



ICAO

*International Civil Aviation Organization*

**Fourteenth Meeting of the Air Traffic Management Sub-Group (ATM/SG/14) of APANPIRG**

Bangkok, Thailand, 3 – 7 August 2026

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## **Agenda Item 5: ATM and CNS Modernization Systems**

### **RAISING AIRLINES' AWARENESS OF SWIM, FF-ICE AND TBO**

(Presented by IATA)

#### **SUMMARY**

This paper presents an update on current and planned activities by IATA to raise awareness in all levels of member airlines in the fields of SWIM, FF-ICE and TBO, including recent TBO webinars conducted by IATA ASPAC.

## **1. INTRODUCTION**

1.1 The modern CNS/ATM concepts of SWIM, FF-ICE and TBO are advancing rapidly in their development. Global and regional implementation dates for new concepts and capabilities, and sunseting of legacy procedures is now a reality. Executing a well-planned roadmap for implementation will require thorough understanding from all stakeholders.

1.2 To date, the majority of development in SWIM, FF-ICE and TBO has been led by States and their ANSPs, while airlines have prioritised shorter term operations, particularly during the global COVID crisis where airline survivability became the ultimate priority.

1.3 IATA is working to raise awareness and preparedness in all levels of airlines by coordinating connections between airlines and their ANSPs and also through development of training material as part of the Pathfinder TBO project.

## **2. DISCUSSION**

2.1 The Pathfinder group has agreed to a series of activities and deliverables related to raising the awareness of TBO and its enablers of FF-ICE, Connected Aircraft and SWIM in airline Executive, operational and technical levels. These steps will take place over the next three years (2026-2028).

2.2 A primary initiative recently conducted was a series of regional webinars with APAC Airspace Users (AUs) to align regional AU efforts for facilitating the understanding of global TBO concept and its building blocks, including the need for interoperability and harmonisation, and envisaged benefits.

2.3 IATA has corresponded via ASPAC and NASIA Regional Vice Presidents to ASPAC and NASIA member airline CEOs to encourage AU participation in the webinar and other activities for SWIM, FF-ICE and TBO such as technical interchange meetings, table-top exercises and laboratory demonstrations.

2.4 This aims to provide airline expertise and insights to ensure that the operational scenarios developed are practical and operationally viable. The goal is to have airlines become SWIM capable so that they can participate as eAUs in future SWIM, FF-ICE and TBO events.

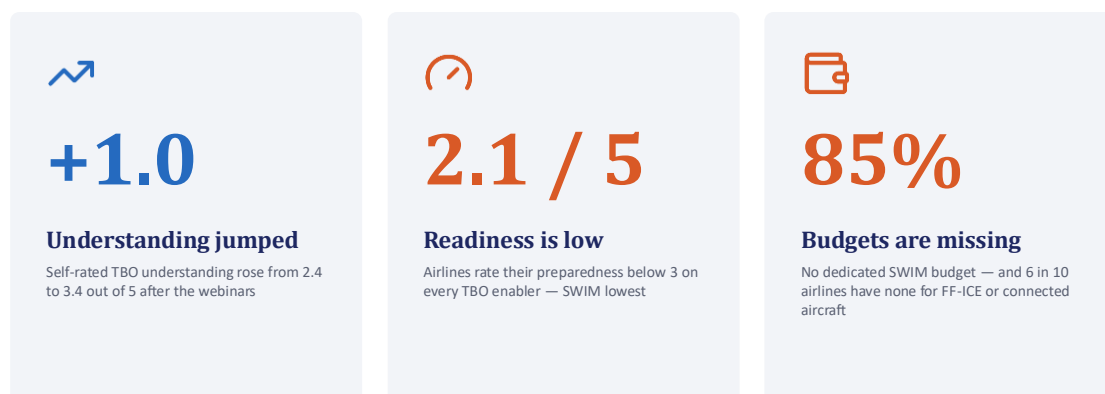
2.5 Three webinars were conducted: Two 2-hour webinars for airline operational and technical SMEs, including technical/management and pilots, and one 45-minute webinar with high-level content and collation of SME feedback from earlier webinars for executive-level attendees.

