ACDM VIETNAM

ICAO ATFM/SG/14 2024

VIETNAM ACDM PROJECT

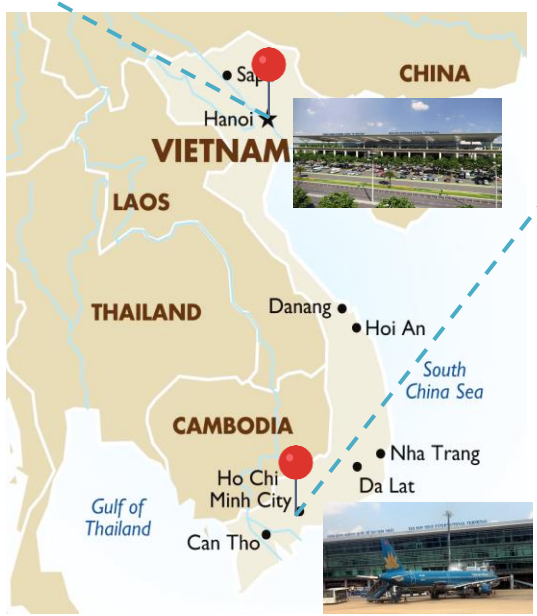
ACV overview

ACV is managing **22** airports nationwide

Noi Bai International Airport (HAN)

A gateway connecting Ha Noi, the capital of Vietnam, with other countries all over the world.

- By 2024: T2 will be expanded to raise the capacity up to 15 MPA, 189.000 movements
  2024: ∑ Capacity = 30 MPA
- By 2030: T3 Terminal: a new terminal, 4F, 10 MPA.
  2030: ∑ Capacity = 40 MPA



Tan Son Nhat International Airport (SGN)

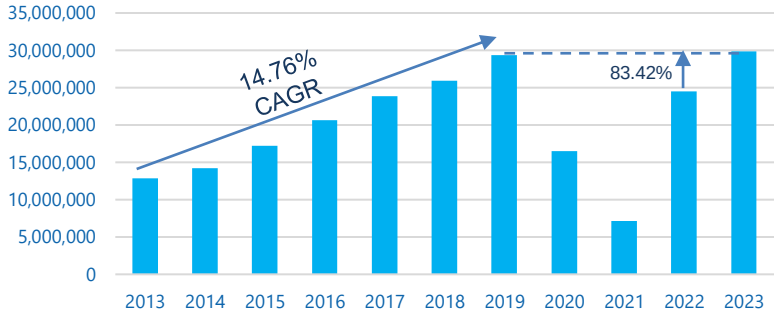
The busiest airport in Vietnam, serving Ho Chi Minh City as well as the rest of southeastern Vietnam.

- T1, T2 - capacity up to 30 MPA, 260.000 movements
- Building the new T3 Terminal for domestic with the capacity of 20MPA
  2030: ∑ Capacity = 50 MPA

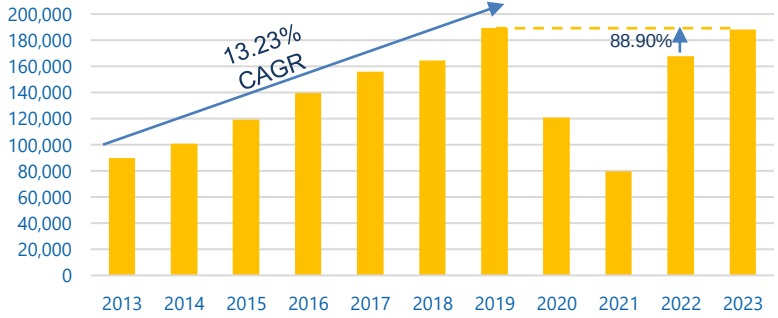
Noi Bai International Airport

- The existing 2-passenger terminals can accommodate up to 25 million passengers.
- Before COVID-19, the airport has seen a remarkable growth of passenger and aircraft movement, exceeding the passenger capacity by 17.22% in 2019.
- The traffic recovery after pandemic is also strong as the number of passenger in 2022 is 83.42% of 2019 level.
- Despite the airport has a plan to increase its capacity to 30 million passengers per year by 2030, the airport is required **to enhance its operation to ensure the operation is efficient** under the limited capacity.

