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How Drones Can Help Fight the Coronavirus

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Public health measures in response to the COVID-19 pandemic have introduced "social distancing" into the national lexicon. Drone companies believe they can help.[1] Drone technology is ready to break out into a mass service and reduce person-to-person contact. There are a few dozen pilot programs throughout the United States and some limited commercial deployments for services such as medical delivery, parcel delivery, utilities inspection, and crop spraying. These programs have shown drones to be technically feasible for the set of tasks tested, and some of them have even tested business models with a measure of success. A crisis like the current pandemic has a way of focusing the minds of regulators on key questions—in this case, can the use of drones be scaled up?

DRONE TECH MOVES SWIFTLY FORWARD, BUT REGULATIONS STALL

Recent events point toward an affirmative answer to this question. Some African nations, for instance, have invited US drone companies to assist their rural hospitals. Zipline, a California drone startup, has made more than 60,000 medical deliveries in Rwanda and Ghana in the past few years.[2] Critically, amid China's COVID-19 outbreak, drone operators and the Chinese government accelerated their national pilot programs. Early reports say that in the past month, a major Chinese logistics company made thousands of flights to deliver 11 tons of medical supplies and parcels to areas stricken by COVID-19.[3]

Using drones in China reportedly decreased delivery time by over 50 percent as compared with road transportation, and it took humans out of the process, which helped to decrease COVID-19's rate of spreading. Drones also brought COVID-19 testing samples to laboratories, which helped the quick diagnosis and quarantining of infected citizens.[4] More importantly, drones were used to safely transport medical supplies into hospitals where COVID-19 patients are being treated.[5]

These areas would be dangerous to the average courier, who might contract the disease and then go on to infect even more people, but delivery drones make this task safe.

The challenges in the United States are not primarily technological; they are institutional.[6] As Tyler Cowen noted in a January 2020 interview about the obstacles to drone delivery, "It's a regulatory issue."[7] As the Zipline CEO said when a reporter asked two years ago why Zipline wasn't doing medical deliveries in the United States, "We're essentially waiting for the U.S. government to catch up to a country like Rwanda, in terms of using [drone] technology."[8]

SOLUTION: FEDERAL PERMISSION FOR STATES TO CREATE DRONE HIGHWAYS

A major issue, Cowen noted, is, "How are we going to have the easements for the air, where do the property rights really lie? . . . It will take quite a while to untangle that mess."[9] We propose a simple solution: state and city authorities should demarcate and lease the airspace above public roads, creating, essentially, drone highways.[10] With the Federal Aviation Administration (FAA) and White House's blessing, perhaps through a statement of policy that resolves some of the ambiguity in federal law, state authorities could begin allowing medical and parcel deliveries almost immediately. That's because many states authorize state or local officials to lease airspace above roads.

There are many variations of these laws, but Oregon's law is a good example:

> Any political subdivision holding the easement or fee title to a street or highway may lease the space above or below that street or highway for private purposes.[11]

States could put out requests for proposals and authorize a drone service provider to start deliveries on certain routes above city streets and highways that avoid airports, schools, and other sensitive locations. Allowing states to act on these laws achieves a few goals:

- *Respects private property.* Drones are flown above roads using public easements, not flying above backyards and private land.
- *Opens up valuable airspace to innovators.* A major problem for American drone companies is that there is a regulatory bottleneck at the FAA, and drone operators—large and small—cannot gain access to airspace. If cities and states can free up the roadway aerial easements they control, a thousand flowers can bloom.
- *Encourages medical innovation and improves supply logistics.* Medical drone delivery networks are popping up in places like China, Rwanda, and Switzerland. The United States has the companies and the talent to race ahead and improve medical and parcel deliveries in hard-to-reach places.

SOCIAL BENEFITS OF DRONE DELIVERY

This use of drones for medical, parcel, and grocery deliveries would be enormously beneficial for America's response to COVID-19. Drone deliveries would increase social distancing, thus reducing the spread of COVID-19 and saving lives. Those who are at a heightened risk to COVID-19 stand to benefit more from drone services. They are already being urged to avoid highly trafficked areas to deter potential infection. Using drones to deliver goods to them would decrease their likelihood of contracting the disease.

