UAM technical solutions - **Volocopter**

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Short bio

CTO at Volocopter GmbH since July 2020.

Arnaud Coville is an engineer with a PhD in automatic control and robotics and counts almost three decades of experience in the aviation industry.

He has been actively involved in developing aircraft from Helicopters (H135), regional jets (CRJ700 and 728) to large aircraft (A350 and A380) for companies including Safran, Fairchild Dornier, Diehl Avionik, and Airbus Helicopter.

Abstract

Multi copter versus lift and push and tilt

Each technology in the Volocopter has a specific intent and purpose to fit within the market. The multicopter technology is simplest to master and safest in comparison to the other architectures, followed by the lift and push. This is a clear plus in the weight sensitive design of an aircraft.

Profitability

All global UAM or AAM flights need to establish an affordable pricing structure, this is still a challenge but will become easier once businesses are scaled. In general, the challenges within aerospace come in the following sequence: safety & regulation, weight, and economies of scale. VoloCity has already passed the first hurdle. We have the vehicle category and MOC's agreed with EASA and we have solutions that meet the requirements. We are tackling weight and economy of scale as we speak.

Key challenges for electric propulsion

The first challenge is to be able to deliver the power required for the flight without the battery weight eating away on your payload. The second challenge is to have enough energy to have a meaningful range for the mission.

Why Paris ?

Paris is a megacity with known congestion issues. The city itself is looking to transform its center with more sustainable mobility (train/subway infrastructure, electric, bicycle and pedestrian lanes)

Local partners are part of the public transportation system and the largest airports in the region. This is perfect to ensure that urban air mobility becomes a part of this multimodal transportation system and can be accessible to the mass public.

The VoloCity can add additional value in Paris city travel by flying directly to the destination point for a more efficient and timesaving manner, but still within the public transportation network.

We can start operations without huge investments in underground tunnels, bridges, or rails, with only minimal footprint for vertiports in the locations with the highest density of air travel.