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Autonomous Vehicle Insurance

AT THE INTERSECTION OF
**MANUFACTURER
& INDIVIDUAL RISK**

WHITE PAPER



Autonomous Vehicle Insurance: At the Intersection of Manufacturer & Individual Risk

In October 2014, Tesla introduced Autopilot for the Model S. The system uses built-in ultrasonic sensors, GPS, cameras, and radar to provide automatic lane-centering, auto-steering, traffic-aware adaptive cruise control, and other features that sense and respond to the car's environment.

Despite the hype, the Autopilot system is considered only partially autonomous. And when a driver using it suffered a fatal crash with an 18-wheel truck less than two years after the system's release, sorting out culpability was more complex than usual. It required an NHTSA investigation.¹

While the industry is far from producing fully self-driving vehicles, new cars already incorporate some autonomous features—and the landscape of risk is quickly changing. The most complicated scenarios may arise not with fully automated cars, but with those that incorporate both manual and automated features.

Levels of Automation

The industry currently classifies six levels of vehicle automation.² These are as follows:

✔ Level 0

All vehicle functions are manually controlled.

✔ Level 1

All functions are manually controlled except for a “driver assistance” feature that affects a single system, such as acceleration. Cruise control is considered Level 1; it does not sense its environment, and the driver must be ready to take control of speed.

✔ Level 2

Automated systems can sense and respond to the car's surroundings. However, the driver must be ready to take control of the vehicle at any time. This is the most advanced level currently available to the public; Tesla's Autopilot system is generally considered Level 2.



✔ Level 3

The automated system handles emergency braking and other safety functions independently. The driver may still need to take control, but does not need to be continually alert. There are no fully Level 3 models on the road as of this writing, although Audi recently put out a prototype with these capabilities.³

✔ Level 4

At this level, vehicles are considered fully autonomous and the driver does not need to step in. Currently, Level 4 cars only perform to this standard within defined testing areas or in very specific traffic conditions.

✔ Level 5


A Level-5 car is fully automated. It responds like a human driver would, in every circumstance and all driving environments. There are currently no Level 5 cars on the road today.

Consumer Acceptance of Self-Driving Cars

Currently, the most advanced cars on the commercial market are at Level 2. However, the technology is advancing quickly. Ford recently announced plans to put a Level 4 car on the road by 2021. Other companies, including Google, Mercedes-Benz, and Nissan, have all made commitments to put fully-autonomous vehicles on the market by 2020.⁴ Tesla, maker of the Autopilot system, announced in 2016 that its most current cars would come equipped with hardware supporting complete automation, pending software releases and the right regulatory conditions.⁵

Downstream vendors are making commitments as well. Delphi, a navigation systems manufacturer, recently partnered with Israeli camera-maker Mobileye to build an off-the-shelf system allowing car manufacturers to make any vehicle autonomous.⁶

Despite this push by automakers, consumers are understandably leery of fully self-driving vehicles. But according to the 2017 J.D. Power Tech Choice study, there is demand for the features that make these vehicles autonomous.⁷ Many of these are already on the market, including:

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- Lane-change assist and warning systems
 - Collision avoidance systems
 - Parking assistance
 - Traffic sensing and braking technology
 - Blind spot sensors
 - Alert systems for drowsy drivers
 - Night vision assist for pedestrians
 - Side object detection systems

Who Is at Fault in a Crash?

When it comes to Level 4 and 5 automation, there is little question that the burden of risk will shift significantly from the driver to the manufacturer in case of an accident. However, when considering Levels 2 and 3, the picture is less clear. At these levels, autonomous systems are not designed to be completely independent—and the driver shares culpability with a complex system of software and hardware.

Following are a few scenarios that complicate the picture of risk in the case of semi-autonomous cars.

✔ Cyber-hacks

Autonomous vehicles depend on a complex network of cameras, radar, computers, and software to sense and respond to the environment. The software underpinning the system can be hacked. This was proven to dramatic effect in 2015, when two hackers publicly disabled a Jeep on the road at 70 miles per hour.⁸

✔ Difficult environmental conditions

Today's autonomous technology is generally designed for optimal road and weather conditions. But the national transportation research organization TRIP recently released a study claiming about 28% of the roads in the United States were in “poor condition.” This means potholes, washboard, badly-marked lanes, buckled asphalt, and other problems autonomous vehicles weren't designed to handle.⁹



✔ Challenges the sensors weren't designed for

The sensors in autonomous systems can't "see" a person directing traffic; sense when a large truck needs more room to make a turn; or detect when an emergency vehicle needs them to pull over. Camera systems designed to automatically stop at a stoplight cannot sense the light when the sun is directly behind it.¹⁰ These limitations are accidents waiting to happen.