2.6 The webinars took the form of:

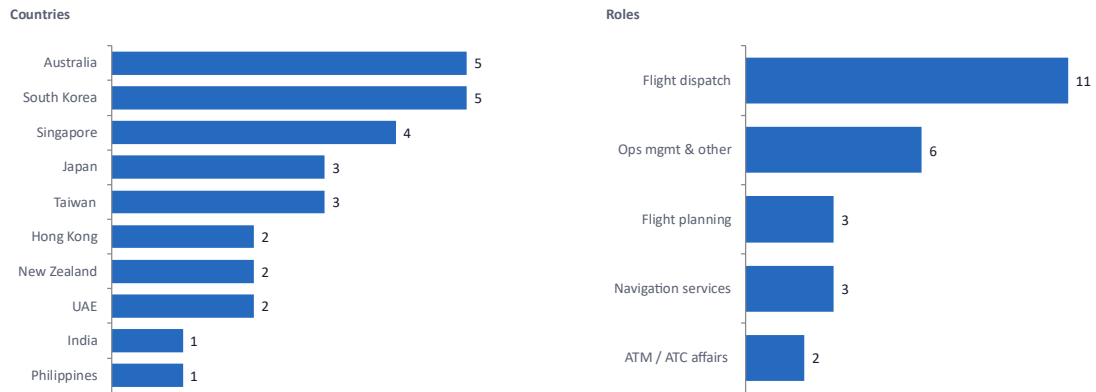
- 2.6.1 TBO definition and the need for TBO
- 2.6.2 Day-to-day TBO ops and the evolution from legacy ATM
- 2.6.3 Key enablers:
  - SWIM
  - FF-ICE
  - Connected aircraft
- 2.6.4 TBO Benefits Opportunities
- 2.6.5 Live online feedback on airline challenges
- 2.6.6 APAC roadmap and timeline

2.7 A total of one hundred and thirty-eight (138) airline representatives joined both the Tech/Ops SME and Executive webinars. Summary of airline feedback from the Tech/Ops sessions is as follows:

## The story in three numbers



## Who we heard from

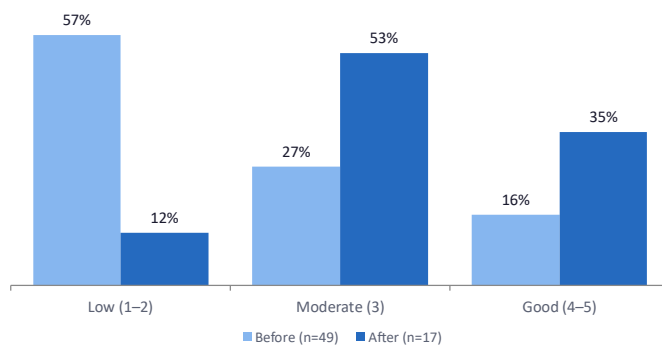


This is the community that will utilize FF-ICE and SWIM day to day — their self-assessment is a credible readiness signal.

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## The webinars moved the needle

Self-rated understanding of TBO — share of respondents before vs after



**2.4 → 3.4**

average understanding, out of 5  
before → after the webinars

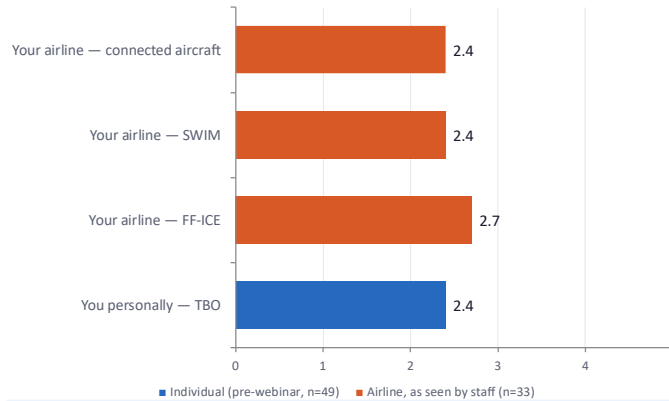
**9 in 10**

rated their understanding moderate or better afterwards

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## Individuals and airlines are equally (not) informed

Average self-rating out of 5: own understanding of TBO vs perceived airline understanding of each enabler



≈ 2.5

everywhere — personal and airline scores sit within 0.3 points, all below the midpoint

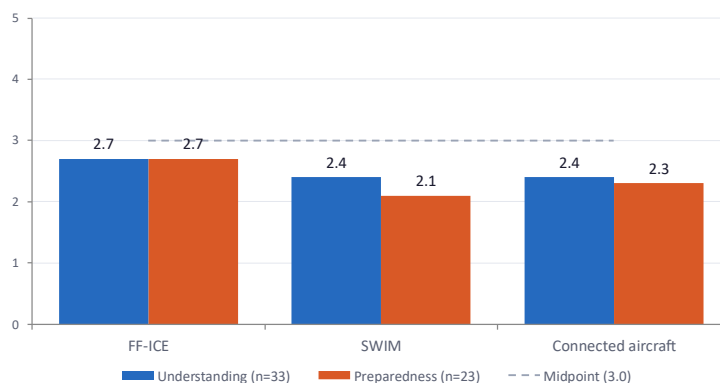
The gap is organisation-wide, not personal: staff do not rate their airlines any better or less informed than themselves. But the webinars lifted individual scores.

