



# Impacts of COVID-19: Can the AV/ADAS Market Survive a Pandemic?

By **Katelyn Abel**

Six weeks after COVID-19 was declared a pandemic by the World Health Organization (WHO), the coronavirus continues to dominate headlines and impact nearly all facets of daily life as we know it. The automotive and ADAS/AV industries are no exception. Governments' stay-at-home orders have strict guidelines that have impacted the workforce. While many companies have been able to continue operations through remote work, automotive manufacturing has largely ceased, major industry events like [NAIAS](#) have been canceled, and companies that are testing or deploying fleet operations have also had to pause. With production halted and many tech companies struggling to make ends meet, there is no doubt that we will see lasting effects on mobility and automated driving. Significant impacts on ADAS and AV technologies include:

- Robotaxi research and development will be significantly impacted by the financial turbulence in the wake of COVID-19. Robotaxi deployments will be delayed by some years due to the economic impact to those developing these technologies.
- ADAS and low-level automated driving will prevail to the extent the economy rebounds. We have witnessed a revival in ADAS (including L2/2+) but these segments will be negatively affected by the reduction in automotive demand.

This article will discuss the impacts of COVID-19 on the automotive industry with a specific focus on ADAS/autonomous vehicles. Topics covered will include OEMs & suppliers, robotaxis, shared mobility, and delivery vehicles.

## **OEMs & Suppliers**

The year started fairly well for the auto market, but many are predicting it will turn into a disaster. Market researcher [Edmunds](#) anticipates the industry's annualized selling rate in the U.S. will slow to 11.9 million. Jeff Schuster of LMC automotive [predicts an even lower annual selling rate](#) of between 9-10 million units (US), which would be lower than in 2009 when GM and Chrysler filed for bankruptcy.

On a fundamental level, automotive OEMs are being impacted by a lack of vehicle sales. Put simply, Morgan Stanley analyst Adam Jonas [noted](#), "There are basically no



U.S. auto sales right now." This is in part due to the closure or limited operations of car dealerships, but also a hesitation to buy or lease vehicles that stems from economic uncertainty for many who have lost their jobs or been temporarily furloughed.

Consumers may also change their driving behavior in the long-term as a result of COVID-19. As people and companies realize they can accomplish more remotely, we may see a reduction in overall miles driven per year. On the other hand, cheap oil and gas prices could encourage more driving and more vehicle purchases. The lasting impact remains to be seen.

When it comes to production, OEMs and suppliers' manufacturing has largely stopped around the world, though the situation is fluid and changes daily. Some OEMs have announced plans to resume production later in April. It's possible that this hold, though temporary, could lead to a shortage of consumer vehicle inventory later this year, and it may delay the release of new 2021 models.

While it won't necessarily save them financially, several OEMs have started manufacturing ventilators for COVID-19 patients, which have been hard to find as hospitals worldwide are ramping up care for those infected with the virus. For example, [GM, Ford and Tesla](#) are supporting medical device companies scale production of key hospital equipment. GM is helping Ventec Life Systems expand its production of ventilators, making room for manufacturing at one of its factories in Indiana. Meanwhile, Ford has teamed up with General Electric's health care division to help boost production at Florida-based ventilator company, Airon.

Automotive companies are well positioned to support these efforts, not only because they already work with components similar to those in ventilators, but because they specialize in building highly complex products that require unique logistics and coordination to build.



*Ford and GE Healthcare Ventilator ([source](#))*

Ultimately, OEMs are being hit hard financially by the coronavirus. This likely means pausing longer-term projects and innovation, particularly related ADAS and automation features. The focus for these companies, at least through 2020, will be recovering and staying afloat.



## Robotaxis

Some argue that the pandemic came too early to leverage robotaxis to their full potential. It's possible that if robotaxis had already been commercially deployed and readily available, we would likely see a spike in usage.

While companies that are currently testing AVs could reasonably do so with a single safety driver, most have suspended their operations and grounded vehicle fleets as a precaution. The reality is that companies working to develop human-free driving systems still rely on backup drivers, remote operators, and other human workers. As such, advancement toward full automation has been slowed significantly by coronavirus-related restrictions.

