

The dawn of the electrical vertical take-off and landing aircraft

The dawn of the “flying taxi” will soon be upon us through the development and manufacture of the electrical vertical take-off and landing (‘eVTOL’) aircraft. The aircraft as envisaged will carry passengers from specially designed Skyports, enabling the use of eVTOL aircraft in built up areas. The Skyports are designed and built through the collaboration of specialists in architecture, design and engineering to produce landing and take-off sites capable of handling up to 1000 landings per hour in a small space; collaboration between Volocopter and Skyports has resulted in the creation of the world’s first full scale air taxi vertiport, which opened in Singapore on 21 October 2019.

Uber is one of the main competitors in the eVTOL industry, and it plans to “give riders the option of an affordable shared flight”. These aircraft would be autonomously controlled and would pick passengers up and drop them off in a similar way as to how the Uber Pool facility works.

The eVTOL aircraft must comply with the regulatory regimes in each country in which they operate. Singapore and China are places in which the Skyports co-founder and managing director Duncan Walker suggests the aircraft will launch faster, and that in other areas better progress must be made to promote the benefits of these aircraft to governments.

In relation to the regulation of these aircraft in Europe, on 2 July 2019, the European Aviation Safety Agency released its final “Special Condition”, which contains the framework for the Basic and Enhanced certification (aircraft capabilities after a critical malfunction of thrust/lift) for the small aircraft category which “covers aircraft with a passenger seating configuration of 9 or less and a maximum certified take-off mass up to 3175kg” [1].

However, there are currently problems limiting the benefits of this technology. The battery life of these aircraft limit them to short flights as the aircraft achieve a range of about 22 miles, with a maximum speed of 68mph, although prototypes are being designed that may achieve a range of 185 miles. As a result of this, short flights will be the current focus of these companies as there are many potential customers in cities such as London who would use the aircraft to travel to local airports and other destinations.

As these aircraft are developed and are programmed to be fully autonomous, the threat of cyberattacks will loom large, as the effect of an inflight disruption could prove disastrous. Companies using this technology must therefore have detailed plans in case of the event of a cyberattack, as well as a consideration as to whether cyberinsurance will develop to encompass such an event.

[1] <https://www.easa.europa.eu/document-library/product-certification-consultations/special-condition-vtol#group-easa-downloads>