Education lifts individuals quickly — closing the airline-level gap is the harder, slower task that may need leadership attention.

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## Every enabler scores below the midpoint

Airlines' self-rating of understanding and preparedness average out of 5



0 of 6

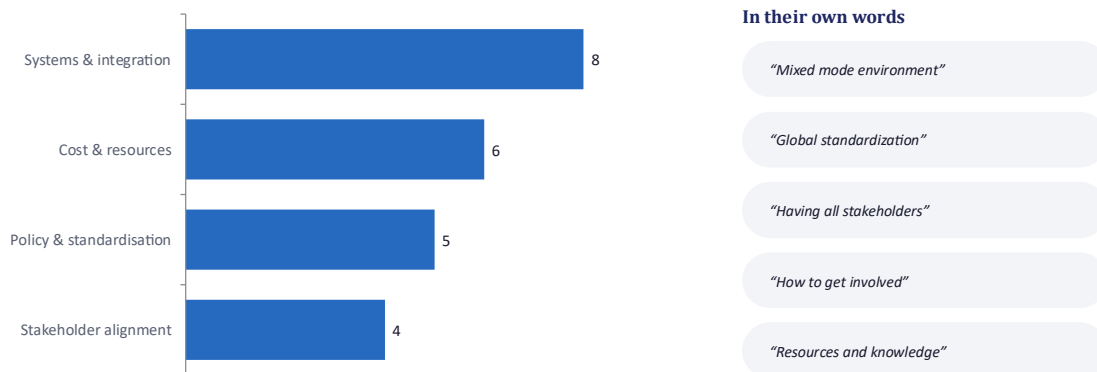
scores reach 3 out of 5 — across all enablers, on both measures

SWIM is the weakest link — yet it is the data backbone the other enablers depend on.

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## The barriers are structural, not attitudinal

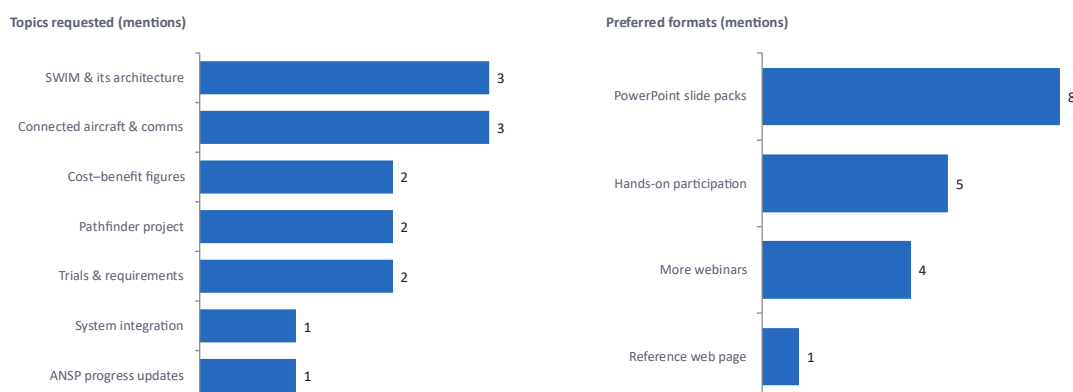
Biggest challenges in transitioning to TBO — open-text responses, grouped by theme



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## What the audience wants next

Topics still needing coverage, and how attendees want to receive them



**They are asking for the tools to help with internal education — re-usable slide packs, cost-benefit numbers, and ways into trials.**

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2.8 Feedback from airlines during and after the webinars will be used to update the Pathfinder TBO education material published in 2025.

2.9 IATA has also been working to establish closer working connections between airlines and their 'home' ANSPs. Aligning implementation roadmaps will lead to better testing and trials and smoother transitions and minimise the inconvenience of mixed modes during the transition periods. IATA encourages all ANSPs that don't yet have strong points-of-contact with their home-based airlines for SWIM and other concepts to liaise with IATA to establish those connections.

**3. ACTION BY THE MEETING**

- 3.1 The meeting is invited to:
- a) note the information contained in this paper.

— END —