



# AUTO INSURANCE FACES BIG CHALLENGES

Even before driverless cars hit the road

Autonomous cars offer the promise that 20 years from now we will live in a world where cars take themselves to the gas station while we are sleeping to fill up or charge up for the next morning's drive, where we can enjoy texting on the ride to work without totaling our car, and where getting a learner's permit will no longer be a teenage rite of passage. The day of the autonomous car is approaching, and while not every vehicle on the road will be without a driver once that day arrives, it is expected that by around 2035, up to one-third are likely not to have one.

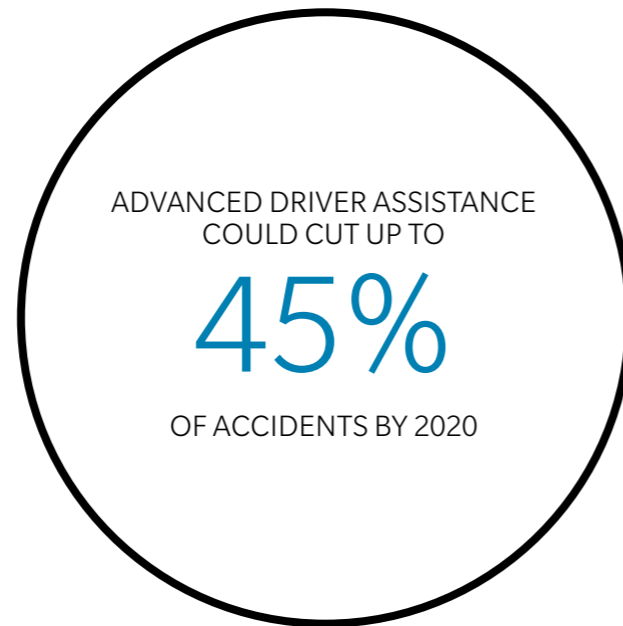
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While it is a scenario that every auto insurer has heard about and dreads, it is not the scenario auto insurers should really be focused on today. Instead, they need to concentrate on the artificial intelligence already making its way onto the roads because it is those advanced driver assistance systems that are about to upend accidents and claims experience in the industry's pricing and underwriting models, long before self-driving cars make a significant impact.

Insurers are starting to get their first glimpse of the dramatically different world of driving they will be confronting for the next 15 to 20 years. It is a landscape populated by the full spectrum of vehicles – from traditional car and driver to those that are partially self-piloted, with even a small set of experimental self-drivers. While the numbers with such innovations as autonomous braking and automatic steering correction functions are still few, that will not be the case for long.



### ANTICIPATING CHANGE

Through 2025, the percentage of cars on the road with advanced driver assistance systems (ADAS) is expected to jump from a little more than 10 percent in 2015 to close to 40 percent, according to a report by Oliver Wyman research division Celent. By 2030, half of the cars on the road will have multiple advanced driver assistance systems.

Thanks the exponential growth expected for artificial intelligence systems, our roads will be filled with cars, trucks and buses partially driving themselves. Our skies will see various degrees of self-piloting cargo planes and delivery drones, while our seas will be traversed by versions of self-navigating freighters. By the middle of this century, the world of transportation will no longer resemble what it looked like at the turn of the millennium.

As in other industries grappling with such disruption spawned by artificial intelligence, auto insurers need to get out in front of the change, rethink strategies and tactics before that drip, drip, drip of innovation becomes a torrent. This once staid industry must initiate a reformulation of its pricing, underwriting, claims processes, and most importantly, its culture.

### BECOMING DATA-DRIVEN

Insurers will have to begin to think more like technology companies, setting processes in place that not only accommodate new facts and scenarios, but actually have the presumption of change in their DNA. The keys to their success will be flexibility and creativity.

Moving forward, the emphasis will be on expanding data collection and analytical capabilities, forcing insurers to reach across and out of the industry to work with other affected parties to reimagine how things get done. While these changes will prove fundamental to accommodating self-driving cars, the makeover necessary is too extensive to wait for their arrival – and

is needed now to accommodate the autonomous capabilities of cars already showing up on the road. (See Exhibit 1.)

While self-driving cars hold out the prospect of eventually eliminating the vast majority of traffic accidents caused by human error – which account for the vast majority of collisions – that improvement will not be seen overnight. Self-driving cars will have to attain a certain threshold presence on the road before the exponential improvement will be realized, but insurance giant Swiss Re projects that advanced driver assistance could cut up to 45 percent of accidents by 2020.

### THE CHALLENGE OF ELIMINATING HUMAN ERROR

It just will not be a one-way street to fewer crashes. Studies indicate that these innovations are also apt to create accidents because they respond to situations on the road differently than human drivers. Consider the experience of test vehicles in operation today. Almost all of the various models have been involved in crashes, and almost all of these accidents seemed to occur because the self-driving cars did not anticipate the fact that humans do not always respond logically when driving or follow the rules of the road. Human drivers, on the other hand, do not accurately gauge what to expect from autonomous vehicles.