Waymo is one example of this trend. While full-time employees have been encouraged to work from home, all vehicle operations have been suspended for the time being. Other major players including Cruise, Uber, Argo AI and Zoox have also paused testing.

When it comes to the development phase, companies who are equipped to support telecommuting can continue some work and testing in simulation. AV startup Voyage [stopped their fleet operations](#) before COVID-19 had been declared a pandemic, as they serve seniors in retirement. Voyage has pivoted to a remote work environment, running simulations and using a variety of automated testing tools for various purposes. Unlike many other startups, Voyage has not had to lay off any employees.



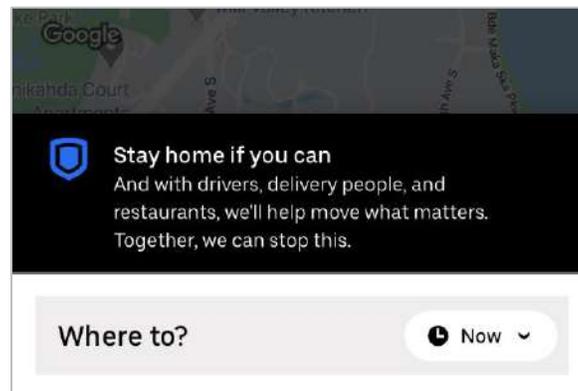
Voyage simulation tool, Deepdrive ([source](#))

Zoox, the most ambitious developer of self-driving taxis, is laying off 10% of roughly 1,000 employees. This comes after the company raised \$200 million in convertible debt last fall after previously raising \$800 million in equity financing.

Though most of these companies can continue business remotely, many will likely struggle to raise capital in the near future due larger economic uncertainty. Some are lucky, having already raised enough capital to stay afloat, but it remains to be seen how the economy will fare in the months and years ahead.

## Shared Mobility

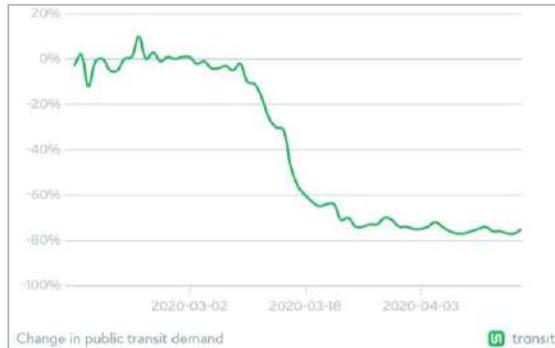
Shared mobility has been radically affected by COVID-19. Ride hailing behemoths Uber and Lyft have decreased rides significantly, not only because all travel has been drastically reduced, but because riders worry that drivers or previous passengers could be contagious. Similarly, many drivers have stopped working out of fear for their own health and safety. Both companies are under fire for alleged illegal treatment as independent contractors. Still, customers looking for a ride can get one, though they are encouraged to stay home if possible.



Screenshot from Uber app on April 15, 2020

E-scooter services have also been scaled down during the pandemic. Not only has demand decreased as people are urged to stay home, but riders worry that touching things that others are touching, like handlebars for example, could infect them. Accordingly, many scooter sharing services have paused operations. Lime, the industry leader in scooter sharing, has removed fleets worldwide, with the exception of two South Korea cities. On the other hand, Ford-owned scooter company Spin has stepped up to fill gaps in public transportation for essential travel. They are still operating in cities like Detroit, Los Angeles, San Francisco, and Washington, DC.

Public transportation is another important piece of the puzzle. According to app company Transit, public transit demand is down 75% compared to normal. In spite of this, many individuals who are deemed essential workers, and others who need groceries or medical care must rely on public transit amidst the pandemic. The nature of these vehicles means riders must stay in close proximity in a confined space.



*Transit shows decrease in public transportation demand through April 17 ([source](#))*

With business disrupted, some shared mobility companies are pivoting to support coronavirus relief efforts. Last week [Lyft announced](#) it was launching a program called Essential Deliveries, which will deliver essential products to healthcare companies, government organizations and non-profits during the pandemic. The deliveries are contact-free, and can contain items such as meals, groceries, medical supplies, and cleaning goods.

