EASA
European Union Aviation Safety Agency

HIGH LEVEL CONFERENCE ON DRONES

AMSTERDAM DRONE 2023
WEEK 21-23 MARCH

PANEL 4a

Lessons learnt from eVTOL/IAM demonstrations in European airspace

March 22, 2023 | 15:15 – 16:30

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Practical information

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We have developed a Sandbox in a concrete aeronautical setting to test the AAM technology, the work-in-progress regulations, the service and its acceptability as of September 2021.

VEHICLE TESTS

Analyze and model the VTOL effects on its environment in terms of noise and blast.

GROUND INFRASTRUCTURE INTEGRATION TESTS

Conduct ground tests (movement, recharging, maintenance) and testing passenger processes.

AIRSPACE INTEGRATION TESTS

Conduct the first flight tests and the first suburban links to aeronautical platforms.

September 2021

PHASE 1 *AIRSIDE*

1. ***FATO***
2. ***Hangar/ Maintenance***
3. ***Taxiway***

November 2022

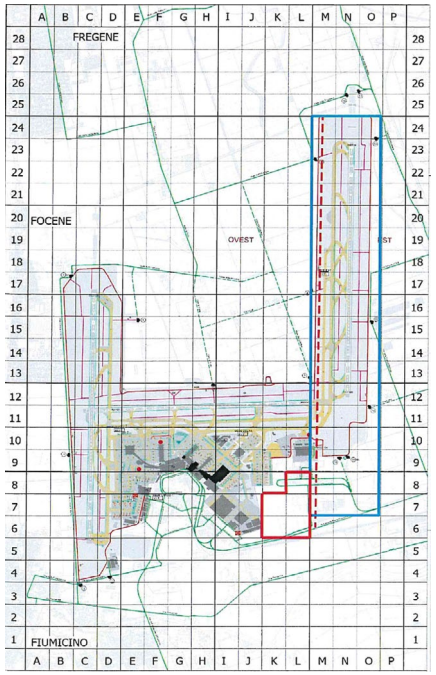
PHASE 2 *VERTIPORT LANDSIDE*

4. ***Taxi Stands***
5. ***Electric Recharge***
6. ***Modular Reusable Vertiport Skyports***

GROUPE ADP / INNOVATIONHUB

10/2022

Pianabella Vertiport – Fiumicino Airport



Coordination with TWR - DAR
Conformance Monitoring

- ✓ **Challenging – close proximity to RWYs**
- ✓ **Operations managed by ATC with airport handler + USSP D-flight**
- ✓ **Impact on RWY 16L/34R**

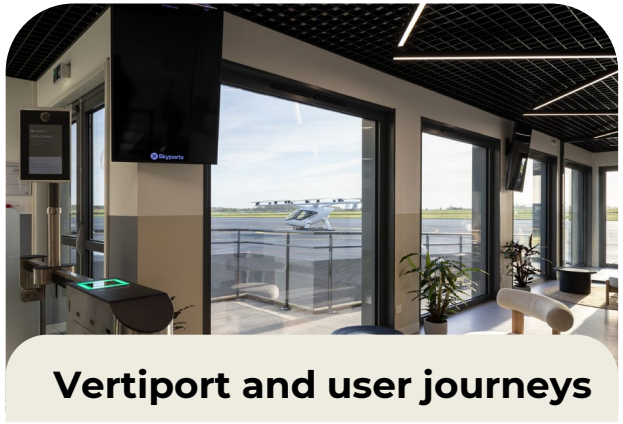
Through increasing confidence in the eVTOL performance, new criteria shall be developed to assess compatibility with manned operations. Vertiport and airport need to be largely independent, while residual interactions (e.g. wake turbulence) and contingencies are safely managed by means of enhanced services.

Test flights: Lessons learnt and way forward

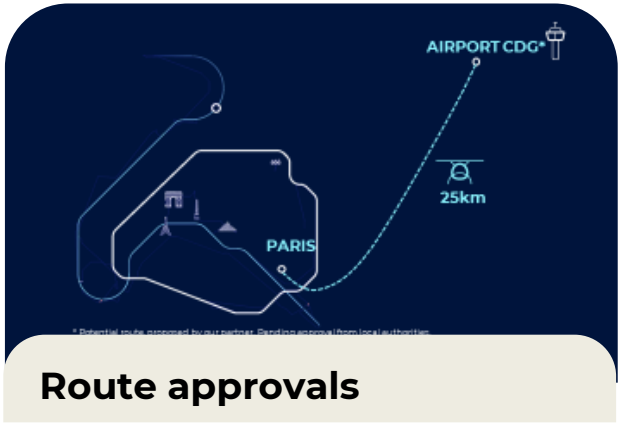
- 1500+ test flights so far including 50+ outside Germany; positive validation of our initial models
- Coordination with/between multiple stakeholders: national aviation authorities, ANSPs, local government
- Need for clarity on the requirements for vertiports
- Quicker and efficient approval of eVTOL routes
- Alignment between EASA and national aviation authorities on the requirements to launch commercial operations

