

URBAN AIR MOBILITY HAS THE POWER TO TRANSFORM THE LIVES OF MILLIONS...

... But only if we make it inclusive and accessible.

A white paper prepared by:

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We are on the edge of a transport revolution. Electric air taxis and drones will soon be improving the lives of millions of people around the world by adding a new dimension of affordable, green and accessible transport services to urban living. This is no mere pipe dream. Medicines and vital healthcare products are already being regularly delivered by drone in many places in the world while the first commercial autonomous air vehicle operations are due to launch in China in 2021.

*"We estimate that there will be up to 160,000 commercial air taxis in the air by 2050. The UAM passenger industry will then generate revenues of almost 90 billion USD per year".
Roland Berger*

Urban air mobility (UAM) and advanced air mobility (AAM) (see *Urban air mobility and advanced air mobility – a new transport dimension*) offer local authorities the opportunity to take smart city initiatives into the third dimension – reducing the burden of traffic congestion on the ground for services such as package delivery, first responder missions and eventually the transport of citizens. And it is not just cities that will benefit. In Africa, new drone services are transforming healthcare services in many remote communities who can now be linked by an airbridge to medical centres many miles away.

"Drones offer a starting point for a radically new model of low-cost, fast and futuristic transportation. Transforming mobility infrastructure can provide rural towns and villages with access to modern services such as emergency aid, commercial goods and medical supplies. This will benefit industries like agriculture, mining, construction, and livestock.... Today, road accidents are Africa's third-biggest killer." Africa Drone Forum

For many countries drones offer an affordable, green and safe transport option to building roads through mountains or over large stretches of water. This means essentially leap-frogging transport modes into the next generation – in the same way that the internet has overtaken the need to introduce expensive and unwieldy phone services to remote communities. Drone deliveries of vital healthcare products at times of lockdown or to people with reduced mobility have already started.

The new smart city transport systems will reduce the reliance on private cars and improving the quality of life for many and creating healthier and greener cities everywhere. For one important group of people, UAM and AAM offer a particularly important opportunity. Around 10% of the world's population face major mobility impairment challenges. And with over half of the world's current 7.8 billion people living in cities, a proportion which grows bigger every year, UAM is now the single biggest opportunity to transform mobility options for millions of people who struggle daily with currently inaccessible ground transport services.

1. <https://www.rolandberger.com/en/Insights/Publications/The-high-flying-industry-Urban-Air-Mobility-takes-off.html>
2. <https://www.africadroneforum.org/>
3. . <https://www.bbc.co.uk/news/technology-52206660>.
4. <https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html>
5. <https://www.urbanairmobilitynews.com/commentary/amsterdam-drone-week-eus-uam-initiative-present-manifesto-on-the-multilevel-governance-of-the-urban-sky/>

But....

....if the promise - and full market value - of this new transport era is to be fully realised it can only be done so on the basis of inclusivity.

From the very start UAM/AAM services need to be planned with the needs of those who stand to benefit most from its introduction – disabled communities. They will be able to fly from origin to destination in ways which seem only appropriate to science fiction. Once beyond prototype designs autonomous air vehicles will need to be developed to transport visually impaired passengers and those requiring wheel-chair access in ways which have been introduced in many other urban transport networks.

In December 2020, 14 European cities delivered a manifesto to the European Union calling on local authorities to play a key role in the development of UAM initiatives in Europe. Aerobility and CIVITAglobal are now also calling for UAM plans to include representatives of disability groups at the earliest possible stage in the process; we want to get best-practice in accessibility built into the early development and DNA of the industry, so that those with most to gain are not left behind.