Passenger movement

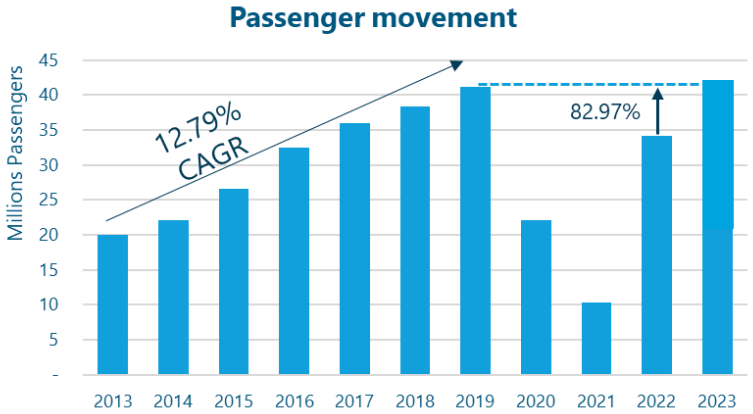


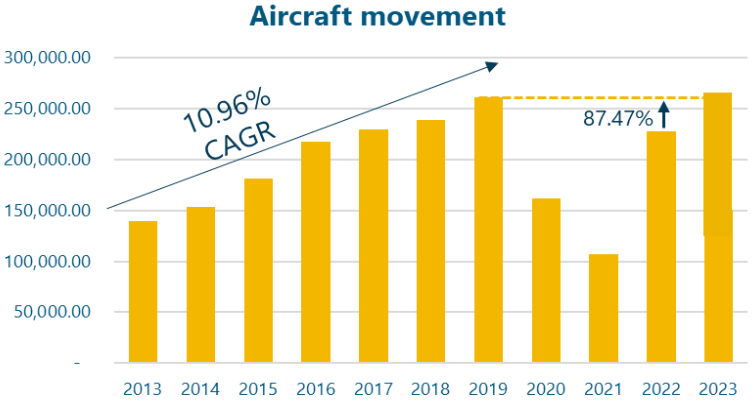
Aircraft movement



Tan Son Nhat International Airport

- The current terminal capacity is around 28 million passengers. The passenger movement has exceeded since 2016. The passengers got 40.7 MPA in 2023.
- The 2 dependent runway, together with layout of taxi way, limiting the operation at the airport.
- The airport located inside the crowded neighborhood of Ho Chi Minh City, making expansions difficult.
- This urge the airport to improve its operation to ensure the continuity of operation until the new airport is established (Long Thanh International Airport)





Operational Challenge at HAN and SGN

Difficulties in the planning of **outbound flights**

Complexity of prioritising **VIP flights** in depart and arrival flow

Delay in provision of **flight update information**

Taxiway congestion

planning for the **parking and turnaround of aircraft** during adverse conditions

The need for A-CDM implementation

The unstoppable growth of traffic

The traffic growth for both Vietnamese airports, Noi Bai International Airport (HAN) and Tan Son Nhat International Airport (SGN) increased averagely 10% per annum.

Limited land for expansion

The location of both airport there is limitation of land use availability which affect the expansion plan for airports' development.

