

## The next billion-dollar startup will be in aerospace

Late last month, 500 people from around the world gathered in Dallas at Uber's inaugural [Elevate Summit](#).

The invite-only conference was the next actionable step forward, post-Uber's white paper published last fall, "Fast-Forwarding to a Future of On-Demand Urban Air Transportation," to catalyze the emerging ecosystem around what Uber, along with partners in aerospace, aviation, and energy storage, see as the next unicorn transportation sector.

On the back of the incredible innovations that have disrupted today's urban transit systems, with new ride-share models, electric energy and autonomous technologies, urban air mobility is poised for massive growth over the next five years.

At Elevate, with the entire ecosystem gathered in one place, the discussions ranged from identifying key markets and players with commercially viable vehicles to enabling technologies, like battery storage, and aircraft certification and policy, like FAA regulations. After more than 20 years in the aerospace sector, uniting early-stage tech innovators with private capital, my takeaway at the end of this three-day event is that urban air mobility is no longer a future-tech vision... it's happening now.

It's only been a few years since we saw the beginnings of a clear renaissance in aerospace.

Early unicorns like SpaceX, OneWeb and Planet radically transformed the landscape, seeding innovations in spacecraft, earth observation, space communication and space exploration, while today next-generation players like Boom, Aurora and Wright Electric are hitting a rapid succession of milestones to bring supersonic jets and regional hybrid aircraft into commercial reality.

Even as I sat between this next generation of Elon Musks and the traditional legacy players, I was

amazed to see all the technologies required to bring what many are calling the first flying cars not just to market, but to implementation in what will become an entirely new mode of daily transportation.

The excitement at the event was tangible as we all had the feeling that we are part of something that is going to change the way the world commutes and thus the way we live. Just as autonomous, electric cars will introduce new levels of safety, efficiency and productivity, in this new urban air mobility era, we will spend much less time in transport, in vehicles that will be accessible for most of us and will dramatically reduce the levels of aviation and aerospace emissions.

With Uber pushing the bar, we see a clear business case and a real market for the first commercial vehicle categories. We are shifting from the perception of these as a mere leisure type niche market, relegated to a very small percentage of the population, to opening the way to a much bigger market in terms of the number of vehicles and passengers.

And, as we have a much bigger and commercially viable market, more investors, from angels to VCs to strategics, are entering the game, translating to the kind of money like OneWeb and Planet have benefited from.

Uber, in its role as transit pioneer, has been instrumental in drafting the kind of performance levels required for these future vehicles to operate in a profitable way. It first envisions a varied fleet of urban air vehicles, with an estimated size of 500-1,000 vehicles per city, to carry out the daily trips.

The first model that's emerging is the pool/air/taxi, in which an aircraft will average 24 miles per trip, with 4 passengers, including a pilot (at least in the beginning), that can achieve 150 miles per hour, with 5-minute recharges.

The consensus on the best architecture is a mix of a helicopter and an aircraft, like the Aurora project, which has fixed wings and distributed electrical engines, and the vehicle segment that everyone's talking about, Electric Vertical Take Off and Landing vehicles, eVTOLs, will be part of the class that gets us there. Aurora's fleet is poised to fly this year or next.

Ideally these trips, which will originate at decentralized helipads, will be fully electric solutions that not only drive cost reductions and fuel safety from day one, but also reduce the noise of the vehicle — an ongoing challenge in aviation — to make these more acceptable in urban environments.

On the technology side, the batteries and chargers — already proven in light-, medium- and heavy-duty applications — have the right performance, energy density, capacity and charging time to support frequent, daily trips. With a few expected improvements in coming years, we will see those batteries double their performance in term of size and manufacturing cost, with higher currents and higher power.

Our next steps, post-Elevate, are three-fold. From an infrastructure standpoint, we will reactivate helipads, where in a city like Los Angeles 300 of them already exist but would need to be equipped with electric chargers, and get new authorization to operate in and begin to build charging stations in pioneer cities.

Key to this phase will be ensuring new aircraft certifications tailored to this new class of vehicles are available and, finally, defining the new rules necessary for safe and efficient air traffic management. Though the last may seem daunting, these vehicles should fit in the current traffic as regular general aviation airplane.

The question I was asked more than once over the three days of the conference was “where will we see urban air mobility take flight (and root) first.” Though Uber's initial two pioneer cities will be Dallas and Dubai, with partnerships, infrastructure plans, typical routes and regulatory discussions well underway, I see the real disruption taking place in the urban dense, emerging megacities in South America and Asia.

Those regions have already proven their technology ability (and appetite) for leapfrogging to wireless communication systems, and they are once again poised, with their infamously poor and inefficient transit infrastructures, to leapfrog directly to urban air, where the time saved would be tremendous, turning a 1.5 hour drive into a 10-minute flight, 2x/day... for almost the same cost of an UberPOOL.