<https://www.urbanairmobilitynews.com/commentary/amsterdam-drone-week-eus-uam-initiative-present-manifesto-on-the-multilevel-governance-of-the-urban-sky/>

The next steps

While regulators, local authorities and industry groups are preparing the first roadmaps for introducing drone deliveries and urban air taxis at scale there has been very little consultation with disabled groups to ensure the needs of disabled citizens are fully taken into account from the start. These are key areas which need to be addressed, urgently:

- Ensuring developers of UAM ground infrastructure and platforms fully take into account the needs of disabled passengers – and the non-travelling public - in considering issues of access and egress;
- To help in this, aviation safety regulators must take account of the needs of people with reduced mobility in their regulations;
- In smart city programmes where autonomous vehicles are being planned (air and ground), it is vital that disabled community groups are incorporated into the earliest planning. Before eVOTLs are flying in our cities they will have to be given not just an aviation safety regulator's certificate to fly but a licence from the communities they will be serving;
- Developing a repository of "best practices" from around the world so developers can understand not just the basic principles but the detailed engineering solutions

UAM is on an evolutionary path – but evolution will need to take account of all customer needs

Crawling (2021-2023): The current age is seeing the development of regulations and standards for passenger-based UAM services while the first cargo urban air mobility services – including medical, fast-food and package deliveries – are trialled to connect to remote communities. Wing, Flytrex, Manna are pioneers in this area. This stage is also seeing the formation of links between local authorities, regulators and drone service operators which will provide the framework for future passenger operations. This must include ensuring drug deliveries, every-day shopping and new markets are opened up to disabled customers

Walking (2023-2032): The first age of UAM will see automated drone deliveries to more densely-populated urban areas on a fully commercial basis in all parts of the world. The introduction of piloted electrical eVTOL services will begin, first in test mode then charging premium prices to individual passengers for city-centre to airport landing site routes, inter-city services and airport-to-airport transfers. This must include making sure autonomous air vehicles and vertiports are designed with disabled access, user interfaces and adaptations.

Running (2032 and beyond): The second age of UAM will be the age of autonomy, quiet flight and mass transport. Fleets of fully autonomous delivery drones will fly through city streets day and night. The AAM route network will have expanded to encompass rural connecting flights to city-centres, intra-city then inter-city flights to city-centre flights. This must include the seamless embedding the needs of disabled travellers.

Urban air mobility and advanced air mobility – a new transport dimension

Advanced air mobility (AAM) is a concept developed by NASA (<https://www.nasa.gov/aam>) “to safely develop an air transportation system that moves people and cargo between places previously not served or underserved by aviation – local, regional, intraregional, urban – using revolutionary new aircraft that are only just now becoming possible.”

This means using new aviation concepts such as electric propulsion and autonomous flying to provide personalised air transportation services in new environmentally responsible, safe and affordable ways. While AAM includes the development of new electrically powered aircraft that will link rural and suburban areas by air, Urban Air Mobility (UAM) is an exciting near-term concept that will integrate aviation into our cities and towns. New aircraft that use electric motors and fly autonomously will be safer, more affordable and quieter than traditional airplanes and helicopters and are being developed by companies around the world. Many are nearly ready for commercial operations. UAM will share airspace with small unmanned aircraft systems (sUAS or "drones").

As with other aircraft, authorities like the Federal Aviation Administration (FAA) in the United States and the European Aviation Safety Administration (EASA) in Europe are responsible for making sure the aircraft used in UAM operations are airworthy and can safely carry passengers. These regulators and industry stakeholders are working together to ensure that the promise of UAM is realized in a way that prioritizes safety and societal acceptability.

About Aerobility

Aerobility is a leading disabled flying charity. It offers anyone, with any disability, the opportunity to learn to fly and to participate in aviation-based activities. It does this to drive focus on capabilities and encourages the individual to ask themselves 'If I can fly an aeroplane, what else can I do?'. This has the potential to improve the quality of life, providing opportunities for personal development which are often lacking for disabled people including the wounded, injured and sick veteran community. Aerobility represents the needs of disabled people whatever their aviation needs and aspirations. It also recognises the profound and transformational effect that the Advanced Air Mobility sector will have on the lives of those living with disability. We are therefore pleased and proud to be representing the interests of the disabled community herein.

<https://www.aerobility.com/>



About CIVATAglobal

The Civic Air Transport Association (CIVATAglobal) is the global trade association of the advanced air mobility (AAM) sector, bringing together cities and industries in a single global community. CIVATA is a forum to share experiences, plans, access information resources and work together on enabling the successful introduction of safe, profitable, environmentally responsible urban air mobility (UAM) operations, from small unmanned air system (SUAS) missions to urban air taxi networks and inter-city services.

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