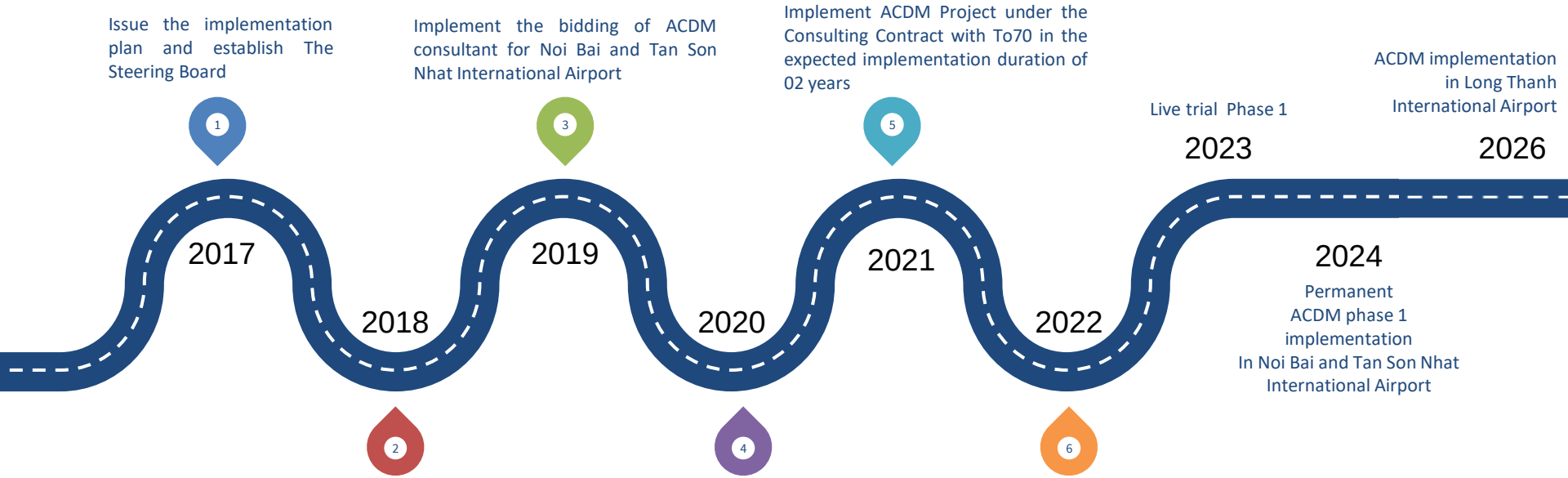
ICAO recommendation

the first meeting of APAC A-CDM, ICAO recommended airport with over 100,000 aircraft movements per annum to implement A-CDM at the airport.

The adoption of A-CDM

These are strong supports for HAN and SGN initiation to implement A-CDM to improve predictability and punctuality of flights, reduced taxiing times for aircraft, enhance capacity utilisation of airport resources and overall operational efficiency.

