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# Outlook for the UAS & Advanced Air Mobility Industry



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In around 1490, Leonardo da Vinci designed the “aerial screw”, one of the first ever sketches of a flying machine and a true harbinger of the future. From that invention – one of a great many by the Florence-based genius – to the present day, innovation in aviation has been relentless. In fact, the global flying cars market is projected to grow by 25.1% by 2030, rising from \$1.9bn in 2020 to \$17.84bn in a single decade .

Of these new modes of transport, electric vertical take-off and landing vehicles, or eVTOLs, are attracting the most interest, because of the benefits they will bring to the communities where they are used.

Regions all over the world are designing regulatory frameworks to prepare for a time when eVTOLs are part of the urban landscape, and countries are looking to unmanned air traffic management as a way to plan and structure the future of urban air mobility.

One of the key drivers behind this adoption of new traffic models is, without question, the increase in urban density compared with previous decades. The concentration of urban buildings in developing countries has grown exponentially in the last three decades. Another contributing factor is the fact that expanding public transport networks – building new under- and overground metro lines and commuter rail networks, for example – has not yet successfully resolved the related issues. What’s more, as well as exorbitant construction and maintenance costs, expanding these networks quite often also involves geological, environmental and even political constraints; clearly, we need to consider other transport models.

Over the next few years, Advanced Air Mobility (AAM) will be a core concept in the transformation of metropolitan areas. Citizens will share space with eVTOL vehicles that will be integrated into multimodal transport networks, which will, in turn, be part of regional or even supra-regional systems. AAM will be vital in the definitive leap towards transport intermodality, and the constantly-evolving technology needed is already available.

## Keys to the future development of Advanced Air Mobility

Technology advances are certainly one of the factors that will shape the definitive deployment of Advanced Air Mobility in our cities. Companies are actively working on a number of areas at the moment, including energy sources, safety and limiting the environmental impact. This last consideration is crucial; eVTOLs do not generate local emissions, which means cleaner air and a smaller acoustic footprint than aeroplanes and conventional helicopters. eVTOL designs are becoming increasingly aerodynamically efficient and quiet.

Another important factor to bear in mind is that future vertiports will need to be positioned in locations that minimise their impact on the urban landscape and maximise connectivity; this, in turn, will encourage the use of this new mode of transport. The impact will be a reduction in road traffic congestion and the associated emissions, and more profitable operations for AAM companies.

As for safety, we will start to get a clearer idea over the course of this year as to what the regulatory frameworks will look like for certification of these operations, and we will also start to see more associations and partnerships between the public and private sectors to make these new mobility solutions a reality.

The process will take several years, and will include not only vehicle and infrastructure development, but also sourcing financing and building legitimacy and social acceptance of the use of these services. Government agencies, industry and potential clients will need to pool their efforts to safely integrate this new aircraft format.

## **The exciting challenge that lies ahead**

Although the forecasts suggest this market will really start to take off in 2030, the sector as a whole has actually made a great deal of progress in recent years. Swift prototype development means we have already witnessed the debut flights of vehicles that are fairly reminiscent of the aerial screw designed by Da Vinci more than 500 years ago.

Advanced Air Mobility is one of the most immediate challenges facing the mobility sector. Freight and passenger transport in cities and the provision of infrastructure to allow for simple, practical operations in urban environments both represent an unparalleled opportunity.

An opportunity we are well-positioned to harness, thanks to innovation and business development by flight operators, a new design for airspace, software developers, manufacturers, and vertiport construction, not to mention the crucial participation of the various key players involved in airspace regulation. It is the very complexity of this ecosystem and the broad range of players involved that makes the future such an exciting challenge.

The aviation sector in Spain, which accounted for 1.2% of total GDP or 5.4% of industrial GDP in 2023 and is the fifth largest aviation industry in Europe, is watching the urban air mobility revolution with keen strategic interest. This revolution will allow us to respond to the challenges facing our cities now and in the future to make life better for the people who live in them.

We are, without doubt, witnessing the first steps in a new business sector with a very long road ahead. That road will involve defining and implementing operating and regulatory frameworks, designing business models and identifying the roles of the various sector players. Innovation and research will play a crucial part in the process of building a more sustainable urban air mobility landscape which offers real, effective solutions for the congestion in our cities.



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