GlobalResearch
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Delivery Drones and Driverless Vehicles: UPS, FedEx Investing in Drones

While Pushing Tax Cuts as Job Creators

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Global Research, October 19, 2017
TYT Network 10 October 2017

Region: USA
Theme: Law and Justice, Poverty & Social Inequality

Twenty-one patent filings, along with other documents reviewed by TYT, show that FedEx and UPS are actively investing in drones and driverless vehicles—which some analysts estimate could cost thousands of jobs—even as both companies lobby for corporate tax cuts they say will create jobs.

One official involved in research for FedEx told TYT that the industry is looking at drones for more than just deliveries to unusual locales, but as a future "staple" of urban delivery, as well.

TYT previously reported that the two companies—among the nation's biggest employers—are spending hundreds of millions of dollars on automating their package scanning and processing capabilities, and investing in research to create new automation technology.

Both UPS CEO David Abney and FedEx CEO Fred Smith have said publicly that corporate tax cuts will lead generally to economic growth or, specifically, will create jobs. As TYT reported, the two companies have both lobbied Washington lawmakers for tax cuts and support several business organizations actively pushing for tax cuts.

Recent financial filings from the two companies, however, reveal no plans to use any tax windfall for wholesale new hiring. Instead, corporate and academic documents, as well as public statements from executives at both FedEx and UPS, suggest it's more likely a tax windfall would contribute to ongoing investments in drone technology that could reduce long-term headcounts.

Federal lobbying disclosure forms reviewed by TYT show that some of the same UPS lobbyists pushing Congress to pass tax cuts are simultaneously lobbying both Congress and the U.S. Department of Transportation to "advance opportunities for unmanned aerial systems."

FedEx has created an entire academic institute at a public university in its home state that now has a research cluster devoted to drones.

FedEx's DRONES Initiative

FedEx established the FedEx Institute of Technology at the University of Memphis in 2003. At the launch ceremony for the Institute, Smith commented on how the Institute relates to his company.

> "Technology has long been a strategic competitive advantage for FedEx," Smith stated. "The Institute, as a center of excellence for information technology, will provide FedEx and other organizations in the public and private sector a forum and the resources to envision new courses of action."

In 2016, the Institute created a drones research cluster, including autonomous vehicles under its umbrella.

The Institute refers to the cluster's research as the DRONES initiative, for Drones, Robotics and Navigation Enabled Systems. FedEx has invested at least $10 million in the Institute since its founding in 2003, including $5 million in seed funding. According to the Memphis Business Journal, the Institute also received $15 million in initial funding from the Tennessee Board of Regents, $2 million from the City of Memphis, and $1 million from Shelby County in Tennessee.

The Institute's website says,

> "Through the DRONES initiative, the University of Memphis will be recognized as a thought leader in these highly advanced mobile platform technologies. … Utilizing the University's Office of Technology Transfer, we intend to convert new mobile platform innovations into commercial products, benefitting the region, the state of Tennessee, and our nation."

Since its creation in 2003, the Institute says in its most recent annual report, its researchers have disclosed 170 inventions and received eight copyrights, 34 U.S. patents, and 15

licenses to industry.

Cody Behles, manager of innovation & research support for the FedEx Institute, told TYT that he believes drones will play an increasingly prominent role in the shipping and logistics industry for companies such as FedEx and UPS.

> "The shipping and logistics industry is investigating the application of drones from many different angles and with many different assumptions as the starting point," Behles told TYT in an email. "While some are focusing on last mile delivery, others are looking at high value or high cost transit routes, such as in high density urban environments or remote and difficult to access areas. This technology will become a staple."

Earlier this year, the MIT Technology Review reported that FedEx Chief Information Officer Rob Carter said his company is "very much interested in" achieving completely autonomous trucking. The company has deployed its own internal researchers to work on autonomous vehicles-related patents.

In a patent granted in June 2015, FedEx proposed a driverless vehicle network in its application for "Autonomous transport navigation to a shipping location using elements of a wireless node network." The application says that, "The system generally comprises three nodes—a first node associated with a courier transport vehicle, a second node associated with the package, and a third node integrated as part of an autonomous vehicle related to the courier transport vehicle."

