Waymo is way, way ahead on testing miles—that might not be a good thing

Enlarge / A Waymo self-driving car doing its thing in May 2019.

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Waymo, Alphabet's self-driving company, has logged 20 million miles on public roads, the company announced in a Tuesday press statement. The new milestone comes just 15 months after Waymo hit the 10 million mile mark in October 2018.

The latest figure puts Waymo far, far ahead of its rivals. I noted 15 months ago that only one company had announced even 1 million miles of driving—and that was Uber, which was forced to scale back its testing after a fatal crash. Today, the story is largely the same; if anyone else in the self-driving industry has cracked a million miles of on-road driving, I haven't seen the press release.

Back in 2018, I reported that most of Waymo's rivals are quick to dismiss the significance of testing miles. Today (as in 2018), they argue that quality of testing miles matters more than quantity.

Back then I wasn't entirely convinced. As I pointed out at the time, there's no substitute for real-world testing when you're shipping a safety-critical product. And Waymo was aiming to

launch a fully driverless service by the end of 2018. So I thought it made sense that Waymo would be logging millions of miles to work out the last few kinks. The fact that rivals weren't logging as many miles, I thought, was just another sign that they were further from commercial launch.

But Waymo wasn't actually on the verge of launching a driverless commercial product in late 2018. The company missed its self-imposed deadline, and more than a year later, Waymo still isn't offering driverless rides to the general public.

The company has been making slow and steady progress. Waymo says it has completed some fully driverless rides for passengers in its closed testing program in a portion of the Phoenix area. But it's not clear how soon this fully driverless technology will become available commercially in Phoenix. And it's even less clear how quickly Waymo will be able to scale up to other cities and eventually the world.

What if Waymo's approach is a dead end?

There are two possibilities. One is that Waymo is

fundamentally on the right track but that the development and testing process is just taking longer than Waymo executives expected a couple of years ago. In this scenario, Waymo will eventually launch a fully driverless service and then quickly scale it up to more cities. Then Waymo's rivals may regret having underinvested in their own testing and scramble to catch up.

But the other possibility—and the one that seems more likely at this point—is that Waymo is on the wrong track. Early last year, I drew an analogy between Waymo and another technology pioneer: Xerox PARC. PARC invented the modern PC in the 1970s but then failed to commercialize it effectively. Waymo, I argued, risked falling behind to self-driving startups in much the same way that Xerox ceded its technology leadership to upstarts like Apple, Microsoft, and Adobe.

A year later, this still seems like a serious risk for Waymo. I worry that Waymo has bitten off more than it can chew by attempting to go to market with a general-purpose taxi service. Such a taxi service needs to be able to travel at freeway speeds, merge onto crowded highways, and make left-hand turns in the face of fast-moving traffic. All of these maneuvers create the risk of deadly crashes if the cars malfunction, which makes Waymo justifiably cautious about launching a fully driverless service.

In contrast, a number of self-driving startups are focusing on low-speed applications like campus shuttles and package delivery services. With top speeds of 25 miles per hour, these services dramatically lower the risk of injury or death. None of these startups has racked up anywhere close to 20 million miles of on-road tests. But they might not need so much testing because the safety risks are so much lower.

And once a company has launched an actual, profitable commercial service, it can rack up millions of real-world miles without incurring the massive costs of Waymo's testing

program. So over time, it’s easy to imagine these startups expanding to new applications and gradually increasing the top speed of their vehicles. It will take a few years to reach the capabilities of a general taxi service, but it still might happen faster than under Waymo’s current approach.

Update: A Waymo spokesman commented by email.

> *The safe deployment of fully self-driving vehicles requires extensive testing in the real world, on private test tracks and in simulation. The million of miles we’ve accumulated on real roads in self-driving mode not only allow us to measure the performance of our driving across a diverse set of scenarios, but also aid in the discovery of new edge-cases.*

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