Communications and Information Technology Alert

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It's a bird, it's a plane, it's... an eVTOL air taxi!

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Last week, the House Committee on Science, Space, & Technology engaged in a closer examination of one of the most exciting concepts for our cities of the future–Urban Air Mobility (UAM). This first-of-its-kind congressional hearing focused on the types of vehicles that will unlock access to the third dimension of transportation.The SDN list to which these parties have been added is the strictest list OFAC maintains—it generally bans all activities between these parties and U.S. persons and imposes a complete block on these parties' property and interests in property that are or become subject to U.S. jurisdiction.

Witnesses from the National Aeronautics and Space Administration (NASA), Uber Elevate, Bell, Terrafugia and the Georgia Institute of Technology all spoke about how innovations in electric vertical takeoff and landing (eVTOL) vehicles, distributed electric propulsion, autonomy and artificial intelligence are converging to create this new UAM opportunity. They spoke of the need to transform management of the airspace and how projects like NASA's Unmanned Aircraft Systems (UAS) Traffic Management are foundational for those essential changes. They spoke about advances in automation and self-piloted technologies.

Why is UAM important? As we learned during the Uber Elevate conference this year, growth in cities has been outpacing our infrastructure. Sufficient transportation into cities does not exist, and building new roads and adding lanes is difficult and expensive. We live in a world that is dominated by cars, and we need to move more people through a fixed and finite amount of space. The United States has 10 of the 25 most congested cities in the world. Los Angeles is the most gridlocked, with the average person spending 2.5 weeks each year sitting in traffic. The trend to live in cities means that this situation will get worse. Cracking the code that will enable UAM is necessary. We need fast, safe, and efficient movement of people to urban centers that is also environmentally friendly.

The witnesses all recognized and underscored that realizing the vision for UAM will require contributions from many quarters, not just the aviation sector. For UAM to become a reality, it will require contributions from real estate developers who must construct or retrofit current infrastructure to create skyports or vertiports for takeoff and landing of eVTOL in urban centers. It also will require advances in mass manufacturing of the number of airframes needed to support expectations for UAM–

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unlike cars, this has never been done before for aircraft. Electric charging of the distributed propulsion systems in eVTOL vehicles also will be needed for quick recharging of the craft through readily available energy sources. In addition, a safe and scalable communications infrastructure will be necessary to support this on-demand service for UAM, and even UAS operations. It will be essential to leverage cloud-based service technologies to meet the needs of a real- time, on-demand network for airborne vehicles on a massive scale. Operating efficiently and at scale, with precision, will be crucial.

Early engagement across federal, state and local governments to support buildout of UAM ecosystems will be absolutely critical, since all have a role to play. Regulations that allow access to the airspace and authorize UAM flight, zoning issues and insurance requirements are just some of the challenges that must be addressed in short order, given the ambitious timelines that are under consideration by the major players in the field. Public acceptance of this new mode of transportation also is an issue.

A major hurdle to overcome will be the requisite Federal Aviation Administration (FAA) certifications needed to not only fly, but also carry passengers in these types of eVTOL aircraft. There are many questions surrounding the ability to either apply current FAA regulations to expedite the certification process, or develop an entirely new framework. The major eVTOL players also envision different approaches to the question of autonomous vs. piloted operations.