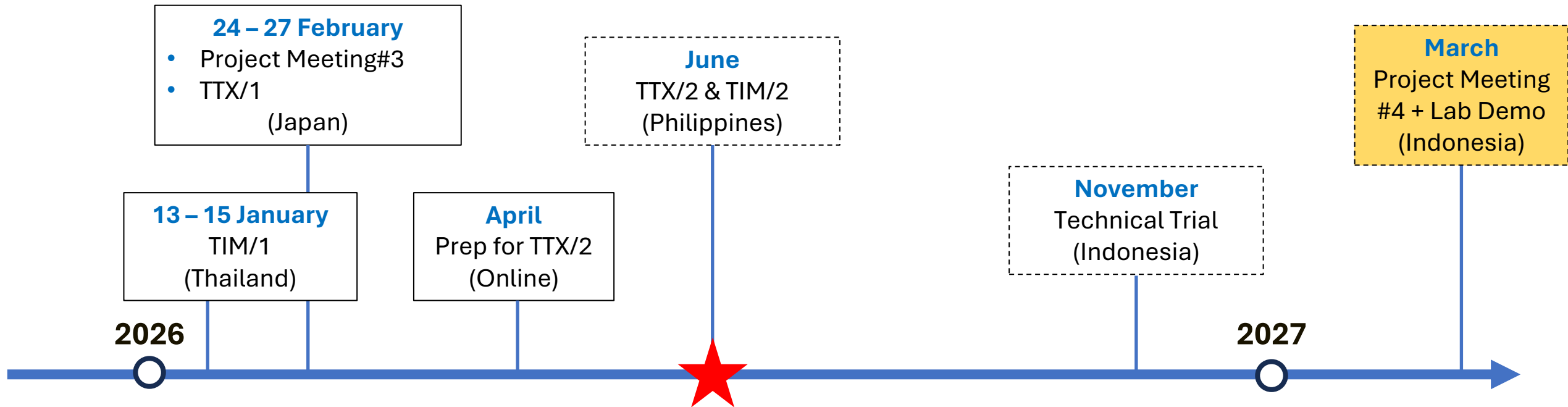
Deliverables: Report with priority ops value documented for APAC from demos for FF-ICE, connected aircraft and TBO