Another group that will benefit from integrating drones into the public health response are residents of cities that rely on public transportation. This group may end up having very limited access to essential services such as grocery stores as cities such as New York and Washington, DC, contemplate metro and subway closures.[12] Drones would effectively expand the number of options for grocery stores and other services in these cities, which would help with supply issues and maintaining social distancing.

Drones would also assist in rural areas and food deserts, where grocery stores and other key services are not restocked as quickly. While major metropolitan areas enjoy the privilege of being close to central distribution hubs, areas that are farther away could suffer disproportionately as runs on grocery stores and pharmacies intensify. With a maximum speed of 60 to 100 miles per hour and no traffic to weave through, drones make an otherwise lengthy supply chain quite short.[13]

The use of drones would increase social distancing as well, since drones could deliver goods directly to homes in rural communities rather than to a central distribution center such as a grocery store. This process could be as simple as downloading an application on a phone, typing in what you need from the grocery store, and having individuals at grocery stores load it up and send it back to you.

If state governments were to take up the task of using drones to help combat COVID-19, they should take advantage of the existing laws on the books. States such as Arkansas, Oregon, Texas, and Virginia have broad airspace leasing laws. This space, defined as aerial routes between 50 to 200 feet above the ground, could be leased or temporarily provided free of charge to capable operators willing to partner with state governments to help deliver medical supplies to hospitals, transmit COVID-19 tests to testing locations, and deliver goods to quarantined individuals.

Now is the time for the FAA to give a green light to state transportation agencies to accelerate their drone logistics plans. With basic precautions and express federal approval, states and drone startups will step up to help the nation's doctors and residents in a time of crisis.

ABOUT THE AUTHORS

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NOTES

1. Ira Boudway, "The Health-Care Startup That's Fast-Tracking Drone Delivery," *Bloomberg Hyperdrive*, March 25, 2020.
2. Boudway, "The Health-Care Startup That's Fast-Tracking Drone Delivery."
3. Xin Gou (@chineseflyer), "1/ It might be the largest-scale civil drone delivery in real use in the world as of today: SF Express' drone delivery in Hubei province, China during coronavirus," Twitter, March 17, 2020, 6:59 a.m., https://twitter.com/chineseflyer/status/1239868955579293699.
4. Pratik Jakhar, "Coronavirus: China's Tech Fights Back," *BBC News*, March 3, 2020.
5. Song Jingli, "JD.com Makes Drone Deliveries as Coronavirus Cuts Off Usual Modes," *Nikkei Asian Review*, February 12, 2020.
6. Robert F. Graboyes and Brent Skorup, "Medical Drones in the United States and a Survey of Technical and Policy Challenges" (Mercatus Policy Brief, Mercatus Center at George Mason University, Arlington, VA, February 20, 2020).
7. Brendan Fitzgerald Wallace, "My conversation with economist, author & podcaster Tyler Cowen covering everything from: 1) Buying Land on Mars (for real) 2) Privatizing National Parks," Facebook, January 25, 2020, https://www.facebook.com/fitzgerald.brendan.wallace/posts/10101719850747122.
8. Alice Lloyd George, "Using Drones to Build the Ambulance Fleet of the Future," *Tech Crunch*, December 25, 2017.
9. Wallace, "My conversation with economist, author & podcaster Tyler Cowen."
10. For a more detailed discussion of drone highways, see Brent Skorup and Connor Haaland, "Which States Are Prepared for the Drone Industry? A 50-State Report Card" (Mercatus Research, Mercatus Center at George Mason University, Arlington, VA, March 2020).
11. Oregon Revised Statutes § 271.430 (2017).
12. "New York City to Close Schools, Restaurants and Bars," *New York Times*, March 15, 2020, https://www.nytimes.com/2020/03/15/nyregion/new-york-coronavirus.html; Adam Tuss, "Metro Reduces Metrorail, Bus Service in Coronavirus Response," *NBC Washington*, March 13, 2020.
13. Joseph Flynt, "How Fast Can Drones Fly?," *3D Insider*, October 19, 2018.