In a crash involving a test vehicle last year, the self-driving car had a slow-motion collision with a bus because its software was programmed to expect the bus to acknowledge that the self-driving car had the right of way. There have been a few more serious accidents – even one fatality, although in almost every instance, it has not been the self-driving car's action that caused the collision. This insight into autonomy suggests that the gradual introduction of autonomous features will affect pricing, underwriting, and claims processing differently at different

stages of their development and adoption. To adjust to this new reality, insurers need processes and analytical capabilities that are flexible enough to accommodate the various scenarios.

### DISRUPTED BUSINESS MODEL

Let us start with premiums. There are predictions for a decline of as much as 60 percent once self-driving cars become plentiful. But that is not until after 2035, and the real question is, what happens in between? Just as with projections for a decline in accidents, we expect it to come gradually over time with the potential for significant volatility even if the overall trend is downward, reflecting the accumulation of experience with self-driving cars and autonomous functions and the changing mix of cars with varying degrees of autonomy. Celent projects a decline of as much as 22 percent in auto losses by 2030. Can premiums be far behind?

The speed and frequency with which pricing models will need to change will require the development of different methodologies that will enable updates over a much shorter cycle. Although the insurance industry has been built on being able to look backwards at the lessons of history about risk, insurers inevitably will have to get used to more agile and experimental processes moving forward, injecting some volatility into pricing.

### THE QUICK AND NIMBLE

Another pivotal necessity for insurers as they enter this new world will be developing the ability to analyze and act on real-time data. Since there will be little to no history to inform risk models,

insurers will have to become vacuum cleaners for relevant stats and develop rapid-fire analytics to decipher them. Their goal is to put a value on what it means to have half of the cars on the road with lane departure warnings systems and another third with automatic braking systems and how that information impacts their pricing calculation. This is even further complicated by that fact that systems are being produced by different manufacturers, with some more effective than others.

That is a huge shift. While data has always been a high priority for the industry, it has been almost exclusively backward-looking, until recently. Since the 1990s, insurers have been seeking more granularity in their risk assessments and segmentation of the market, increasingly asking more questions of potential policyholders. In Germany, for instance, insurers had five risk criteria in the mid-1990s about which they inquired. That number today has increased to as high as 50. Because each insurer uses a subset, plus their own algorithms, many pricing models have become true black-box calculations which are no longer easy to back-calculate from the outside.

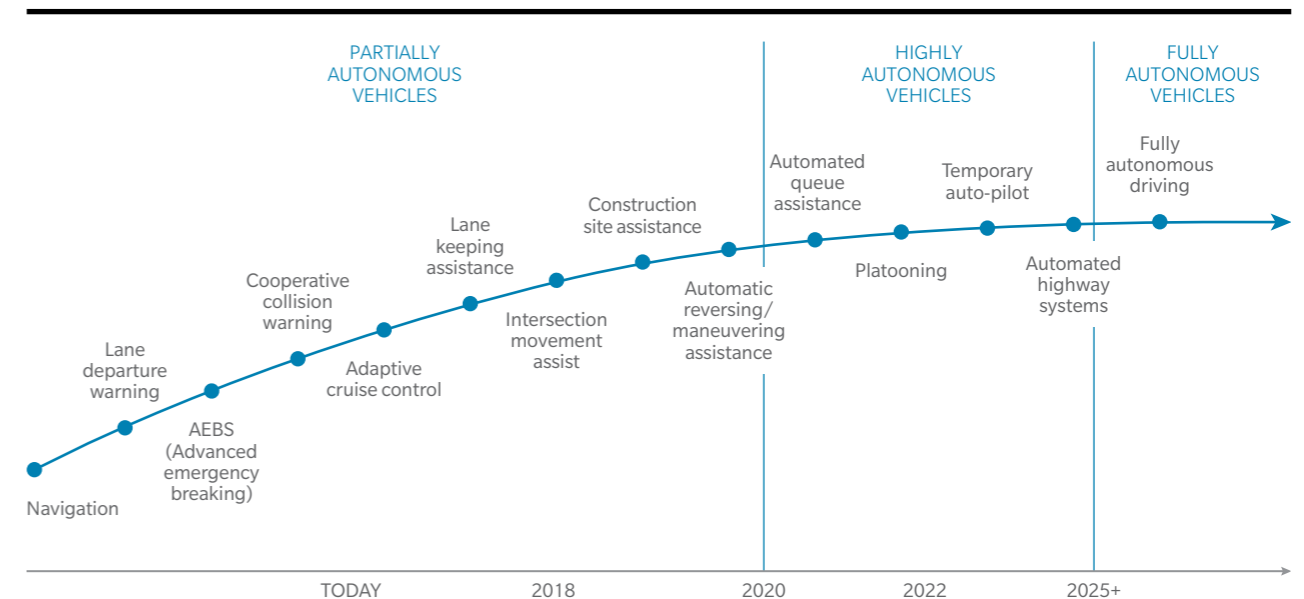
To collect more detailed data, major car insurance carriers – for example Geico and Progressive in the US – offer customers an option that lets them pay as they drive, monitoring either how well they drive or how much. It involves installation of a telematics device, probably connected to the driver's GPS.

