

Electric scooters need to toughen up – and stay out of lakes – if they are going to survive 2019



In September 2017, a company called “Bird Rides” dumped several hundred electric scooters on the streets of Santa Monica, California, kicking off the scooter-sharing trend in the US. Fourteen months later, people are vandalizing those scooters and dumping them into lakes, and investors are losing interest.

The explosive growth of dockless scooters and their contentious reputation was the surprise transportation story of the year. Bird and its main rival Lime are each worth an estimated \$2 billion, and their popularity has given rise to over 30 scooter startups operating in an estimated 150 markets around the world. But as they head into year two, investors are losing interest while the business is growing increasingly expensive to operate, according to reports in *The Wall Street Journal* and *The Information*.

Vandalism and depreciation costs are also taking their toll as scooter companies struggle to get their newer, more rugged models on the streets. *The Information* got a hold of Bird's pitch book in October, and while the numbers may be a little out of date, they suggest the companies are struggling to turn a profit.

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Bird said it provided 170,000 rides per week in the first week of May. The company had around 10,500 "active" scooters during that period, and each one was used five times per day. Active scooters generate \$3.65 in revenue per ride, the company said. Meanwhile, Bird spent \$1.72 per ride on charging costs, and another \$0.51 per ride, on average, on repairs. That doesn't include credit card fees, permit fees, insurance, customer support, and other costs. So in May, Bird was pulling in about \$602,500 in weekly revenue, offset by \$86,700 in maintenance costs. That means Bird was eking out \$0.70 in profit per ride, or a 19 percent gross profit margin.

Those repair costs could go up, especially in light of recent news related to battery fires. In October, Lime recalled 2,000 scooters, less than one percent of its total fleet, following several fires. The startup placed the blame on Ninebot, which makes most of the scooters used in sharing services in the US. Ninebot, in turn, severed its relationship with Lime.

But these repair costs don't take into account the costs associated with vandalism. Encouraged by social media, anti-scooter types have knocked them into the streets, thrown them off parking garages, or even doused them with lighter fluid and set them on fire. According to *Slate*, the city of Oakland had to fish 60 electric scooters out of Lake Merritt in just the month of October. Environmentalists are calling it a "crisis."

Spin, a San Francisco-based company just acquired by Ford that operates scooters in a dozen markets in the US, says it starts

under the optimistic assumption that its scooters will last a full-year, based on regular usage. “That is shortened by things like theft and abuse,” said Euwyn Poon, Spin’s co-founder. He declined to share the exact costs associated with vandalism, as did other scooter providers, citing proprietary information and non-disclosure agreements.

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Scooter vandalism “might be fun for a while,” Poon said. “When something new rolls out, people think its funny. But then the excitement goes away. And suddenly, it’s not a new thing.” Other scooter operators have said that vandalism isn’t as big an issue outside of cities like San Francisco and Washington, DC.

A more systemic problem is the daily wear and tear associated with heavy fleet use of scooters. According to *The Information*, Bird said its electric scooters tend to last one to two months before they need to be replaced. Lime’s scooters have a similar lifespan. That makes the scooter startups’ efforts to build a more rugged version with longer battery life more urgent. Bird unveiled its “Bird Zero” model in September, with 60 percent more battery life, solid-core tires, and a wider and longer riding chassis for a more stable ride. Lime’s Gen 3 scooter roughly boasts the same specs.

Ninebot – owner of the early-2000s version of e-scooters, the Segway – makes the majority of the scooters used by US sharing services. But their scooters are made for individual consumers, and not heavy fleet use. Sensing an opportunity, some smaller scooter manufacturers are emerging to challenge Ninebot’s hegemony. One example is the M Scooter Pro by Acton, a Mountain View-based company that also makes electric skateboards and rocket-skates at a facility in China. The M Scooter Pro, which has a more powerful battery, longer range, a built-in locking mechanism, and more durable parts, is set to debut in January 2019. Peter Treadway, chief technology

officer at Acton, said the M Scooter Pro was “over built” to fulfill “very brutal needs.”

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These new scooters need to withstand up to 10 rides a day, plus all of the bumps and bruises associated with the operational side of the business. In most markets, scooters are gathered up in the evening by independent contractors, who take them home for overnight charging. These so-called “juicers” load the scooters into their personal vehicles. And typically they aren’t handled lightly, according to Michal Nakashimada, product manager at Ride Report who writes a weekly newsletter tracking the micro-mobility industry. “It’s just a lot of wear and tear in the back of a Honda Civic or a Ford F150,” he said.

A possible solution to the depreciation associated with charging could be field-swappable batteries, in which a scooter’s depleted battery is exchanged for a fully charged one, which eliminates the need to take the entire vehicle off the street for charging. “That would significantly lower op costs when you can put 500 batteries in the back of the Sprinter van,” Nakashimada said. “And have one or two people just swapping vehicle batteries instead of having to put the whole unit into a van or taking it back home and recharging it. That would be exciting for the industry.”

But what about vandalism? The solution most of the companies are talking about these days are “lock-to” mechanisms, which can take the form of retractable cables that can be wrapped around parking signs or streetlights. Uber’s Jump bikeshare bicycles have lock-to devices. Bird is testing out a retractable lock in Bakersfield, California.

Acton’s M Scooter Pro also includes a locking mechanism, as well as an IoT box that allows fleet managers to remotely geofence the ride and set locations where users are allowed to

park. "We're just trying to keep scooters from being thrown in rivers or under buses or into trash cans," Treadway said.

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Eventually the scooters may be able to report vandalism as it is happening in real time. "What happens when scooters aren't in use?" Nakashimada asked. "They become a stack of sensors either mapping the environment, reporting vandalism by itself, providing data in municipalities."

Cities want access to that data, including information about repairs and maintenance logs. They are writing data-sharing provisions into the pilot programs they are creating as a way to prevent companies like Bird and Lime from dumping scooters on their streets indiscriminately.

"They want to understand fleets, and how they're changing over time," said Regina Clewlow, CEO of Populus, a data-sharing firm that works with both scooter companies and cities. That said, the startups may try to block cities from publicizing information related to maintenance and vandalism. "It's partly competitive intelligence, but practically speaking, they want to be able to grow their business and deal with all the growing pains without all their information being completely public."

Now that the initial shock of seeing thousands of dockless scooters littered across American cities has worn off, it's time to step back and assess where this so-called "micromobility revolution" is taking us. Is it leading to a cleaner, more sustainable future where electric-powered scooters are the primary mode of transportation and polluting cars are left to gather dust? Or is it headed toward mass scooter graveyards like the mountains of discarded bikeshare bicycles seen in those viral photos from China?

The scooter companies would obviously prefer the first

outcome, but they'll only get there if they can bulk up and get smart about how people are using – and misusing – these vehicles. If they can manage to stay on dry land and out of any major body of water, then maybe they'll have a chance at becoming the future of transportation.

<https://www.theverge.com/2018/12/16/18141418/scooter-vandalism-rugged-bird-lime-spin-acton>