



Rise of the Vertical Starter

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From concept to mass market: how the commercial business of air taxis is coming along and which actors are driving its success.

Small VTOL aircraft are no panacea for the mobility of the future, but they can provide a useful complement. In particular, they are competitive at distances of twenty kilometers or more. Thanks to their electric drive systems, they are quieter, safer, cheaper, and more environmentally friendly than helicopters.

Porsche Consulting forecasts that by 2035, a global market for passenger flights with a volume of US\$32 billion and up to 23,000 registered electric vertical takeoff and landing (eVTOL) aircraft could emerge. This would be joined by a market for goods transport and services such as the inspection of industrial facilities with a volume of US\$42 billion. Assuming, that is, that the development proceeds through four phases in which regulations are set forth, infrastructure established, and societal acceptance is assured.

Concept car: The future of vertical mobility
next25.de/EN/vertical_mobility

Development

PHASE 1 By 2025

In the first phase leading up to 2025, risk-tolerant entrepreneurs will develop certifiable eVTOLs.

There's no shortage of ideas: There are currently some 140 concepts from aviation OEMs, carmakers, and tech start-ups. The key thing is to establish a specialized, experienced team that substantially improves the drive systems and range of eVTOLs without compromising safety. Recommendations for regulation standards are primarily being defined in the US and Europe, but Chinese regulatory authorities are also very active. The capital investment for manufacturers up to certification amounts to roughly US\$1 billion.

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Testing

PHASE 2 2022-2025

In the second phase, the goal is validation of the concepts on initial test routes. Pioneering cities like Singapore, Dubai, Dallas, Melbourne, and São Paulo will provide start and landing sites as well as limited air corridors. In these test locations, air taxis will have to demonstrate that they represent a useful complement to the existing mobility mix and thus more than simply an electric alternative to helicopters. To demonstrate their added value for society as a whole and not just wealthy individuals, manufacturers and governing bodies must underscore the broad utility of eVTOLs, for example through police drones, emergency service deployments, or organ transplants.

Use

PHASE 3 From 2025

One important factor for the attractiveness of drone flights is the accessibility and number of start and landing sites in the cities. Step by step, an adequate infrastructure must be established at transport nodes, railway stations, and high-rise rooftops; parking garages must be provided and vertical mobility must be integrated with public and private, ground-based transportation options. The goal of integrated control is to optimize traffic flow and lighten the burden at neuralgic points. Reliable service will also depend on having a sufficient number of stations for charging the batteries as well as an air traffic monitoring system with trained personnel to ensure safety.

Growth

PHASE 4 From 2030

In the fourth phase, starting in 2030, manufacturers and providers will begin to scale up their business models and expand them to other cities and regions. As their ranges grow and charging times shorten, drones will become increasingly widespread. According to conservative projections, the potential is for sixteen cities worldwide by 2035, with more progressive estimates ranging up to sixty-four cities. The costs for individual passenger flights offered in two- to eight-seat units will be in the premium range and only marginally higher than for comparable taxi rides. There will be little displacement of other means of transportation such as cars or buses; air taxis will be just another option in the mobility mix.