If the economy heads into an extended recession, which many financial analysts predict, it will be the first for most of these shared mobility companies. Depending on how long the economic downturn lasts, it is possible that some may not survive.

### Delivery Vehicles

With most of the population urged to stay home, it is no surprise that delivery demand, from groceries and goods to restaurant meals, have surged. In fact, it was [reported last month](#) that grocery delivery service Instacart was looking to hire 300,000 workers, and Amazon was hiring 100,000 additional roles to keep up with demand.

Unmanned delivery vehicles or drones, while not yet widely deployed, would be very valuable in a pandemic like we're experiencing now. Current conditions have led some companies releasing new driverless vehicles to hasten development. For example, self-driving startup Nuro made timely news earlier this month when it was [approved to test its driverless delivery robots](#) on public roads in California, becoming the second company to receive clearance in the state. The company, which has previously conducted driverless testing in Arizona and Texas, is now authorized to test two light-duty delivery vehicles in the Bay Area. While the vehicles cannot exceed 25 mph and are only approved to operate in fair weather conditions, this represents a step toward a solution that would effectively transport goods, food, and medications while limiting person-to-person contact.





Nuro delivery vehicle ([source](#))

French company [NAVYA](#) has partnered with Beep and the Jacksonville Transportation Authority to repurpose their self-driving vehicles to transport COVID-19 test samples for the Mayo Clinic. The four vehicles, which were already being tested in Florida, are moving medical supplies and test samples from a drive-through testing site to a lab nearby. NAVYA team members are able to supervise the operations remotely, and the shuttles are programmed to stop at dedicated locations and allow personnel to enter and take or drop off samples.

In China, Beijing-based [Neolix](#) is repurposing its tiny self-driving vans to deliver medical supplies and food to hospitals throughout Wuhan, where the coronavirus originated in December of 2019. Though there are just 18 vehicles in operation now, the 2-year old company is aiming to produce 1,000 more by the end of the year.

Delivery robots have become an important aspect of mobility during the pandemic, eliminating contact between individuals, and reducing the burden of delivery programs that rely on human drivers. It is entirely possible that this increased exposure to autonomous technologies will improve public perception of autonomous driving for the greater industry.

## Conclusion

While the automotive and tech industries have not completely crumbled due to the pandemic, there will certainly be lasting effects and complications. In today's connected world, many companies are able to continue operations remotely. Some AV companies are even able to mimic real-world testing through simulation. On the other hand, several companies have been forced to lay off hundreds or even thousands of employees to weather the economic impact.

From a financial perspective, it's unlikely any company will have any new money to spend on a project that may not pay off for several years. Either companies have already raised enough money to get them through the next 1-2 years, or they're in trouble. OEMs, Tier1's, and the like, are going to be more focused on recovering and getting back to showing a profit rather than a loss, so all unnecessary spending will likely

be cut off. Simply put, most companies will be in survival mode for the next several months.

In terms of robotaxi development we expect a significant setback due to the financial pressure on automotive and transportation industries. Robotaxi deployments will likely be delayed for a few years as companies repair their balance sheets. ADAS and low-level automation (up to L2+) will prevail on the premise that auto sales rebound once the economy recovers.

While limited in scope, AV companies developing autonomous robots to help transport food and even medical supplies will likely see new capital. It's possible this will lead to improved public sentiment around AVs – something that has been difficult to achieve given the negative press surrounding recent Tesla and Uber accidents.

In the short term, everyone is undoubtedly impacted by COVID-19, and there's a marked slowdown of nearly everything. In the medium and long term, VSI believes the demand is still there for driverless vehicles and ADAS technology when we return to normal.

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### **About VSI Labs**

Established in 2014 by Phil Magney, VSI Labs is one of the industry's top advisors on AV technologies, supporting major automotive companies and suppliers worldwide. VSI's research and lab activities have fostered a comprehensive breakdown of the AV ecosystem through hands-on development of its own automated vehicle platform. VSI also conducts functional validation of critical enablers including sensors, domain controllers, and AV software development kits. Learn more about VSI Labs at <https://vsi-labs.com/>.

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