Helsinki Flight Test

Pontoise Flight Test



Vertiport and user journeys



Route approvals

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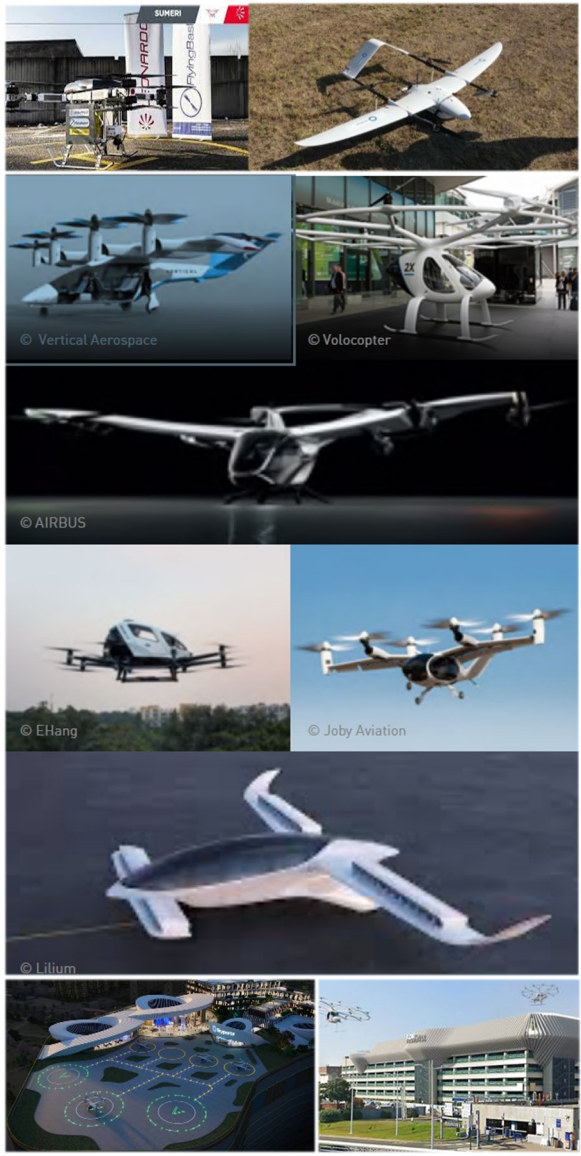
ENAC- Lesson Learnt

- Innovation is moving fast in all domains. Aviation in particular is extremely regulated, however, it is difficult to strike a balance between fostering innovation and impeding it. A new approach would try to create safe testing to allow the manufacturers to perfect their products by way of an open dialogue with the authority (sandbox).

- The IAM/AAM scenarios open up areas where unmanned, smaller, innovative vehicles have never been seen before. The creation of new services need to involve different stakeholders both public (civil &military) and private.

- The investment costs to make it all happen has to be sustainable and deliver in the future real value to society. Public acceptance can only be gained through perceived value.



Vertiport testbeds can facilitate collaboration and regulatory developments

- Involvement of ANSPs, OEMs and regulators are key to resolve interface issues
- Accelerate understanding of AAM/IAM operations and processes through tests and data collection
- Regulator/government-led programmes involving industry stakeholders will facilitate pathway to commercialisation

Re.Invent Air Mobility testbed at Pontoise-Cormeilles airfield (2022)

World's first vertiport prototype in Singapore (2019)

USA Living Lab (2023)

Dubai vertiport network (2026)

AESA - Lessons learnt

- **Timing**
  Level of involvement of all stakeholders
- **Types of IAM demonstrators**
  BVLOS < 25 kg (3m)
  Aerotaxis
  Others (Simulators…)
- **Restrictive and simple operations**
  SAIL II. No intention of going through a DVR process
- **Need of sandboxes**
  Specific category is not suitable
  for air taxis tests


UMILES II – Tecnalia (Spanish)

PHOENIX II- Lilium

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