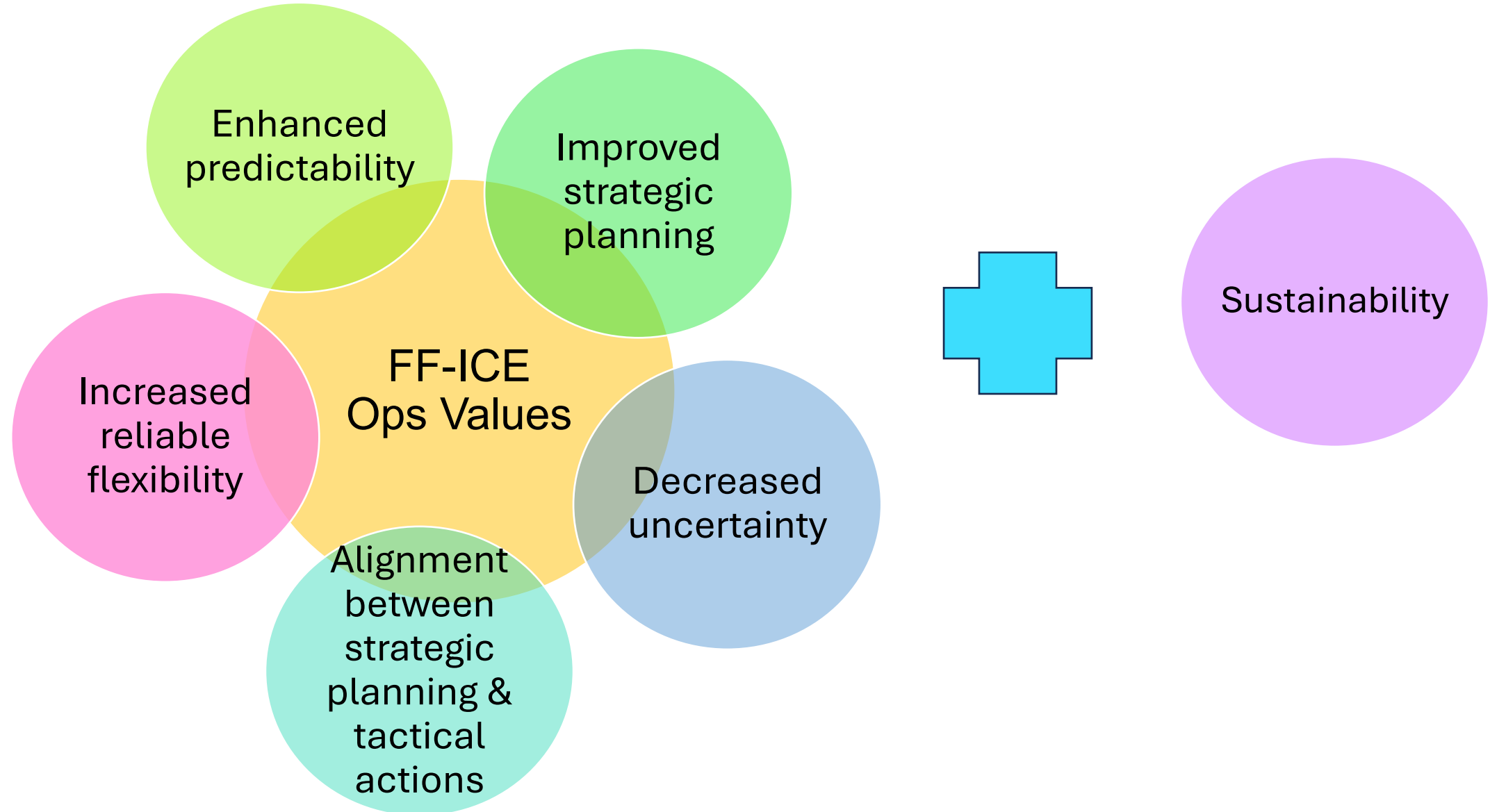
**We are here**



# Activity Timelines towards FF-ICE/R2 Lab Demo



# Operational Values for FF-ICE/R2 Lab Demo



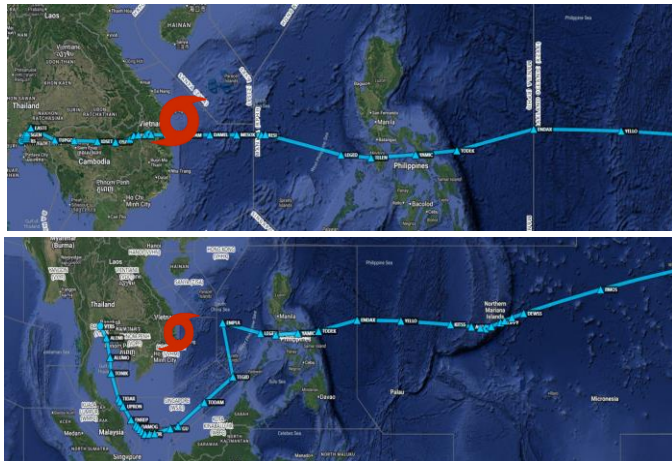
# WG2 – Ops Scenarios and Ops Value

## (FF-ICE/R2 Lab Demo)

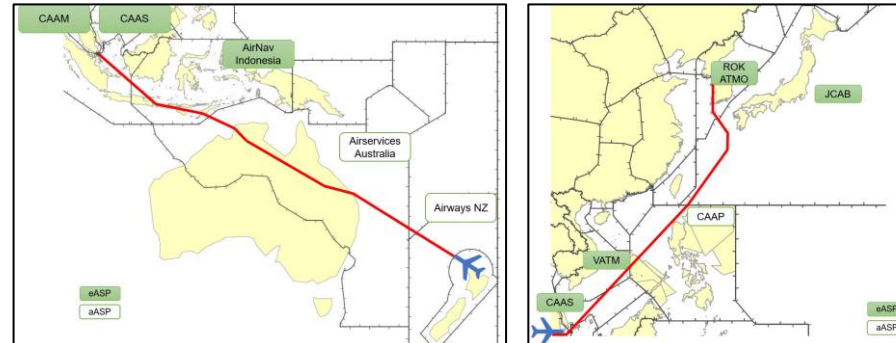
Developed 3 **ops scenarios** for FF-ICE/R2 Lab Demo:

- 1) Honolulu → Bangkok (with diversion to Singapore): showcasing the **key differences between a full FF-ICE/R2 and today's tactical 'in flight' planning processes** in revising airborne trajectory, in response to weather constraints
- 2) Auckland → Singapore via Jakarta (1<sup>st</sup> leg); Singapore → Republic of Korea (with diversion to Fukuoka) (2<sup>nd</sup> leg): Showcasing the coordination of **airborne trajectory revisions** and **management of delays** across multi-leg operations due to volcanic eruption and ATFM constraints, with both FF-ICE/R1 and FF-ICE/R2 services
- 3) Bangkok / Singapore → Tokyo : Showcasing **strategic in-flight trajectory negotiation** to facilitate early compliance with ATFM measures between two flights departing from different aerodromes but operating on the same route, within the same timeframe