### REDEFINING FAULT

Telematics forces insurers to tackle one of the biggest obstacles they confront – developing the IT capability, either internally or through outside service providers, to cope with frequent,

EXHIBIT 1: ROADMAP TOWARDS FULLY-AUTONOMOUS DRIVING

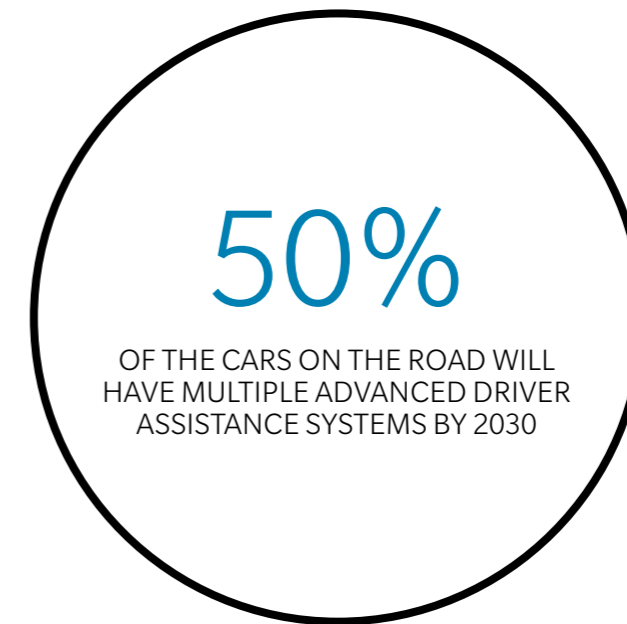
Innovative and increasingly intervening assistance systems will pave the way towards fully autonomous vehicles



Source: Center for Automotive Research, Oliver Wyman

EXHIBIT 2: CHANGING PARADIGMS

The vision of the autonomous car implies a challenge to many of today's paradigms around cars



real-time, and unstructured data. In that scenario, adopting a telematics system becomes the catalyst for IT modernization.

The same may be true for carmakers, when it comes to both data collection and IT upgrades. Like insurers, they will need to constantly refine their products based on feedback from the road. Car manufacturers like Tesla already swear by data collection, which in Tesla's case goes far beyond the typical telematics system. The electric carmaker literally upgrades its models through software downloads and considers itself as much a technology company as a carmaker.

Determining who owns this new real-time data – auto insurer, automaker, or individual – will be critical as determining fault in the age of autonomous control functions and self-driving cars becomes much more complicated. Since the turn of the 20th century when car insurance was first offered, insurers have worked to optimize the claims process for all sorts of accidents, creating an efficient system that attempts to limit the expense of accidents for themselves and consumers. Autonomous cars and autonomous control functions are changing the equation. (See Exhibit 2.)

With the transition to self-driving vehicles, the insurance industry is already envisioning the prospect for gradually moving from individual coverage to insuring car and software manufacturer risk. Even if some of the manufacturers of self-driving features accept responsibility in the front-end for malfunctions of their systems, as Volvo in 2015 committed to doing, that acknowledgement does not necessarily eliminate the risk once plaintiff lawyers get involved. The newness of the situation is likely to lead to an increase in litigation, especially given the complication assigning blame once the technology is a factor. While the autonomous car manufacturer and software maker offer new potential customers for insurance company, it also is an area for which only limited data exists.

THE AVALANCHE OF AUTONOMY

In these early years of autonomy, insurers and carmakers will need to work together. First, establishing ties early in the game will be useful for information sharing. The two industries may also find it useful to cooperate when legislatures begin to reshape the claims process and redefine the concept of fault to reflect the new landscape. Finally, developing a connection to carmakers at a time when the industry expects a shift to fleet coverage and coverage of autonomous car manufacturers also may provide a competitive advantage.

The challenge for the insurance industry is to understand how to go about their business when the environment holds the potential to change quickly. Where in the past there might be a huge safety breakthrough to evaluate every decade or so, today car manufacturers are introducing a variety of autonomous functions on autos almost monthly with no clear timetable for how swiftly any one of them will be adopted on a large-scale basis or generate sufficient data for models.

While autonomy offers an exciting new future for cars, it is one very apt to make the present unpredictable. Even governmental authorities face challenges to develop laws that sufficiently reflect the new reality on the roads and the size of that task may end up slowing down the adoption as officials attempt to balance the need to protect both citizens and industry – particularly if there is an increase in accidents initially that may be more difficult and costly to resolve. Insurers can – and should – play a pivotal role in those early days, especially if they start to grapple with their own challenges now. ●