



Hurdles to Cross with “Eyes in the Sky”

MENTION THE WORDS “SMALL DRONE” AND WHAT MIGHT COME TO MIND ARE HOBBYISTS FLYING REMOTE-CONTROLLED (RC) OBJECTS RESEMBLING MINIATURE HELICOPTERS. THOUGH MANY OPERATE DRONES FOR FUN, THE TECHNOLOGY IS ALSO GAINING ACCEPTANCE ON THE COMMERCIAL SIDE.



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Armed with powerful video and/or photographic attributes, these small, flying objects are providing “eyes in the sky” for companies, allowing them to collect data, deliver goods and to check on the status of projects.

Wal-Mart Stores and Amazon are looking to drone usage for eCommerce, while some warehouse operators are pondering how drones and other technologies may aid inventory control. On the commercial real estate side, property developers and brokers are experimenting with the multi-propeller devices for purposes ranging from aerial photos to boost marketing efforts, to real-time safety observations on construction sites.

Still, the era of drones in the commercial economy is in its infancy, meaning more innovations are required to boost software and hardware capabilities. In addition, rules and regulations for drone flights need to be honed before the technology can be more acceptable, and widely adopted.

What Are Drones?

Drones are formally known as Unmanned Aircraft Systems (UAS) or Unmanned Aerial Vehicles (UAV). According to the Federal Aviation Administration (FAA) in the United States, a UAS is a small, unmanned aircraft weighing less than 55 pounds that typically operate via radio frequency. Drones also have their own innate intelligence; they can fly, hover, navigate and avoid obstacles without pilot input, which is part of their appeal.

Another advantage of drones is that they are easy to operate. Controls range from a gamepad/joystick combination to software on smart phones or tablets. Furthermore, prices have come down during the past couple of years. Though drones can cost as much as \$15,000 and higher, a quality UAS can be purchased for less than \$5,000.



Most drones are powered by a lithium ion polymer (LiPo) battery, allowing them to fly for about 40-50 minutes, with a maximum travel range of 1,500 feet to half a mile. Because temperature changes can impact battery durability, researchers are looking into hydrogen fuel cells and alternative energy sources to combat these challenges.

Regulatory Barriers

With the advancement of drone technology, aviation authorities are working hard to formulate appropriate regulations. In the United States, for example, drone operators no longer require pilot licenses. However, the operator must have a remote pilot airman certification with a small UAS rating to fly one.

In the United Kingdom, the Civil Aviation Authority (CAA) requires drone operators to have aerial work licenses; the CAA also has strict rules for flying in and around densely populated areas. Japan absolutely prohibits the flying of drones over roads or densely populated areas, though doesn't require licensure of operators. And while the European Aviation Safety Agency (EASA) is developing sets of regulations for flying drones across the European Union, each nation has different, and specific rules for when it comes to operating the flying objects.

Another issue is that drones can collect large amounts of data. This aspect of UAS technology spills over into privacy

and personal information concerns. It's one thing to gather data about construction progress of a particular project. It's another to position a drone outside an office to observe the activities of a rival CEO. As such, it's important to define the parameters of personal data when it comes to what can and cannot be collected by the airborne technology.

Additionally, aircraft users are required to retain insurance in the case of an accident. Although the laws regarding drone operators continue to evolve, insurance is a major component to mitigate risk, especially when the airborne technology is acting as an autonomous robot.

To Be or Not to Be

While regulatory issues are being addressed and researched, drone operators continue honing their skills across industries to lower costs and increase accessibility outside of human reach. Though still fun for hobbyists, UAVs will fly faster, higher and longer, making them proactive tools in many industries, including commercial real estate.

But until specific regulations regarding UAV frequency, usage and purpose can be put into place, it's up to private industry to regulate the amount of data collected and from where. As such, companies deciding on drone usage need to weigh convenience versus cost, while also ensuring that trustworthy human capital is behind the machine.



One Concept, Many Usages

When it comes to the commercial use of drones, one size doesn't fit all. Each industry has different needs, requiring different drone functionalities.

REAL ESTATE AND CONSTRUCTION

Drones are useful for developers with projects under construction, especially when it comes to real-time accuracy and project status. Specifically, a UAS can help with quick site surveys, data-gathering for progress reports and monitoring construction areas for possible risk. Drones can also be used to market properties, providing a bird's eye view that would otherwise only be available at great expense.



SUPPLY CHAIN, WAREHOUSING AND LOGISTICS

Outside the warehouse, yard management drones can aid in tracking assets in a trailer yard ensuring all equipment and inventory is accounted for. Inside the warehouse, further technological advancements will be required for drones to have widespread utility. Many of the larger eCommerce companies are exploring the feasibility of using drones as part of their "last-mile" strategy to move goods more quickly to end users.



STRUCTURAL MAINTENANCE

Routine inspections of structures – such as cell phone towers, wind turbines and bridges – can be dangerous and costly. Drones are being used to gather information about structural performance, cutting costs by about 50% and deploying manpower to other areas.



LAND MANAGEMENT

One of the early uses of drones was to dust pesticides on Japanese rice crops. These days, drones are used for soil and field analyses and crop health assessments, along with pesticide distribution. Drones are also being tested with open-cast mining, where they are replacing labor-intensive methods of inspection, mapping and surveying.