✔ Negligence or tampering by the driver


Like manually-operated vehicles, a self-driving car would need to be serviced regularly. If a crash occurs, the question of when the car was last serviced could complicate the picture of risk. This is also the case if the owner tampers with the software or hardware prior to a crash.

The Insurance Picture for Manufacturers

Until cars become fully autonomous, manufacturers may still be able to weave together coverage from existing products. For manufacturers currently pursuing the creation of Level 4 and 5 autonomous vehicles, the most pressing insurance concern is for research and development. A patchwork of legal requirements state-by-state makes insuring R&D activities a complicated task.

Currently, thirteen states have passed some form of legislation on autonomous vehicles, and 33 have introduced legislation. Some have adopted a regulatory environment designed to encourage testing on local roads, while others are taking a more conservative approach.¹¹

Individual municipalities may find themselves at risk when a test vehicle crashes—for instance, when the road conditions are less than optimal. Even in states where regulation is minimal, individual municipalities may require indemnity when allowing testing on their roads.



Why Work with an Experienced Wholesale Broker?

Agents, brokers, and underwriters who work in this sector will need a solid understanding of the technologies and regulations involved that can affect coverage—and these are constantly changing. Here are a few reasons why agents and brokers can benefit from working with a professional who has specialized expertise.

✔ Access to markets

Many insurers are wary of offering coverage for automatic vehicle testing and development because of the many unknowns. A wholesale broker will have access to markets that do offer coverage.

✔ Ability to craft coverage

There are not currently any true off-the-shelf package policies for manufacturers of autonomous vehicles. Comprehensive coverage for manufacturers often requires a complex layering of policies encompassing auto liability, product liability, inland marine, and other commercial coverages.

✔ Thorough knowledge of the technologies and issues

An experienced wholesale broker will have a detailed understanding of the technologies already present in cars on the road; their limitations and how they affect the vehicle's performance; the regulatory framework; and trends and issues on the horizon.

Autonomous vehicles are already transforming the balance of risk for auto manufacturers—and there is a growing need for coverage that addresses new complexities. Insurance agents with access to the right expertise and markets will have an edge in helping their insureds protect themselves as the technology advances.

Notes

- ¹ Stewart, Jack. “After Probing Tesla’s Deadly Crash, Feds Say ‘Yay’ to Self-Driving.” *Wired*, January 20, 2017.
- ² “Automated Driving: Levels of Driving Automation As Defined in New SAE International Standard J3016.” *SAE International*, 2014.
- ³ Davies, Alex. “Everyone Wants a Level 5 Self-Driving Car—Here’s What That Means.” *Wired*, August 28, 2016.
- ⁴ Davies, Alex. “Ford Says It’ll Have a Fleet of Fully Autonomous Cars in Just 5 Years.” *Wired*, August 16, 2016.
- ⁵ Muoio, Danielle. “Here’s How Tesla’s New Self-Driving System Will Work.” *Business Insider*, October 20, 2016.
- ⁶ Marshall, Aarian. “Lazy Automakers Can Just Buy Self-Driving Cars from Delphi.” *Wired*, August 24, 2016.
- ⁷ Lawrence, Eric D. “Study: Consumers Wary of Self-Driving Cars.” *Detroit Free Press*, April 18, 2017.
- ⁸ Greenberg, Andy. “Hackers Remotely Kill a Jeep on the Highway—With Me In It.” *Wired*, July 21, 2015.
- ⁹ Giarratana, Chris. “A Bump in the Road.” *Safety Resource Center*, September 7, 2016.
- ¹⁰ Giarratana, Chris. “A Bump in the Road.” *Safety Resource Center*, September 7, 2016.
- ¹¹ “Autonomous Vehicles: Self-Driving Vehicles Enacted Legislation.” *National Conference of State Legislators*, accessed April 30, 2017: <http://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx>



About Worldwide Facilities, LLC

Worldwide Facilities, LLC is a national wholesale broker and managing general agent providing services to insurance agents and brokers. In business since 1970, our seasoned team of brokers and underwriters offers specialized expertise in coverage for autonomous vehicle manufacturers, broad access to specialty markets, and extensive experience in placing challenging risks.

We offer unmatched tools, resources, and strategies to help insurance agents and brokers expand their corporate accounts to include insurance solutions for autonomous vehicle manufacturing and testing—including training materials and marketing support.

*Take advantage of our expertise today—contact **Chris Moulder** at cmoulder@wwfi.com or **678-736-6723** to schedule a conversation.*

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