A-CDM IMPLEMENTATION IN VIETNAM



Phase 1

TOBT/TSAT Trial

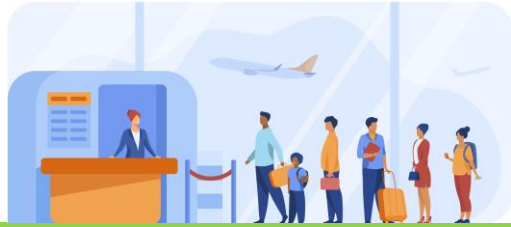
TOBT/TSAT application

In-house system

ACDM Portal

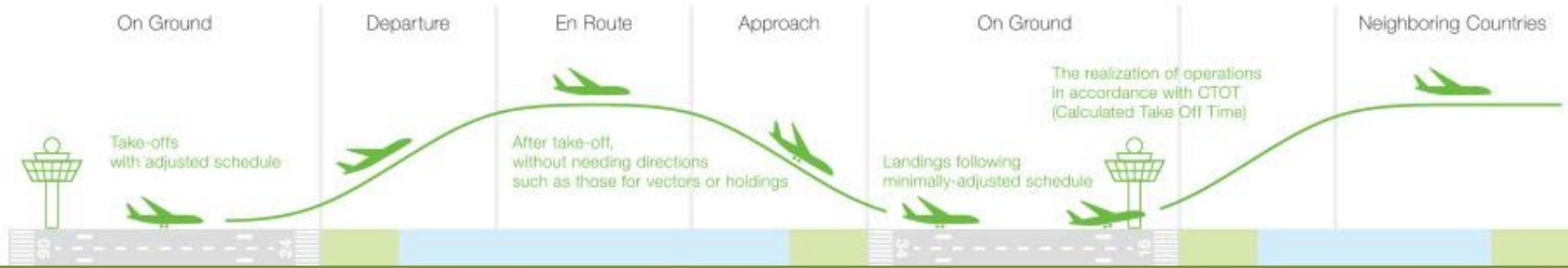
33 FDEs

NIA: 14 scenarios
TIA: 13 scenarios



Phase 2

Full A-CDM – ATFM Integration

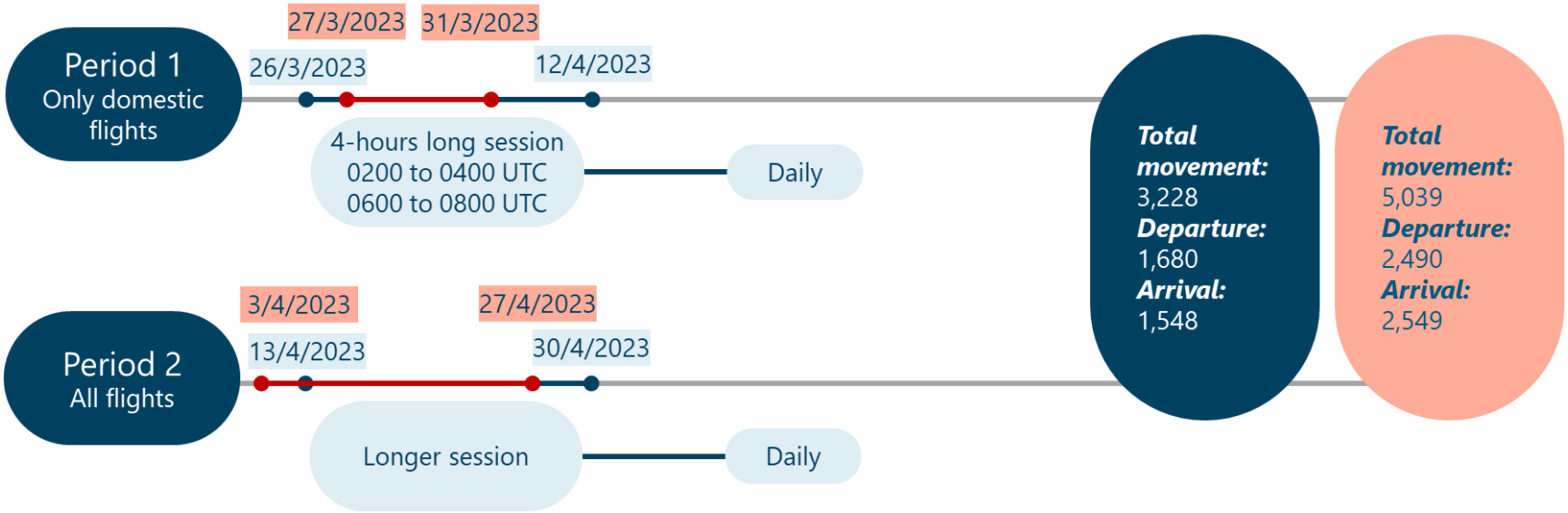


The A-CDM live-trails

- The two A-CDM live-trials at HAN and SGN were scheduled as follows:
  - The 1st live trial:

  At HAN: 29 days, from March 26th to April 30th, 2023

  At SGN: 23 days, from March 27th to April 27th, 2023

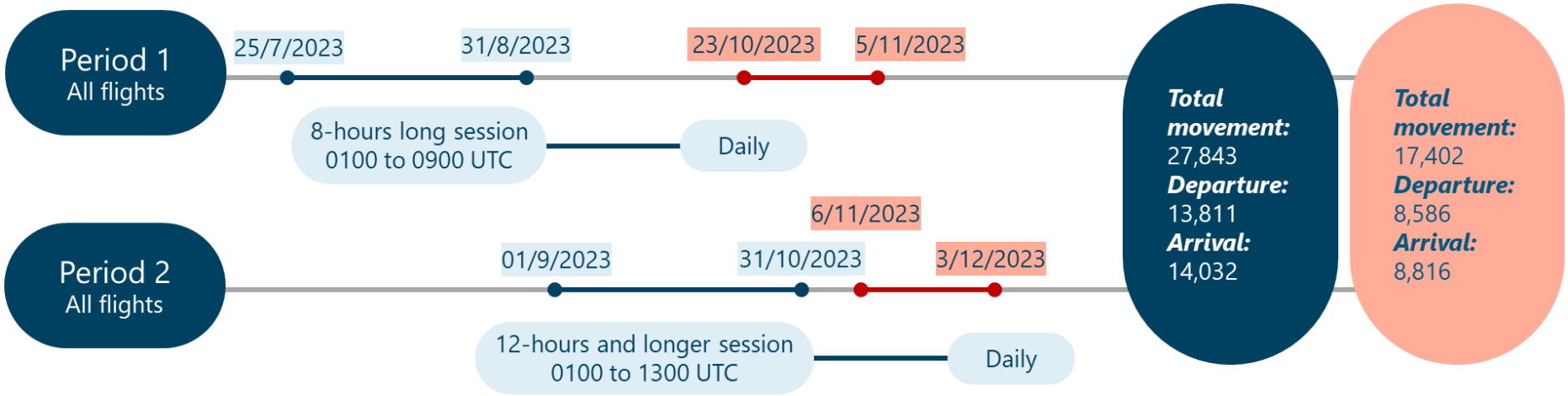


The A-CDM live-trails

- The two A-CDM live-trials at HAN and SGN were scheduled as follows:
  - The 2nd live trial:

  At HAN: from July 25th to October 31st, 2023

  At SGN: from October 23th to December 3rd, 2023

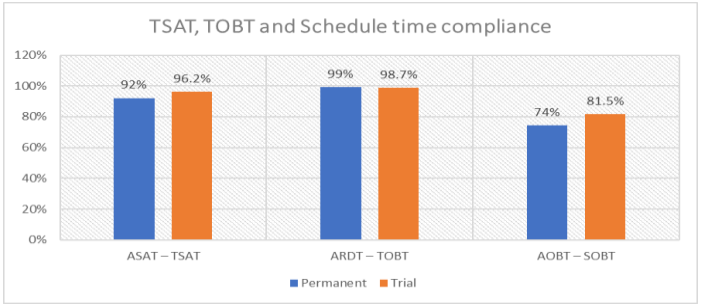


The A-CDM permanent implementation

Officially apply A-CDM in normal operation procedure from February 1st 2024

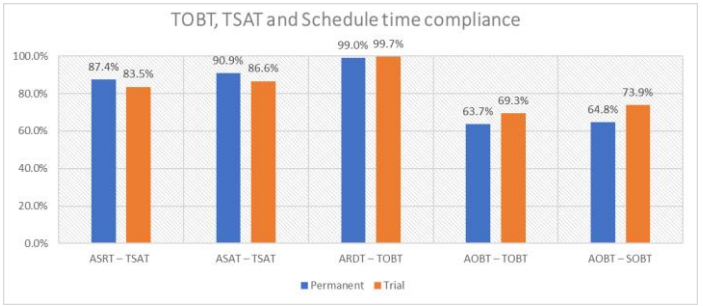
Noi Bai International Airport: 16,281 departures

- TOBT adherence: 99% for AO compliance
- TSAT adherence : 92% for pilot compliance
- SOBT adherence : 74%



