



AUSTRALIAN START-UP MAY HOLD THE KEYS FOR THE GLOBAL AIR TAXI REVOLUTION

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Some of the biggest names in aviation and automobiles are at the forefront of the electric air taxi revolution - Embraer, Boeing, Hyundai and Toyota, as well as well funded start-ups such as Archer and Joby. The industry may be launching in Dubai, New York and Shenzhen but it is a small Australian start-up, Skyportz, which has a provisional patent for a landing pad that may solve the issue of dangerous downwash from rotors that will hamper the development of new vertiports in urban centres worldwide.

Clem Newton-Brown, CEO and founder of Skyportz commented: “With tens of billions of dollars invested over the last five years and the frontrunners close to certification, there is a growing realisation that the dream of aviation on demand can never be fulfilled without a big network of new landing sites, known as vertiports. In other words, investors in the aircraft now need to double down to solve the problem of where these new aircraft can pick up passengers. Existing airports and helipads offer an evolution from the helicopter industry - but hardly the revolution investors have been promised”.

Skyportz’ provisionally patented vertipad solution features over a dozen innovations, the primary one being amelioration of downwash and outwash - a problem recognised by the air regulator in the USA - the FAA, in Engineering Brief 105A. The requirement for a vast safety zone around

vertipads due to hurricane force air turbulence will make the capital costs to build a vertiport network unsustainable in urban areas.

The patent has been developed with modelling input from the Swinburne University in Melbourne and the design took out the Blue Sky Innovation Award at the Avalon International Airshow in Australia this year.

Innovation Awards Convenor, Gregor Ferguson, said Skyportz entry was very strong. It spotted a problem with down-wash velocities, anticipated that it could become significant, as it would affect the social license of all air taxi operators by endangering their passengers, then presented a solution that was clearly the result of significant thought” states Ferguson.

Professor Justin Leontini of Swinburne University of Technology stated “The Skyportz vertipad could dissipate power up to two and a half times faster than if an air taxi were to use a flat concrete landing surface. The practical implications for this research are that the safety area requirements around a vertipad may be reduced, enabling safer operations from smaller footprints safely”.

Skyportz will launch a \$1.5M fundraise next week (<https://www.birchal.com/company/skyportz>) to further develop the patent design and lock in patent protections. Skyportz intends to licence manufacturing and distribution of the vertipad into all global markets as they emerge. Newton-Brown believes the market for the pads globally could be enormous, with significant interest already from the commercial property sector.

Funds raised will also be used to further the Swinburne research and to engage Dr Richard Brown, from Sophrodyne Aerospace in the United Kingdom.

Dr Richard Brown is an internationally respected authority on rotorcraft aerodynamics. He is recognised as the pre-eminent authority regarding the physics of outwash and downwash, particularly in the context of multi-rotor and eVTOL aircraft, and in the use of advanced computational tools to characterise the outwash produced by rotorcraft of all types when they interact aerodynamically with the ground.

"The risks posed to bystanders and nearby infrastructure by the outwash and downwash that is produced by their aircraft designs when operating close to their landing sites has only belatedly been recognised by the eVTOL community. We need to find means of reducing these risks before these aircraft can be fully and safely integrated into the urban transport network. Skyportz' approach, through modifying the surface below the vehicle, appears to offer a very sensible engineering approach to mitigating these risks during the most critical phase of the vehicle's interaction with the ground. There are various techniques available to us to control and modify the flow out across the ground. What works on paper doesn't always work in reality, and computational analysis gives us the bridge between the two. We aim to design a modern and flexible system that can be adapted quickly and easily to the many different types of aircraft that will use these facilities. Many similar companies seem all too ready to make grandiose claims for their technology, but without any serious scientific justification for their claims. What impresses me about Skyportz is their willingness to engage with the science. Skyportz's willingness to proceed with their design through a proper sequence of scientifically-validated steps sets them well apart and above their competitors - particularly in terms of the trust that I would place in their product and the faith that I would attach to their technical and business plans," said Dr Brown.

Skyportz plans to initially make its patent IP available free of charge to vertiport test beds in Australia and in all emerging markets globally.

“I am motivated to do our small part to make this revolution a reality. There will be plenty of time to scale the Skyportz business, but for now we want research and development hubs all over the world to have access to our patented solution free of any licence fees. There is a long way to go and many moving parts for Advanced Air Mobility to get off the ground. It has to be a global team effort”, said Newton-Brown.

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