

NOVEMBER 2021

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## Innovating Last-mile Delivery

BrightDrop aims its tech, tools and talent toward the hot new market

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# BrightDrop Innovates Last-mile Delivery

by Gary Witzenburg

The GM spinoff's holistic set of solutions aims to help boost productivity and improve safety, while cutting fleet costs, street congestion and emissions.

**On a city street, two delivery vans are unloading** cargo. One driver carries a package out of his van and delivers it inside an apartment building. Then he returns for another and carries it in. Then another and another, lugging the heaviest ones on a hand dolly while dodging traffic. Then he carries back an outgoing package.

Across the street, the other driver unloads an enclosed, wheeled pallet and grabs a handle on its side. She guides the box-like pallet with little effort — it's motor-driven — to an office building. A few minutes

later, she returns, rolls the first box back into her van, unloads another one and guides it to the building next door. Shortly she's back to wheel that second box into the van. The stop completed, she drives away quietly in the electric van, while her counterpart across the street is still moving packages one or two at a time.

So-called “last-mile” delivery — increasingly connected, electrified and automated — is a hotbed of innovation that has exploded in recent years. Driven by the consumer shift to online retail purchasing that was substantially boosted during the pandemic, last-mile commerce is attracting new players as well as mobility incumbents. One newcomer, BrightDrop, is a General Motors offshoot created to serve customers in the most efficient way possible.

“Demand for global e-commerce is soaring,” said Travis Katz, BrightDrop president and CEO. “Not only are we ordering more and more online; we want our deliveries to arrive faster than ever.” BrightDrop, he explained, began as an idea from GM Global Innovation, an organization within General Motors that identifies and incubates new, high-growth, transportation-related business opportunities that leverage GM resources. It was then launched as a standalone business in January 2021.

GM estimates that by 2025, the combined market opportunity for parcel, food delivery and “reverse logistics” in the U.S. will more than \$850



BrightDrop contends that its purpose-designed EV600 can save operators as much as \$7,000 annually vs. comparable diesel-powered delivery vans.

BrightDrop



BrightDrop

The boxy EP1 electric pallet offers remote-locking cargo security and reduced operator fatigue.

billion. Demand for urban last-mile delivery, fueled by e-commerce, is expected to grow by 78% by 2030, according to the World Economic Forum, leading to a 36% increase in delivery vehicles in the world's top 100 cities. Experts also see last-mile business evolving with autonomous capabilities.

“Our team spent a significant amount of time developing and testing solutions and collaborating with companies to help us understand their pain points, and our products are a result of that real-world testing,” Katz told SAE Media. “More than just electrifying delivery vehicles, we are reimagining the last-mile ecosystem with a holistic set of solutions focused on helping fleets lower costs, maximize productivity and improve safety. All while reducing harmful tailpipe emissions and street congestion.”

### Unique electric products

BrightDrop's first four products are the EV600, a battery-electric light commercial vehicle (eLCV) designed for city deliveries; the EV410, a mid-size eLCV designed for smaller loads and more frequent trips; the EP1, an electric pallet to transport goods for short distances; and a cloud-based software platform designed to improve operations efficiency with real-time data, insights, and controls. The EP1 is beginning to enter the market, while the EV600 is expected to be in service by late 2021, beginning with a fleet of 500 vans for FedEx



BrightDrop

The synergy of BrightDrop's electric vans and EP1 electric pallet will bring benefits in business efficiency, reduced congestion and lower urban emissions said CTO Anthony Armenta.