Tan Son Nhat International Airport: 24,519 departures

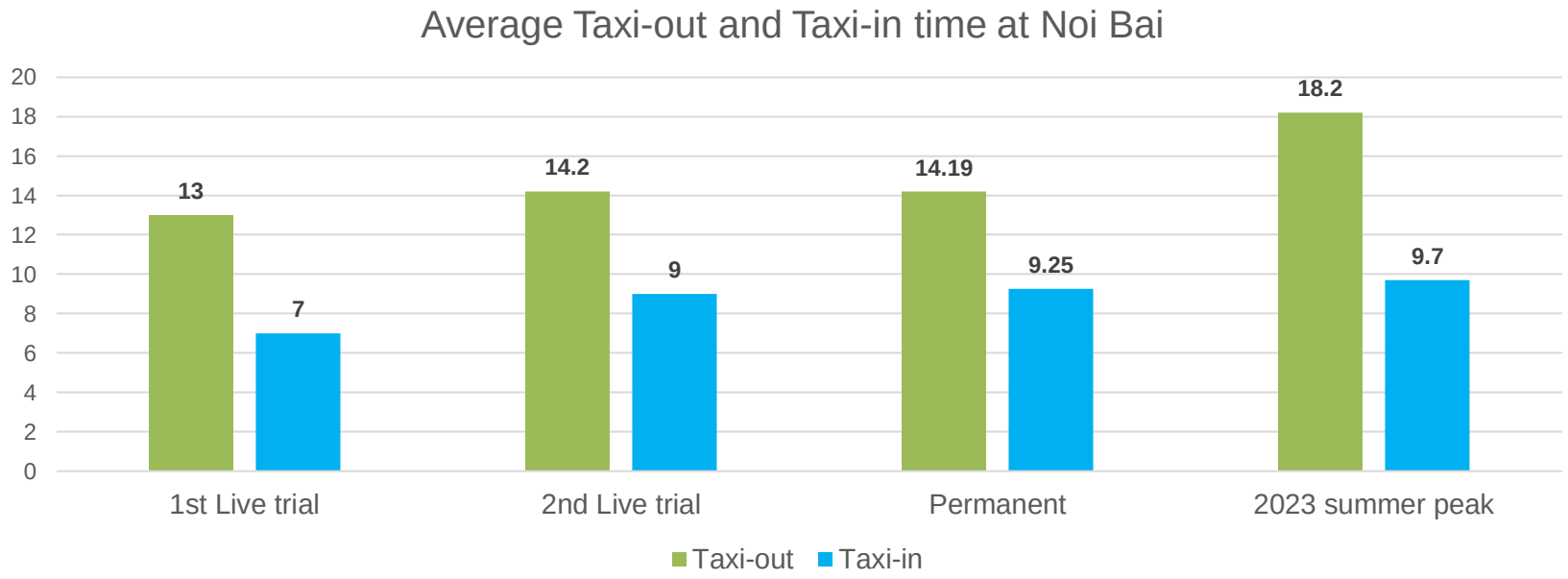
- TOBT adherence : 99% for AO and 63.7% for GH
- TSAT adherence : 87.4% for pilot, 90.9% for ATC
- SOBT adherence : 64.8%