Speaking at the University of Memphis on April 6, FedEx CEO Fred Smith said,

> "Researchers are just in the early stages of testing a broad range of autonomous features. We're several years away from completely autonomous vehicles, though the technology is evolving quickly."

Smith also said,

> "Since FedEx operates about 150,000 vehicles on the roads every day, we're reviewing autonomous technology of all kinds for our driving operations, particularly for heavy, long-haul trucks."

UPS and Drones

UPS is already testing delivery drones. In February, it announced the successful test run of a package delivery via a drone launched from the top of a delivery truck. UPS told reporters that it sees the delivery as a bellwether for the future.

> "This test is different than anything we've done with drones so far. It has implications for future deliveries, especially in rural locations where our package cars often have to travel miles to make a single delivery," Mark Wallace, UPS senior vice president of global engineering and sustainability, said in a press release. "Imagine a triangular delivery route

> where the stops are miles apart by road. Sending a drone from a package car to make just one of those deliveries can reduce costly miles driven."

The test was a collaboration with Workhorse Group, a manufacturer of drones. The UPS press release said, "a reduction of just one mile per driver per day over one year can save UPS up to $50 million. UPS has about 66,000 delivery drivers on the road each day. Rural delivery routes are the most expensive to serve due to the time and vehicle expenses required to complete each delivery. In this test, the drone made one delivery while the driver continued down the road to make another. This is a possible role UPS envisions for drones in the future."

The test was neither UPS's first drone test, nor its first collaboration with other companies specializing in drone technology.

In 2015, CyPhy Works announced $22 million in new funding, including an undisclosed amount from the UPS Strategic Enterprise Fund. Just under a year later, UPS announced its first tests of CyPhy drones to make deliveries to remote and hard-to-reach locations.

> "Our focus is on real-world applications that benefit our customers," Wallace said.

UPS is also an investor in Peloton Technology, which includes John Formisano—former vice president of global vehicle operations for FedEx Express—on its advisory board. Peloton is researching driverless vehicles.

Carter, FedEx's CIO, told the MIT Technology Review that his company is working with Peloton, which is developing technology to link driverless trucks into semi-autonomous "platoons." The Review reported,

> "The system, which uses wireless vehicle-to-vehicle communication to enable the driver of a lead truck to control the gas and brakes of a truck following closely behind him, is designed to reduce wind resistance and save fuel. The technology is considered a significant step toward fully autonomous trucks, and Peloton has said it will release it in late 2017."

According to the same report,

> "Carter says he expects to see 'significant implementations' of automated vehicles in the shipping industry within 10 years, but declined to specify when FedEx might adopt semi- or fully autonomous trucks."

Both FedEx and UPS are also working within government to clear regulatory barriers against driverless vehicles and drones.

FedEx Corporate Vice President of Operations & Service Support Gloria Boyland serves on the DOT's Federal Committee on Automation, formed by the Obama Administration, though the committee has yet to hold a meeting since Donald Trump assumed the presidency. The committee was created to advise on proposed regulations for autonomous vehicles, but the DOT reportedly plans to move forward with its own regulation announcements as early as

this fall.

Houston Mills, UPS Airlines' director of safety, sits on the Federal Aviation Administration's Drone Advisory Committee, also originally put together by the Obama Administration.

In a press release referring to newly eased restrictions on drones, UPS said,

> "UPS believes these new rules are a step in the right direction. With the recent appointment of [Mills] to the FAA's new Drone Advisory Committee, UPS intends to keep working closely with regulators to stay on the right path."

Neither company responded to multiple requests for comment about how their drone and automation efforts might affect future job numbers. UPS referred TYT to CEO David Abney's September statement supporting the Republican tax-reform outline.

In a May report, Goldman Sachs concluded that driverless vehicles could cost the U.S. economy 25,000 jobs per month.

> "UPS has a history of innovation that reaches back more than a hundred years," Wallace said, regarding last year's drone test. "UPS uniformed employees remain a vital connection to our customers, but tests like these reveal a bridge to the future of customer service and urgent package delivery. We are continuously exploring ways to improve our network to efficiently support our customers' demanding requirements."

Featured image is from ups.org.

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