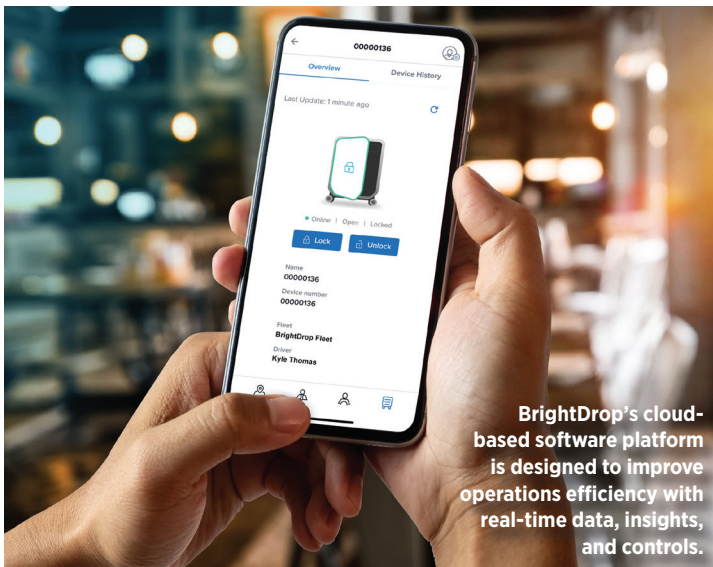
Express. Verizon, one of the largest fleet operators in the U.S., is the first customer slated to integrate the EV410 into its field-maintenance and service fleet.

How does BrightDrop collaborate with GM to accomplish hardware and software engineering, development, and testing? “We have the best of both worlds,” Katz explained, “the cutting-edge innovation and agility of a tech startup and the manufacturing expertise, track record and production scale of GM.”



Steve Fecht/BrightDrop

**GM currently assembles the BrightDrop electric vehicles at a pilot facility in southeast Michigan. In 2022, it will shift full-scale production to its CAMI plant in Ingersoll, Ontario. The EV600 (shown) went from concept to commercialization in 20 months — claimed to be a record for GM.**



**BrightDrop's cloud-based software platform is designed to improve operations efficiency with real-time data, insights, and controls.**

BrightDrop

He stressed that BrightDrop is a separate company within GM with decision-making autonomy in areas such as IT, product management, system safety and sales and marketing. “We are able to tap into the core strengths of GM, including their deep expertise and scale in electrification and manufacturing, but with the ability to move outside the traditional decision-making processes and move at startup speed,” he said.

And it has brought in top executives from outside the auto industry, including its chief technology officer, chief product officer, chief revenue officer and chief people officer, from companies such as Google, NIO, Lyft and Uber/Postmates. They collectively bring experience in advanced autonomous technology, software and robotics.

BrightDrop CTO Anthony Armenta outlined the company’s product line. The EV600, currently the largest vehicle in the range, has 600 cu. ft. of cargo volume (hence its name) and a 2,200-lb (998-kg) payload rating. It is powered by GM’s Ultium battery system rated at 165 kWh, which provides a maximum 250-miles (402-km) range. “Fast charging can add 170 miles (274 km) of range in an hour,” Armenta explained. And EV600 “has all the goodness of the GM product portfolio” including park assist, automatic emergency braking and other safety features. Full telematics within BrightDrop’s software solution “help fleet customers understand and manage where their vehicles are, the routes they are taking, their state of charge and all the analytics you expect in an electric vehicle,” he said.

EV600 is a purpose-engineered EV, rather than an electric conversion of an ICE-powered van or based on any existing light-truck architecture. BrightDrop contends that it can save operators as much as \$7,000 annually versus comparable diesel-powered delivery vans. The EV410 combines many of the same features

*We have the best of both worlds: the innovation and agility of a tech startup and the manufacturing expertise, track record and production scale of GM.*

of the EV600 in a smaller, more-maneuverable package. It offers 400 cu. ft. of cargo area and its more compact dimensions — 150 in. (3810 mm) wheelbase, overall length slightly less than 20 ft. (6.1 m) — give it desirable maneuverability and “curb management:” EV410 can fit into a standard-size parking space. Gross vehicle weight is less than 10,000 lb. (4,536 kg). Other vehicles are in development.

BrightDrop’s EP1 “is a highly maneuverable electric pallet that can carry 23 cu. ft. of cargo and 200 pounds of payload,” Armenta said. “In high-density areas, it makes sense for drivers to be able to exit the vehicle with many packages to deliver within an area such as a condo, an office building or a campus, and it allows the driver to complete 20 or 30 package deliveries with one round trip,” he explained. “It also helps with reverse logistics, since some customers have return packages.”

### Integrated delivery solutions

Armenta noted that a pilot program with FedEx Express in Toronto has demonstrated that some 25% more packages can be delivered per day by reducing driver roundtrips to and from their vehicles. “So, the combination of EV600 and EP1 will bring really huge benefits in efficiency while reducing congestion and exhaust emissions in cities,” he said. Pre-loaded with packages for delivery to a specific area or address, several EP1s can be carried in the vehicle, then unloaded and maneuvered to wherever the packages need to go.