Scenario 1



Scenario 2

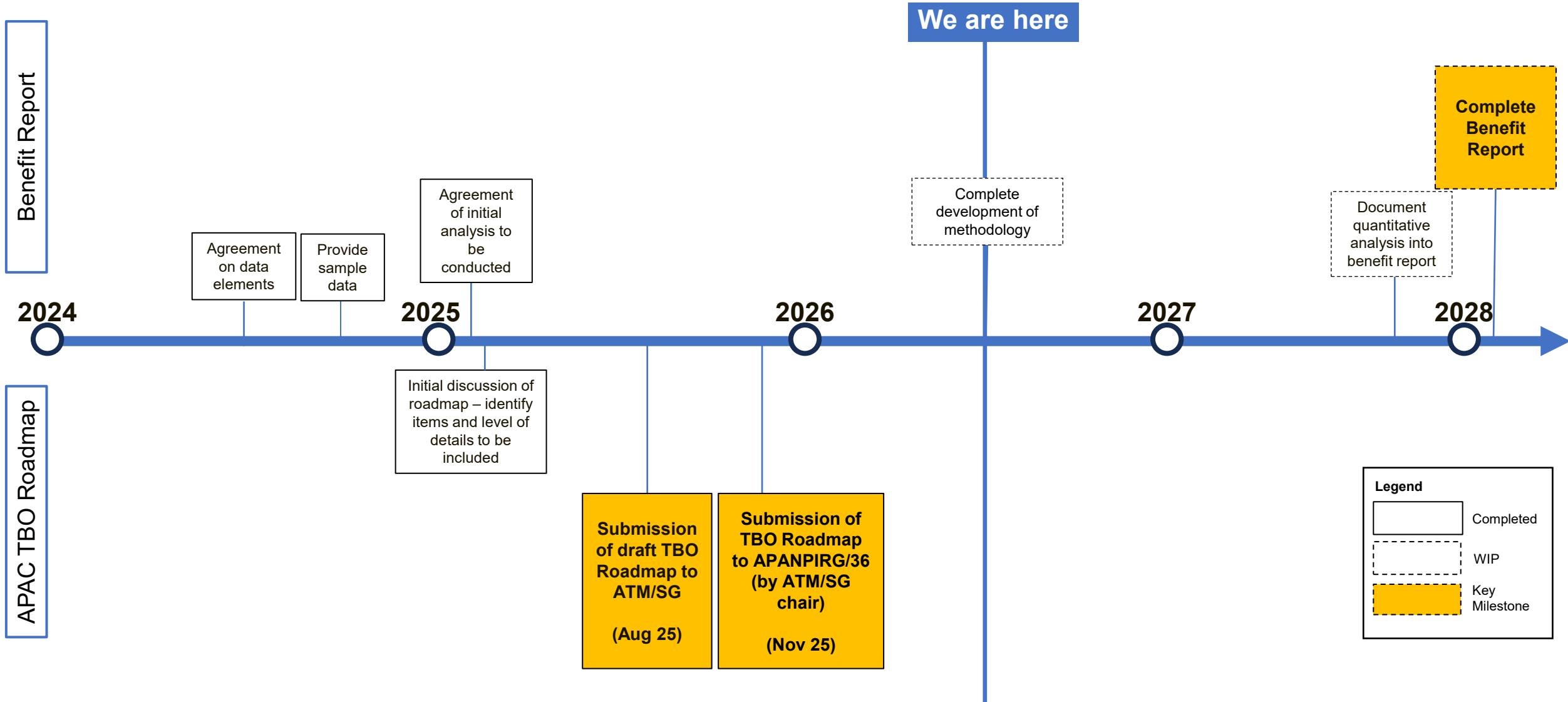


Scenario 3



# WG3 – Benefit Analysis and TBO Roadmap

Deliverables: Benefit Analysis Report and TBO Roadmap for APAC Seamless ANS Plan



# Conclusion

- APAC TBO Pathfinder creates the opportunity for APAC ANSPs and ATM stakeholders to **collaboratively evolve the region towards TBO**.
- Pathfinder WGs are building on the success of 2025 towards the next phase for 2026 – FF-ICE/R2
- Critical to the success of this phase is wider stakeholder engagement – States are encouraged to discuss TBO with stakeholders and encourage participation in regional initiatives such as Pathfinder

Thank you