Data observed in 10 weeks from February 1st 2024

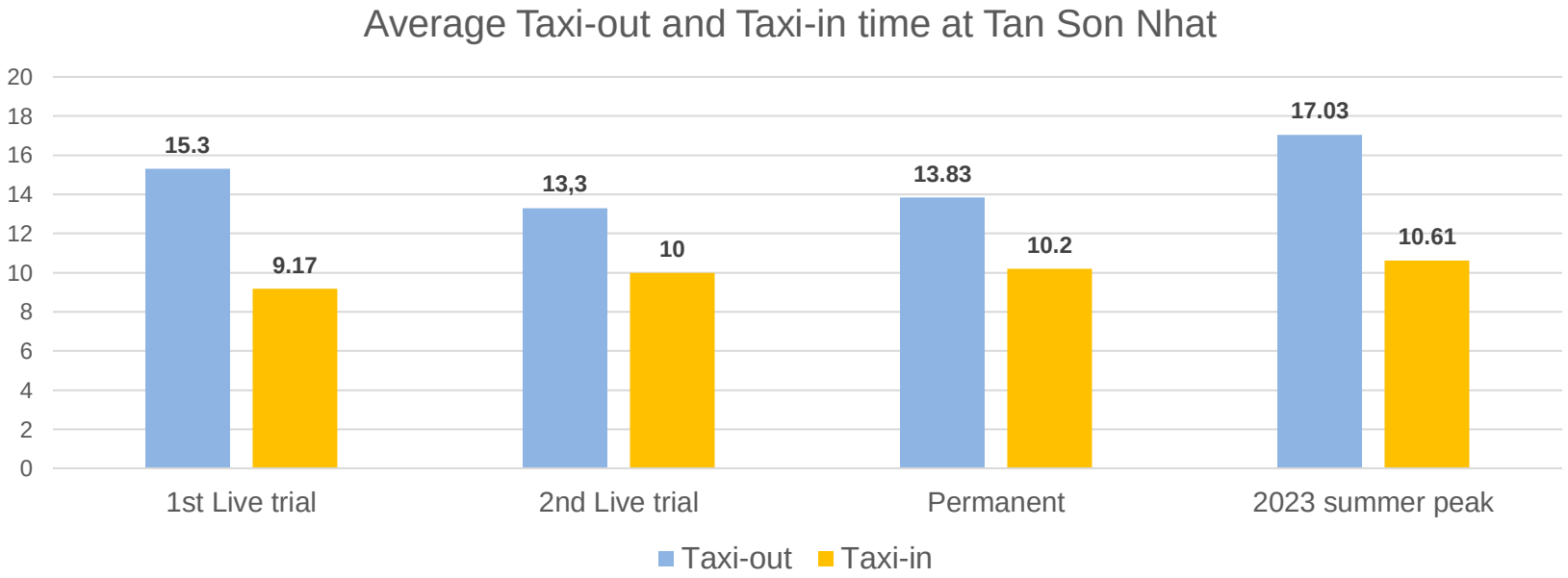
Operational Improvement

- Thanks to A-CDM, average taxi-out and taxi-in time in 2nd live trials and permanent implementation are reduced by around **28.6%**, **22%** and **22.03%** respectively, compared to 2023 summer peak in Noi Bai International Airport.



Operational Improvement

- Thanks to A-CDM, average taxi-out and taxi-in time in 2nd live trials and permanent implementation are reduced by around **10.2%, 22%** and **18,8%** respectively, compared to 2023 summer peak in Tan Son Nhat International Airport.

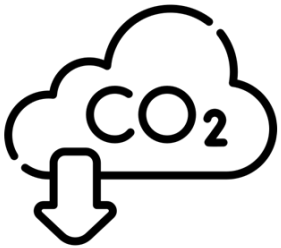


Realizing environmental benefit

- On average, aircraft at the airport burn 12 kg. per minute during taxi
- During 2nd live trial, average taxi-out and taxi-in time is reduced by 4 and 0.7 minute, respectively at HAN
- That is 56.4 kg of fuel save per one aircraft rotation at HAN
- Based on 2019 traffic, by implementing A-CDM, the airport could help airlines save 5,338 tonne of fuel, equal to 16,814 tonne of carbon emissions, annually

A-CDM help reduce taxi-out and taxi-in time by **4 and 0.7 minute**

That is **56.4 kg of fuel save** per one aircraft rotation at HAN



airport could save **16,814 tonne of carbon emissions per annum**

VATM system and ACDM

- ATM AS of NORATS: designed in 2013, the system does not have any conception about ACDM and exchange information
- ATM AS of SORATS: built in 2005, the system does not have any conception about ACDM and exchange information

ATM automation system (AMAN/DMAN)

- Can provide ALDT and ATOT to ACDM system automatically

ASMGCS

- In the future

ATFM system

ACV AIRPORTS CORPORATION OF VIETNAM

THANK YOU!