



INTEGRATING DRONES INTO THE US AIR TRAFFIC CONTROL SYSTEM

One of the challenges that comes with the increasing use of unmanned aerial vehicles—also known as drones—is integrating them into the air traffic control (ATC) system so that they do not conflict with other aircraft. The flight rules that govern drones will play an important role in determining the use of this promising technology.

A new study from the Mercatus Center at George Mason University provides an overview of current Federal Aviation Administration regulations and the aviation technology that could help drones integrate into the current ATC system. The study proposes a “free flight” system that, when aided by technology, would allow drones to fly both safely and efficiently. Such a system could potentially be extended to conventional aircraft as well.

To read this study in its entirety and learn about its author, Florida State University professor and experienced pilot Randall G. Holcombe, please see [“Integrating Drones into the US Air Traffic Control System.”](#)

REGULATION CAN EITHER IMPEDE OR PROMOTE INNOVATIVE APPLICATIONS FOR DRONES

Whether the broad potential applications of drone technology actually materialize depends partly on the regulations governing drone flights.

- Current regulations require that operators maintain visual contact with their drones, a restriction that must be lifted before drones can be fully utilized.
- Another regulation requires that drones “must yield the right of way to other aircraft.” This rule could lay the foundation for integrating drones of all types into the ATC system.

NEW TECHNOLOGY ALLOWS DRONES TO OPERATE SAFELY WITH AIRCRAFT

Advances in aviation technology have made it possible for drones to safely share the skies with airplanes in the absence of burdensome visual-contact regulations.

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- Traffic collision avoidance systems (TCAS) and GPS-reliant automatic dependent surveillance–broadcast (ADS-B) technologies allow aircraft to electronically see each other during flight, making centralized control of flight paths unnecessary.
- Drones equipped with TCAS or ADS-B technology would not require direct ATC oversight during flight in order to follow the rule that they must yield to other aircraft.

TECHNOLOGY WILL ALLOW DECENTRALIZED FLIGHT PLANS AND REDUCED TRAFFIC MONITORING

Technologies that allow free flight for drones could also be applied effectively to all air traffic.

- In 2020, ADS-B transponders will be required in all aircraft that use an airport with a control tower. They will provide pilots with the ability to foresee potential route conflicts and adjust accordingly in a decentralized fashion, as automobile drivers do.
- This free flight system would increase capacity because a centralized authority would no longer be expected to review flight plans, approve flight plan adjustments, or monitor the positions of aircraft in the sky.
- Such a system would also be more resilient—equipment failures would only affect a single aircraft instead of shutting down large parts of the air transport system.