

Opinion

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# Navigation



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*This article is coauthored with Daniel Rubio, [CTO of AirMap](#) and the former CTO of road-*

*mapping platform for autonomous vehicles [HERE](#).*

Last Wednesday, U.S. Department of Transportation Secretary Anthony Foxx announced a [new advisory committee](#) on autonomous vehicles. The committee's mission: develop recommendations for how automated technology can transform the way we move people and goods, on our roads and railroads and in our airspace.

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car logs [700,000 miles](#) on the roads of California and Nevada. Toyota, BMW, Daimler, and others invest billions in technologies that could allow humans to take their hands off the wheel.

But it's another technology altogether that will dominate the future of autonomous navigation:

drones. It is autonomous aircraft, not cars, that have the advantages that will make widespread adoption of vehicles without human operators possible in the very near future. Here are four reasons why the future of autonomy is about drones, not driverless cars.

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**1. We can design low-altitude airspace for drones, not humans.**



From the very beginning, our network of roads, highways, bridges, and overpasses has been built on the premise of human drivers. The roadways are static, the street signs are static, and traffic flows much as it did when the first roads were mere dirt paths. If we designed our cities anew today, we'd create a fundamentally different traffic system: cloud-based and capable of microscale adjustments to efficiently manage

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*LAS VEGAS, NV – JANUARY 07: An EHang 184 autonomous-flight drone that can fly a person is displayed at CES 2016. The 18-foot-long, 440-pound drone can fly up to 63 mph for 23 minutes and go about 20 miles. It can carry one passenger who does not need to pilot the drone. Once a destination is entered, only a take off or land button needs to be pushed to travel. (Photo by Ethan Miller/Getty Images)*

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An onboard driverless navigation system isn't enough to make a car autonomous; these vehicles will also need help from high definition maps, real-time road capture via computer vision, an integrated network that connects each car with other driverless vehicles, and a

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driverless one.

Low-altitude airspace, on the other hand, is largely untouched. As drones take to the skies, industry stakeholders have the opportunity to build a network that is designed to accommodate autonomous navigation from the very beginning: digital, connected, and **data-driven**.



## **2. Traveling in three dimensions offers more flexibility than two.**

The path a car travels is often simpler than the one a drone must fly, but it is also lacking in flexibility.

Cars are constrained by the road itself, and by the two dimensions in which they travel: forward and backward, right and left. Drones have more degrees of freedom, able

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## **3. An open platform accelerates innovation.**

Car companies have long competed with each other, and driverless technology is no exception.

Autonomous navigation technology is being built vertically: each automaker is a closed system, making it difficult for second party

developers (such as a contractor building a feature for a vehicle) or third party innovators (such as the inventors of a new app) to leverage autonomous vehicle platforms at scale.

We've seen before that open platforms can fast-track innovation. Consider the impact that the internet, the ultimate open platform, has had on our world. Or consider how Apple, one of the most ubiquitous tech companies in

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proprietary, there is **tremendous collaboration across platforms** and between hardware manufacturers, software developers, and service providers. These partnerships will amplify and enable innovation for the entire industry because anyone can invent a solution that powers or is enabled by a drone.

#### 4. An affordable technology is an accessible one.

The price of entry into the automotive market is incredibly steep, and the industry is full of established, well-funded players. In contrast, drones can be purchased at a wide range of price points, opening the ecosystem to many more innovators and entrepreneurs. Buying a drone to test a new application, experiment with a new business model or start

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autonomous drones will fly our skies long before millions of fully autonomous cars travel our roads.

Perhaps we might even ride in [flying cars](#) before we ride in driverless ones.

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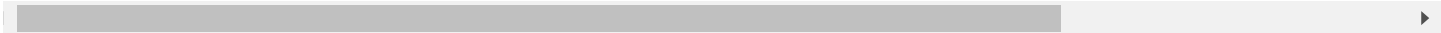
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