“Think of it as an electric handcart capable of navigating sidewalks and moving around easily inside buildings,” he offered. EP1 has locked doors for cargo security and BrightDrop software tracks how often the unit’s doors are opened and packages are removed or inserted. These features enable the delivery people “to



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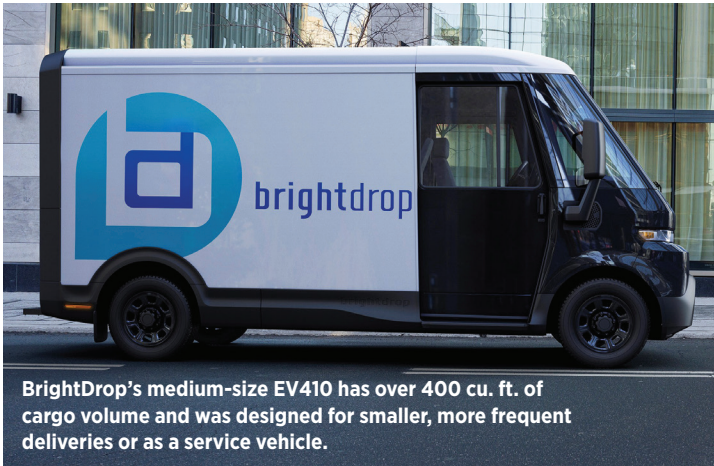


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Steve Fecht/BrightDrop

BrightDrop's medium-size EV410 has over 400 cu. ft. of cargo volume and was designed for smaller, more frequent deliveries or as a service vehicle.

do a large number of deliveries in an area and with good security and less fatigue,” Armenta said.

The BrightDrop vision, Katz explained, extends far beyond the vehicles. It is to be “a leading provider of integrated delivery solutions that will help drive efficiencies and sustainable growth for commercial customers. It’s about how we create a holistic set of solutions that ultimately delivers better cities long-term,”

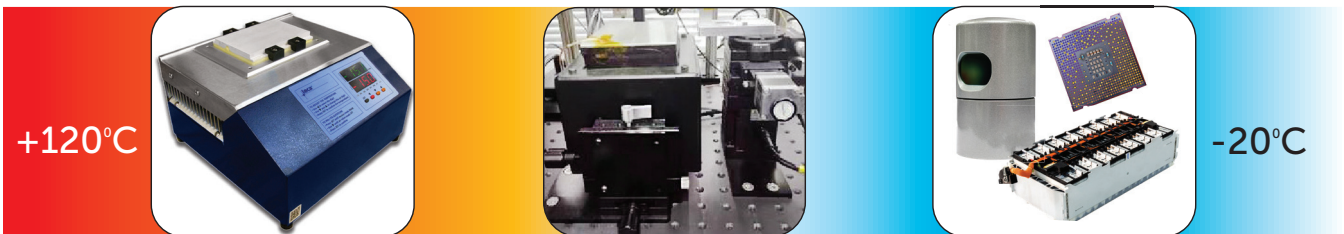
he said. This one-stop-shop approach is a major differentiator for BrightDrop in the last-mile marketplace. “We don’t just make one product, or just fleet management software,” Katz asserted. “We have developed an integrated ecosystem of products and services that can help improve almost every aspect of first- to last-mile delivery—and can also help create safer and less congested cities. The opportunity is substantial. “

BrightDrop is counting on upward trajectory of e-commerce and delivery, coupled with the benefits of electrification in terms of total cost of ownership (TCO) and sustainability, to drive the young company’s growth. In addition to the FedEx vehicle order, BrightDrop has an order for 12,600 EV600s from Merchants Fleet, a large fleet-management company. A pilot program with Urban Freight Lab specifically for time-sensitive perishable goods and food deliveries is ongoing in Seattle.

“BrightDrop offers a smarter way to deliver goods and services,” stated GM chairman/CEO Mary Barra. “We are building on our significant expertise in electrification, mobility applications, telematics and fleet management, with a new one-stop-shop solution” for commercial customers to move goods in a better, more sustainable, and eventually more autonomous, way. ■

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