



Flying cars

Number 38, 2021

Part of the [Tranzinfo Hot Topics](#) series, this issue offers a selection of material on flying cars. Once the stuff of science fiction, flying cars and taxis - sometimes known as eVTOL (electric vertical take-off and landing) aircraft - are now much closer to reality, enabled by advances in battery design, manufacturing and materials technology. Cities around the world are trialling prototypes of these vehicles with hopes of reducing traffic congestion and pollution on the roads. However, flying vehicles pose a number of challenges, such as safety and regulatory questions, which must be faced before they can take off.

Contents:

[What are flying cars?](#)

[Trials and planning](#)

[Challenges](#)

What are flying cars?

[You may be able to book a flying taxi within three years](#)

BBC News, 18 October 2021

A summary of the latest developments in flying taxis, which are closer to becoming a reality.

[What is a flying car?](#)

The New York Times, 24 June 2021

Inside Silicon Valley's 10-year quest to make soaring above a crowded city street as easy as calling an Uber.

[Flying cars could soon be ready for take off](#)

University of NSW, 22 September 2021

Companies around the world are reaching new heights to develop flying cars that could one day be flown by commuters to work or even over longer distances for leisure travel. UNSW aerospace design expert, Dr Sonya Brown from the School of Mechanical and Manufacturing Engineering, says the aim of these vehicles is to eventually provide another means of urban air mobility to help reduce congestion on the road.

[Cutting through the eVTOL hype with the AAM 'Reality Index'](#)

New Atlas, 11 May 2021

The emerging eVTOL air taxi market is drawing a lot of attention and an avalanche of funding money. Literally hundreds of companies are jostling for position as this nascent air mobility tech prepares for its debut. But how do we know which ones are really taking off?

[The flying car is here – and it could change the world](#)

BBC, 12 November 2020

Flying cars may seem futuristic – but from commercial jetpacks to personal air taxis, they are already here. Here's how they could transform the way we commute, work and live.

[Air taxi service for urban mobility: A critical review of recent developments, future challenges, and opportunities](#)

Rajendran, S & Srinivas, S, Transportation Research Part E: Logistics and Transportation Review, vol. 143, November 2020.

By adopting an electric vertical takeoff and landing concept (eVTOL), air taxis could be operational from skyports retrofitted on building rooftops, thus gaining advantage from an implementation standpoint. Motivated by the potential impact of ATS, this study provides a review of air taxi systems and associated operations.

[The flying taxi market may be ready for takeoff, changing the travel experience forever](#)

CNBC, 9 March 2020

The market for flying cars, now known as electric air taxis, should continue to mature during this decade, soaring to \$1.5 trillion globally by 2040, according to a Morgan Stanley Research study. Driving this trend is a confluence of technologies, including autonomous vehicles such as drones and self-driving cars, more efficient batteries and advanced manufacturing techniques.

[Back to top](#)

Trials and planning

[Uber-style flying taxis to launch in Melbourne in 2026](#)

Australian Aviation, 24 August 2021

Melburnians could be able to book a 'flying taxi' via an Uber-style app in just five years' time after Embraer signed a landmark agreement to bring the tech to the Victorian capital.

Under the terms of the deal, the planemaker's subsidiary, Eve Urban Air Mobility, will provide aviation taxi platform Ascent with access to 100 of its electric vertical take-off and landing (eVTOL) aircraft.

Ascent hopes to use its 100,000 allocated hours of flying time to service the Victorian capital as well as Bangkok, Manila, Singapore, and Tokyo as soon as 2026.

[Telstra joins race to bring flying electric cars to the masses](#)

The Driven, 22 September 2021

Telstra Purple has joined forces with Airspeeder to help fast-track the electrification of flight, lending its tech services expertise to a global series of electric flying car races created by the world's only performance electric vertical take-off and landing (eVTOL) manufacturer.

[Aussie start-up brings eVTOL landing ports to Melbourne](#)

Australian Aviation, 9 September 2021

Melbourne-based company Skyportz is currently working with property owners to establish the landing infrastructure required for the introduction of electric vertical take-off and landing (eVTOL) air taxis in Melbourne.

[Flying electric taxis could be operating over Brisbane for the 2032 Olympics, says aviation futurist Skyportz](#)

ABC News, Australia, 14 October 2021

Electric air taxis could be operating in Brisbane in time for the 2032 Olympics, with Australian company Skyportz planning an air taxi hub in Moreton Bay.

[NSW government awards \\$1m grant to develop 'flying car'](#)

The Guardian, Australia, 10 July 2020

The NSW Government has awarded funds to start-up AMSL Aero to develop an electric flying car at a testing facility in Narromine.

[Flying car completes test flight between airports](#)

BBC News, UK, 30 June 2021

A prototype hybrid car-aircraft has completed a 35-minute flight between international airports in Nitra and Bratislava, Slovakia.

