

TESTIMONY OF MARIAH SCOTT
PRESIDENT, SKYWARD, A VERIZON COMPANY
BEFORE THE HOUSE SUBCOMMITTEE ON AVIATION
ON
“Airspace Integration of New Aircraft”

September 6, 2018

Chairman LoBiondo, Ranking Member Larsen, and members of the subcommittee, thank you for the opportunity to participate in this hearing on airspace integration. My name is Mariah Scott and I am president of Skyward, a Verizon company. Our aviation expertise, consulting services, and aviation mapping and UAS fleet management software help companies use drones safely, efficiently, and legally. Drones present an enormous opportunity for innovation and our economy, but the potential can only be safely realized if Congress and the Federal Aviation Administration lean in with industry.

I’ve spent my career guiding new technology to market in highly regulated environments, not only in drones but also in healthcare and secure online transactions. Nowhere have we had the opportunity to shape the future—and to get it right the first time—as we do today with the integration of the national airspace. The drone industry has come a long way in the past five years, but we have only begun to scratch the surface in terms of the value that drones can provide. In order for businesses to realize that potential, we need three things:

1. Continued public-private partnership as we work toward Universal Traffic Management;
2. Regulatory innovation from the FAA and adequate enforcement of laws; and
3. Freedom to compete for the best solutions in the market.

Public-Private Partnerships for Universal Traffic Management

Historically, UTM has stood for UAS Traffic Management. But we believe that a more inclusive concept—Universal Traffic Management—will better enable airspace to be shared safely among all types of aircraft. We see UTM as a system of systems, a decentralized network like a wireless network or the Internet, for coordinating all types of aircraft. We believe this will be the most efficient, cost effective, scalable, and safest method for managing the national airspace. This will require aircraft manufacturers, sensor engineers, software developers, network providers, and regulators to agree upon standards to create and regulate an interoperable worldwide ecosystem.

This sounds ambitious but there are already a number of effective public-private partnerships that are encouraging innovation and reducing barriers for businesses on a smaller scale. One example is the U.S. Department of Transportation and FAA's UAS Integration Pilot Program, which is enabling state, local, and tribal governments to partner with the private sector to develop new systems and use cases. In another example, the New Jersey Cape May County Airport, in Chairman LoBiondo's district, received \$3 million for a 20,000-square-foot building to serve as a center for drone businesses to conduct UAS testing and development. As a result of Cape May's innovative drone programs, in April 2018, Verizon chose the county to test a 200-pound drone that serves as a 4G portable hotspot in cooperation with local emergency responders. Verizon plans to use drones like these as a way to provide cellular connectivity when natural disasters damage existing cellular infrastructure.

Perhaps the most compelling example for this venue, last fall, the FAA partnered with 12 companies, including Skyward, on its Low Altitude Authorization and Notification Capability (LAANC). Previously, the FAA required companies to apply for authorization to fly in controlled airspace—which blankets vast swaths of the U.S. population—a process that took up to 90 days. Now, companies can use Skyward's software to request flights in specific volumes of

controlled airspace and receive approval in seconds. This partnership—still in its early stages—is already an enormous success. Last winter, our customer PBS Engineering received a contract with Portland Oregon Public Schools to perform roof inspections and create district-wide roof access plans, a project for which drones are the safest, fastest, and most cost-effective tool. But because many of the schools lie within controlled airspace, the firm was forced to evaluate other methods. This spring, when LAANC went live in the Northwest, PBS Engineering was able to obtain authorization to use drones to inspect and map school roofs, saving public funds and minimizing employee exposure to hazards and fall risks.

The success of LAANC is the direct result of the FAA partnering with industry to create safe, sensible regulatory processes that have been automated and delivered by software providers like Skyward. This is just the beginning. For all its popularity, LAANC is a point solution that mitigates a specific logistical burden. A system of Universal Traffic Management that enables safe sharing of the airspace, from commercial airliners to small drones as well as the “flying cars” of the near future, is what the industry needs to truly flourish.

In practice, the future of Universal Traffic Management means that protocols will be baked into every aircraft, ground control station, and piece of software to ensure safety and reduce human error. Any drone will be able to work on any aviation-grade communications network, such as Verizon’s LTE network, through any number of applications, following standard protocols. An operator will be able to deploy multiple drones at once, autonomously and from a remote location. Any aircraft will be able to safely navigate among dozens or hundreds of other aircraft of all sizes that are all going about their business. By sharing minimal amounts of essential, standardized information, we can achieve a global Universal Traffic Management system that will safeguard the integrity of the airspace and allow for seamless, equitable sharing of airplanes, helicopters, drones, and other airborne vehicles.