[Routes for electric flying taxis planned for 2024 Paris Olympics](#)

TechHQ, 3 December 2021

Electric air taxis will be tested in a hub outside Paris in the coming months, with the goal to ferry passengers during the 2024 Summer Olympics.

[Japan's 'flying car' gets off ground, with a person aboard](#)

ABC News, USA, 29 August 2020

Japan's SkyDrive Inc., among the myriads of flying car projects around the world, has carried out a successful though modest test flight with one person aboard.

['Flying car' hovers steadily in test flight by Japanese electronics company NEC](#)

ABC News, Australia, 5 August 2019

Japanese electronics company NEC is trialling a large drone-like machine with four propellers.

[Watch first autonomous passenger flight by eHang's 'Flying Car'](#)

Forbes, US, 10 September 2019

Chinese 'flying car' maker eHang has shown off its first autonomous flight with a passenger on board.

[Back to top](#)

Challenges

[The technical challenges still to be solved before eVTOLs can become air taxis](#)

Aerospace Testing International, 5 May 2021

Several technical challenges remain to be solved before eVTOL aircraft can carry passengers autonomously above our cities, such as design issues and electrical demands.

[Challenges and key requirements of batteries for electric vertical takeoff and landing aircraft](#)

Yang, XG et al., *Joule*, vol. 5, no. 7, 21 July 2021, pp. 1644-59

Electric vertical takeoff and landing (eVTOL) aircraft, also known as flying cars, have emerged as the most disruptive technology to transform future urban mobility systems. Their unique operating profiles and requirements present formidable challenges to batteries. This work analyzes the primary performance metrics required for eVTOL batteries compared with electric vehicle (EV) batteries.

[The flying car—challenges and strategies toward future adoption](#)

Ahmed, SS et al., *Frontiers in Built Environment*, 16 July 2020

In this paper, an extensive review of current literature is conducted to explore the technological capabilities of flying cars—each requiring appropriate regulations and governance—to become fully sustainable. Specifically, issues pertinent to training, safety, environment, navigation, infrastructure, logistics/sustainability, and cybersecurity and human factors are explored.

[Advanced Aerial Mobility and eVTOL aircraft in Australia: Promise and Challenges](#)

Deakin Mobility Series, September 2020

This white paper provides the first comprehensive literature review and study of the challenges and opportunities of electric Vertical Take-Off and Landing (eVTOL) aircraft in the Australian passenger and freight context, and analyses the regulatory challenges, operating potential and likely benefits of AAM and eVTOL. In undertaking this work, the authors seek to promote conversation in AAM and provide Australian policy makers and regulators, infrastructure owners, operators and transport users with a greater understanding of the barriers to overcome and the benefits that can be realised.

[Potential policy issues with flying car technology](#)

Mofolasayo, A, Transportation Research Procedia, vol. 48, 2020, pp. 8-22

This report evaluates some potential advantages and challenges with flying-car technology, and proposed ways to address these challenges.

[Flying cars will undermine democracy and the environment](#)

Center for American Progress, 28 May 2020

Flying cars will turbocharge sprawl and weaken the social cohesion that comes from shared experiences and geographic proximity that is essential to building consensus in a democracy.

[Flying cars could cut emissions, replace planes, and free up roads – but not soon enough](#)

The Conversation, 12 April 2019

Gaps in necessary technology and practical uncertainties beyond flying cars' promising physics mean that they may not arrive in time to be a large-scale solution to the energy crisis and congestion – if at all.

[Flying taxis within 5 years? Not likely](#)

The Conversation, January 29, 2019

Seven questions we need to answer before we can turn the vision of flying taxis into a reality.

[Flying cars: automating the skies means playing with our lives](#)

The Conversation, April 16, 2019

Flying cars can be dangerous. Before futuristic visions of three-dimensional sprawling city traffic can approach reality, there are some serious safety issues that need addressing.

[Back to top](#)

This Hot Topic was produced by the ARRB Library, a member of Tranzinfo, the Australian and New Zealand network of land transport libraries.

Australia

Air Services Australia Library
ARRB Group, MG Lay Library
Arup Library
Austroads
Centre for Automotive Safety Research Library
Commonwealth Department of Infrastructure and Regional Development Library
Hargrave-Andrew Library, Monash University
Jacobs Library
Main Roads Western Australia Library
Queensland Department of Transport and Main Roads Library
Transport Library, Transport for NSW
SMEC Library
Tasmanian Department of State Growth Library
University of Tasmania Launceston Campus, incorporating former Australian Maritime College Library
Victorian Government Library Service
Victorian Transport Accident Commission Library
WA Department for Transport Library

New Zealand

Ministry of Transport Library
New Zealand Transport Agency Library
NZ Transport Knowledge Hub
Opus International Consultants Library