Regulatory Innovation and Enforcement

In the past two years, the FAA has been both forward-thinking and realistic with its approach to commercial drone use, as shown by its implementation of Part 107 of the Federal Airspace Regulations, the Part 107 waiver process, and LAANC. Similarly, we are encouraged by Congressional efforts around the pending FAA Reauthorization Act and are especially excited about provisions that would reduce barriers for drone R&D as well as those that will permit transportation of payloads beyond visual line of sight. But more needs to be done to enforce current laws, especially among recreational drone users. A small number of bad actors within the recreational pilot community have threatened the safety of the airspace and damaged the reputation of all drone users by operating with disregard for regulations and basic common sense. This can't continue, and we appreciate that the Reauthorization Bill offers potential solutions. We agree that enforcement authority should be given to the FAA, which has the expertise to regulate and enforce activities in the airspace, whether commercial or recreational. Whether I drive a car down the highway for business or fun, I am still obligated to follow the rules of the road. The same should be true for any vehicle operating in the airspace.

In order to maintain its leadership in the worldwide drone industry, the FAA must also promulgate a remote identification rule that applies to all vehicles in the air. Remote identification will directly enhance safety and spur economic growth. But without legislation requiring remote identification, Universal Traffic Management will never become a reality, the potential for drones won't be maximized, and commerce will be restricted, slowing an important source of economic growth for the country.

Moving forward, we would like to see additional funding for the FAA that would allow it to continue to develop sensible regulations and a more efficient waiver process, as well as specific direction to collaborate with industry and implement standards toward this Universal Traffic

Management system. Congress should also give the FAA the tools to better enforce the regulations and laws that we currently have as well as allow it to adapt with industry to meet the safety and security requirements of future airspace integration. It is imperative that the industry be safe, and without penalty and enforcement of the rules, we are likely to see more careless, clueless, and criminal pilots endanger the national airspace.

Encouraging Market Competition

There are so many different aviation vehicles, customers, regulators, and service providers that a centralized UTM system or single UTM provider wouldn't be able to manage all aspects of aviation traffic, which is why we continue to seek out partnerships with government and other businesses. Skyward's head of innovation, Jonathan Evans, serves as president of the Global UTM Association, an international body of industry leaders, including GE, Sony, and Alphabet's Project Wing, working to develop consistent standards for remote identification, deconfliction, and communication that will allow aircraft, software, and regulators all over the world to understand what an aircraft is, where it's flying, and the responsible party. Google's new InterUSS Project, in which we are a founding member, is an open-source, decentralized solution putting those standards into action. The platform will enable any UAS service supplier (USS), including Skyward, to share standardized, minimal sets of data in a consistent way that protects operator and consumer privacy (no operational data is stored on the platform). Multiple open-source data nodes can be hosted by any USS, resulting in a scalable, distributed, auditable, and flexible way to share airspace and deconflict flights. Flight information is acquired at the time of need, sharing just the right amount of information to safely deconflict and inform the other network nodes.

In the meantime, we continue R&D on the future of networked fleet deployments and Universal Traffic Management. We believe that operating drones on Verizon's LTE Network will be critical

for creating a distributed Universal Traffic Management network—for remote identification, flying beyond line of sight, and remote networked fleet deployments. Looking toward the near future, Verizon is investing billions of dollars in 5G infrastructure, which will enable secure aviation-grade routing and beyond line of sight flights. 5G’s latency and reliability, combined with the high density of micro cell sites, make it good candidate to support autonomous air taxis. And virtual network slicing in 5G protects pieces of the network for safety-critical applications such as search and rescue.

Each of these investments could be jeopardized if the FAA decides to purchase or prioritize one system over another. Rather than stifling innovation by declaring one UTM provider a “winner,” the FAA should let the providers deliver those services that best meet the needs of the end users. After all, a networked deployment for urban package delivery in New Jersey has different requirements than a search and rescue operation in rural Oregon.

Conclusion

The technical and regulatory project of integrating the airspace is enormous, and small steps are already having a tremendous impact—but now we need to make bigger strides. It would be nearly impossible for a single developer to create a “perfect” end system up front, which is why industry-government partnerships and open-source development are so important. LAANC represents a successful technological-regulatory first step toward airspace integration, but in the near future we’ll need highly sophisticated, dynamic, and secure technical networks to ensure safety and competition.

I appreciate the opportunity to appear before this Subcommittee and thank you for the support that you have shown to the aviation industry as a whole.

###